Stow Master Plan Update

Adopted by the Planning Board, November 7, 2010

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Special thanks to Karen Kelleher for her tireless work behind the scenes keeping the committee organized, collecting information, and spearheading research. We also thank Kristen Domurad for her outstanding mapping skills.

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Maps and Significant Visuals*

**** Please noe that some figures may be difficult to view in this format due to size or color graduations. Full-color and large-scale versions are available for viewing in the Planning Board Office.***

Chapter 1

Introduction

CHAPTER 1: Introduction

Welcome to the 2010 update of the Town of Stow's Master Plan, published in the fall of that year. We also encourage you to visit the Town's website, www.stow-ma.gov, for electronic copies of this report along with larger-scale versions of maps and other graphics.

Just as with a business plan that company leaders might draw up, a Master Plan sets out goals as clearly as possible with the intent of creating benchmarks and guideposts. These goals help gauge where we are going and where we want to go, and remind local leaders of what the residents' priorities are. Establishing goals and priorities at the outset provides us with a way to monitor our own progress.

A. Master Plan Requirements

The requirements for a Master Plan are established in Massachusetts General Law (MGL) Chapter 41 Section 81D. In a somewhat unusual situation, Stow's Town Charter, Section 7.7c, adopted in May of 1991, requires its Master Plan to be updated every five years. Updating a Master Plan provides a community with a formal avenue through which to make regularly scheduled assessments of its progress, both in terms of reviewing the effectiveness of development decisions and in terms of satisfying the priorities the Town has established for itself

FIGURE: 1 Excerpt from Town Charter

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held in accordance with Section 2-5(a) during the year following the year in which it is appointed.

(c) Master Plan Committee: The Master Plan shall be reviewed at the direction of the Planning Board every five years, and a Master Plan Committee shall be appointed two years before the next update is due. The Board of Selectmen shall appoint a special committee of seven members comprised of a member of the Board of Selectmen, the Planning Board, the Board of Health, the Conservation Commission, and the Finance Committee and two Stow voters at large, who are not members of the above named boards.

The appointed committee shall present a final report to the Planning Board and said report shall include a Master Plan or updates to any existing Master Plan as required by Chapter 41 of the General Laws. The committee shall be discharged six months after the Master Plan or Master Plan updates have been presented to the Planning Board.

(d) If the Board of Selectmen so approves, any review committee appointed hereunder may retain counsel to assist in its review and expend such funds as may be appropriated.

In Stow, the predominant challenge is to balance the goal of diversity – as it relates to both housing and demographics – with the wish not to fundamentally alter our small-town heritage and rural character. It is difficult to pursue development to accommodate the desired diversity and economic

growth without compromising the equally important priority of land conservation. Only by soliciting input from as diverse a range of voices as possible can we ensure that we have met the Town's needs to the best of our ability.

Therefore, we revise our Master Plan based on feedback from key constituencies including the Open Space Committee, the Recreation Commission, the Planning Board, the Board of Health, the Conservation Commission, the Board of Selectmen, the Town's various housing groups, the School Committee, town and municipal employees including the police and fire chiefs and the head of the Highway Department, other ad-hoc committees and residents. In doing so, we attempt to create a fixed set of benchmarks against which future decisions can be weighed and future priorities examined.

This 2010 update is laid out in a topical format. Each chapter is devoted to a different component of planning with an emphasis on the major statutory elements of a Master Plan. Those nine statutory elements, as defined in MGL Chapter 41, Section 81D, are as follows:

- **Goals and Policies** - Public process
- **Land Use Plan** – Existing zoning and desired development patterns
- **Housing** – Desired type, quality, density and affordability, neighborhood considerations
- **Economic Development -** appropriate development locations
- **Natural and Cultural Resources** – Historic preservation, heritage landscapes, and cultural resources
- **Open Space and Recreation** - Natural resource protection, recreation facilities
- **Municipal Services and Public Facilities** – Capital planning and municipal funded services
- **Transportation** – Circulation, mobility, transit, parking
- **Plan Implementation**

When MGL Chapter 41 Section 81D was first adopted, personal computers, graphic design, and the digital age of mapping and photography had not yet made their way into the typical workplace. Thus, municipal planning back in the 1960s and 1970s was much more rudimentary. Echoing the sophistication made available by better technology and available data, standards have evolved to include ever increasing planning expectations. Master Plans have thus become increasingly complex.

In addition, state and federal agencies have responded in turn with greater requirements on what a municipality is expected to produce for various plans that require state certification. For instance, the Department of Energy and Environmental Affairs has explicit guidelines for Open Space Plans which, if not met, prevent the community from being eligible for certain grants. Similarly, in order to receive School Building Assistance funds, communities must undergo predevelopment plans consistent with the Massachusetts School Building Authority requirements. A final example includes the Housing Production Plan, which is certified by the

Department of Housing and Community Development (DHCD) if the plan complies with its guidelines. Approved Housing Production Plans provide the community with greater authority and control over proposed developments.

A Master Plan, when approached as a stand-alone document without the benefit of any existing municipal plans, can take years to produce and cost a community a significant amount of money for technical assistance. However, when a community already has many of the topical components available, the community can and should draw on the existing plans, especially those that have been certified by the appropriate state agency. Stow is in the enviable position of having several of its plans recently produced and adopted by the state. Thus, this Master Plan update does not attempt to replace or replicate those documents. Instead, this Master Plan is generally functioning to augment existing plans and fill in content where none is available.

Again, as mentioned above, Stow has done a fair amount of local planning, and this document draws on the themes, and conclusions of those existing plans that are current and comprehensive. Existing plans recently produced by the Town of Stow that should be noted include:

Plan Name	Date	Certified By	Prepared By	Web Link (if posted)
Open Space and Recreation – "Stow Forever Green"	6/08	EOEEA	Open Space and Recreation Committee	http://www.stow-ma.gov/pages/StowMA_BComm/StowMA_OpenSpace/2008%20Stow%20OSRP%20-%20large%20version/
Elementary School Master Plan – "Stow Public Schools"	5/07	School Building Assistance Bureau	SMMA	http://www.stow-ma.gov/pages/StowMA_BComm/StowMA_SchoolBuild/Miscellaneous%20ESBC%20docs/
Housing Production Plan 2010	2010	Pending	Karen Sunnarborg Consulting, SMAHT	

Other planning studies and projects that contributed to the development of this plan include:

- **Master Plan "Stow 2000" - May 1996**
- **Stow Historic House Inventory**
- **Community Development Plan - 2004**
- **"Housing Choice - A Housing Plan for Stow"**
- **Mixed Use Zoning Project, Priority Development Fund Project - 2005**
- **Visual Preference Survey – 2005**
- **Land Use Task Force Final Report – 2009**
- **Recreation Department Master Plan – 2007**

- **Heritage Landscape "Stow Reconnaissance Report," prepared by Mass. Department of Conservation and Recreation & Freedom's Way Heritage Area**

To obtain copies of these reports, please inquire with the Planning Department.

Despite drawing heavily on the above plans for content, one critical distinction should be made. Because the Master Plan must attempt to balance a series of competing needs and demands, goals and their relative priority may in some places deviate slightly from the priorities laid out in plans produced through other venues. Since we live and operate in a system that has limited financial and physical resources, sometimes the priorities we set and choices we ultimately make will inevitably come into conflict with other equally valid goals. For example, although recreation proponents might wish to use open land for new sports fields, housing specialists might prefer to develop affordable housing on that same parcel, while open space proponents will advocate for preserving the land in its pristine condition.

While the Master Plan attempts to take all of these needs into consideration, it cannot realistically predict or prescribe all of the actions that will occur in future years. Rather, it sets out a road map and lays out a framework in which to evaluate future municipal decisions. It identifies what the community values and provides a long-term vision. It is, however, ultimately just a document, and the Master Plan cannot implement itself. Thus, the final chapter in this document highlights implementation strategies with specific actions items, a timeline, and the municipal entity primarily responsible for that goal.

Notwithstanding the Master Plan's attempt to set priorities, change, where it is driven by municipal action and not from outside pressures, will primarily be implemented by the actions of Town Meeting, which must vote on all appropriations and all zoning changes. Therefore, it is critical for residents to stay engaged, attend public meetings, and participate in local voting opportunities if they want to advance the goals of this Master Plan.

This document can serve as a valuable tool for all elected and appointed boards and committees in guiding their policy decisions and in influencing their priorities. New board and committee members are encouraged to familiarize themselves with this plan and to read related attachments and appendices where appropriate. The Town will endeavor to post progress updates on its website once the plan moves from the paper to implementation phase, and all residents are encouraged to stay engaged.

B. Vision Statement

The Master Plan attempts to express a longer-term vision for the future of Stow. To help the Town arrive at a general vision statement, the existing community values must first be examined and understood.

1. Values

When the question, "What do you value most about Stow?" is asked of a Stow resident, the most frequent answer is, "A sense of community consistent with its rural character." Our many open spaces and historic village settings contribute to Stow's rural character. Conservation lands, farms, orchards, and golf courses are the resources of Stow that provide and preserve this rural character. We value our villages for their rich colonial and Victorian heritage and for the services they provide. We value those qualities that make Stow a wonderful place to live and raise a family. A strong sense of community, including involvement in our schools, churches, recreation, and social organizations and programs, provides opportunities for our children to excel and for adults to feel part of a supportive community.

Stow is far more than a collection of well-maintained houses where people sleep. Churches, civic institutions, governmental bodies, and volunteer organizations give Stow residents many different venues in which to get to know and appreciate their fellow citizens. Furthermore, that sense of community is aided by the fact that Stow has a rich mix of people of all ages from different economic strata.

These statements of value were derived in large part from comments received by planning participants and from data gathered and compiled over the past several years. The survey conducted by the Master Plan Committee (MPC) in the fall of 2008 indicated that overwhelmingly, residents generally want to preserve the existing character of the Town. The full survey and its results appear in the Appendix. Policies for growth and protection of land must therefore reflect that desire within the context of what is presently possible under existing zoning.

2. Vision for Stow

The following vision has been derived from the statement of values, with significant weight given to the views expressed by the residents in various forums, through surveys, and an ongoing dialog with the community.

We envision a future in which Stow continues to place a high value on quality education, recreation, and

agriculture. As a community, we will welcome diversity and place a high priority on providing housing that matches various ages and income levels. The need for economic growth will be balanced with maintaining a small-town feel. Recognizing the dual goals of physical fitness and community warmth, neighborhoods will be physically linked through a natural trail network and sidewalks. Through planning, Stow will maintain its rural character, ensure that the environment is protected by supporting the goals of the Open Space and Recreation Plan, and provide housing choices. Above all, the Town will continue to ensure that its citizens have the highest possible quality of life.

That vision, along with the principles outlined below, helped to guide the Master Plan Committee in the creation of this document and played a significant role in the development of its recommendations.

C. Smart Growth and Principles for Sustainability

1. Explanation of "smart growth"

The state has a set of Smart Growth and Sustainable Development principles that it has promulgated and revises from time to time. However, in a community such as Stow, whose rural character dominates the landscape, not all of the state's sustainable development principles are relevant or appropriate. Therefore, we have taken care to modify those concepts and mold them to be more suitable for Stow.

Smart growth is a principle of land development that emphasizes mixing land uses, increases the availability of a range of housing types in neighborhoods, takes advantage of compact design, and fosters distinctive and attractive communities. It preserves open space, farmland, natural beauty, and critical environmental areas; strengthens existing communities; provides a variety of transportation choices; makes development decisions predictable, fair, and cost-effective; and encourages community and stakeholder collaboration in development decisions.

Attractive village and town centers, vibrant residential neighborhoods, historic mill buildings, and fields, forests, and streams characterize Stow. Revitalizing and reinforcing these areas is a key smart growth strategy. A critical component of smart growth is identifying the areas that are appropriate for development and those that should be protected and preserved.

2. Principles for sustainability

The state has worked hard to encourage planning and development that protect our natural resources, promote social and economic health and meet the needs of our residents. As a basic guide for local officials, developers, and citizens about what smart growth is, the Office for Commonwealth Development released a set of Sustainable Development Principles.

Based on these guidelines and adapted to meet Stow's unique character, the Master Plan Committee recommends adoption of the following Sustainability Principles:

- **Redevelop first**: Revitalize existing neighborhoods in a way that doesn't consume forest and fields, and find new uses for historic buildings and underutilized Brownfield sites, such as the Gleasondale Mill area.
- **Concentrate development:** Encourage compact development to conserve land and foster vibrant, walkable districts.
- **Be fair:** The benefits and burdens of development should be equitable and shared by all. Where new development may adversely effect some areas of town, appropriate mitigation should be required. We should work toward transparent and predictable permitting that will result in cost-effective and fair outcomes. This means that bylaws and regulations will be clear and consistent so that developers can have a reasonable understanding of what to expect.
- **Restore and enhance the environment:** Promote the conservation, protection, and restoration of water, land, and cultural resources to provide a high quality of life and ecological health.
- **Conserve natural resources:** Encourage renewable energy and efficient use of building materials and water to contribute to a healthier environment that limits waste in a cost-effective fashion.
- **Diversify housing opportunities:** Diversify units to ensure that people of all abilities, income levels, and ages have appropriate housing options.
- **Provide transportation choice:** Look for ways to provide opportunities for public transit, walking, and biking.
- **Expand transportation infrastructure to enhance economy:** Connect people with jobs in town or near their homes by expanding transportation infrastructure to enhance our economy.
- **Foster sustainable businesses:** Work to identify and promote new, innovative, environmentally friendly industries that contribute to the social, economic, and environmental health of our state.
- **Plan regionally:** Where possible, coordinate intermunicipal and regional planning to produce better outcomes that recognize that economic development, water, transportation, and housing are regional in nature; they don't stop at the Town boundary.

3. Smart growth techniques for future development

We recommend the following smart growth techniques in planning for the future growth of Stow:

- **Village-style development**: Includes a variety of housing types, a mix of land uses, an active center, and a walkable design.

- **Open space residential design:** An approach to residential development that promotes open space preservation, based on environmental and social priority. It features partnership in development design between municipal officials and developers that provides innovative flexible incentives for highest marketability, mixed housing types and land uses, and minimal disturbance to the natural terrain.
- **Accessory dwelling units:** An accessory dwelling unit is a self-contained apartment in an owner-occupied single-family home that is either attached to the principal dwelling or in a separate structure on the same property. Accessory units (also known as accessory apartments, guest apartments, in-law apartments, family apartments, or secondary units) provide supplementary housing that can be integrated into existing single-family neighborhoods to provide a low-priced housing alternative with little or no negative impact on the character of the neighborhood.
- **District improvement financing (DIF) and tax increment financing (TIF)**: District improvement financing (DIF) and tax increment financing (TIF) are economic tools that promote redevelopment by use of public/private partnerships. TIF offers tax breaks to developers, while DIF channels tax dollars to targeted redevelopment districts. Both of these tools require Town Meeting approval in order to implement them.
- **Low impact development (LID)**: Low impact development (LID) is a more sustainable land development pattern that results from a site planning process that first identifies critical natural resources, and then determines appropriate building envelopes. LID also incorporates a range of best management practices that preserve the natural hydrology of the land.
- **Inclusionary zoning:** Inclusionary zoning requires a portion of the housing units in certain real estate developments to be reserved as affordable to low and moderate-income households. It is an effective tool that can be used to ensure that adequate affordable units are included in the normal course of real estate development.
- **Preserving agricultural land and farming opportunities:** Preserving agricultural land and farming opportunities in Massachusetts has been a high priority for several decades. Through a variety of state and local initiatives, opportunities have emerged for agricultural preservation. Many communities have successfully preserved land and farming opportunities using a wide array of financial and legal tools.
- **Brownfields reuse:** The state is committed to the cleanup and redevelopment of Brownfield properties as a way to stimulate the economy and promote environmental protection goals. Several incentives are available to developers, including assistance with insurance and flexibility in remediation schedules.
- **Water resources:** Water is a finite resource that needs to be managed to meet current and future human needs, as well as those of the environment. Our approaches to water management must ensure continued and sufficient quantity

and quality of water for current and future human uses, while maintaining ecological integrity.

4. Resources for smart growth

The following web links provide further information on the topic of smart growth:

http://www.mass.gov/envir/smart_growth_toolkit/

http://www.ma-smartgrowth.org/

http://www.environmentalleague.org/news-issues-smart-growth.php

D. Visions for Individual Topical Areas

1. Open space vision

While residential and commercial development is somewhat inevitable, the vision we have for Stow is to utilize zoning and other creative tools that will help to preserve open space. The current Zoning Bylaw and its standard Subdivision Regulations require large lot sizes for traditional residential subdivisions. This forces development to consume large amounts of open space which, when developed, become long driveways, lawns and landscaped areas, instead of being preserved in their natural state.

It is possible to direct development away from the open space parcels we wish to preserve by implementing smart growth principles. These principles recommend that you concentrate growth where development already exists. In this fashion, open space can still be protected, while privacy and a peaceful way of life can remain the norm.

The Town has recently produced an Open Space and Recreation Plan. Further depiction of vision and goals for Open Space and Recreation are outlined in that plan, which can also be viewed at www.stow-ma.gov/pages/StowMA_BComm/StowMA_OpenSpace/index. However, the Master Plan Committee wishes to highlight the following goals in its vision for Open Space:

- Complete the Assabet River Rail Trail through Stow
- Preserve open space in underserved quadrants
- Proactively negotiate to purchase Crow Island for conservation and recreational purposes
- Address the issue of eutrophication in Lake Boon
- Encourage Low Impact Development
- Secure easements to complete the “Emerald Necklace” walking trail network

2. Housing vision

Stow is a largely residential community with a distinct country character provided by numerous orchards, golf courses, forests, wetlands, and areas of open space. As a relatively old community (incorporated in 1683), Stow has a variety of housing stock, including historical dwellings, a few farms and farmhouses, typical New England single and multiple family dwellings, and limited affordable and elderly housing communities. However, the current mix of housing stock is overwhelmingly single-family detached homes (91% of all housing units) on moderate- to large-sized lots. Furthermore, like much of eastern Massachusetts, the cost of these homes has escalated dramatically with the result that these homes are not available to first-time buyers or those with modest income.

Our vision is to reestablish diversity in our community by creating housing stock where young, middle-aged, and older residents of all income levels can together share the common values that existed in this community many years ago. Workforce housing is also desired in the community so those who work here can live near where they work.

Key priorities for housing:

- Establish a comprehensive housing policy for Stow
- Consider employing professional support for housing issues
- Create a plan that effectively uses the combined resources of Community Preservation Act funds and Stow Municipal Affordable Housing Trust funds for increasing our affordable housing
- Identify parcels appropriate for small dwellings worthy of preservation as affordable units
- Enact zoning changes to encourage the building of diversified housing stock
- Provide for multi-family dwellings in Planned Conservation Developments (PCDs)

3. Economic development vision

Residents of Stow have articulated a vision for Stow's economy that is not much changed from today. The economy of Stow will continue to provide the everyday goods and services that residents need through its small businesses, independent retail shops, and network of professionals. Larger, "big box" retail will be discouraged along with malls and noxious manufacturing facilities. Land zoned for commercial activity should be a minor part of the overall land use while still leaving some select areas for non-intrusive larger facilities. The mill will be restored to use as thriving activity centers of commerce and perhaps mixed use. Finally, the golf courses will remain in their current use and not sold off for residential or more intensive commercial use.

4. Natural and cultural resource vision

Relative to Natural and Cultural Resources, the vision we imagine is a town that has extended land protection to important vistas and natural areas, especially those which have sensitive environmental habitats. It will also be a community where expanded arts and cultural opportunities are prevalent. Innovative, local and varied community-based cultural programming will exist and be supported by area residents.

5. Public facilities and municipal services vision

Like many small New England towns, Stow is likely to continue with a light-handed (and less expensive) rather than a heavy-handed (and more expensive) approach to municipal services. The MPC's vision for public facilities and municipal services is that existing needs for infrastructure, services and safety will continue to be met without incurring significant new costs. We also envision employing the Pompositticut School facilities to meet demands for an intergenerational community center, especially one that could provide a variety of useful and desirable services for the growing population of seniors.

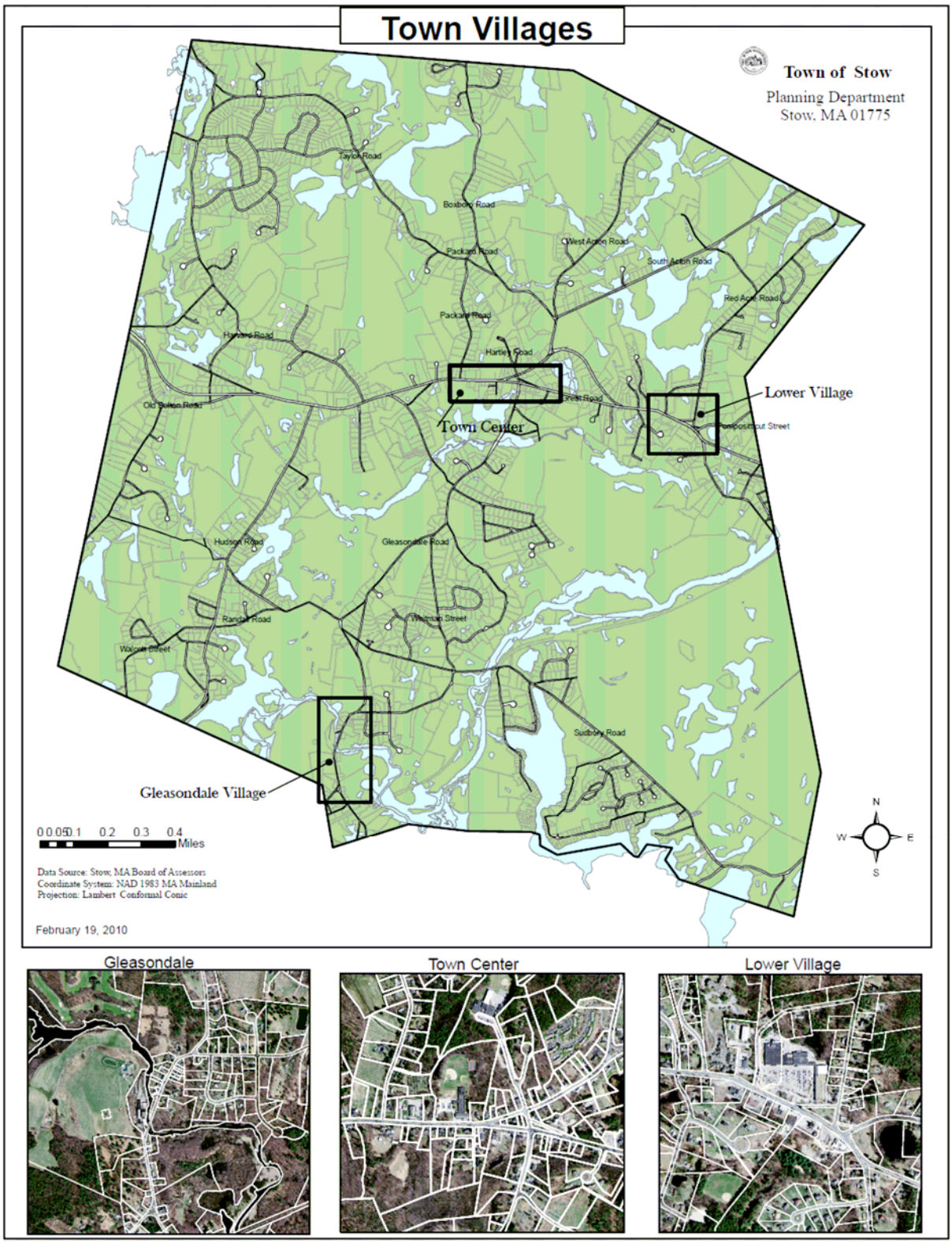
6. Transportation vision

The vision for transportation is to continue to find ways to improve upon safety and offer residents alternatives to the single occupancy vehicle. Over time, more sidewalks and trails will be built. Shuttle services for seniors will be expanded to other age groups to get to and from the train station in Acton and to other transit service connections. Car pooling, biking, and walking will be encouraged.

7. Land use and zoning vision

The vision for land use is that today's proportional mix of open space, rural, farmland, and residential use will continue virtually unchanged into the future. Stow's residents appreciate the charm associated with large amounts of green space, forests, and natural vistas. These areas will be protected where possible. Zoning, as a tool, should primarily be used to emphasize the current characteristics of Stow's land use patterns and enhance current character. Some commercial areas will be improved upon by focusing the zoning to encourage the types of development seen as desirable by the residents.

FIGURE: 2 Village map



In general, Lower Village comprises our existing commercial retail area. Gleasondale is the area of town that is noteworthy for its historic mill and Victorian period housing. The Town Center contains our Colonial period buildings, which currently house our civic center and town buildings including the library, schools, monuments, and churches. By contrast, West Stow is an area of town with a lot of recent residential development and no history as a village center.

This plan envisions building on the existing village structure to augment and enhance possibilities of smart growth and sustainable development in the following specific ways:

- For Lower Village, we see an opportunity for additional commercial activity primarily through redevelopment of underutilized parcels and infill development. The potential for additional senior housing which would be conveniently located near shopping and other amenities would also be ideal for this area. This housing could be smaller than traditional single family housing, and slightly more densely constructed to minimize use of raw land.
- The Gleasondale Mill could lend itself well to a vision that includes artisan lofts, or residential and/or business (so-called "mixed use" – see description below)[1].
- West Stow, as it evolves, is ripe for smart growth and sustainable development.
- The Town Center is projected to remain essentially as it is now, but additional municipal uses for this area could be explored. Updating existing facilities, providing adequate parking, and generally enhancing this area is part of our vision for Town Center.

[1] Mixed use is a term which generally means combining one or more allowable zoning uses in one zoning district. Mixed use can vary greatly from one community to the next because the particulars of the definition are explicitly defined within a community's zoning code. In the case of a suburban/rural community such as Stow, when we use the term mixed use, we are intending to suggest low-density combining of office/business uses with residential or retail with residential. Mixed use, when it is adopted, should fit the character of the community within which it is being recommended. In Stow's case, this would mean clustering of uses within existing structures such as mills or obsolete commercial buildings, or possibly low-height buildings (not exceeding 35') that can accommodate retail/office on the first floor with lofts or apartments on the second floor in buildings no more than 3 stories high, where appropriate. In all cases, adoption of mixed use zoning would require approval of the legislative body (Town Meeting).

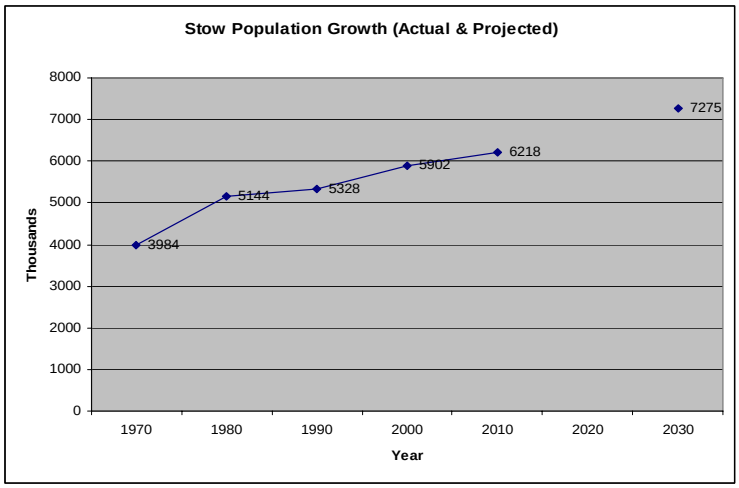
Town Center Land use and zoning priorities:

- Explore mixed use overlay districts to allow redevelopment and new development that promotes diverse housing stock
- Revitalize existing commerce
- Encourage pedestrian-friendly development
- Reduce roadway congestion
- Promote a sense of community
- Assist in the creation of common water and sewage facilities where appropriate
- Explore creative parking solutions

E. Existing Conditions – Background and Context

- Current demographics

Population: **6,218**
Registered voters: **4,436**
School Enrollment **1,173**
Income per capita: **$38,260**
Median Household Income **$102,530**
EQV Per Capita **$195,088**
Estimated Jobs in Town: **2,082**



- The above chart illustrates population data derived from US and Local Census statistics and combines projections from the Metropolitan Area Planning Council (MAPC). The most striking of the above statistics is the 56% population growth in Stow since the year 1970. Based on existing trends, the amount of available land, and Stow's location between two major highways proximate to both Boston and Worcester, MAPC predicts (in its Data Common analysis derived from US Census data) that Stow's population will grow at a rate greater than 17% between now and the year 2030. However, that same analysis projects that the job base in Stow will only grow 11-15% based in part on the relative scarcity of commercially zoned land in Stow and likely in part on the lack of water and sewer infrastructure to support large-scale commercial growth.

  The Executive Office of Environmental Affairs conducted a full community-wide "build-out analysis" in 2000 which was intended to present a picture of what the community could become if all available and usable land was developed in accordance with present zoning. That build-out analysis appears in detail in the Appendix. It helps set the context for what Stow could become over time if present land use patterns remain unchanged. That analysis concluded that Stow could see around another 1,100 housing units built and significant commercial square footage constructed under the present zoning scheme.

This information provides a picture of what Stow could become if full build out were achieved. It predicts that there would be an additional 3,689 residents for a new population of 9,482 at total build out and school aged children would approach numbers around 1,793. While it might take decades for Stow to approach these full build-out figures, they are nonetheless important

in setting the stage for what Stow could become if present conditions and zoning regulations are left untouched. Through this Master Planning process, Stow must consider if the above statistics are acceptable or if it wishes to modify some of its planning practices to direct the community's growth in a fashion which differs from current trends.

F. Goals and Policies

1. Proceed with a transparent process

A significant number of public meetings have been devoted to the topic of revising the Master Plan over the past decade, and hundreds of people have participated along the way. Along with six public forums, the committee has met on its own more than 120 times since 2001. As is mandated in Stow, each meeting of this committee was publicly posted at least 48 hours in advance, along with an agenda.

The MPC made every effort to involve the public in the process. This campaign for public awareness of the work of the MPC began in earnest with the public forum in early February 2009, which was attended by approximately 40 town residents. Meanwhile, the MPC drafted a series of weekly installments for the *Stow Independent* summarizing various aspects of the Master Plan, such as affordable housing, economic development, open space, zoning, etc. Several of those articles that appeared in the newspaper are also included in the Appendix.

2. Create opportunities for public input

In December 2008, the MPC solicited information via a townwide survey. That survey, which was available to residents both online and in hard copy, investigated every aspect of municipal life, from traffic congestion to zoning regulations and from affordable housing to recreational facilities. There was little emphasis on school-related priorities simply because those priorities are established by the Nashoba Regional School District. Also, Stow's Elementary School Building Committee was engaged in its own planning process, and we wished to avoid the cost and confusion of duplication of effort.

In February 2009, the MPC held a public forum to discuss the survey results, measure them against the interests of meeting attendees, and gauge the Town's involvement and interest in the process. During an extensive mapping exercise done in small groups, useful information emerged concerning use of our town resources and options we all face in terms of future development.

3. Involve multiple stakeholders

The Board of Selectmen was responsible for appointing members to the MPC. They chose representatives from each of the other major boards in town: the Board of Health, the Finance Committee, the Conservation Commission, and the Planning Board. In addition, one Selectman

was named to the committee, as were two members-at-large. Most of the members were long-time Stow residents with a wealth of knowledge and institutional memory about town issues as well as a deep-seated commitment to the Town's future. Each member of the MPC brought the interests of his or her committee to the table along with personal knowledge of the community.

In March, the MPC began an ongoing process of inviting various stakeholders to its biweekly meetings. Each invited group was urged to send at least one or two representatives of the group to discuss special interests with the MPC. When necessary, members of the MPC represented the views of the other committees on which they served. This series of meetings brought the MPC face to face with the Open Space Committee, the Recreation Commission, the Fire Chief, the Police Chief, the Board of Health, the Land Use Task Force and the Town Administrator for in-depth discussions about how their respective needs could best be met by a revised Master Plan.

4. Provide opportunities for public comment

The MPC first issued a draft of the Master Plan in February 2008. Public response to the draft suggested the need for considerably more input and discussions, which touched off an expansive revision process. By bringing in a municipal management consulting firm, the MPC leveraged professional input to streamline the process and ensure the use of industry-recognized best practices. Working with consultants, the MPC began drafting revised chapters of the Master Plan in April 2009, and began rolling out chapters of the new draft in late summer, with a complete draft available for public review and a 30-day comment period beginning in April 2010. The MPC then produced the final version, which is expected to be subsequently adopted by the Planning Board.

Chapter 2

Existing Land Use

Chapter 2: Existing Land Use

A. The Community of Stow

1. Community characteristics

Stow is a town distinguished for its beautiful scenery with agricultural uses, open lands, forests, and other natural resources predominating. Primarily a residential community, Stow still maintains its rural, farming character, although suburban uses gradually continue to creep into the landscape. The community comprises 17.62 square miles, which equates to approximately 10,711 acres of land when roads and water bodies are subtracted. The Town itself is divided into approximately 2,282 parcels of separately titled land. This figure compares to the 2,483 individual parcels noted in the 1996 Master Plan. In 1996, there were 50 miles of public roads within Stow; today there are 60.32.[2] These numbers provide perspective on how the Town has changed over the recent decade or so.

2. Access to Stow

The Town of Stow is centrally located in the eastern part of Massachusetts nearly equidistant from two major cities. It is approximately 23 miles northwest of Boston and 20 miles northeast of Worcester as the crow flies.

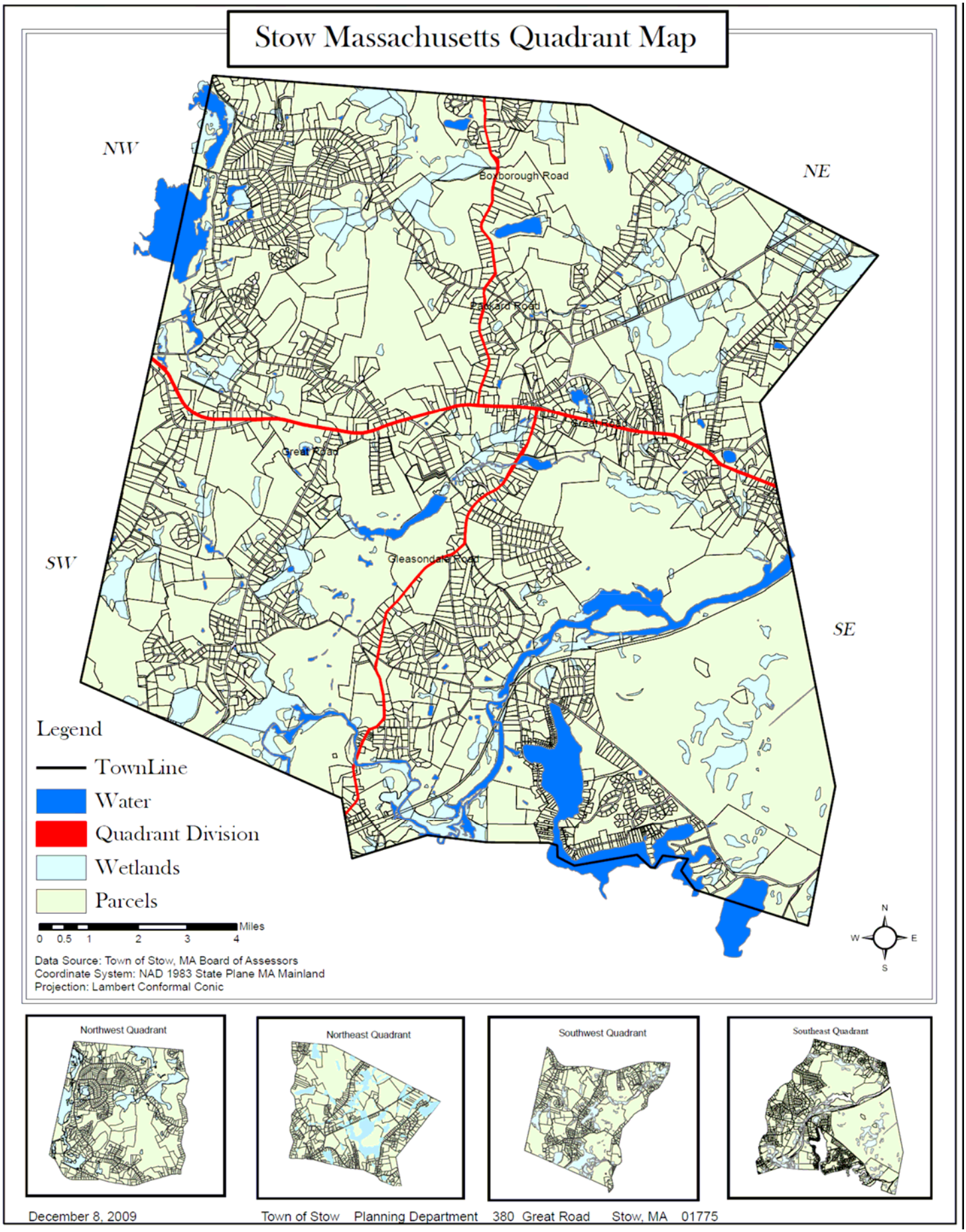
Local and state highways 117, 85, 62 and 27 provide access to Stow by connecting with major interstate highways I-495, 2 and I-290. The lack of a direct highway connection probably helps to maintain Stow in the relatively pristine state it enjoys and deters some of the trends toward ever-increasing residential development in the suburbs closest to Boston.

3. Quadrants

For the purposes of ease of discussion, the Town has been divided into four quadrants primarily along the major routes through the community. East to west, the Town is neatly divided by Route 117. South to north, the Town can be split by Gleasondale Road (Route 62), to Packard Road to Boxboro Road.

[2] 2006 figure as reported in the MMA 2008-2009 "Massachusetts Municipal Directory."

FIGURE: 3 Quadrant map



4. Predominant development patterns

- The Northeast quadrant of town includes Lower Village, where most retail and service businesses are located, and parts of the Town Center, which is home to many of the community's municipal services.

- The Southeast quadrant of town is predominantly residential and open space. Within this area lies the Assabet River National Wildlife Refuge, which falls under the jurisdiction of the U.S. Fish and Wildlife Service.

- The Southwest quadrant of town contains the Gleasondale Mill area with its surrounding mill-style housing and other commercial and industrial areas along with a residential mix. The Open Space and Recreation Plan has identified this quadrant as an underserved area with regard to protected open space, as it contains more than 600 acres of undeveloped land with less than 100 acres protected from further development. This part of town also hosts several of Stow's golf courses. The largest employer in town, Bose Corporation, is located in the Southwest quadrant.

- The Northwest quadrant of town, which is the closest to I-495, contains the largest raw land areas, including some that have been permitted for development but not yet developed, including the Ridgewood Estates Active Adult Neighborhood.

B. Current Zoning

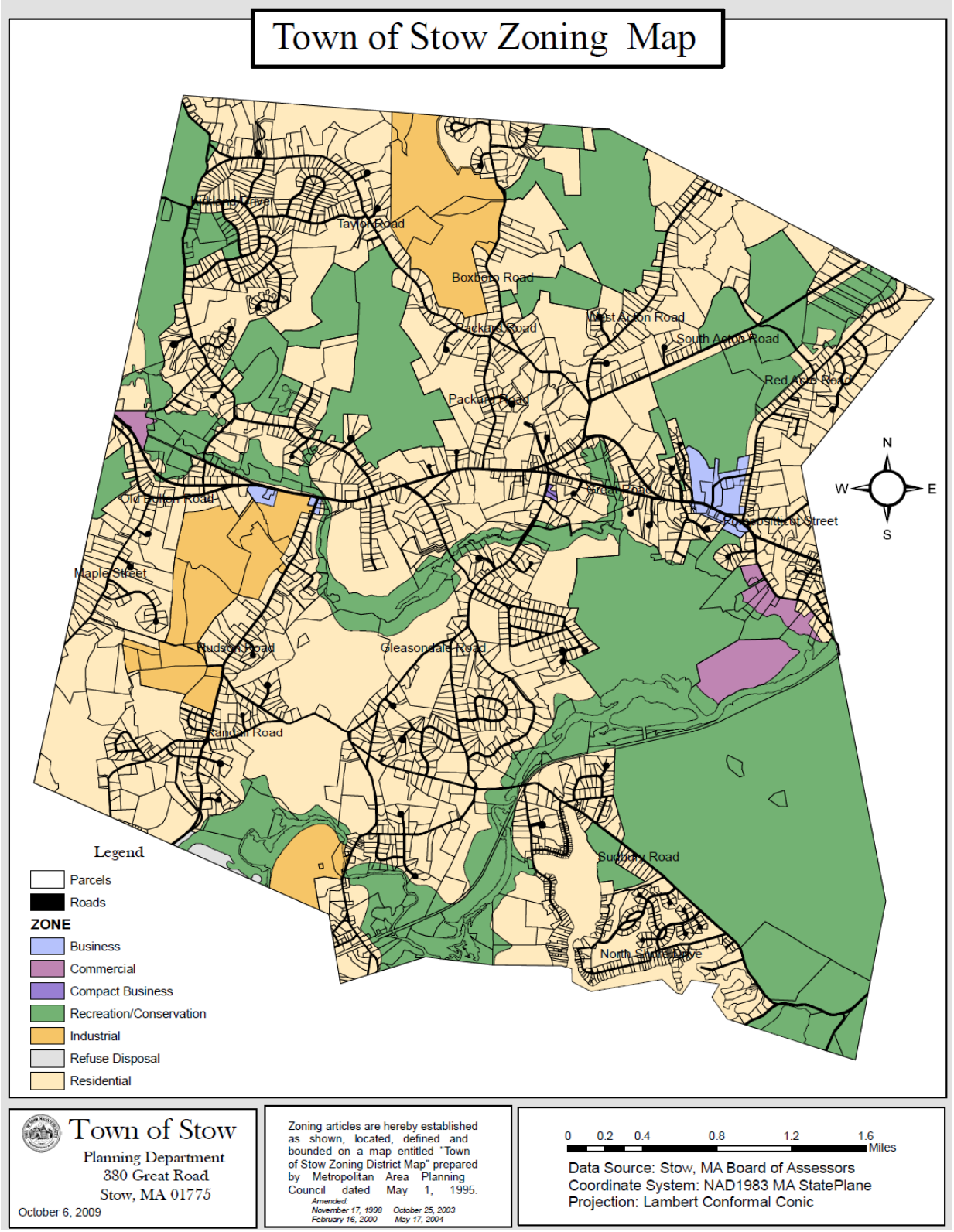
The requirement that a community have a Zoning Bylaw dates back more than 30 years and is laid out in Massachusetts General Law Chapter 40A. Stow's Zoning Bylaw is even older, having first been adopted in 1949. In Stow, as in any community, the Zoning Bylaw is critical to helping define, regulate and maintain the quality of life for the Town's residents. As much as any other municipal topic, zoning is an issue in which nearly everyone in town has a vested interest: it influences the aesthetics of our town, its industry, its population density, its tax base, its diversity. A town that gives significant weight to zoning decisions is protecting the health, safety and general welfare of its inhabitants.

The Zoning Bylaw not only determines which parts of town are residential and which are commercial but also how nonresidential space may be used. For example, is an area or neighborhood zoned for retail, industrial, recreation, active adult neighborhood designation, accessory apartments, mobile homes, daycare, cell tower placement, adaptive reuse? The options for zoning are generally the first of the criteria that a business examines before considering locating within a community.

As a town and its inhabitants grow and evolve, needs inevitably arise for changes in the Zoning Bylaw. Oversight of zoning issues lies under the aegis of the Planning Board. Changes can be made, but not without due process and close examination. MGL Chapter 40A stipulates that a change to a town's Zoning Bylaw requires a two-thirds super majority vote at Town Meeting, to be preceded by a public hearing held by the Planning Board at least 21 days prior to the adoption of the zoning change. This is intended to give the public ample time to contemplate and respond to any individual's or business's wish to see a change made to current zoning.

The following page presents the current zoning map for the Town of Stow, last amended in 2004. This version reflects the Wireless Service Facility zoning put into place in 2001 and the Active Adult Neighborhood overlay district implemented in 2002. The reader should note that the permissible underlying zoning does not necessarily reflect the actual development patterns one would observe today. Many structures in town were built before zoning went into effect which sets up so-called "grandfathered" lots where the uses are allowed because they preexisted the zoning constraints. These are often referred to as "pre-existing, non-conforming, uses."

FIGURE: 4 Current Zoning Map



1. Residential areas of town

Residential uses are fairly uniformly distributed throughout town in a traditional style of development. Typically lots were carved out along existing roads in a pattern known as "ANR" (approval not required) lots. These lots are allowable as long as they meet the minimum lot acreage and have the appropriate number of linear feet of frontage along the road to comply with the underlying zoning. In accordance with state law today, the Planning Board must approve any such application for an ANR lot.[3]

The other type of residential pattern predominant in town is a traditional Massachusetts-style subdivision where new roads are primarily cul-de-sac connections off of main roads. Stow's zoning code describes maximum cul-de-sac length and other characteristics of the new lots to be created. In this fashion, the lots tend to fan out from the newly created cul-de-sac circle.

The one notable area of town that has minimal residential development is the Southeast quadrant of town, where protected land, floodplains, and wetlands are prevalent.

Below are several maps depicting existing residential development patterns along with land areas that could be developed.

[3] Owners of land must submit a plot plan prepared by a registered surveyor depicting how the new lot will be laid out and obtain signature of the Planning Board. This final ANR plan then must get recorded at the Registry of Deeds before the new lots are officially created.

FIGURE: 5 Map of existing residential use and zoning

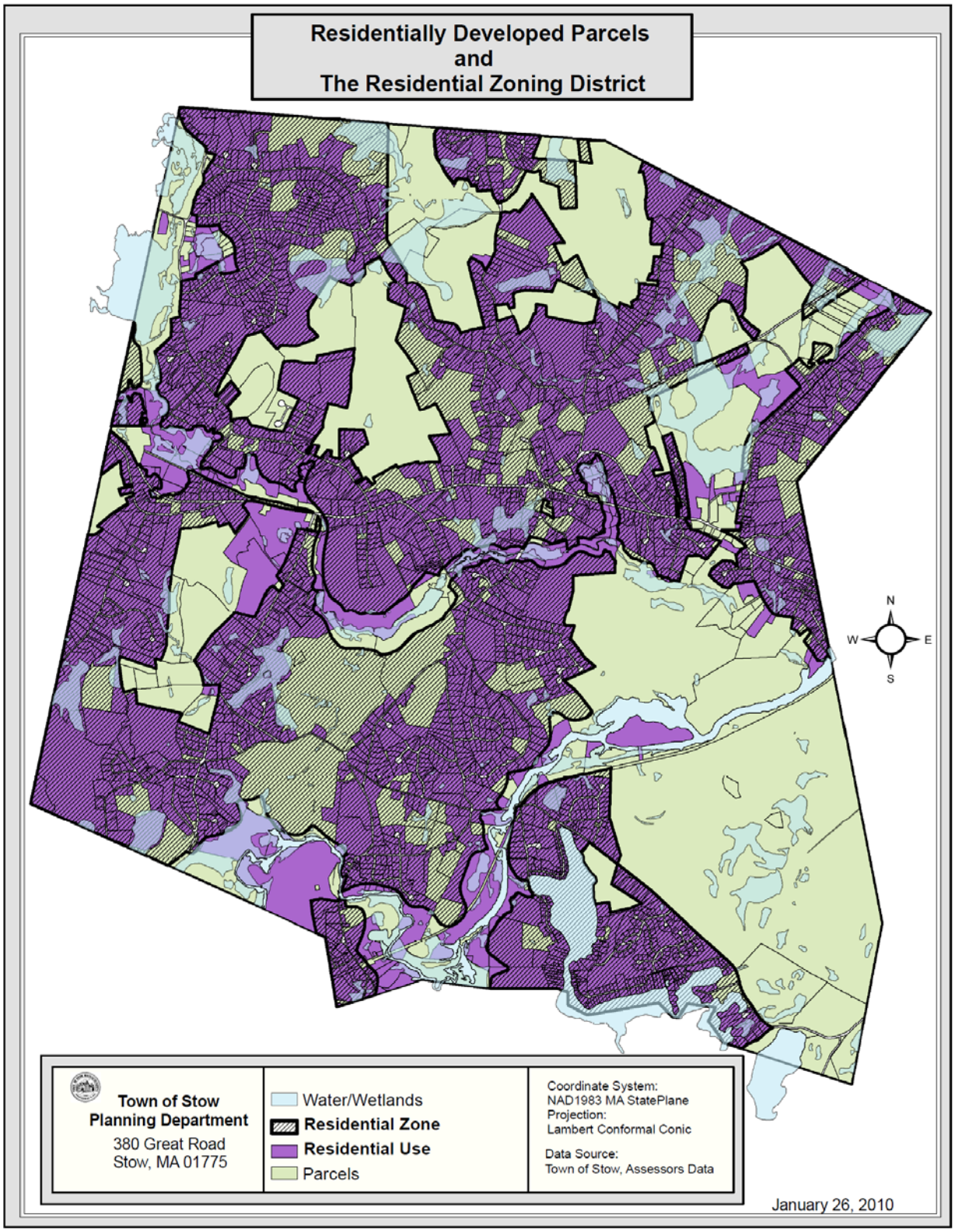
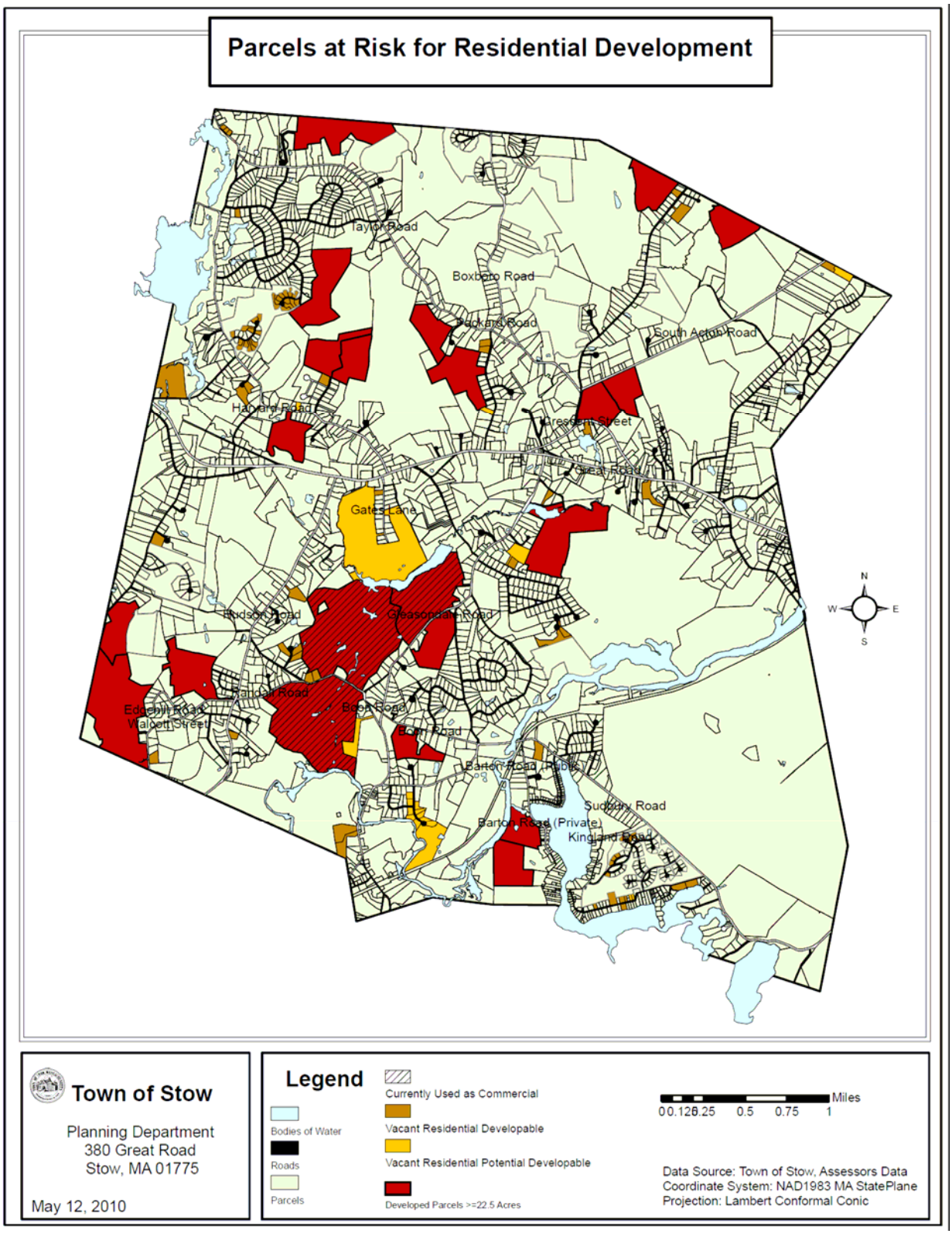


FIGURE: 6 Land parcels which could be developed as residential subdivisions



2. Commercial areas of town

With the exception of the Gleasondale Mill noted above and the Bose facility, there is minimal commercial and industrial activity throughout town. Most of the commercial activity is in the retail and service sector and is located along the major routes through town, most notably Routes 117 (Great Rd.) and Route 62.

Areas zoned for commercial development but not necessarily built out yet are concentrated in the Southwest quadrant around the mill area and, to a lesser extent, in the Northwest quadrant by the Stow airport. The Southwest quadrant contains a small strip of commercial zoning along Route 117 and Hudson Rd., some of which is still undeveloped. There is another small pocket of business zoning near the Maynard town line along Route 117 and in the Southeast quadrant by the Stowaway golf course and Astro Crane facilities.

As you can see from this map (red and yellow areas), Stow has relatively little land zoned for industrial that is presently built out with commercial and/or industrial uses sited thereon.

FIGURE: 7 Developed industrial land

This map also depicts in cross-hatching all the areas presently zoned for industrial use.

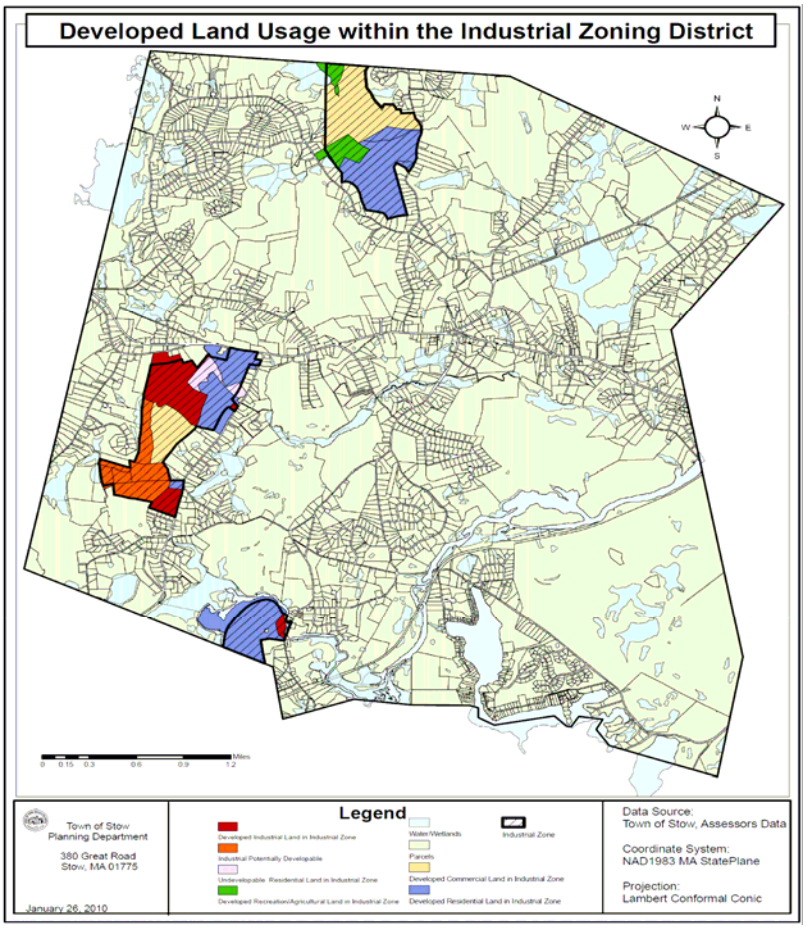
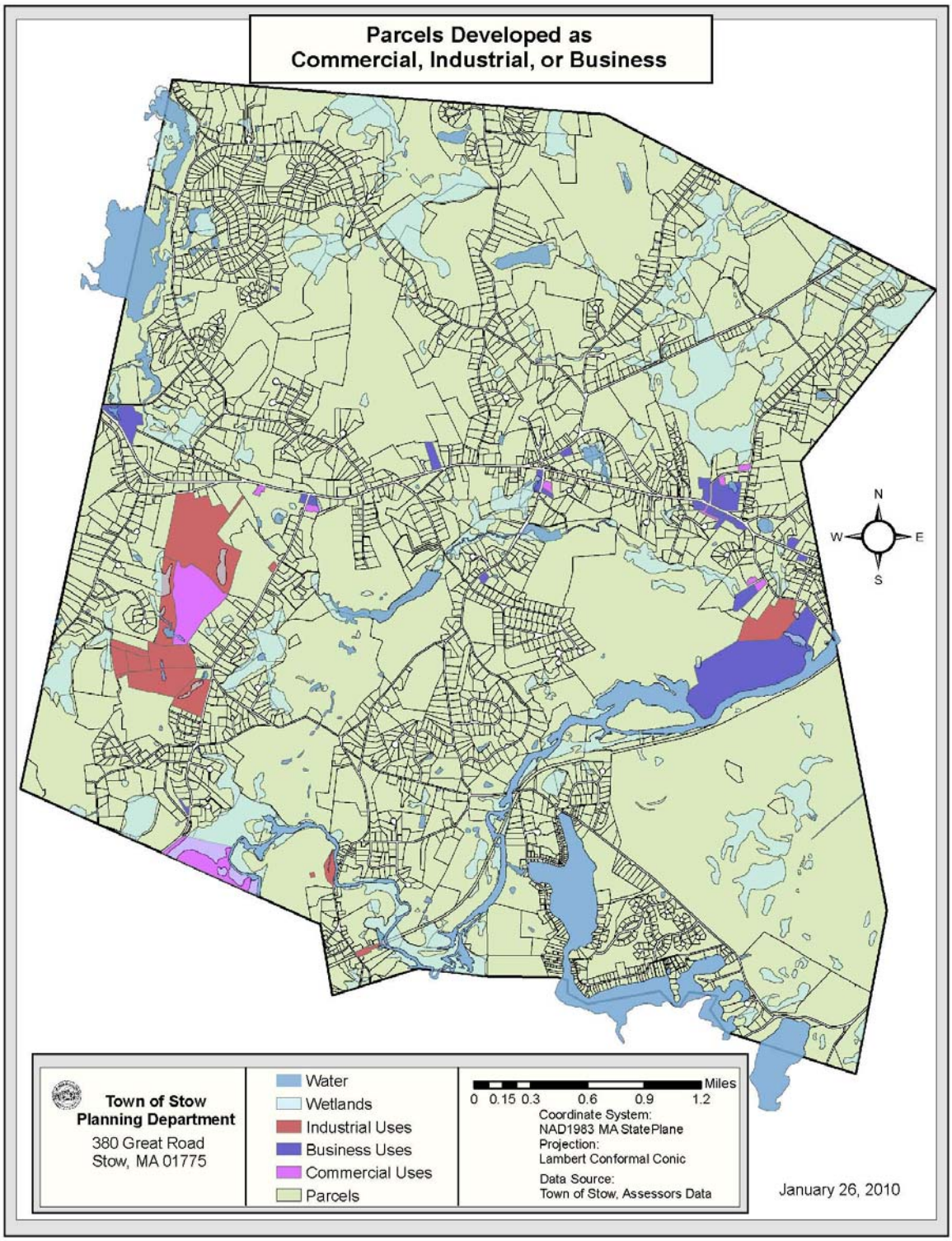


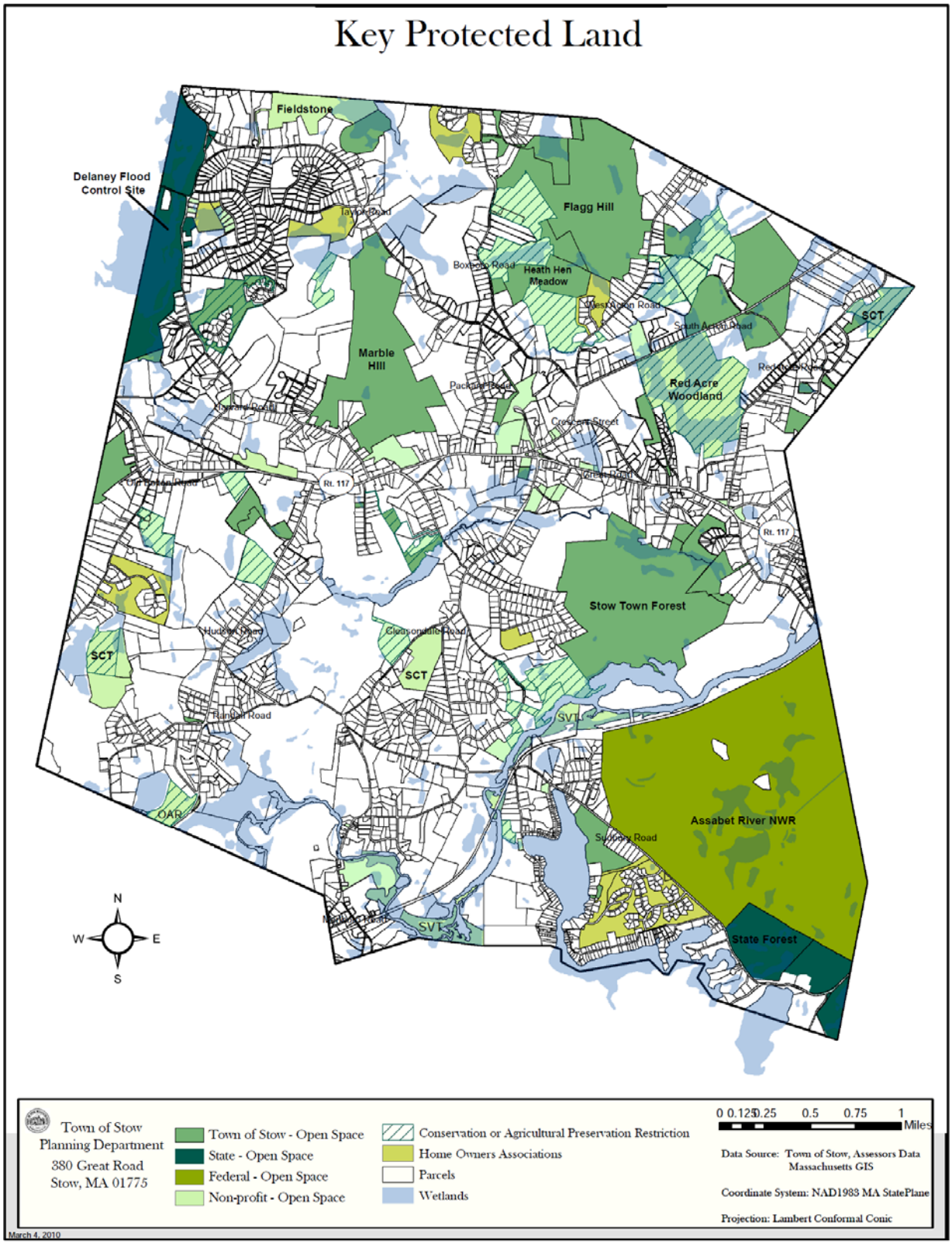
FIGURE: 8 Map of Commercial and Industrial Use



3. Open space areas of town

By far the most notable zoning district in Stow is the Recreation-Conservation Zone which dominates the Southeast quadrant of town but can be found in other quadrants as well. Distinct for its use constraints, it is an asset to the community in helping it preserve its rural small-town character and sense of open space. In addition, the Recreation-Conservation district areas provide habitats for a variety of plants and animals as well as aquifer and groundwater protection, and provide open spaces for agriculture, education and recreation. It should be noted that this zoning designation does not completely forestall the opportunity for development; allowed uses in this district are delineated in the Use Regulations of the Town's Zoning Bylaws.

FIGURE: 9 Map of key protected lands



Chapter 3

Housing

CHAPTER 3: Housing

A. Setting the Context

The source of most of the information in this chapter is "Housing Production Plan 2010 for Stow, Massachusetts," heretofore referred to as Housing Production Plan 2010. This plan should be used as a primary detailed guide in implementing the recommendations of this section of the Master Plan.

As the name suggests, "Housing Production Plan 2010" focuses on a *variety in housing types*, a *range of prices* and *access to ownership and rental opportunities, including special needs housing*. It also includes "workforce housing" focused on people who work in Stow and who would also like to live in Stow.

This chapter contains many references to "affordable housing." For most people, the term refers to homes that they can afford given their income. However, Stow is also concerned with the definition that relates to the Town's Subsidized Housing Inventory (SHI). Only homes that qualify for the SHI count toward the state's 10% goal. In order to qualify for the SHI, a home must meet the following criteria:

- The home must be subsidized by one of the low- or moderate-income programs approved by the state.
- The income of the owner or renter, after adjustment for household size, must not exceed 80% of the area median income as defined by the Department of Housing and Urban Development.
- Asset limitations may apply.
- For homeownership, the down payment must be at least 3% of the purchase price, the mortgage must be a 30-year fixed loan at a rate not more than two percentage points above the current MassHousing (www.masshousing.com) interest rate, and monthly housing costs must not exceed 30% of monthly income for a household earning 80% of the area median income (adjusted for household size).
- For rental properties, monthly housing costs (including utilities) must not exceed 30% of monthly income for a household earning 80% of the area median income (adjusted for household size).
- In a rental development, if at least 25% of units are to be occupied by Income Eligible Households earning 80% or less than the area median income, or alternatively, if at least 20% of units are to be occupied by households earning 50% or less of area median income, and meet all criteria outlined above, then all of the units in the rental development are eligible for inclusion on the SHI.
- If fewer than the aforementioned percentages of units in the development are so restricted, then only the units that meet the requirements above may be included on the SHI.
- Accessory apartments can be included the SHI provided they meet the requirements of the Local Initiative Program. (For details, refer to the Executive Office of Housing and Economic Development website or click on http://tinyurl.com/auoaoa)
- Use of the property must be restricted by a deed for a term not less than 15 years for rehabilitated units and not less than 30 years for newly created units. The use restriction places limits on income as noted above and it requires that tenants and home owners occupy their units as their principal residences. The deed restriction also contains terms and conditions for the resale of a homeownership unit, including definition of the maximum permissible resale price, and for the subsequent rental of a rental unit, including definition of the maximum permissible rent.

Ultimately, it is incumbent upon the Townspeople to decide what their priorities are in relation to housing and diversity. The goal of making our community open to a wide range of people – married and single, newly graduated and retired, large families and couples – might prompt us to consider higher-density housing possibilities. However, if that is pursued, higher density should be offset by increased open space protection so that the Town's overall residential density does not increase. Another approach would be to allow the market and developers to choose for us. In that case, it is important to recognize that with the current cost of land, it is not possible to build an affordable home on a 1.5-acre lot. Therefore, affordable homes need to be on much smaller lots, resulting in higher density. Market-driven affordable housing sponsored by developers will likely be pursued and permitted through permissions granted by

MGL Chapter 40B, the so-called "anti-snob" zoning which takes much control away from the local community and overrides municipal zoning laws. Alternatively, planning for targeted higher density may require consideration of infrastructure changes, and residents will need to decide if they want to pay for expanded water, sewer, and transportation services. When these competing constraints are taken into consideration, Stow residents may conclude that no action is necessary to modify the status quo.

B. Vision

Our vision is a town that contains a wide variety of housing stock, providing residential options for a diverse cross-section of society comprising various ages, family types and income levels.

In the 2008 Master Plan Survey, residents were asked several questions related to affordable housing. One question dealt with the need for an increase in housing of various types. The two most favored responses relating to what demographic group requires more variety in housing options were "elderly parents on fixed income" and "town employee or local teacher."

Clearly, the greatest emerging need is for an increase in housing for a) elderly retirees (i.e., seniors on a fixed income, perhaps with limited physical abilities, interested in small, low-maintenance homes); b) town employees – "workforce housing;" and c) starter homes for young families, singles, newlyweds, and other first time home buyers.

While this vision addresses these needs, results from the 2008 Master Plan Survey show that residents want housing trends for Stow to head in a very different direction. For example, by a margin of 252 to 116, respondents said they would not support using town funds to subsidize the development of affordable housing. This response is not surprising given the common perspective that development should be left to the private sector. In addition, a general wariness of affordable housing is also often prevalent in small communities where concerns about the costs associated with educating children tend to outweigh desires to be inclusive in housing.

Another survey question related to support of zoning to allow townhouse or condominium developments to provide more diverse housing stock. By over a 2-to-1 margin, residents said they would not support such zoning. The response to this survey question shows that there is little desire to add this type of housing to the community.

One of our recommended actions involves funding the Affordable Housing Trust with appropriations from the Community Preservation Committee. The survey data, however, beg the question as to what Stow should do with these funds that are required to be spent on affordable housing.

Two other survey questions also suggest a very difficult "sell" for more affordable housing. Given a town-sponsored development, residents were asked which would be more important: maximize the number of affordable units while maintaining consistent neighborhood standards, or minimize the cost to the Town by including more market-rate units. By nearly a 2-to-1

margin, residents said minimizing cost was more important. The response to this question suggests that people are more concerned with the Town's out-of-pocket costs than with building affordable housing.

The last survey question asked if residents would support the use of town-owned land for affordable housing. Again by a nearly 2-to-1 margin, they said no. Here, too, we see the implication that there is little enthusiasm for developing more affordable housing. However, it is important to remember that the response to this particular question may have less to do with feelings about the presence of affordable housing and more to do with feelings about the presence of undeveloped land parcels; that is, people may be expressing a vote in favor of open space rather than against affordable housing. Using town-owned land for affordable housing would require a vote at Town Meeting, and the likelihood of passage of such a vote is not necessarily indicated by these survey results. Moreover, the response to this survey, though robust by survey standards, does not necessarily parallel the demographics or the interests of those who show up to vote at Town Meeting.

In spite of these survey results, residents must also consider Chapter 40B. It is the law, and we must adhere to it. Therefore, we have two choices:

- Proactively establish policies and programs so that we can consistently meet our affordable housing goals, thereby immunizing our residential growth against unplanned and potentially overwhelming large-scale developments that need not conform to our Zoning Bylaw
  OR
- Admit that politically we cannot (or will not) make the individual and town-wide investments and trade-offs to conform to Chapter 40B requirements, and resort to reactive management when the next Comprehensive Permit hearings begin.

If these survey responses reflect the position of the majority of residents, it may be very difficult if not impossible to implement the housing vision. It seems apparent at this time that affordable housing construction will need to continue to be driven by non-profit and private sector initiatives.

Nonetheless, some consider it a positive sign that the CPA has been able to advance affordable housing projects in the past year. Since the survey was conducted, the Town Meeting voted in October 2009 to spend CPA funds on two affordable housing projects, sponsored by nonprofit, private sector entities. This seems to suggest that a collaboration between the non-profit sector and municipal government might be an effective way to proceed.

C. Background

Numerous plans have already been drafted and in some cases adopted to make changes to housing. A summary follows.

1. Stow 2000 (1996)

The last Master Plan was prepared in 1996, but its official title is "Stow 2000." As adopted by the Planning Board, this plan identified three housing goals:

- Provide housing opportunities for those at the entry level of homeownership, "empty nesters," elder residents, and those requiring housing assistance and rental housing units
- Ensure maintenance of the present housing mixture including single-family, two-family and multi-family dwelling units
- Encourage the elderly and disabled to remain in Stow, preferably in their own homes

"Stow 2000" included several recommendations mainly involving zoning techniques. Since this plan was adopted, the Town has taken several steps to improve planning for new developments. They include the following:

- Adoption (in 2001) of an "Active Adult Neighborhood" (AAN) bylaw, which allows homes for "over-55" households on commercially and industrially zoned land. The bylaw restricts the number of AAN units to no more than 6% of the total number of single-family DWELLING UNITS in the Town of Stow and two have already been approved: Arbor Glen and RidgeWood, each with a total of 66 units, seven of which have affordability restrictions. Four of the units are made available only to residents earning 80% of median income and three of the units are geared toward those earning 150% of median income.[4] In addition, each of the developments is required to make a cash payment for the 3 affordable units, such payment shall be for 150% of the remaining 3 units (4.5 units). The cash payment shall be calculated at 35% of the average sale price of new construction affordable dwelling units. To date, payments for 3 units at the Arbor Glen AAN have been deposited in the Housing Trust Fund account.
- Adoption of a "Planned Conservation Development" (PCD) bylaw that encourages developers to preserve open space by designing compact housing clusters, including a mix of attached housing units and traditional single-family homes. Examples of developments constructed under this bylaw include: Wildlife Woods (1998) on 118.7 acres with 67 units, Brandymeade Circle (2000) on 27.2 acres with 12 units, Trefry Lane (2003) on 51 acres with 16 units, and Derby Woods (2003) on 69 acres with 33 units. (Note that the Inclusionary Zoning Bylaw applies to PCDs – see below.)
- Adoption (in 2003) of inclusion of an affordable housing bylaw that applies to any development of six or more units, requiring that at least 10% of the units be affordable and comply with the state's Local Initiative Program (LIP). The

[4] Median income based on the 2000 Census for the Boston Metropolitan Statistical Area and adjusted for inflation is $66,150 for a family of 4.

bylaw and MGL allow developers to build the requisite number of units off-site as well or pay a fee in-lieu of actual units based on three times 80% of the HUD area median income for a household of four. No units have been developed to date through this bylaw, suggesting that developments of six or more units have not been proposed due to market conditions.

- Adoption (in 2002) of a Comprehensive Permit Policy that conveys the Town's expectations for housing developed under Chapter 40B including minimum performance standards and trade-offs the Town is willing to explore with developers. This policy stated that the most acute housing need was rental housing for all income levels and encouraged rental development proposals. It also recognized a significant gap between affordable units and high-end housing and promoted a range of housing alternatives to address more moderate-income households as well. This policy has not been well used to date and should be revisited and updated to better reflect changes in state and local regulations, policies and needs. Newer programs sponsored by the Department of Housing and Community Development (DHCD) allow for some units which are made available only to moderate income families to qualify for incentives and in some cases special funding.

2. Housing Production Plan (2002)

Stow's last Housing Production Plan was prepared in 2002. The consulting firm Community Opportunities Group developed this plan and it was in effect until December 2008 when state approval expired. Subsequently the Town engaged Karen Sunnarborg Consulting to update this plan. The result is "Housing Production Plan 2010," which is still pending approval of the Town for submission to and certification by DHCD. It offers strategies that differ from housing studies in that they identify a means by which the Town intends to encourage the production of affordable housing. Those communities with a DHCD-approved Housing Production Strategy are given the added benefit of being able to forestall, or in some cases deny, 40B proposals for up to two years if the community is producing a minimum of 1% affordable housing in any given year or a one-year exemption if the community produces 0.5% in a year.[5] This can have great value to a community such as Stow, because Stow still has ample available buildable land and is only technically at 6.26% of subsidized affordable housing. Without this plan and concomitant production, in order to outright deny a 40B application a community must be at 10% affordable housing, as certified by DHCD. See the 40B discussion later in this chapter for more information.

It is important to note that considerable progress has been made in addressing the 2002 recommendations including the following:

[5] For more information on Housing Production Plans go to: http://www.mass.gov/Ehed/docs/dhcd/cd/pp/hpguidelines.doc

- The Town approved a Municipal Affordable Housing Trust at its 2005 Town Meeting, followed shortly after by the appointment of its members by the Board of Selectmen. The Housing Trust is fulfilling the range of activities included in the 2002 Housing Plan, including the oversight of "Housing Production Plan 2010."
- Stow established a Local Housing Trust Fund which will allow local officials to pool their housing resources and allocate them to public or nonprofit organizations without Town Meeting approval. This greatly increases the Town's ability to be responsive to housing needs in an expedited fashion.
- Stow submitted a Planned Production Strategy to DHCD for approval under 760 CMR 31.07(d). If a community has an affordable housing production plan (a planned production strategy) and is making steady progress toward achieving its goals, it can achieve temporary immunity from Chapter 40B development. Stow needs to increase the number of affordable homes by 0.5% each year for immunity. Of course the total number of homes continues to increase, thus increasing the number of affordable units required each year for immunity. The Town prepared a housing production plan that was approved by DHCD, but the plan expired in December 2008. Housing Production Plan 2010 will meet new state requirements for housing plans under 760 CMR 56.03(4).
- The Community Preservation Committee submitted a plan to the Department of Housing and Community Development (DHCD) to use CPA (Community Preservation Act) funds to purchase deed restrictions on relatively inexpensive homes and permanently set them aside as affordable units. The Town had hoped that DHCD would then count them as eligible units on Stow's SHI. Unfortunately, DHCD did not approve this plan but this may still be something worth pursuing again in the future.

3. Community Development Plan (2004)

The Community Development Plan prepared in 2004 was designed to assist the Town in the implementation of "Stow 2000." It included the following recommendations related to housing, with current status in italics:

1. Establish a permanent Housing Partnership Committee. *Dissolved in 2009; duties transferred to Affordable Housing Trust.*
2. Modify existing zoning regulations to facilitate single- family to multi-unit conversions for large residences built prior to 1950. *(Section 3.2.2.3 of the Zoning Bylaw permits conversion of a one-family dwelling into a two-family dwelling.)*
3. Amend the Zoning Bylaw to encourage mixed use village development through overlay districts or by Transfer of Development Rights (TDR). The mixed use strategy is covered in Ch. 4, Economic Development. *After extensive consideration, the MPC concluded that while it is a very attractive concept, it is probably unworkable in practice. Thus, TDR strategy is no longer recommended due to its complexity and the relative low probability that it could be an effective tool.*

4. Replace existing regulations for Planned Conservation Development with a mandatory open space-residential development bylaw that applies to all divisions of land into five or more lots or developments of five or more units, and provide a modest density incentive to preserve exemplary open space or create a higher percentage of affordable housing units than required under the Town's new Inclusionary Zoning Bylaw. *Included in this plan's recommendations. (Action Item 2c)*
5. Modify the fee in-lieu-of provisions of the Inclusionary Zoning Bylaw (ATM 2003) to more accurately reflect the Town's cost to provide affordable housing units. *Included in this plan's recommendations. (Action Item 2b)*
6. Modify the Inclusionary Zoning Bylaw to provide for a percentage of homes affordable to "below-market" households, e.g., households with incomes between 81% and 110% of area median income. *Included in this plan's recommendations. (Action Item 2b)*
7. Petition the General Court to create a Local Housing Trust Fund. *Done*.
8. Commit a greater percentage of each year's CPA revenue to affordable housing that exceeds statutory minimum of 10% set aside, in order to fund a Local Housing Program. *Included in this plan's recommendations. CPA requires that a minimum of 10% each year be set aside for the creation of affordable housing. (Action Item 1c) It should be noted here that the CPC does not support setting aside a larger percentage than 10% because it wishes to maintain the maximum flexibility in the CPA fund and have an opportunity to evaluate individual projects. The Master Plan Committee believes it is still worth pursuing the development of a Local Housing Program and that any appropriate housing proposals should still be brought forward to the CPC.*
9. Integrate affordable housing into the Town's next Open Space and Recreation Plan by identifying lands of conservation interest that would be suitable candidates for a mixed-income limited development project if the sites were acquired as open space. *Included in this plan's recommendations. (Action Item 2d)*
10. Supplement the capacity of Stow Community Housing Corporation with a local development corporation created by petition to the General Court. *The Master Plan Committee does not see the need for a separate corporation.*
11. Modify the Comprehensive Permit Policy (December 2002). Refer to the Action Item (Section E) and Housing Production Plan 2010 for details. *Included in this plan's recommendations. (Action Item 1d)*
12. Request that developers pay a reasonable fee to the Town for peer review services when the Zoning Board of Appeals receives a comprehensive permit application. Peer review consultants retained by and reporting directly to the Zoning Board of Appeals are now fairly common standard procedure for many communities and ensure the community can obtain the technical assistance it needs to properly review these complex projects. Furthermore, requiring the developer to pay for this is explicitly allowable under MGL. *Included in this plan's recommendations. (Action Item 1e)*
13. Designate an individual officer of the Town to negotiate with comprehensive applicants. *Not included in this plan's recommendations. The Zoning Board of Appeals has this responsibility.* Depending on the specific situation and project, if needed, the Zoning Board of Appeals can designate a specific staff person, special municipal counsel, or

other consultant to develop the negotiations to sufficient specificity to then be ready for full Board approval.

14. Submit a Planned Production Strategy to DHCD for approval under 760 CMR 31.07(d). *A Planned Production Strategy was submitted to and approved by DHCD in 2002 and was in effect through December 2008 when state approval expired. An updated Planned Production Strategy (Housing Production Plan 2010) has been prepared.*

4. Commissions, Boards and Committees involved in Housing Initiatives

There are a variety of municipal entities and private organizations that have responsibilities for creating and managing housing in Stow, as follows.

- Stow Housing Authority (SHA)
  The Stow Housing Authority (SHA) administers a housing voucher program that consists of 26 state and federal vouchers. Created in the late 1980s, the SHA originally provided the backup vouchers that ensured that the affordable units at Pilot Grove would have a reliable subsidy. The SHA is also responsible for administering lotteries on affordable units.
- Stow Community Housing Corporation (SCHC)
  An offshoot of the Stow Elderly Housing Corporation (SEHC), the Stow Community Housing Corporation (SCHC) was formed in 1987 to create affordable housing for the entire community, not just the elderly. It created Pilot Grove Apartments, a mixed-income rental development that has 60 units. There are 37 affordable units at Pilot Grove, an unusual level of affordability. Permanent deed restrictions for affordability were acquired using Community Preservation funds.
- Community Preservation Committee (CPC)
  Stow passed the Massachusetts Community Preservation Act (CPA) in 2001, which led to the creation of the Community Preservation Committee (CPC). The CPC administers the CPA funds, which come from a 3% property tax surcharge and up to a 100% match by the State. The CPC is required to spend at least 10% of its revenue on each of affordable housing, historical preservation, and open space preservation.
- Stow Municipal Affordable Housing Trust (SMAHT)
  Town Meeting accepted a new State statute in 2005 that allowed the Board of Selectmen to create a Stow Municipal Affordable Housing Trust. SMAHT is a public corporation that can receive monies intended for affordable housing from all sources and expend them as it sees fit to create affordable housing. The Trust also leads the strategic affordable housing planning for the Town (such as maintaining a long-term housing production schedule), acts as an advisor to the various town boards on affordable housing matters, and interacts with various governmental and private funding vehicles to ensure ongoing funding for affordable housing.
- Planning Board (PB)
  This elected body reviews and approves the division of land under the State Subdivision Control Law (MGL. Ch. 41) and the Stow Subdivision Rules and Regulations; serves as

a special permit granting authority under the State Zoning Act (MGL. Ch. 40A) and the Stow Zoning Bylaw; and guides the process of Zoning Bylaw amendments under the State Zoning Act (MGL. Ch. 40A). Under State Law, the Board is charged with the responsibility of protecting the health, safety and welfare of Stow's residents. The Planning Board proposes new bylaws and modifications to existing bylaws in an effort to meet Stow's housing needs and make the most efficient use of buildable land.

- Zoning Board of Appeals (ZBA)
  The ZBA's housing-related role is to grant or deny comprehensive permits for 40B developments. The ZBA may also issue special permits and variances for various projects pursuant to the Town's zoning bylaws.
- Board of Selectmen (BOS)
  The Selectmen have overall responsibility for implementation of the Master Plan including the associated housing strategies.
- Open Space Committee (OSC)
  The OSC identifies and prioritizes parcels for potential acquisition to add to the Town's open space inventory. It leads the implementation of the Open Space and Recreation Plan. The OSC advises the Board of Selectmen and other public and private stakeholders on the protection of the Town's open space priorities, and it coordinate with other town boards on community planning initiatives as recommended in the Open Space and Recreation Plan.
- Council on Aging (COA)
  The COA provides support to seniors by being a resource of information on elder affairs, and by providing social activities, outreach services, and assistance to help the senior population of Stow remain in their homes as long as safely possible.
- Stow Elderly Housing Corporation (SEHC)
  SEHC was created by Town Meeting in 1979. It secured a federal grant to build Plantation Apartments in 1982. It has recently refinanced Plantation Apartments to refurbish the structures and make them viable for the next 20 years.

D. Data Relevant to Housing Decisions

In order to set the stage for subsequent discussion of our vision, housing needs, and recommended actions, we must first consider demographics, trends, affordability issues, and an important state law known as Chapter 40B.

Stow is a small town in one of the state's most rapidly growing regions. It is a primarily residential community with a distinct country character provided by numerous orchards, golf courses, forests, wetlands, and areas of open space. As a relatively old town, incorporated in 1683, the housing stock includes historic dwellings, farmhouses and typical New England style single-family homes. There is also a limited number of multiple dwellings, including affordable elderly and family housing complexes.

While the pattern and density of residential land use vary somewhat across the Town, Stow's housing stock is largely uniform, comprising almost exclusively large, detached single-family homes. As a result, most households are both families and homeowners.

Thirty years ago, Stow was a place where young families could purchase starter homes. In the last 25 years, while the general Consumer Price Index (CPI) rose 100%, home prices in Stow increased 400% to 500%. Thus, without subsidies, starter homes are now often out of reach for many aspiring to live in the community. Moreover, Stow residents face a substantial tax burden and find few downsizing options in town when they reach that stage of life.

The table on the following page shows population and family data starting with 1980 and includes the most recent official census in 2000. The population as of April 2009 was 6,660 living in 2,467 separate households. This yields an average household size of 2.7, slightly below the 2.83 level in 2000.

FIGURE: 10 Stow Residential Demographic Data, 1980-2009

	1980		1990			2000			2009	
	#	%	#	%	% Change	#	%	% Change	#	% Change
Total Population	5,121	100	5,328	100	4.0%	5,902	100	10.8%	6,660	12.8%
Minority Population*	142	2.8	126	2.4	-11.3%	267	4.5	111.9%		
Total Households	1,571	100	1,793	100	14.1%	2,082	100	16.1%	2,467	18.5%
Family Households**	1,353	86.1	1,459	81	7.8%	1,678	81	15.0%		
Female Heads Households**	41	2.6	97	5.4	136.6%	70	3.4	-27.8%		
Non-family Households**	218	13.9	334	19	53.2%	404	19	21.0%		
Average Household Size	3.26		2.96			2.83		-4.4%	2.70	-4.6%
Source of above table: 1980, 1990, 2000 U.S. Census Bureau, & Stow Town Officials										

***All non-White classifications**

**** Percent of all households**

Despite a significant increase in population through the most recent decade, the number of households has grown even faster (10.8% versus 16.1%, respectively). Household growth continues to outpace population growth in the current decade, as shown by 2009 data. The apparent discrepancy can be explained by the smaller number of residents per household. This decline also reflects the much more rapid growth in residents over 54 versus those 17 and under. As Table 3.2 shows, the number of school-age children rose 17.1% over the last decade, compared with a 45.3% increase for those over 54. (Age group demographic data are not available for 2009.)

Older residents clearly make up the fastest-growing population segment (Table 3.2). Stow has tried to address the demand for those wishing to "downsize" by approving "active adult neighborhood" developments like Arbor Glen and Independent Adult Living Residences like Meeting House at Stow. Furthermore, according to the Metropolitan Area Planning Council,

significant population increases are projected to occur in the older age brackets, with an 83% increase in those 55 to 64 and 107% for those age 65 and over through 2030. Such a substantial growth in the aging baby boomers suggests a greater need for a greater number of smaller units with minimal maintenance needs, more handicapped accessible units as well as more housing with supportive services to enable residents to stay in their homes as they age.

Table 3.2 Population Change by Age Group, 1990-2000

Age Cohort	1990	2000	% Change
<18	1,423	1,667	17.1%
18-24	420	246	-41.4%
25-34	731	575	-21.3%
35-44	1,124	1,230	9.4%
45-54	842	1,039	23.4%
>54	788	1145	45.3%
Total Population	5,328	5,902	10.8%
% <18	26.7%	28.2%	
% >54	14.8%	19.4%	

1. Interpreting the Data

a. Home owners

Although the absolute number of homes has increased since the previous plan, the relative distribution of different housing types is essentially unchanged: about 90% of Stow's housing stock consists of single-family detached homes.

Despite considerable wealth in the community, there remains a significant and highly vulnerable segment of population within Stow with very limited financial means. For example, 203 or almost 10% of all households had incomes of less than $25,000 in 2000, and there were 157 individuals and 26 families living in poverty in 1999.

Like other communities nearby, Stow has a highly competitive housing market, and since 1990 the median single-family sale price more than doubled, from $187,000 to $390,000 as of the end of March 2009. However, reflecting nationwide economic trends, this price is down considerably from the height of the market in 2006 when the median price was almost $500,000.

Stow's established development pattern makes inefficient use of land. The large lot requirements of most single family zones in town encouraged large homes to be built. This

occurred, and continues to occur, because a developer must build a large home in order to recoup land costs. In addition, infrastructure limitations prevent construction on smaller lots.

Stow's zoning policies stop short of encouraging the preservation of village density and form even though the Master Plan's land use element and the Town's Comprehensive Permit Policy emphasize the importance of village development.

b. Renters

The nominal inventory of multi-family housing in Stow helps to explain two salient features of the Town: its strikingly low rental vacancy rate of 1.4% (Pilot Grove), and the prevalence of single-family homes in the renter-occupied housing inventory.[6] The wait list for units at Plantation Apartments is currently two years. Nearly 40% of all units occupied by tenants are single-family homes, located randomly throughout the Town. The remaining units are in older two-, three or four-unit buildings or in two small rental housing developments near Lower Village. About 13% of all renters living in Stow have occupied the same dwelling unit for 20 or more years.

The substantially different circumstances of renters complicate the meaning of "rental housing market," for the demand side is not at all homogenous. As for the supply side, at least four conditions exist in Stow and nine nearby towns with overlapping market characteristics: the supply is small, expensive in relation to renter incomes, older than the supply of homeownership units, and in many cases vulnerable to homeownership conversion. (The other nine towns are Acton, Bolton, Boxborough, Harvard, Hudson, Lancaster, Littleton, Maynard, and Sudbury.)

By policy, Stow and most towns nearby discourage or prohibit multi-family housing development through one or more land use controls, e.g., confining allowed residential uses to detached single-family homes, restricting density to one dwelling unit per acre (or more), or allowing attached housing units at a density high enough to attract some condominium development but not high enough to attract rental development. Given these and other constraints on multi-family housing, it is not surprising to find that single-family homes contribute nearly 20% of all renter-occupied units in the ten-town area, reaching as high as 80% in Bolton.

Stow's rental housing inventory consists of about 270 units that were fully occupied when the last federal census was taken in April 2000.[7] The 3.8% rental vacancy rate that existed in Stow a decade ago has been eclipsed by intense market pressure, a condition found throughout the state.

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[7] Of the town's 46 vacant units, only 18 were for sale on April 1, 2000. The remaining vacant units are seasonal or vacation homes and a few were not available for occupancy, i.e., classified by the Census Bureau as "other vacant."

Prospective renters face low odds of finding moderately priced housing in Stow's market area. Current rental prices for Stow as of the end of April 2009 were approximately $1,000 per month, although there are few actual listings as most units turn over by word of mouth, particularly in single-family homes.

2. Affordability and Chapter 40B

40B and Stow

Home prices have appreciated to a point where 45% of Stow residents could not afford to buy a home in Stow at current assessment rates, nor could 71% of households throughout the Boston metropolitan area. Although Stow has some lower-cost homes, they do not all meet the definition of an affordable housing unit under state law. (See "Setting the Context" above.) Stow has 132 units of housing that qualify as "affordable" under Chapter 40B,[8] a law that is highly controversial in most communities because it overrides local zoning regulations that make low- and moderate-income housing economically unfeasible to build. The device that overrides local zoning is known as a comprehensive permit. Towns such as Stow need to be vigilant in how 40B decisions are handled. If the Town is not proactive in making its own decisions as far as location and style of affordable housing, it risks sacrificing these decisions to a developer who may or may not have any interest in the Town's overall desires.

There is a real risk of losing more potential, nonresident tax base if homes continue to be built on industrial land, and two 66-unit Active Adult Neighborhood developments have already been permitted on two parcels located in the Industrial District/Active Adult Neighborhood Overlay District. There is a risk of 40B developments on any parcel that is zoned for non-residential uses.

Enacted in 1969, Chapter 40B establishes a legal presumption of unmet housing needs when less than 10% of a community's year-round housing stock is affordable to households at or below 80% of the area median income. Generally, communities that do not have at least 10% of their housing units on the state's SHI must issue a comprehensive permit unless there is an unusual or compelling basis to deny one. Developers, in turn, may ask the state's Housing Appeals Committee (HAC) to overturn a local Zoning Board of Appeals decision. In most cases, they negotiate a compromise with town officials, but HAC's less frequent overrides have left a lasting impression on communities and form the basis for most of the opposition from local governments today. DHCD is responsible for certifying each community's SHI based on those units that meet the state's subsidized housing affordability requirements. According to "Stow 2000," the Town's affordable housing ratio was 7% back in 1996. Unfortunately, there has been no progress toward the state's 10% goal because, despite moderate gains in new subsidized housing units, there has been a greater increase in non-subsidized units. Only 6.26% of Stow's current housing stock qualifies as affordable as defined by state requirements. In

[8] Department of Housing and Community Development (DHCD), Chapter 40B Subsidized Housing Inventory [database online], available at <http://www.mass.gov/dhcd.html, [updated April 2002; cited April, August 2002].

2010, the state will recalculate all communities' SHIs which will result, in most cases, in declining SHI scores.

The legislature's intent in enacting Chapter 40B was to assure a "fair-share" distribution of low-income housing across the state, but housing policy analysts do not define affordable housing need on the basis of a fixed 10% standard. The national definition of housing affordability assumes that a home is affordable to its owners if their monthly housing costs – a mortgage payment, property taxes, and house insurance – are equal to or less than 30% of their monthly gross income. Similarly, an apartment is considered affordable to tenants if they pay 30% of their gross monthly income, or less, for rent and utilities. Under these criteria, "affordable housing need" exists when households pay more than 30% of their gross income for housing costs. In housing industry parlance, they are classified as "housing-cost burdened." According to the 2000 federal census data, 23.4% of all homeowners in the Boston metropolitan area and 22.1% in Stow qualify as housing-cost burdened. The condition is more pronounced among renter households, for 36.9% of Boston-area tenants pay more than 30% of their monthly income for rent and utilities, compared to 31.4% in Stow.[9]

In a competitive real estate market like Stow's, the cost of housing creates a significant challenge for lower-income households. The measure of "low-income" varies by household size and region. By federal definition, a low- or moderate-income household has annual income equal to or less than 80% of the area median income, adjusted for household size. Each year, the U.S. Department of Housing and Urban Development (HUD) publishes income eligibility guidelines for various housing assistance programs. The 2000 HUD statistics showed that about 18% of Stow's population was low- or moderate-income – up from 11.5% a decade before.[10]

Affordable housing is also defined according to percentages of median income for the area, and most housing subsidy programs are targeted to particular income ranges depending upon programmatic goals. Extremely low-income housing is directed to those earning at or below 30% of area median income as defined by HUD ($24,350 for a family of three for the Boston area) and very low-income is defined as households earning less than 50% of area median income ($40,600 for a family of three). Low-income generally refers to the range between 51% and 80% of area median income ($59,550 for a family of three at the 80% level), and moderate-income from 81% to 100%, and sometimes 120% of median income ($90,200 and $108,240, respectively).

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[9] Census 2000, Summary File 3, Tables DP-4 and H-84.

[10] Standard Census 2000 data tables do not measure low- and moderate-income households. HUD works with the Census Bureau to estimate each community's low- and moderate-income population by cross-tabulating household size and income cohorts. A conservative estimate can be made from the number of households with incomes below the one-person household tier (meaning the lowest tier) in HUD's income guidelines for 2000. In the Boston metro area, 31.6% of all households earned $35,000 or less, and in Stow, 14.4%, as of April 2000. Stow's average household size was 2.82 persons and in 2000, and 17.9% of its households had incomes below HUD's three-person income limit of $45,200 at that time. However, 17.9% exaggerates the percentage of low-income households in Stow because most households with incomes below $45,200 also had fewer than three people and may have also had substantial financial assets.

HUD considers Stow to be in the Boston-Cambridge-Quincy, Massachusetts-New Hampshire metropolitan area. To qualify for affordable housing in Stow, a family of four cannot earn more than $66,150 (as of March 2009). HUD reviews and updates the income limits every year in the March timeframe. (See the HUD User website at www.huduser.org.)

It is also important to emphasize that affordability is often related to density. This point is illustrated very well in the excellent report recently issued by the 495/MetroWest Partnership. "Density Through Design" (Appendix) includes a review of two model projects in Medway and Sudbury to illustrate how land can be used much more efficiently. The report also states that the high home costs resulting from low-density development make it impossible to create workforce housing. As a result, workers often cannot live near their place of employment, or worse, they leave the state altogether. As the report concludes, "Greater Boston's housing problem has become an economic development problem."

As is the case with many other affluent communities throughout the state, the population of young adults entering the workforce and forming their own families has declined, largely as a result of increasing housing prices and a lack of job opportunities in these communities. The anticipated decline of those in this younger-adult age range could be boosted somewhat with increased efforts to provide first-time homeownership opportunities in Stow as well as more rental options.

3. Current affordable housing inventory

Stow's inventory of low- and moderate-income housing that qualifies on the DHCD SHI includes the following:

- Pilot Grove – 60 rental units affordable in perpetuity and developed through a comprehensive permit by the Stow Community Housing Corporation in partnership with The Community Builders
- Plantation Apartments – 50 rental units affordable through 2025 and developed through a comprehensive permit by the Stow Elderly Housing Corporation, also in partnership with The Community Builders
- Stow Farms – 7 units of homeownership housing with limited affordability restrictions, also developed through a comprehensive permit
- DMR Group Homes – 4 units sponsored by the state Department of Mental Retardation for special needs individuals
- Arbor Glen – 7 affordable units from a 66-unit age-restricted homeownership development through the Active Adult Neighborhood (AAN) bylaw with affordability restrictions in perpetuity and developed by Pulte Homes.
- Ridgewood at Stow - This 66-unit age-restricted homeownership development was permitted through the Active Adult Neighborhood bylaw with affordability restrictions in perpetuity. Due to existing real estate market conditions which has

slowed construction, the special permit for this development was modified to extend the permit to June 24, 2011.

- The Villages at Stow - With construction ongoing at the time of this report, this comprehensive permit allows a 96-unit housing development with 24 permanently restricted affordable units. As of April 1, 2010, 17 building permits out of the 24 have been issued for the affordable units.

The SHI therefore comprises 110 rental apartments, including 50 age-restricted units, four special needs units, and 18 homeownership units, seven of which are age-restricted. These 132 units equal 6.26% of Stow's year-round housing stock. Again, as mentioned above, this 6.26% figure will most likely be adjusted following the 2010 Federal Census, and that number may decline.

E. Needs

By choice, Stow is poised to attract affluent family households. To control the total amount of residential development, the Town relies on large-lot zoning and policies that favor single-family homes. Though these techniques have and will continue to limit the number of dwelling units in town, they create significant challenges to meeting Stow's other housing goals. With so many new single-family residences sized to attract families, it is not surprising that between 1990 and 2000, Stow absorbed a 12% increase in married couples with children – or a 14.2% increase in all family households with children.[11] Such trends have likely continued since then given the type of housing that has been built: largely single-family homes.

The high incidence of housing cost burden among householders 45-54 years of age in Stow is also a concern. Given their foreseeable decline in household income over the next 10 years, it is not at all clear how Stow intends to retain its present generation of middle-aged people.

Another consideration involves housing choice for renters and persons with disabilities. There are very few housing units that are accessible to persons with disabilities. Although the 2000 census indicates that there were 422 individuals living in Stow who claimed a disability, it is unclear how many of the 422 individuals have a physical handicap requiring a handicapped accessibility unit. Some accommodation for individuals with special needs should be integrated into the housing stock either through handicapped accessibility or supportive services. On the other hand, since the Stow Planning Board has been informed that it is difficult to market handicapped-accessible units, even in an AAN development, another approach is to require AAN units to be ADA adaptable should the owner or occupant need this feature at a later date.

[11] The Stow Master Plan (1996) notes similar trends in a comparison of 1980-1990 household statistics *(Stow 2000*, 74). Significantly, the number of married couples with children had declined by 7% between 1980-1990. Census 2000 shows that the number of married couples with children recovered during the 1990s, though not to 1980 proportions. In Stow today, there are 1.1 couples with children for every couple without children – in contrast to 1.6 two decades ago.

Although the Zoning Bylaw includes a mechanism to develop multi-family housing units (Planned Conservation Developments, Active Adult Neighborhoods and Independent Adult Living Residences and developments subject to inclusion of affordable housing), Stow should be looking for ways to make multi-family rental housing feasible.

Finally, Stow does not have effective regulations to preserve its historic mix of single-family homes. Major expansions or alterations to existing homes and demolition-rebuild projects attract new investment to the community. However, as these activities cause older homes to appreciate in value, they also remove lower-cost housing from the market. Strategies to secure the affordability of these homes may help Stow establish a base of Chapter 40B-eligible units for lower-income homebuyers or renters, avoid the environmental costs of new development, and preserve the range of architectural traditions that pre-date modern conventional subdivisions.

1. Priorities identified by Housing Production Plan 2010

"Housing Production Plan 2010" identified the following priority housing needs:

- Rental Housing: As prescribed in the Town's Comprehensive Permit Policy, the Town has had a preference for rental units, particularly given the relative scarcity of such units. This plan suggests that at least two-thirds of the affordable units produced as a result of the Town's housing strategies be rental units. These units should include a mix of sizes, and a target should be to have one-third of all rental units in town be suitable for the elderly and disabled. We note, however, that residents who responded to our 2008 survey expressed rather marginal support for more rental housing in Stow. The survey presented three types of rental housing. They are listed below with the percentages of respondents in favor:
  - Rental single family homes: 42%
  - Rental apartment style housing units in multi-family buildings: 32%
  - Rental town house style housing units in detached buildings: 54%
- Homeownership: As affordable starter housing is still rare in Stow and so are affordable opportunities for seniors to downsize, this plan suggests that approximately one-third of the affordable units produced as a result of the Town's housing strategies be for homeownership and also include additional units for those earning above 80% of area median income who are still priced out of the Town's private housing market. These units should include a mix of sizes, and one-third should be targeted to the elderly and disabled.
- Special Needs Population: Because of Stow's aging population, a very limited number of handicapped accessible units, the number of disabled residents, and an extremely limited supply of units with supportive services, this plan suggests the need for ADA adaptable units and supportive services.

2. Workforce housing

A critical goal is to provide workforce housing so that both municipal and business employees who work in Stow have an opportunity to live in Stow. Residents who contemplate its importance often think first in terms of the cultural and socioeconomic diversity that work force housing implies: their values dictate that they want to live in a town whose population includes not just business people and high-end professionals but also blue-collar workers, teachers, craftspeople and manual laborers.

It is also important to look at the pragmatic value of having a town's work force live locally. In the event of a natural or manmade disaster, it is the emergency workers and the manual laborers whose presence will be most critical as initial responders: paramedics, ambulance drivers and hospital workers to help care for the injured; police officers and fire fighters to direct the emergency response and maintain crowd control; and then, once the initial catastrophe has passed, construction workers, highway workers and other infrastructure specialists to begin repair and rebuilding efforts on townwide systems such as bridges, roads and public buildings.

Moreover, to families with school-aged children, there is inherent value to having teachers and school staff live in town: shorter commutes for school employees mean less absenteeism in the event of inclement weather. Teachers and school staff also fit into the rubric described above: in case of an emergency that makes access to town problematic, it will be easier to get systems up and running again if employees can reach their workplace easily.

Finally, thinking globally, workers who reside close to their jobs drive less and thus emit less CO2. Shorter commutes also means more time to be with family, less stress and fatigue, and more time for leisure pursuits. A short commute results in a higher quality of life.

F. Action Items

The following recommended actions come from "Housing Production Plan 2010," the 2008 draft of the Master Plan, and the Community Development Plan.

1. Build Local Capacity to Promote Affordable Housing

a. Conduct ongoing community outreach to continue to inform local leaders and residents on the importance of affordable and work force housing and to present information on local housing initiatives.

b. Consider obtaining resources to help with implementation of the Housing Production Plan 2010" document by hiring, sharing or using consultants.

c. Capitalize the Stow Municipal Affordable Housing Trust through a number of resources, including payments through the fees in-lieu of actual units, private donations of land and funding, and negotiations with developers. In addition, the Community Preservation Committee could be asked to make a recommendation at Annual Town Meeting to allocate the 10% required funding for affordable housing to the Affordable Housing Trust Fund for a

specific purpose. This will allow the Stow Affordable Housing Trust to respond quickly to new affordable housing opportunities without having to wait for the next Town Meeting for fund allocation approval. Frequently, when deed-restricted affordable units come up for sale on the open real estate market, it can be difficult to locate an eligible purchaser who both income-qualifies (as low and moderate income) and who can simultaneously get bank financing to purchase the housing unit. The deed restriction only allows a brief time-frame for the municipality to locate a buyer. When it can not do so quickly, the deed restriction becomes void and the affordable housing unit is sold as a market rate unit to any buyer. The affordability restriction is entirely lost in this scenario and the Town's SHI is reduced. For this reason, it may make sense to have a fund available through the Trust that has enough capital to purchase a typical unit. This will buy the Town adequate time to locate an eligible buyer who income qualifies and thus preserve the affordability restriction. The Trust would then replace the money used by redepositing it in the trust fund when the unit is transferred to the new owner.

d. Modify the Comprehensive Permit Policy (December 2002) to ensure that it is more in line with the housing needs, production goals and strategies including in this Housing Plan as well as state guidelines that have changed significantly since then. Also, the Comprehensive Permit Policy should be revisited to determine if the conclusion that the most "acute" need is rental housing for all income levels and to determine if this is still what the Town wants. Finally, in all cases affordable housing units should be required to have perpetual deed restrictions.

e. Require fees from developers to the Town for peer review services from applicants of comprehensive permits per requirements set forth in 760 CMR 56.05 and 56.06.

2. Make Zoning and Planning Reforms

a. Identify acceptable forms of affordable housing so the Town can then determine appropriate modifications to the Zoning Bylaw or to encourage the same.

b. Modify the inclusion of affordable housing zoning bylaw (2003 Annual Town Meeting) to allow more housing types in such developments, including a more reasonable restriction on multi-family housing; insert more specific density provisions to permit a specified amount of units beyond what would be allowed in a conventional plan and sufficient to fully offset the costs of the affordable units; provide for a percentage of homes affordable to "below-market" households, i.e., households with incomes 81-110% of area median income. Nonetheless, despite this recommendation, the Town should take care to offset the density bonus by protecting more open space elsewhere in Town so that the overall residential density in the community is not increased by this provision. Also, we recommend modifying the fee in-lieu-of provision

to more accurately reflect the Town's cost to provide affordable housing units. However, if a modification of this provision is considered, it should be done with care so as not to provide a disincentive to prevent developers from making these fee payments.

c. Modify or replace existing regulations for Planned Conservation Development to include incentives for affordable housing (PCDs are subject to inclusion of affordable housing) and several other provisions to strengthen the bylaw and make it more responsive to more current needs and priorities. For example, density incentives could be added to the PCD bylaw. Also, the Town should look at the provisions in the model bylaws developed by the Metropolitan Area Planning Council and other organizations.

d. Create an inventory of land parcels that are potentially suitable for some amount of affordable/work force housing, mixed income, or mixed use development. (Part of this task has already been completed by the Land Use Task Force. Refer to their 2009 report for the details.)

3. Partner with Developers to Produce New Affordable Units

a. Provide suitable public property for development of land owned by the Town or other public entities but not essential for government purposes.

b. Offer predevelopment funding through CPA funds to ensure that the development will be feasible.

c. Support permitting as appropriate, to expedite approvals and lend local support during the permitting process on affordable housing developments.

d. Provide gap financing to leverage project financing. CPA and SMAHT money can provide the last "gap filler" to make projects feasible and the key leverage to secure necessary financing from state and federal agencies as well as private lenders.

4. Preserve Existing Housing

a. Continue to pursue the Affordable Housing Deed Restriction Program that has been funded with CPA funds to purchase deed restrictions from lower income property owners, converting these units to long-term affordability upon resale. A priority should be the purchase of permanent deed restrictions on the Elm Ridge homes and Plantation Apartments.

b. Monitor and maintain affordability of the Subsidized Housing Inventory to avoid loss of individual units as they come up for resale.

c. Help qualifying residents access housing assistance including a wide range of programs and services for counseling, support with housing-related expenses, and home improvements.

Chapter 4

Economic Development

CHAPTER 4: Economic Development

A. Overview

Economic development, particularly in a small suburban community like Stow whose residents value their multifaceted community character, is a topic that attracts mixed reactions. For the most part, Stow's residents love their quiet streets and unblemished landscapes. Many people hear the term "economic development" and immediately picture office parks and strip malls overtaking our apple orchards and dense forests.

But others take the opposite stance, pointing out that it is large commercial developments that can sometimes provide a town's only hope for lessening the residential tax burden. When conversations arise about the need for school construction or a new fire station, the question is inevitably "How much is it going to cost each taxpayer?" Companies who move into a residential community pay a large share of the taxes and make infrastructural changes more of a possibility – and less onerous to the individual homeowner.

Historically, Stow has taken a fairly measured approach to the subject of economic development. A few large property owners, such as Bose, and a few large retailers, such as Shaw's Supermarket, are generally seen as useful contributors to the community. Not only do midsized or large businesses alleviate the tax burden, but they also offer the possibility to some residents of working close to home. A shorter commute lightens traffic in the area and also complies with many people's goals of reducing their individual carbon footprint. Similarly, economic development as it applies to smaller, locally owned businesses such as dry cleaners, restaurants and small stores give residents the opportunity to keep money within the community and avoid long drives to neighboring towns.

B. Economic Development Objectives

1. Vision

Stow envisions a local economy that meet the needs of Stow residents with predominantly small businesses geared toward services, professional office, and retail options. A significant amount of land use will continue to be dedicated to commercial agriculture. Within this vision is tolerance for selective larger employers who are building or developing clean technologies, high-tech, bio-tech, and light manufacturing in existing commercially zoned districts.

2. Approach

Stow recognizes the relatively moderate role the local government can play in influencing what is typically market-driven development in the commercial arena. Thus, the basis for those recommendations that come later in this chapter is the notion that goals and objectives should be geared toward complementing what the private sector will do on its own and in protecting what is already here today. The goals and action items primarily contemplate relatively minor adjustments to commercially zoned districts, some new opportunities that could be created through overlay districts, and infrastructure that could encourage economic development. Beyond zoning, we believe that the appropriate role of government in economic development is to support local business through fostering a collaborative regulatory climate, and bolstering communication between the business sector and the local government. Stow has a good record of performing land-use permitting in a professional and appropriate fashion. Nonetheless, permitting for small businesses and in some cases residents can still be daunting and overwhelming. One way to provide an economic development service to the commercial sector is to develop a guidebook to permitting which those citing businesses in Stow can use as a tool to assist them in understanding the process. Keeping forms current and up to date on the Town's website and simplifying the process where possible, are all positive things that can help encourage business.

3. Contributing plans

Planning and dialog around this subject have occurred in many forums with written analysis in several major reports. Additionally, there have been public forums and surveys aimed at understanding the residents' desires and will. Background for this chapter was derived in part from material found in a variety of sources, primarily including the following:

- "Stow 2000" – the Town's last Master Plan, produced in 1996
- Stow Community Development Plan (CDP) – 2004
- Mixed Use Zoning Project funded through a Priority Development Fund Grant – 2005
- Master Plan Survey 2008

4. Progress on 2004 Community Development Plan goals

The Community Development Plan identified three broad goals for economic development:

1. Providing shopping and services to local residents
2. Revitalizing and improving the aesthetics of the community
3. Increasing the non-residential tax base in town

However, that plan was issued at a time when the economy was much stronger than it is today. Thus, it is difficult to measure progress toward these larger goals because after modest gains in the mid-2000s, the economy is presently contracting. Some data that will be discussed below appear to suggest that Stow has actually lost business, and there have been few, if any, start-ups within the community during that interval. Relative to goal number 2, many of the zoning changes identified in 2004 and discussed below have not yet been implemented. The combined effect of minimal to no progress on goals 1 and 2 render goal 3 also unchanged. Nonetheless, many of the specific recommendations in the 2004 CDP are still worthy goals and identified by the Master Plan Committee as still relevant.

A more detailed discussion of the present recommendations for economic development is included in the final section of this chapter. For initial perspective, the 2004 CDP goals are outlined below in a chart format with an indicator of their relevance to today's conditions and objectives.

CDP Excerpt (*with commentary in italics*) – "General Activities to implement the Economic Development goals"

a) Establish town committee to work on coordination of tourism efforts between golf, orchards, etc. Encourage establishment of Chamber of Commerce and Website or a business networking group to provide feedback to town on business issues.

Not yet done but still worth pursuing. Ideally a broad-based "Economic Development Committee" would be more appropriate than one that limited its charge to tourism. The Assabet Valley Regional Chamber of Commerce and Stow Business Association provide services to Stow businesses.

b) Work with Bose to determine how to meet needs of that business and its employees in a manner that will have least impact on residents of the Town, while encouraging Stow's other Plan goals (e.g., coordinate hotel/inn efforts to meet tourism but also business goals, or promote zoning to provide retail/services for employees nearby Bose facility).

This responsibility should become part of the charge for the new

committee, if one is created, per the above goal.

c) Examine rezoning some areas to meet the specific goals expressed in the Economic Development Discussions. This could result in several different business, commercial and industrial zoning districts, rather than one category of each at this time, in order to allow for specific uses in designated areas of the Town.

Still recommended for consideration in this Master Plan update. However, based on the Priority Development Grant forums convened in Stow by the Metropolitan Area Planning Council (MAPC), it is clear there is still work to be done in building consensus and clarifying actual zoning objectives. Again, the detailed discussion of recommendations is at the end of this section.

The following chart depicts recommendations for commercial area zoning changes that came out of the 2004 CDP and it includes the Master Plan Committee's current view on these goals:

Location:	**2004 Community Development Plan Goals**	**Present (2009) Status**	**Comments/current view**
Lower Village	Promote redevelopment of the Lower Village business district and a rezoning to allow multiple types of uses within the same zoning district (ie - retail and residential)	Forum held with MAPC and bylaw drafted and a subsequent public meeting held but due to significant resistance, the zoning has not been changed	Still a desired goal of the MPC, but boundaries still need to be determined carefully and tight controls imposed on type of development identified before zoning overlay could be advanced
Route 117 Industrial Zone (South of Bose to Athens Street)	Retain and promote this area for expansion of office park	Unchanged	Still desirable; however, much of the remaining industrial land has access issues
White Pond Road area and Commercial Area along River	Change zoning from Commercial to Business; To promote natural resource-based/oriented businesses; maintain 50% open space requirement as part of development	Unchanged	Still desirable with the exception of Stowaway Golf Course; see Chapter 6
Airport Industrial Area (to the south and East of Airport)	Promote lower intensity uses such as support facilities for cleaning or landscaping services/ businesses, or small light industrial facilities (due to poor road access)	Goal sidetracked as a portion of the land has been put aside for Active Adult Neighborhood Overlay district	Part of the remaining land still could be pursued for zoning changes to promote lower intensity uses as recommended in the CDP as well as commercial recreation uses.
Gleasondale Village and Orchard Hill Industrial Zone	In conjunction with TDR proposal for Gleasondale, encourage redevelopment of Gleasondale Mill as a mixed use retail/office or (if possible) retail/residential space as the core of a mixed use area that can serve the needs of the additional nearby residential uses	Unchanged but draft overlay bylaw developed through MAPC Priority Development Grant	As discussed in Chapter 3, the MPC concluded that TDR strategy is no longer recommended due to the complexity of TDR and the relative low probability that it could be an effective tool. However, the goal to promote redevelopment of the mill with some amount of mixed use is still a high priority. MPC recommends protecting Orchard Hill with an Agricultural Preservation Restriction or rezoning

Location:	2004 Community Development Plan Goals	Present (2009) Status	Comments/current view
Route 117-Business Zone at the Habitech 40B development site, and nearby Industrial and residential zoned areas	Consider inclusion of adjacent Industrial and Residentially zoned land in a mixed use zone to establish a "West Village"	Effort initiated but stalled due to neighborhood opposition	Needs further study
Route 117-Far West (Commercially zoned lands at West border of town	Leave as commercial zone, but re-write zoning to promote the specific desired land uses in conjunction with the offices currently there	No progress to date	Still a goal but of lower priority

C. Current Economic Activity

1. Tax base

To begin to paint a picture of the local economy, it is important to examine the present tax base and understand how that influences local municipal needs and objectives. Out of approximately 11,000 acres of land in Stow, about 600 acres are zoned for either commercial or light industrial use. This is only 5.5% of the total land area within the community. Nonetheless, a slightly greater amount, more than 6.5% of the Town's tax revenue, comes from the commercial sector. In FY10 the revenue from the various sectors can be categorized as follows: Personal Property 1.8799%, Industrial 2.1521%, and Commercial is 4.7399% and residential is 91.2281%. Some of the revenue from Personal Property taxation is likely coming from the commercial sector but it is not tracked and broken down separately. It's unclear from this data if commercial properties yield higher values and thus a higher proportion of taxes or if the data merely reflects the influence of one or two large properties. Of the 600 acres of land which is zoned commercial, there remain only 142 acres of land yet to be built upon. Still that is 23% of the commercially zoned land that could eventually be income producing properties.

2. Tax rates

Stow does not have a split tax system. Rather, it charges the same rate for so-called Commercial, Industrial, and Personal Property (CIP) as it does for Residential taxpayers. Thus, as reflected in the chart below, the CIP rates for Stow are among the lowest of the surrounding communities. Assuming the community wishes to continue with this structure, these favorable rates are something the Town could use to its benefit in trying to attract new businesses.

Alternatively, as towns grow their commercial tax base, some will elect to shift the burden of taxes onto the commercial sector as a means to minimize the amount residential rate payers will have to pay. Some believe that such a shift will act as a deterrent to new businesses that might

want to locate within the community and is probably not advised for a town such as Stow which already has difficulty in attracting businesses. However, if a handful of very large businesses were to locate in town, Stow might want to revisit its tax classification system to see if it makes sense to move toward a split system. Before doing so, a review of the assessed value of existing CIP rate payers' properties would need to be conducted to determine what the impact would be, and extensive discussions with the community would need to be undertaken.

As may be inferred from the chart below, those communities with a split tax rate (Hudson, Maynard, Marlborough, and Sudbury) likely rely heavily on the commercial sector in supporting their town wide revenue needs.

Commercial tax rates for Stow and surrounding communities:

Town	Tax Rate (per $1,000 of RE Value)
Stow	13.82%
Acton	14.62%
Berlin	11.66%
Bolton	14.06%
Hudson	20.79%
Maynard	21.78%
Marlborough	23.72%
Sudbury	19.30%

3. Employers in town

Stow had 186 different employers in 2008[12]. This figure is considerably less than the year 2000 figure cited in the 2004 Community Development Plan from data gathered by the Central Transportation Planning Staff. At that time, that data set indicated there were roughly 249 businesses in town. However, we cannot conclude from these data that 25% of Stow's business base was lost because the data came from two different sources, and the earlier set might have counted more home-based businesses not reflected in the recent federal data. The present figure of 186 may still seem like a very large total number, but many of those businesses are smaller establishments employing only a few individuals. In 2000, 72% of Stow's businesses had just four or fewer employees. Furthermore, when compared with surrounding towns, one sees that as a percentage of jobs per commercial acre of land, Stow has the lowest percentage of any of

[12] ES 202 data collected by the State and Federal government

the nearby communities, averaging just 10-15 jobs per commercial acre.[13] The low number of jobs per acre is also probably indicative of the many rural and agricultural based businesses prevalent in Stow.

The chart below from the Executive Office of Workforce Development shows 2008 data on employment by various industry sectors:

Industry	Commercial Establishments	Total Wages	Average Employment	Average Weekly Wage
Total, All Industries	186	$115,749,224	2,070	$1,075
Agriculture, Forestry, Fishing & Hunting	4	$993,359	28	$682
Construction	25	$13,748,806	229	$1,155
Wholesale Trade	16	$4,841,048	68	$1,369
Retail Trade	13	$3,535,772	185	$368
Information	7	$4,844,210	54	$1,725
Finance and Insurance	5	$1,712,594	31	$1,062
Professional and Technical Services	32	$3,736,034	62	$1,159
Administrative and Waste Services	14	$982,370	35	$540
Health Care and Social Assistance	7	$1,564,360	66	$456
Arts, Entertainment, and Recreation	9	$4,303,520	187	$443
Accommodation and Food Services	10	$1,486,558	97	$295
Other Services, Ex. Public Admin	22	$2,242,799	57	

It is interesting to note that the largest number of business establishments is in the professional and technical services sector, but the arts/entertainment/recreation cluster employs the second-largest number of people. This is followed by the construction trades, and other services not easily classified. In Stow's case, the "other" category likely reflects schools, government, and other municipal services. Retail trade reflects a surprisingly low number of companies, which may be because many establishments that one would normally consider retail are reflected in the other categories such as food services or entertainment. However, relatively speaking, the retail sector had one of the highest average employment of workers: third after the construction, arts, and entertainment sectors, respectively. So those few retail establishments employ large numbers of people. Although these data identify only four agricultural businesses, we know there are considerably more than four commercial farms in town, and these establishments are likely spread between the wholesale trade and "other" category.

4. The population of workers

The median household income in Stow was $96,290 in 2000 - an extraordinarily high figure notable because it was more than double the national median household income of $41,994. At that time. According to federal census figures from 2000, there are about 3,600 workers – meaning adults employed or seeking employment – living in Stow. Relative to the total population in Stow, more than 50% of residents are in the workforce, which indicates a

[13] Mass Department of Employment and Training, and MassGIS data

relatively low number of children and/or retirees per household. The unemployment rate in March 2009 was 6.1%, approximately 2% lower than the state average at that time.

This low unemployment rate is probably due to the difference in education level among the Town's population compared with state and national averages. According to that same census, 28% of adults 25 or over in Stow hold a master's, professional or doctorate degree, more than twice the percentage statewide (13.7%) and more than three times the percentage nationally (8.9%).

For adults whose highest degree is a bachelor's, the percentages are 33.8% for Stow, compared with 19.5% statewide and 15.5% nationwide.

	Labor force	**Employed**	**Unemployed**	**Rate of unemployment**
Statewide	3,404,500	3,124,900	279,600	8.2%
Stow	3,494	3,281	213	6.1%

Above figures are from March 2009 data obtained from the Massachusetts Executive Office of Labor and Workforce Development. The table below shows the trends since 2000, when Stow's unemployment rate was at an astounding 2% low. The rates peaked in 2003 at 5%, dropped for several years, and then began climbing at the end of 2008 and continuing on into 2009, reflecting some improvement since March. As of November 2009, the Stow and Massachusetts unemployment rates were 5.7% and 8.3%, respectively.

Labor force, Employment and Unemployment (2005 total Stow Population 6,179)

(not seasonally adjusted)

Month	**Year**	**Labor Force**	**Employed**	**Unemployed**	**Unemployment Rate**
06	2009	3,536	3,303	233	6.6
05	2009	3,498	3,279	219	6.3
04	2009	3,498	3,293	205	5.9
03	2009	3,494	3,281	213	6.1
02	2009	3,504	3,278	226	6.4
01	2009	3,497	3,291	206	5.9
Annual	**Year**	**Labor Force**	**Employed**	**Unemployed**	**Unemployment Rate**
Average	2008	3,535	3,390	145	4.1
Average	2007	3,505	3,390	115	3.3
Average	2006	3,446	3,320	126	3.7
Average	2005	3,426	3,303	123	3.6
Average	2004	3,379	3,243	136	4.0
Average	2003	3,419	3,247	172	5.0
Average	2002	3,432	3,264	168	4.9
Average	2001	3,409	3,301	108	3.2
Average	2000	3,328	3,263	65	2.0

5. Commuting patterns

Because of the minimal amount of commercial and industrial development within town, it is not surprising that most Stow residents leave town for work, though it is worth noting that there is a significant number of self-employed workers and telecommuters, both categories comprising people who work from their homes, within the Town. The following numbers come from the 2000 census:

"In-migration": people who live in other towns and commute to Stow to work	2,687
"Out-migration": people who live in Stow and commute out of town to work	3,112
People who live and work in Stow	545

With growing awareness of energy consumption, more and more workers are prioritizing a shorter commute. Promoting economic development within the Town would not only create more commercial tax revenue; it would also allow more people to work closer to home. The following table gives current information on typical commute times for residents:

Length of commute	Number of workers
0- 9 minutes	312
10-19 minutes	559
20-29 minutes	474
30-39 minutes	608
40-59 minutes	671
60+ minutes	308

It is important to note that more than 50% of workers have commutes of 30 minutes or longer. This is indicative of a town that has relatively few jobs within the community. In Stow's situation, this imbalance is exacerbated by the fact that the higher price of housing means that in order to live within the community, one must earn above-average wages. However, many of the jobs in Stow are more moderate wage jobs. The average weekly wage paid to workers in Stow yields an annual individual income of $55,900 which is well below the median household income of $96,290 for Stow residents. This creates an imperative where workers must typically go outside the community for work to earn at the levels needed to live in Stow.

D. Future Economic Activity

Many questions surround the topic of economic development. For example, is the current industrial zoning allotment in Stow adequate, too dense, or not dense enough? Are the restrictions on industrial construction – such as the size of a facility in relation to its parcel of land, and the permissible height of buildings – sufficient for preserving our community the way we want it? How do the currently unused mill buildings factor into the community's economic potential? Do we want to consider ways to make better use of those buildings: for example, allowing overlay zoning to permit mixed use purposes such as combining retail and residential options within the same building?

The 2008 Master Plan Survey posed this question to gauge respondents' attitudes toward increasing the possibility of economic development in town, "Do we need more industrial or commercial land in town?" The results were mixed: 179 said yes while 191 said no.

One way to foster economic development without significantly changing a community's character is through the selective use of overlay districts, which can enable multiple kinds of zoning to be combined. Typically, it is done to allow an additional discrete use not normally permitted in that zone. For example, mixed use zoning can be overlaid in a commercial zone, or age-restricted higher-density housing can be allowed at targeted areas in a single-family residential zone. The Planning Board is exploring bylaws for mixed use overlay districts, and discussing specific areas of town in which this strategy might be used to capture the scale and character of traditional New England villages and allow development and redevelopment that differ from conventional zoning regulations. The intent of such a bylaw is to promote a range of compatible land uses, including various types of single-family and multi-family dwellings; commercial, industrial and office uses that focus on serving the needs of our community; and common, public open space.

Two specific areas in which overlay zoning could foster economic development without devaluing the community's character are Gleasondale and Lower Village.

Gleasondale is now both a residential and work center with a growing artisan industry, waterways, rail bed, and Victorian influence. Our vision is to encourage restoration of the mill building as an anchor for a village rich in tradition, thereby promoting village-style redevelopment and re-establishing Gleasondale as a neighborhood commercial center where people want to work, shop, and reside.

A mixed use overlay district for Gleasondale would encourage economic development by helping to redevelop the mill for a combination of "village-scale" businesses, retail, and housing.

Lower Village, once typical of small villages in New England, is now our business center, with shopping, banking, the post office, and convenient high-density residences for seniors, a village

green and historic homes. “Stow 2000” (the 1996 Master Plan) described Lower Village as an area identified by the Planning Board and Board of Selectmen, in which Stow would like to focus its business development by encouraging mixed use development. In 1990, the Town nominated Lower Village as a Concentrated Development Center under the Metropolitan Area Planning Council’s (MAPC) comprehensive regional plan, Metro-Plan 2000. Our recommendation is to use the MAPC’s guidelines to encourage development and redevelopment of the Lower Village area in a manner consistent with a traditional livable and walkable New England.

A mixed use overlay district for the Lower Village business zoned area would encourage economic development by accommodating infill and expansion where appropriate and supports a pedestrian-friendly range of compatible uses, including a mix of residential and nonresidential uses. However, imposing a mixed use overlay district requires significant changes in zoning regulations, which would have to go through an extensive approval process. If the Town does favor the idea of mixed use for Lower Village, the next step should be to start investigating the necessary zoning changes.

Respondents to the 2008 Master Plan Survey were supportive of planning efforts and possible zoning changes to create village districts in the Gleasondale, Lower Village and West Stow Areas, broken out as follows:

VILLAGE	YES	NO
Gleasondale (Encourage restoration of the mill building as an anchor to promote redevelopment and re-establishment of a neighborhood commercial center with a mix of housing types that are in proximity to jobs, shops and services; increase the Town’s stock of affordable housing; and promote a greater sense of Gleasondale’s community throughout the Town)	277	101
Lower Village (Encourage redevelopment of the commercial center; increase the Town’s stock of affordable housing; enhance the Lower Village’s identity and development potential as a focal point for pedestrian-related uses; and promote a greater sense of community.)	276	105
Northwest/Southwest Stow (Promote small retail shops to support existing high-density development and foster recreational amenities with a goal toward protecting additional open space where possible.)	260	115

Near the Lower Village business zone is commercially zoned land located off of White Pond Road, extending from the road to the Assabet River. The build-out potential for this area is huge. The 1996 Master Plan reports that another 886,476 square feet of commercial building space can be constructed in this vicinity. Although this is unlikely because most of the allowed commercial uses include outdoor storage, construction yards, contractors, or lumber yards, these types of uses could be detrimental to the character of the nearby Lower Village. Some residents voiced concern that this area should be rezoned to Recreation/Conservation due to its

proximity to the Assabet River, Gardner Hill Conservation Land (Town Forest) and Department of Fisheries and Wildlife property.

Many townspeople believe that Stow would benefit from more cultural and societal resources: that is, not just business for the sake of business but businesses that offered personal benefits to the community, such as coffee shops, pubs, galleries, bookstores, etc. As reflected in the following chart, results from the recent Master Plan Survey suggest that residents are not eager to see more large industrial businesses in town but would welcome small businesses, shops, and professional services such as physicians, financial professionals, and attorneys.

Would you support the rezoning of industrial properties for commercial use for the following classifications?		
Retail	253	70%
Offices	266	74%
Research and design (a category that connotes lower employee occupancy and less traffic than traditional office space)	327	91%

E. Additional Factors

1. Discussion of commercial tax implications

Along with the attitude of townspeople as outlined above, there are many other factors that influence the success of economic development.

A common notion held by many homeowners is that an increase in economic development would lower their property taxes significantly. However, this assumption can be more or less accurate depending on the characteristics of the community. Currently, in Stow about 85-90% of the cost of running the Town and paying for education comes from our property taxes. If the Town were to seek more commercial revenue, it could do so by encouraging more sites to be built or by imposing a split tax rate. As was stated above, Stow's current zoning only has 5.5% of the land area designated for commercial and much of that land is already built upon.

In 2007, a selectman and an assessor evaluated a series of numbers, based on a set of assumptions, that enabled them to identify possible savings from more commercial growth. Their first step was to identify the top two commercial taxpayers for FY 2007. They then developed a model assuming that Stow had additional commercial taxpayers equivalent to the top two already in Stow. In other words, they wanted to determine the impact of doubling the taxes paid by the top two commercial employers.

For FY 2007, the top two businesses paid taxes totaling $386,362 based upon a valuation of $27,956,700. Therefore, using the 100% increase in the model, Stow would have received $772,724 in commercial taxes and the residential taxes would have been reduced by $386,362.

The actual average residential tax per household in FY 2007 was $7,042. The average household tax with the additional businesses in the model was $6884 for a reduction of 2.2% or $158 (about $40 per quarter). This number may be viewed as trivial or highly significant, depending in part upon how many years one expects to pay taxes and on a family's particular economic position. For a resident expecting to live in town 25 more years, it is a difference of nearly $4,000, and the model does not take into account the lost opportunity cost of the $158 annually. That is, what else could you have done with that money if you could spend it or invest it? For those on a fixed income or those with more moderate incomes, this $158 per year is quite meaningful.

The analysis was also not able to take into account other variables, such as the compounding effects of the additional commercial revenue over time. The savings to each household could be further augmented significantly beyond the $158 per year if a split tax rate were imposed, should the Town wish to pursue that option. An analysis was not done as to what the split tax rate would yield in residential property tax relief.

However, the assessor did take the model one step further to calculate the impact of a range of economic development on residential taxes. The analysis showed that to achieve a reduction of $1,000 in the average tax bill, this appeared to require the addition of nearly $200 million to the commercial tax base.

There are some other important considerations beyond the financial impact in the model. For example, there would need to be sufficient land to accommodate more commercial activity. The top two firms used in the model occupy nearly 100 acres. Stow presently has only a limited supply of vacant commercial and industrial zoned lands. Thus, if the Town were to set out with a goal of fostering the building of commercial facilities, it might need to consider rezoning some land currently classified for other uses, and it might have to explore providing water and sewer infrastructure (see below).

The aforementioned model seems to demonstrate that there may likely be only minimal residential tax savings even if space and infrastructure could be provided. Nonetheless, it does not negate the value of fostering limited economic development because, as discussed above, there are other non-monetary reasons why communities desire commercial activity.

2. Discussion of infrastructure issues

A major impediment to the redevelopment of Lower Village involves Stow's current lack of water and sewer infrastructure. Most small to moderate sized businesses would also likely need water and sewer in order to be viable. There are also currently a few existing commercial properties not in compliance with DEP's public drinking water requirements. The cost of providing this infrastructure is typically out of reach for small businesses, and renders medium-sized commercial development uncompetitive if a sizable up-front capital investment is

necessary for water and sewer. On several fronts, options continue to be evaluated and considered relative to bringing a water supply to Lower Village.

For a large-scale employer such as Bose, putting in a water/sewer system is merely part of the cost of doing business, but the lack of public water and sewer could easily be enough to deter a small retailer or restaurant owner from considering real estate in Stow. Some in Town would say that it is expressly desirable to limit commercial growth by not providing water and sewer, while others would say we need to expand infrastructure to encourage expansion and redevelopment. An extensive discussion of the challenges of developing new water and sewer infrastructure appears in Chapter 7, but the topic merits mention here as well since it is intrinsically connected to the whole idea of economic development.

Infrastructure expansion tends to have the by-product of encouraging economic expansion. Given this tendency, the Town needs to proceed slowly and diligently when recommending new infrastructure to support commerce. It especially needs to make certain that appropriate bylaws and regulations are in place prior to the installation of new infrastructure so that the Town is not later burdened with inappropriate development or excessive density. Development, where it is allowed, should happen on the Town's terms to the extent it is possible to control.

In addition to the water and sewer issues, economic development comes with other, less tangible considerations that need to be carefully examined as the community considers promoting or discouraging economic development in various areas of town.

General growth or specific commercial projects may require traffic improvements. For large-scale projects, these costs are often passed on to the developer, who is required to make the physical improvements or pay the Town to perform the necessary modifications. However, with smaller incremental growth, it is often difficult to require a small business to make upgrades to area roads. Again, it is economically unfeasible to place that burden on a small business.

Nonetheless, Stow needs to take particular care to ensure that new developments are evaluated for any impacts they may have on the local road network and municipal services such as public safety. The best way to do this is to have major developments reviewed by an outside peer reviewer who has expertise in traffic, civil engineering, and municipal operations. This review is normally paid for by the developer and can be an invaluable tool in assisting a community to mitigate adverse effects of large development. It also aids in ensuring that the development is consistent with local character and objectives. Stow's Planning Board should continue its practice of using peer review consultants.

Traffic infrastructure was explicitly studied by the Lower Village Committee when it undertook its work evaluating options for Lower Village. This committee believes a pair of modern roundabouts would be appropriate to be installed in the Lower Village along with a number of permanent pedestrian traffic calming islands. For more information on this topic, we direct you to the Transportation section of this plan.

F. Conclusions Regarding Economic Development Costs and Benefits

There are also less tangible factors influencing economic development, including the availability of suppliers to businesses, the regulatory environment, the presence of regional competitors, the opportunities for alliances with other companies, the access businesses would have to consultants and educational institutions, and new state and federal tax incentives. Most of these components are difficult, if not impossible, for a locality to influence. Nonetheless, there are some minor areas where the municipality could have an impact.

For example, Tax Increment Financing (TIF) is an excellent way to provide a business incentive for a new or expanding company. Tax Increment Financing (TIF) is a tool that permits local governments to help finance economic development by forgiving a portion of local taxes for a set period of time. A portion of the taxes on the new growth or incremental increase of real estate value, created from the expansion or new construction is reduced by a negotiated percentage. This provides a meaningful reduction of annual overhead costs to the developer or job creator and helps to ensure the financial success of the venture. In Massachusetts Tax Increment Financing is approved locally and by the Economic Assistance Coordinating Council (EACC) through the Economic Development Incentive Program (EDIP). This state approval also allows the job creator to be eligible for State Investment Tax Credits. In order for a Town to grant TIF's it must first be part of an Economic Target Area designated and approved by the EACC.

The MPC believes the Board of Selectmen should pursue joining an economic target area so that it has the option with Town Meeting approval to offer and negotiate Tax Increment Financing.

Those residents in favor of more business generally do not want it built near their homes or in lieu of open space protection. Commercially zoned land that is both available and buildable is virtually nonexistent. Zoning changes would allow more commercial activity, but the required infrastructure would be expensive if the Town had to pay for it. Nonetheless, while the community might perceive there to be more negatives than positives in pursuing economic development, some modest commercial growth would help relieve the pressure on residential tax values over the long term while potentially also providing nearby services for Stow residents.

While Stow today has the majority of its revenue provided by the residential rate payers, there is still meaningful revenue contribution generated by the commercial sector. To the extent feasible, maintaining the present balance by preserving existing businesses within the community will help to prevent residential taxes from becoming even more onerous than they are today.

The model that is likely to be the most palatable to residents and also the most feasible is to encourage small infill development of retail and service business along existing commercial

corridors while also promoting redevelopment of current commercial areas that are not presently thriving. Infill development (buildings placed between existing structures) is entirely consistent with smart growth provisions and tends to be the best way to maintain open space and community character. It is also consistent with objectives expressed in the

Existing Retail Area – Stow Shopping Center

2008 Master Plan Survey, in which residents indicated a desire to have more diverse shopping and alternative retail options. Providing areas within town to shop also helps to reduce a community's carbon footprint as residents drive shorter distances to obtain the goods they need for everyday life. Asked whether they would support possible zoning changes that would foster the development of small retail businesses in West Stow, approximately 70% of respondents to the 2008 Master Plan Survey indicated that they would; almost exactly the same number said they would support the rezoning of existing industrial properties for retail classification.

There are some specific zoning overlays or modifications to underlying zoning that could be explored in this pursuit. The next sections are dedicated exclusively to the zoning recommendations that came out of this Master Plan update.

G. Recommended Areas of Focus for Economic Development

Inherent to the character of Stow are orchards, farms and golf courses, which are businesses that must be economically viable to survive. Tourism is essential to the well-being of these businesses, along with the Town's various bed-and-breakfast inns.

We recommend that as many townspeople representing as many perspectives as possible be brought into the discussion about what changes to make toward improvements in economic development. We also recommend that Stow develop a bureau of tourism and actively market what it has to offer.

The December 2005 Special Town Meeting created the Stow Agricultural Commission to help preserve the rural character of Stow through the preservation and promotion of agriculture. The Commission will help keep Stow farms viable by promoting agriculture through educational

literature, events, and articles. The Commission can act as a voice for agriculture in town government, helping to ensure that the various boards understand the impact of their actions on agriculture.

Stow's zoning bylaws should be supportive of these businesses by allowing uses such as restaurants, inns and bed-and-breakfast operations, which would bring more tourism to town. Bed-and-breakfasts have the additional benefit of providing incentives for the preservation of historic homes. For more information on Massachusetts bed-and-breakfast regulations, go to http://tinyurl.com/2wfplbo

In addition to agriculture, goods and services, other types of entrepreneurship are part of the economic fabric of Stow. A recurring problem has been the lack of space for expansion of "cottage industry" businesses that have outgrown the owner's home. Stow's zoning should recognize this need and support areas for affordable "incubator" space for these businesses.

H. Specific Recommendations for Key Areas of Town

1. Lower Village

The Master Plan's vision for this area of town includes the following objectives:

- Encourage revitalization of the commercial center
- Increase the Town's stock of affordable housing by sprinkling occasional units throughout the area
- Promote village-style redevelopment
- Enhance the Lower Village's unique identity and development potential as a focal point for pedestrian-related uses
- Reduce roadway congestion
- Promote a greater sense of community

To help accomplish some of these goals, the following specific recommendations should be followed:

- The Town should evaluate existing conditions and traffic concerns and review relevant studies on this area of Town such as the 2006 FST Lower Village Traffic Report and Lower Village Streetscape proposed specifications
- With this information as background, the Town should prepare an in-depth Master Plan for Lower Village utilizing a highly inclusive, public participation process which includes reaching out to businesses and residents alike
- Through the Master Planning process, once substantial consensus has been achieved, recommendations for design guidelines and appropriate zoning uses

should be identified. This information can then potentially become part of a Lower Village Overlay District proposal for Town Meeting's consideration

We envision development and redevelopment of Lower Village in a manner consistent with a traditional livable and walkable New England village. Toward this end, we recommend further evaluation of the idea of creating a new Lower Village mixed use overlay district. (The evaluation should include careful consideration of the district's boundaries, appropriate transition zones, and controls to limit over development) A mixed use overlay district for the Lower Village could allow development and redevelopment that support a pedestrian friendly range of compatible uses, including smaller-scale housing and commercial services. It is important to note that any consideration of new zoning for this area must emphasize maintaining and preserving the character of Stow. Thus, design guidelines and zoning modification, if presented to Town Meeting, should be careful to consider potential adverse effects as well as potential positive outcomes. Consideration to control site lighting, signage, traffic, noise, odors, maintenance, and other potentially problematic complications of commercial and mixed use, should be factored into recommendations for this area.

If advanced, characteristics of this district should include:

- Provisions for existing business parcels to be more retail oriented, allowing up to 100% retail/office use, and no more than 20% residential use
- A mix of residential and non-residential uses
- "Village-scale" businesses which are limited in height and scale and have design guidelines that encourage traditional facades
- Setbacks that keep businesses and residences close to the street
- New development and redevelopment that are in harmony with the traditional style of village development

The goals should be as follows:

- Preservation of existing historic structures
- Diversified housing
- Conversion and/or building of infill housing with an emphasis on affordable housing

Lower Village Improvement Plan

We should implement the Lower Village Sub-Committee's improvement plan as a top priority. To integrate the characteristics we envision, the following goals should be considered:

- Improve the Lower Village Common to create a visual link from the common to the cemetery. Use the recently expanded green area as a focal point for events, such as a farmers' market or art exhibits

- Beautify Lower Village Common with additional plantings with funds provided by the Stow Garden Club or other creative source
- Reclaim the Town land on the Route 117 between Red Acre Road and Pompositticut Street, creating a link between the existing common and Lower Village Cemetery, and create a walkway from Pompositticut Street to Red Acre Road
- Encourage landscape improvements to the Stow Shopping Center
- Realign curb cuts to promote safer and more efficient traffic flow
- Continue to find ways to address pedestrian safety and traffic issues in Lower Village

White Pond Road area and commercial area along river:

- Change zoning from Commercial to Business; promote natural resource-based/oriented businesses; maintain a requirement of 50% open space as part of the development

2. Gleasondale

Gleasondale is both a residential and work center, with its historic mill and growing artisan industry, waterways, rail bed, and Victorian influence. Our recommendation is to encourage restoration of the mill building as an anchor for a village rich in tradition; promote village-style redevelopment; re-establish Gleasondale as a neighborhood commercial center where people want to work, shop, and reside and where visitors can access its recreational, historic, and commercial features; increase the Town's stock of affordable housing; and promote a greater sense of the Gleasondale community throughout the Town.

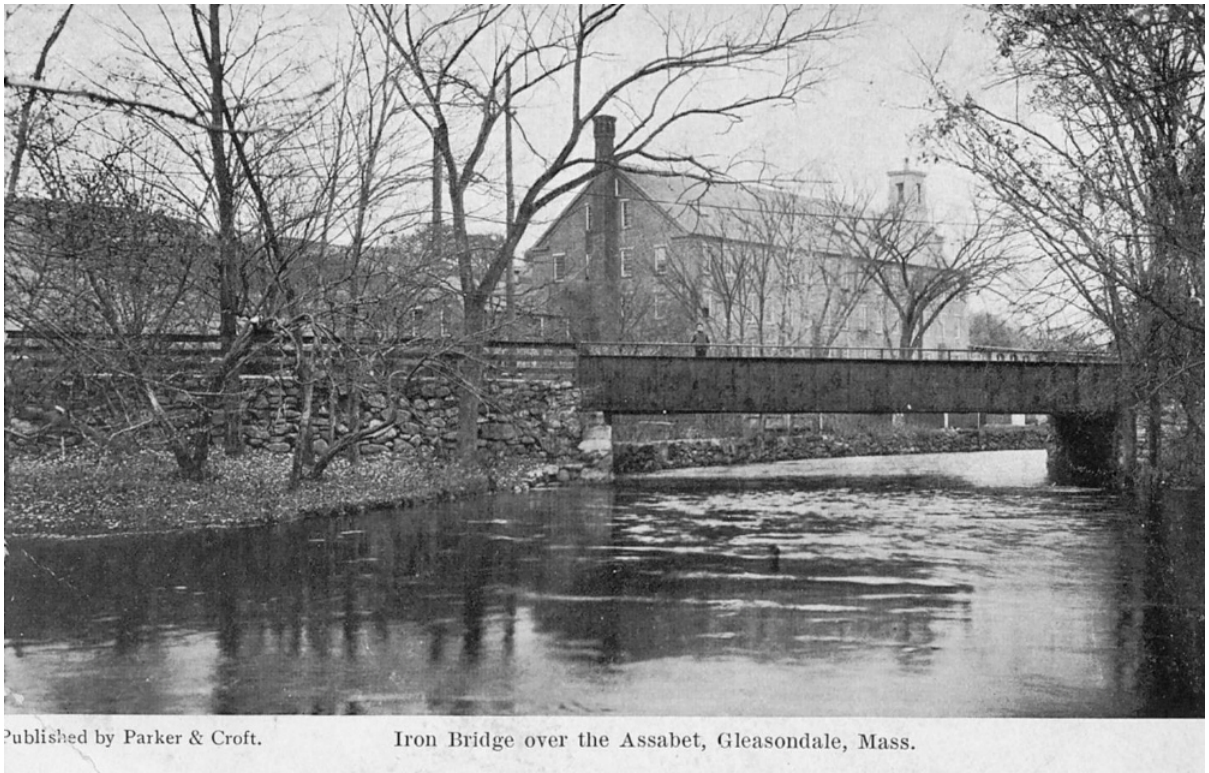
Supporting Elements Currently in Place – Gleasondale, originally known as Rock Bottom, grew around its mill industries. It featured saw mills, grist mills, a woolen mill, a post office, a general store and housing for the mill workers.

Hazardous Waste Sites - The Gleasondale Mill has environmental issues which complicate its reuse. In the late 1970s and early 1980s, it was cited for discharging sewage into the canal that fed into the Assabet River. Fortunately, owners complied with BOH orders to install chemical toilets. Later, a wastewater treatment system was installed at the Mill and is still regularly pumped. In 1989, it was declared a 21E site, thereby subject to cleanup under the DEP before it can be developed. In 1994, it was classified as a Tier 1B, with the Fahey Exhibits Building listed as a phase 2. The reports stated that "VOCs and chlorinated solvents released resulting in release to soil and also a groundwater release." In 1992, there were some soil samples tested by Enviro Corp. The samples were drawn from two sites located on either side of the Fahey property. Those two samples appeared to be clean.

There is a variety of funding sources at both the state and federal level that might be able to help with subsequent cleaning of this site. The Town should look for opportunities to facilitate communications and to assist private developers to access these funding sources.

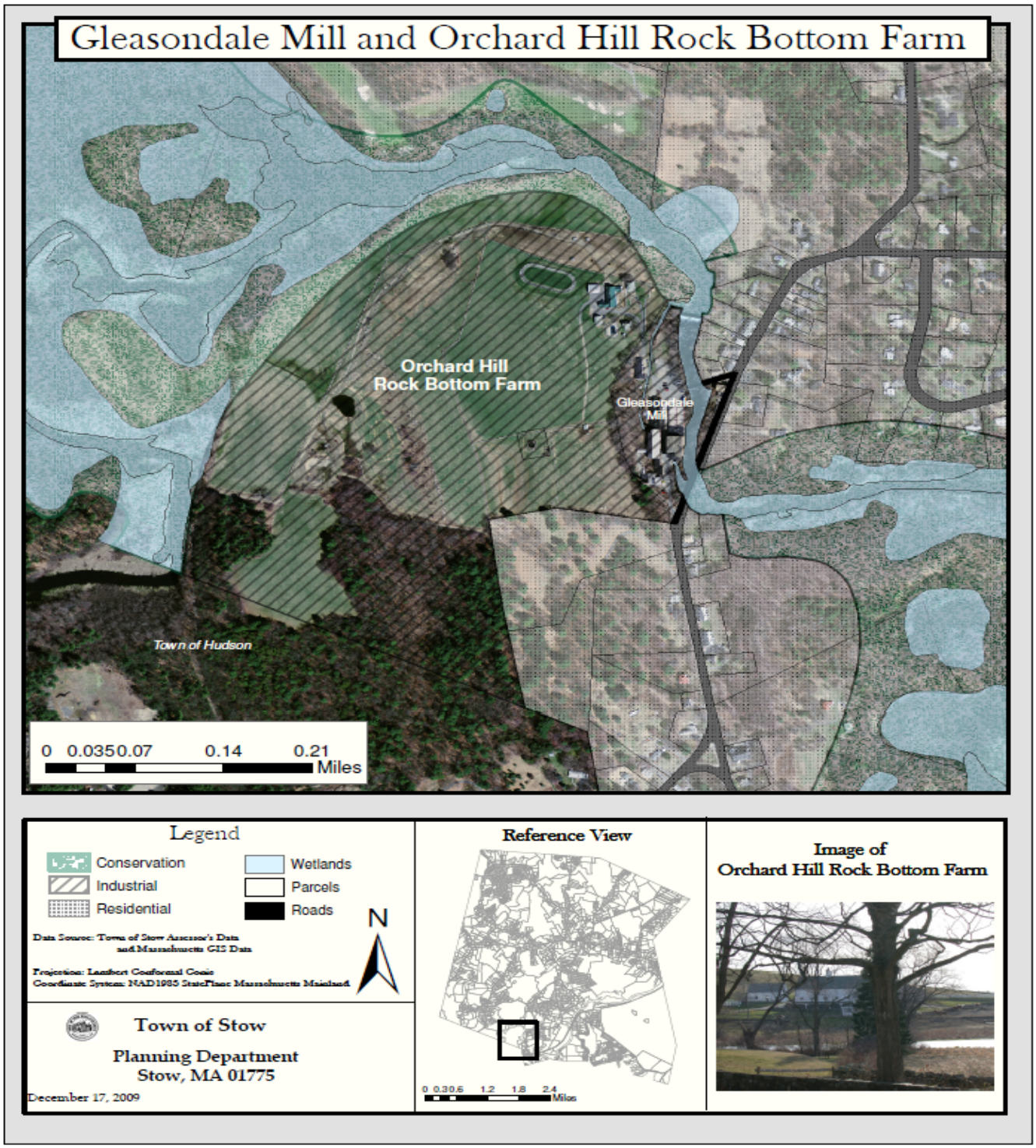
Potential Buildout – A quick review of the parcels in Gleasondale revealed that a significant majority of the lots has less frontage and land area than is currently required by our present Zoning Bylaw. These characteristics combined to create the unique mill village feel of the Gleasondale area. However, if the residentially zoned Gleason-Perkins land and the adjacent industrially zoned farmland, pasture and woodland are developed along with the nearby golf courses and apple orchards become house lots, it will likely become difficult to distinguish Gleasondale village from the surrounding community. Should this happen, the village may no longer be an identifiable entity, and its noteworthy heritage could be lost. The following table shows the build-out potential of Gleasondale under our current zoning:

Acres	Existing Dwelling Units	Additional Dwelling Units	Existing Industrial Floor Area	Additional Industrial Floor Area
162.66	71	103	91,920 sq. ft.	272,376 sq. ft.



Published by Parker & Croft. Iron Bridge over the Assabet, Gleasondale, Mass.

FIGURE: 11 Map of Gleasondale



Orchard Hill, also known as Rockbottom Farm, is a 90-acre industrial zoned parcel, situated on an esker behind the mill buildings. This is an important historic scenic vista, with two farmhouses (1820 and 1870), an 1851 barn complex which was expanded over the course of several decades, and agricultural fields sloping down to the Assabet River. This was a mill farm that produced food for the mill works and continues to operate as a farm today.

At present, Rockbottom Farm is enrolled in Chapter 61A. Converting the horse farm into an industrial development would likely have the undesirable result of creating an additional 235,710 square feet of industrial floor area. Because of its historical and aesthetical value, the MPC recommends the Planning Board explore modifying the zoning on this key parcel along with other large agricultural properties to create a new commercial agricultural zone that limits the type of commercial activity to agricultural and farming pursuits. If the Town joins an Economic Target Area (see TIF discussion above) the Town could further consider designating these parcels as economic target areas so that farmers might be able to reap the benefits of both a local TIF and the state Tax Investment Credit for property, equipment, and other capital investments in their facilities. This might help bolster the vitality of the local agricultural economy and help to ensure that farms, and orchards continue to be profitable in the area.

The Gleasondale Mill is located on two parcels that total almost five acres of land. However, these parcels have significant development constraints with slopes greater than 25% and no feasible access for industrial development. The options are either agricultural restriction or rezone to recreation/conservation.

Under current zoning, the additional floor area of the Gleasondale Mill would be 34,070 square feet. Ideally, economic development in Stow's villages will occur among and be compatible with the existing historic structures and places. In Gleasondale, it would be appropriate to foster mixed use redevelopment of the historic mill. The Gleasondale Mill could house the small incubator businesses that have been so important to Stow. It would also be appropriate to allow artists' studios in combination with an artist's dwelling or loft in the Gleasondale Mill.

Gleasondale Recommended Actions – We recommend a number of specific actions and supporting initiatives be put in place for Gleasondale over the next five years, keeping in mind that roadway widths, water and sewer infrastructure are limiting factors in this area.

Establish Gleasondale Mill Mixed-Use Overlay District
We envision development and redevelopment of the Gleasondale Mill in a manner consistent with a traditional livable and walkable New England village and recommend the adoption of a new Gleasondale Mixed-Use Overlay District.

A mixed use overlay district for Gleasondale will also allow development and redevelopment that supports a pedestrian friendly range of compatible uses, including various types of single-family and multi-family dwellings and commercial services. The overlay district should encourage:

- Redevelopment of the mill for a combination of business, retail, and housing
- A transition zone that allows a mixture of uses while maintaining the character of existing historic structures (for example, an artist studio and individual artist dwellings and lofts)
- Setbacks that keep businesses and residences close to the street
- New development and redevelopment that is in harmony with the present village character and environment
- Preservation of existing historic structures
- Diversified housing
- Establish a list of uses and design guidelines

Responsibility: Planning Board (lead), Board of Health

We should consider establishing an Economic Development Committee to work with the Planning Board to broadly pursue economic development opportunities including:

- Explore joining an Economic Target Area and the use of Tax Increment Financing (TIFs) and special tax assessments
- Establish a Gleasondale village improvement plan
- Actively engage landowners and business owners in discussions to promote redevelopment to include mixed use residential and retail
- Actively seek out specific businesses, such as artist studios, coffee shops and cafes to fill vacancies or locate within town
- Establish public/private partnership for redevelopment of the mill
- Seek Brownfield funding

Pursue rezoning of Orchard Hill (Rock Bottom Farm) to Recreation/Conservation or protect it with an Agricultural Preservation Restriction.

If the Town is able to join an Economic Target Area, the Committee should explore designation of Gleasondale as an Economic Opportunity Area. This should ultimately be brought to the Board of Selectmen and Town Meeting for approval.

3. Southwest Stow

Southwest Stow presents an opportunity to apply smart growth principles (see Appendix). It is a section of town with a larger proportion of existing industry and industrially zoned land than other areas in town. Southwest Stow, a neighborhood with much high-density housing and the Stow Community Park, would be enhanced by the addition of limited retail elements if developing them could avoid clutter and congestion.

Southwest Stow consists of large areas of industrially and residentially zoned land, a small business zone and a small recreation-conservation zone. It also contains large areas of wetlands. While some of the residentially zoned land has been developed, this area contains

two golf courses (Butternut Farm Golf Club and Stow Acres Country Club) whose combined acreage totals 420 acres as well as several large undeveloped parcels, two of which, a 100+ acre parcel and a 45 acre parcel, have recently been marketed for development. The Stow Open Space and Recreation Plan has identified this area as important for future open space protection due to its large amounts of undeveloped land and scarcity of protected land. The MPC agrees that more land in this area needs permanent protection to help maintain the rural character of Stow and should be balanced with any further development.

Southwest Stow currently has two small business-zoned districts: one is located near the intersection of Hudson Road and Route 117 with an office building, gas station/convenience store and liquor store, and the other is next to the Bose access road in front of the Villages at Stow development. The latter business zoned area is undeveloped.

While there are some industrial businesses in this area (Bose Corporation, Radant and Hydrotest), large areas of undeveloped industrial land remain. These parcels are most likely undeveloped due to lack of frontage and because Stow is not located directly off of a major highway, and some have additional access issues.

Most recently, developers have recognized the potential of the large industrial and residential parcels in this area. One developer worked with the Town to change the Zoning Bylaw to add provisions for an Active Adult Neighborhood (AAN), an overlay district within the industrial zone. A 66-unit development, Arbor Glen, was permitted and is currently under construction on a 44+ acre parcel. Another developer has used the provisions of Chapter 40B to permit a 96-unit development of single-family and townhouse units on the industrial land along Route 117.

Approximately 70% of respondents to the 2008 Master Plan Survey indicated that they would support the rezoning of existing industrial properties for retail classification. This response, in addition to the Town's action to adopt an Active Adult Neighborhood overlay district within the industrial zone, sends a fairly clear message that residents do not support additional industrial development.

The residential development potential for Southwest Stow is significant. With 162 dwelling units presently under construction between Arbor Glen and Villages at Stow, and the fact that other parcels in the area are also being considered for or have the potential for development, the repercussions of such a huge population increase in this one area would be significant.

Southwest Stow Recommended Actions – We recommend the following actions for Southwest Stow.

Smart Growth Principles
Identify the appropriate smart growth principles that are applicable to Southwest Stow and methods to achieve those principles. These principles include compact development, preservation of the environment, and conservation of natural resources.
Responsibility: Planning Board (lead), Conservation Commission

Zoning
The Town should explore ways to encourage appropriate development. The parcels that are zoned for small business along Route 117 and Hudson Road should be developed with businesses and services, such as small convenience shops, restaurants, cafés and other retail businesses that support the growing number of local residents. Employees in this area would also benefit from and support these types of businesses. It may be necessary to evaluate current zoning to consider if modifications need to be made to ensure that the Town is encouraging this type of small-scale retail development while excluding less desirable types of commercial growth.

The Town should evaluate current zoning to maintain and support expansion of the existing businesses in the Industrial District and evaluate current industrial zoning to consider modification to the permitted uses consistent with the type of development Stow wants.

We should work with Bose to determine how to meet needs of that business and its employees in a manner that will have the least impact on residents of the Town, while encouraging Stow's other planning goals (e.g., coordinate hotel/inn efforts to meet tourism but also business goals, or promote zoning to provide retail/services for employees nearby Bose facility).

As discussed above, the Town via the Board of Selectmen should establish an Economic Development Committee. Relative to this section of Stow, this committee, if created could work on coordination of tourism efforts among golf courses, orchards and farms. This task would involve working collaboratively with the Agricultural Commission, Stow Business Association and Regional Assabet Valley Chamber of Commerce to accomplish its goals.

In lieu of modifying the zoning at the Orchard Hill (Rock Bottom Farm) parcel as discussed above to restrict its use to agricultural, the Town could also consider rezoning it from Industrial to Recreation. Another option would be to encourage the property owner to consider an Agricultural Preservation Restriction.

Pedestrian Access
We should plan for pedestrian access as this area is developed. A sidewalk is planned for along Route 117 from Hudson Road to the Bose entrance. We also need to place sidewalks along Hudson Road from the entrances of Arbor Glen to Route 117, at a minimum. Pedestrian trails within Arbor Glen will provide access to Bose and connect to the pedestrian trails within the Villages at Stow. However, these trails are useable only during daylight hours in non-winter months. The sidewalk should be extended along Route 117 from Harvard Road to Old Bolton Road and on to the Stow Community Park. The Master Plan Committee recommends requiring new development and significant redevelopment to incorporate provisions for pedestrians in their site planning process.

4. Northwest Stow

Northwest Stow is defined as all parcels north of Route 117 and west of Packard Road and Boxboro Road to the Bolton, Boxborough and Harvard town lines, along with connecting roads.

This area of town, while primarily zoned Residential, contains a small commercially zoned area along Route 117 near the Bolton town line as well as significant areas zoned Recreation-Conservation and Industrial.

The Delaney Flood Control project encompassing 170 acres and the Marble Hill Conservation Area encompassing 249 acres are also located here.

This area has a 33-lot subdivision (Derby Woods) under construction and a 66-unit Active Adult Neighborhood (Ridgewood at Stow) that has been permitted but not yet developed due to market conditions. While some residentially zoned parcels remain vacant, some have constraints due to wetlands and poor access.

Minute Man Air Field is located in this quadrant along with several industrial businesses and a café. Some of the industrial land remains vacant due to its isolated location and roadway access. As stated in the 1996 Master Plan, Minute Man Air Field is a privately owned, public-use general aviation air field located off of Boxboro Road, two miles north of the Town Center. The airfield owns the following acreage:

- 125 acres classified (by the assessors) as commercial and industrial uses
- 32.3 acres classified as developable and potentially developable residential land
- 20,660 square feet of non-residential existing building space
- 39.8 acres of developable commercial/industrial land with a build-out potential of another 326,700 square feet of commercial space

In the 1990s, an industrial subdivision located next to Minute Man Air Field was granted by the Planning Board, but the conditions of the approval were appealed by the land owner and no construction has occurred. As approved, the site would support approximately 600,000 square feet of building space. Limited access to the site may diminish its build-out potential as an industrial subdivision. Only Boxboro Road leads to the site: it is a fairly narrow, winding country road that becomes much narrower at the Stow/Boxborough town line.

Northwest Stow Recommended Actions

Smart Growth Principles

Not all Smart Growth Principles can be applied here, but those that can should be implemented, including compact development, preservation of the environment, and conservation of natural resources.

Evaluate Zoning and consider modifications for parcels in the Industrial District in and around Minute Man Air Field to promote lower-intensity uses such as support facilities for cleaning or landscaping services/businesses, or small light industrial facilities, incubator businesses and commercial recreation

I. General Action Items

- Work with owners of commercial properties that do not meet DEP compliance standards and monitor those that might be on the verge of noncompliance to see how they can be assisted in securing DEP approval.

- Work with Planning Board to consider developing peer review guidelines and having peer review consultants with a variety of skill sets at-the-ready or "on-call" to assist when large projects come up.

- Engage those with diverse perspectives to participate in dialog about appropriate ways to improve economic development.

- Facilitate creation of a town committee, perhaps working in cooperation with the Agricultural Commission, to develop a bureau of tourism and actively market what Stow has to offer, including the promotion of local products and recreation.

Chapter 5

Natural and Cultural Resources

CHAPTER 5: Natural and Cultural Resources

"Preserving the Town's rural character" emerges time and time again as a high priority among Stow's residents, and is a priority that we cite often in this Master Plan. Although many different angles – ranging from housing density to traffic congestion to economic development – factor into the question of how we can preserve our rural character, the foundation of the discussion rests on the rural character itself: the Town's natural landscapes and features, as well as the historic buildings and other sites that reflect the Town's timeless appeal. This chapter attempts to inventory the various aspects of Stow's natural and cultural resources in order to give us a better sense of what we have, what we want to keep, what we risk losing, and how to use that information to meet our priorities.

Lundy Property

A. Vision

We envision a town that continues to place value on protecting our present natural resources, while working to expand and augment the arts and cultural opportunities within our community. Stow will continue to implement measures to preserve key land features and sensitive environmental areas. It will also explore new and innovative ways to support a variety of community-based cultural programming.

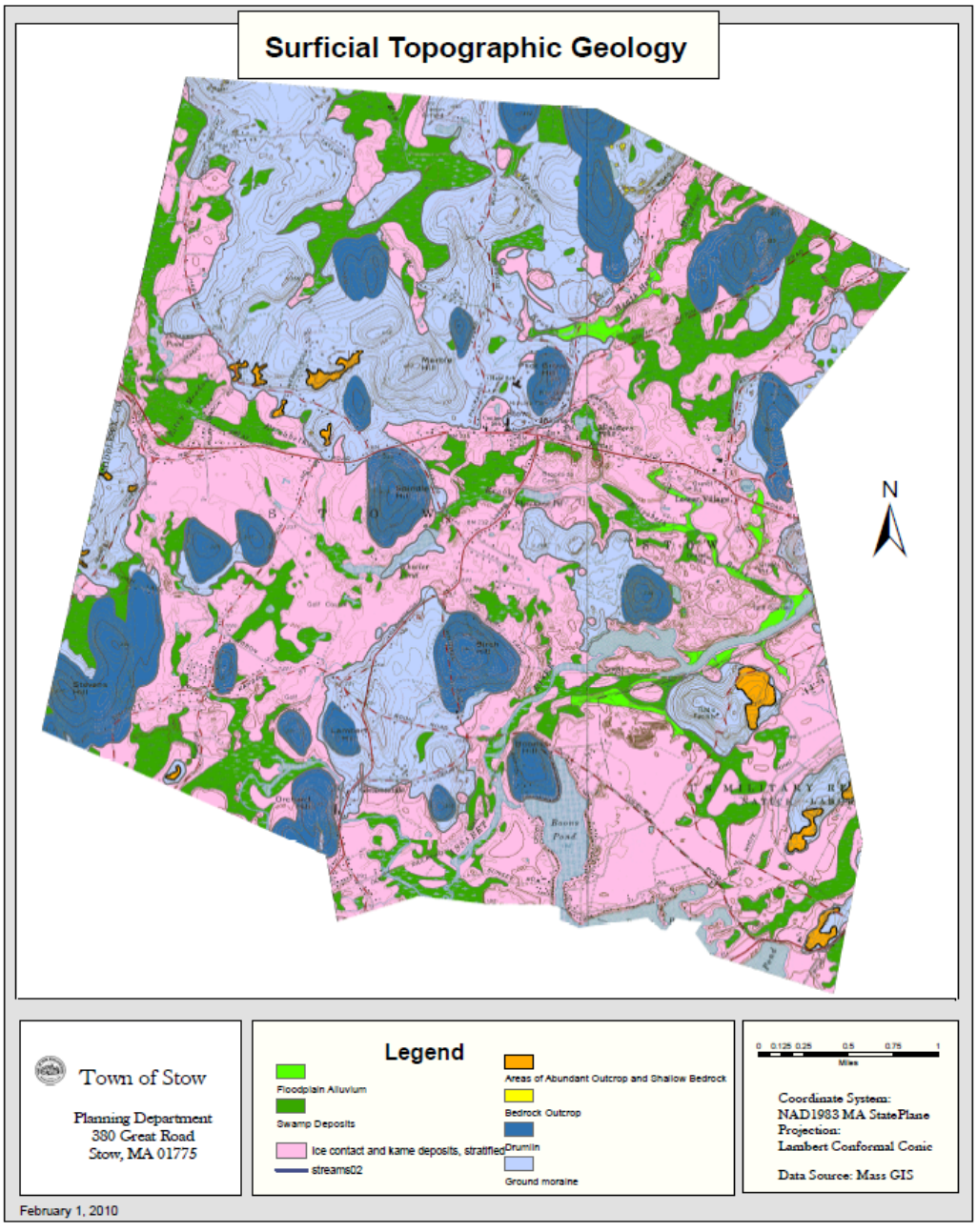
B. Natural Resources

The Pleistocene Glaciations formed the hummocky topography that is such a significant characteristic of Stow today. As can be seen from the map below, very little bedrock (orange and yellow areas) is exposed in Stow. The bedrock is buried under glacial deposits. Our soils, topography and drainage patterns were established when the glaciers finally receded – about 12,000 years ago in this area. Many of the high areas (including but not limited to Flagg Hill, Gardner Hill, Spindle Hill) are drumlins (dark blue on map). Drumlins are composed of relatively impermeable, unsorted glacial deposits known as tills. Other high areas (such as Marble Hill) are interpreted to be ground moraines (light blue areas), similar in composition to the drumlins, but deposited differently. The valleys in between are composed of better sorted, more permeable "outwash" deposits. Outwash deposits form soils that are more tillable, and are

the sources of our aquifers. Some of the outwash deposits date back to glacial origins (pink on map), while others at the surface are overprinted by modern surface processes (light and dark green on map). Notice that the "green" deposits are the products of today's rivers and streams as they rework the landscape through which they flow.

Modern surface processes are often a combination of "natural" conditions (e.g., the seasonal ebb and flow of streams, weather patterns) combined with others that have a decidedly "human" component. Some of the latter include the dams on our rivers (e.g., the dams forming the Delaney Project, the Gleasondale mill area, and Lake Boon); changes associated with farming (clearing, cultivating, filling of wetlands); woodlot management; recreation modifications (golf courses, ball fields, trail clearing); and development (e.g., impervious pavement; site leveling, tree removal).

FIGURE: 12 Surficial Geologic Map of Stow



Of the 17.62 square miles that comprise our town, approximately 2-3% is water. The open water is concentrated in our streams, brooks, lakes and the wetland associated with them. Stow lies completely within the SuAsCo Watershed, which is formed by the convergence of the Sudbury and Assabet Rivers into the Concord River. Stow relies on the SuAsCo system for many things: recreation (swimming, boating, fishing), agriculture, golf courses, and drinking water, to name a few examples.

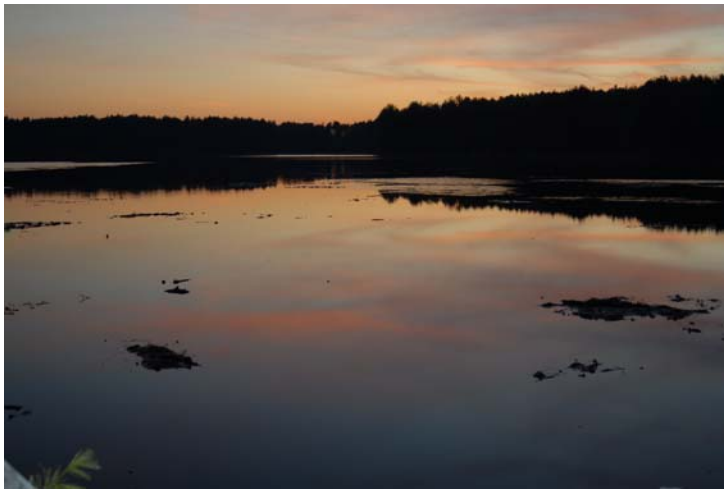
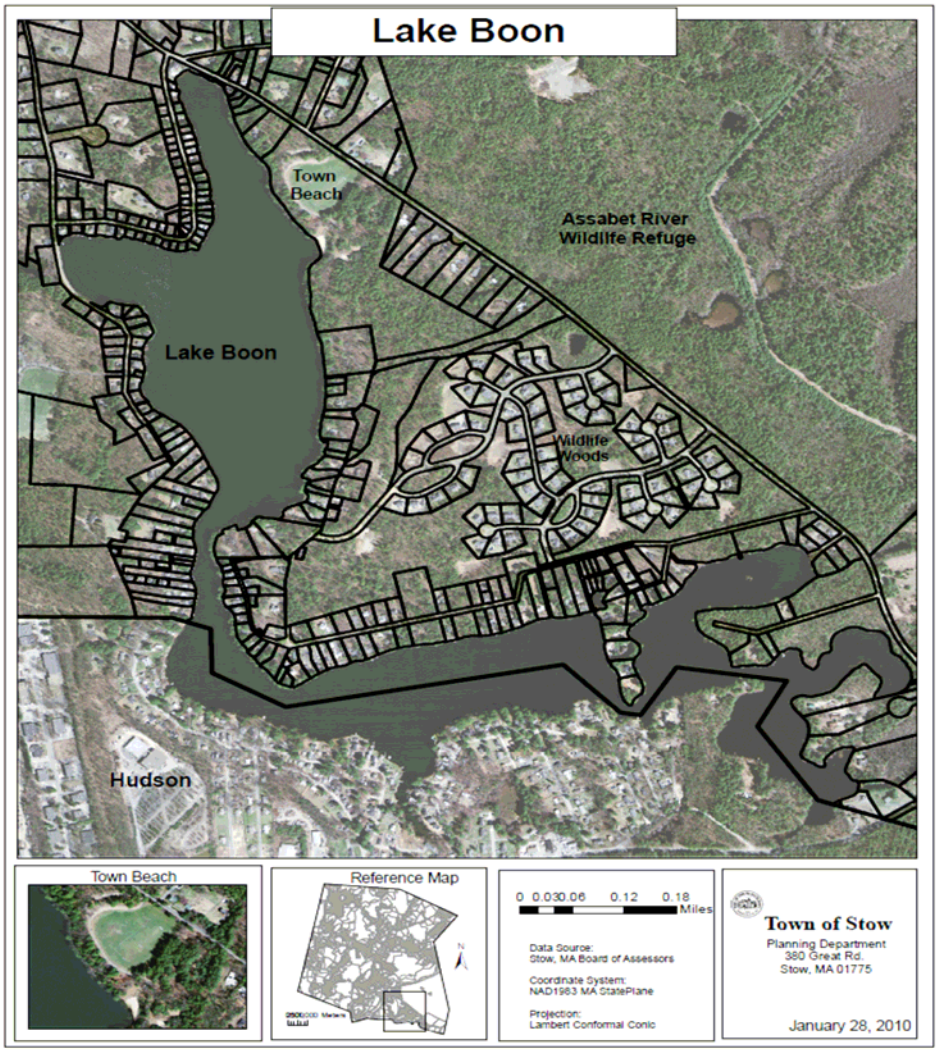


FIGURE: 13 Lake Boon Map



One of Stow's major water resources is Lake Boon, a dammed-up tributary feeding the Assabet River. The lake is shared with the Town of Hudson. Stow maintains recreational facilities on the lake (Pine Bluff beach and fields; boat ramp).

Lake Boon is unique. Its small lots, narrow dirt roads, tree-lined shores and shallow near-shore wells have a lot of character, and hark back to its days as a summer community. These same features make its transformation into a thriving year-round community somewhat problematic.

In particular:

- The small lots make compliance with the Board of Health septic-well regulations extremely challenging.
- As smaller cottages are updated, the impervious surfaces and runoff increase, further compromising the water quality (see next paragraph).

Another major concern with the Lake Boon area is the lake itself. It is an ecological fact that Lake Boon suffers from eutrophication, a condition in which, due to an excess of nitrogen and phosphorus, plant life in a water body grows excessively, taking up most of the dissolved oxygen, thereby killing other forms of life such as fish. The rate of decay and prognosis is debatable. If we as a town merely wait for this inevitability, we will severely restrict our options at that time. Many in town feel that we must make every effort to protect this asset, and support for this directive must be tested.

Two organizations in Stow are directly involved with the oversight of Lake Boon:

1. The **Lake Boon Association** (LBA) is a community based organization, supported by membership dues. On their website (www.lakeboon.org) they describe themselves as follows:

   "Lake Boon Association (LBA) – Incorporated in 1921 as the Lake Boon Improvement Association, Inc., it is currently known as The Lake Boon Association. Although its name has changed throughout the years, its Charter has always been to foster, maintain and improve the quality of the environmental and recreational aspects of Lake Boon.

   Mission Statement - It is the mission of the Lake Boon Association and the Lake Boon Commission to preserve, protect and enhance the environmental, aesthetic, recreational and economic value of Lake Boon, and to strive for a sensible balance between recreational activities and healthy wildlife habitats through in-lake and watershed management."

   "**Activities** - Although originally founded to emphasize recreational activities, its emphasis has been modified to include the environment. Toward that end, there have been fundraising, recreational and educational activities. Fundraising and recreational activities to date have included: walkathons, raffles, dances, boat parades, water carnivals, music boat/lighting of the lake and flea markets. The educational activities have been directed toward understanding the nature of some of the problems and defining actions individual lake residents can take to minimize deterioration of lake quality." (www.lakeboon.org)

2. The **Lake Boon Commission** is a state-regulated board, administered by a board appointed by the selectmen in the Towns of Hudson (1 member) and Stow (2 members). Their duties, as described on the LBA website, are as follow:

   "**Lake Boon Commission (LBC**) -- This unpaid commission is empowered to regulate recreational activities and the use of motorboats."

Joint responsibilities

The two work closely together to maintain and improve many aspects of the lake.

Educational programs supported by the groups include a **Lake Stewardship Program** that includes an information-rich website with "green" recommendations to encourage "lake-friendly" lifestyles. These include but are not limited to "green" household products, lawn care recommendations, a group-rate septic system maintenance (offered twice a year), storm water runoff and prevention information, and wildlife information.

A long-range plan to reverse the eutrophication of the lake provided funding for chemically treating the lake with an herbicide to kill off the yearly weeds. Several years of chemical treatment have reduced the weeds to a manageable level. The second phase of the project is to implement a yearly drawdown of the water level in the late fall until the exposed lake shore freezes; then the lake would be allowed to fill, pulling the ice (and weeds) up in the process. The method has promise, and has worked in other towns.

This phase of the project has run into some obstacles:

- A large number of Lake Boon residents have shallow wells that may be adversely affected if the water table falls too much. A 40-inch drawdown may be too much. A concrete plan to deal with wells going dry needs to be in place before the drawdown begins. So far, there is no plan. The Lake Boon Commission, the Conservation Commission, Board of Health, and the MASS DEP (Department of Environmental Protection) are working on a solution that will help keep the weeds in the lake under control, while ensuring that the water supply to the neighborhoods is not compromised.

- As houses in the Lake Boon area get renovated, shallow wells often get replaced with deep wells. An accurate record of how many shallow wells still exist has not been easy to compile. A contingency plan is hard to design without this information.

- A contingency plan costs money. So far, nobody has come up with funding. At its spring 2009 meeting, the LBA generously voted $10,000 toward the project.

Our waterways are only one natural resource contributing to Stow's rural character. The Town-held conservation lands (Annie Moore Land, Captain Sargent Farm Land, parts of Flagg Hill,

Gardner Hill /Town Forest, Heath Hen Meadow Brook Woodland, Marble Hill, parts of Spindle Hill) provide a network of trails, many of which are close enough to each other to bring the "Emerald Necklace" tantalizingly close to reality. The trails in the network are in woods, open fields, and wetland areas, and allow residents to enjoy the woods and wetlands in the Town. Many groups in town (Stow Conservation Trust, Boy Scouts, Girl Scouts) as well as individuals use the conservation lands regularly.

Protecting our natural resources is an area of ongoing concern and is addressed continuously by various groups in town. Some of these are town-appointed (including the Conservation Commission and the Lake Boon Commission), while others are not (Stow Conservation Trust, Lake Boon Association). It will be important for municipal leaders to work collaboratively and cooperatively with the independent groups to ensure an atmosphere that yields consensus and directs civic energy to address problems as they arise. Looking forward, there will be an ever-growing need for mandates and regulations to help us protect natural resources.

C. Cultural Resources

Cultural resources can be as simple as community get-togethers or as carefully planned as outdoor concert series or community theaters. Activities sponsored by the library, the Recreation Department, the Council on Aging, the public schools, and other organizations all fall under the category of cultural resources. In a less tangible way, our town's strong sense of community can be counted as a cultural resource as well. This sense of community flows from many of the elements described in earlier sections and includes the following:

- Our community pride in open space and the outdoors, including our farms, orchards, golf courses, conservation land, Lake Boon, and the hills of Stow (Pilot Grove, Marble, Gardner, Flagg, Spindle)

- The visual connection of the library, the Town Common, the Fire House, Town Hall and the Town Building and the Assabet River flowing past the Gleasondale Mill and near the clustered residences of Gleasondale connote a sense of community that dates to the 1800s

- Lake Boon and its clustered residences along the shore with the nearby beach (Pine Bluff Recreation Area)

- Our respect for our town's history, including our Minutemen, colonial homesteads, burial grounds, and our agricultural heritage ties us directly to the establishment of Stow's incorporation in 1683

- Our people, who gather together in churches, at schools, for bloodmobiles, during recreation, participating in town government, and more

The Stow Cultural Council (SCC) is a group of residents appointed by the Board of Selectmen to dispense public funding to support community-based projects and activities in the arts, humanities, and interpretive sciences to benefit the residents of Stow. These funds come from money allocated to the SCC by the Massachusetts Cultural Council, as well as other funds that may come from the Town, foundations, or private donations.

The SCC defines its mission as follows: "to create a closer-knit community in Stow by sponsoring and supporting activities and events that bring the diverse elements of our community together for enjoyment and cultural enrichment."

For the last fiscal year, the SCC approved $6,765 to support a wide variety of programs. Not all of the programs occur in Stow, but the appeal is widespread and draws in residents and visitors alike. Following are some examples:

- The Lake Boon Water Carnival Music Boat
- The Stow West School Open Houses
- The Hale Middle School Play
- Decorating the light control boxes by the library
- Stow video contest
- The Sounds of Stow Concert Season
- Symphony Pro Musica
- The American Boys Choir
- Stow Garden Tour
- Charlie Chaplin Movie Night
- Three Apples Story Telling Festival
- The Rivers Edge Community Concert
- The Exhibition of Arts and Crafts at the Fitchburg Art Museum
- The Community Arts Festival at Center School
- Jeff Bernhardt Performances at Pompo, Center, and Town Hall
- The Randall Library Summer Reading Program
- The Discovery Museum Stow Day
- Clarence Darrow Performance
- Senior Musical: Best loved songs of the early 20th century with John Root

Numerous other yearly traditions enhance cultural life in Stow as well. The following are annual events funded by a combination of town monies and private donations.

- SpringFest weekend
- FireFighters Association Family Day and "Wash a Fire Truck" Day
- Sounds of Stow Concerts

D. Historic Elements

Much of Stow's character reflects traces of its beginnings over 300 years ago, through its historic buildings, its monuments, and even the layout of the Town Center. We are obligated as a community to support the preservation of this character, working both through organized groups and through stewardship or ownership of historic structures.

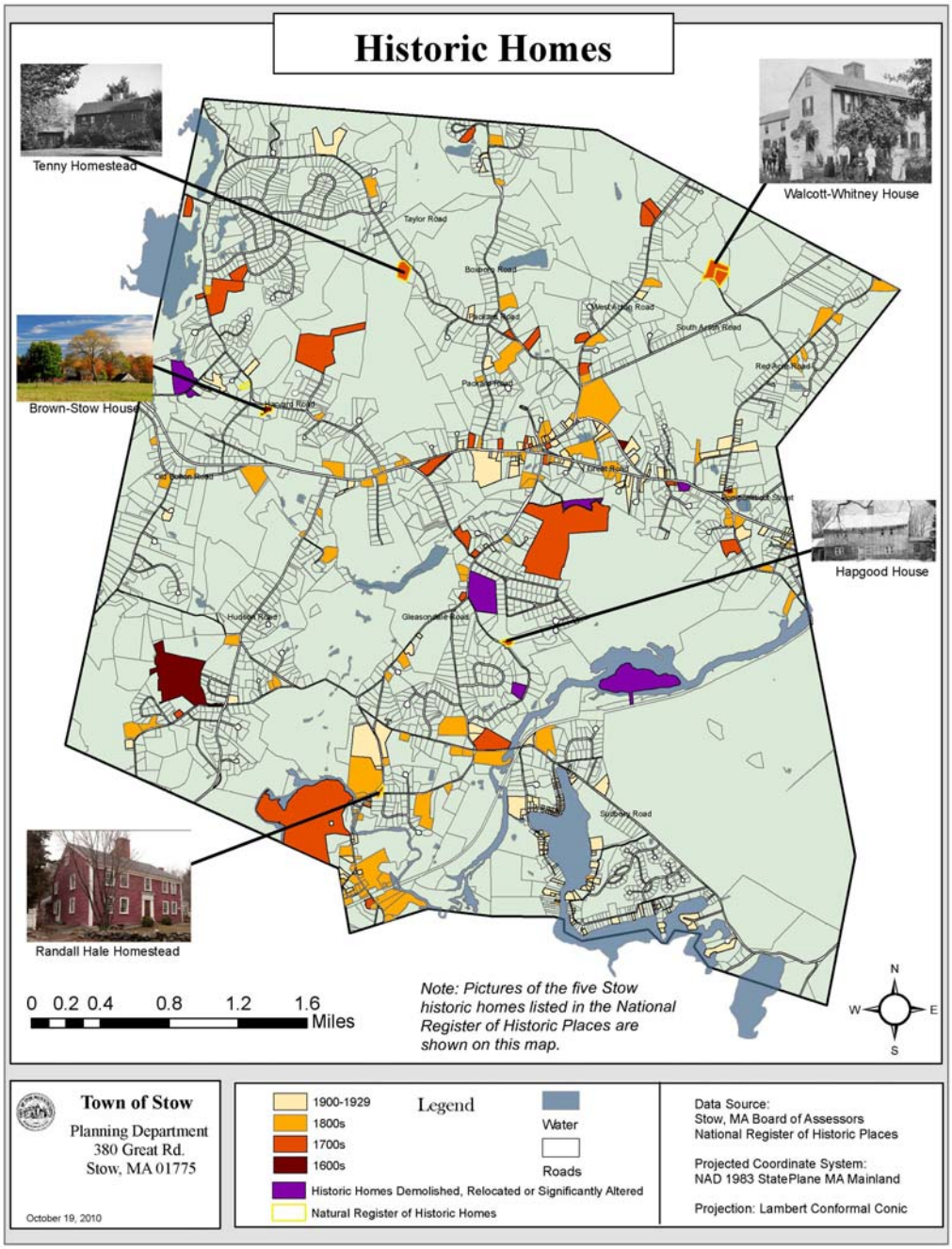
Stow has a wealth of early dwellings and structures listed in a Massachusetts Historical Commission inventory prepared back in the 1980s. At Town Meeting in 2009, a vote was taken to enable this inventory to be updated over the next three years. The Master Plan Committee suggests that not only should this inventory be updated, but during this process consideration should be given to how the Town might aid in preserving those buildings which are homes, barns, garages, and other structures.

The 1982 inventory lists the following data:

- From 1600-1700 there are 4 buildings.
- From 1700-1800 there are 31 buildings.
- From 1800-1900 there are 132 buildings.
- From 1900-1930 there are 115 buildings, with some but not all of them located around Lake Boon. Interestingly, there is a windmill from 1889 listed.
- The Gleasondale Mill is dated 1854. Information about "Rockbottom," as Gleasondale was known, provides an interesting history of the workings of a mill village.

One can see from the below map that these various historic structures are scattered around town but also clustered in certain key areas closest to the civic center of the community.

FIGURE: 14 Historic Structures Map



As of 2009, we currently know of approximately ten early buildings that have been demolished in recent years along with one that was dismantled and moved to Connecticut.

Options to consider if we want to further protect our historic buildings include the following:

- Adopt a Historical District
- Help to register properties on the State or Federal historic inventory
- Implement demolition delay bylaws
- Provide other incentives to assist property owners in maintaining these properties

The last efforts to establish historic districts in town, undertaken in the early 1990's were met with great resistance by the community. The more recent Master Plan Survey seems to suggest a different trend, reflecting that 69% of the respondents support the creation of a historic district within the Center.

Nonetheless, the size of a district and nature of the proposed restrictions and regulations play a large part in determining if residents will find these protections valuable or onerous. When the Town undertakes its update of the historic properties inventory, the Master Plan Committee strongly suggests that opportunities for protecting these valuable resources in the Town be explored and further public input sought. As land prices continue to increase in the future, and as buildable land becomes more scarce, it is typical for communities to see more and more occasions where older structures are torn down to make way for new development. Wholesale loss of community character can occur if this pressure is allowed to proceed unchecked. Bylaws or regulations pertaining to what can be built on properties where a structure has been removed can help to introduce a disincentive to tearing down older homes and barns. This should also be explored as a means to help preserve the historical resources in the community.

1. Town Center

Our current Town Center is of colonial design, and it houses our historical Town Hall (built in 1847-49), our Town Building with municipal offices, our library, churches, police and fire departments and schools along with a small convenience store. The Town Center also features a prominent Town Common at the intersection of routes 117 and 62. It has a few valuable monuments and proximity to the Stow cemetery. A mix of housing on small lots creates a small neighborhood that is

pedestrian-friendly, and sidewalks let people more easily access the services offered in this area. These elements, together with a scarcity of commercial enterprise, combine to convey a sense of old New England at the hub of the Town.

In 1992, the Stow Historic District Study Committee (SHDSC) proposed the formation of Local Historic Districts as provided in MGL Chapter 40C. The SHDSC determined that the two most likely districts would be in Gleasondale and in Stow Center. Although residents recognized the need for historic preservation and the fact that a local historic district often leads to increased property values, they said that they did not want to be subject to another layer of regulation. As indicated in the Historic Homes Map of Stow, existing historic homes are located throughout town rather than one localized area, making it difficult to determine a localized area for a Historic District. The Town is in the process of updating the historic properties inventory. Once this inventory is completed, the Master Plan Committee strongly suggests that the Town seek further public input on opportunities (such as adoption of a Historic District, a Conservancy Overlay District, Demolition Delay Bylaw, and encouragement of property owners to register properties in the Mass Historic Inventory) for protecting historic structures in the Town and on ways to protect them.

2. Buildings

In 1849, the present brick mill in Gleasondale, constructed when the original wooden structure burned, was built in the Greek Revival style. From the mid-1800s to the end of World War II, the Gleasondale Mill housed the fourth oldest woolen mill in the United States. At the end of World War II, the mill was converted to burlap manufacturing, and in 1966, it was converted to its present use as the Gleasondale Industrial Park. In the 1800s, houses for workers were built near the Gleasondale Mill, and many of these houses still exist along Gleasondale Road. The predominant architectural style of the village is Federal, but there are fine examples of Colonial, Greek Revival, Victorian and Italianate architecture within the village.

3. Historic homes

Standing houses in Stow range from the late 1600s to the present. Many substantial houses were built in the early 1800s. These historic buildings are fundamental to Stow's identity. The survival of these historic resources today is neither accidental nor a guarantee for their future. In 1989, Stow lost a 1775 Federal-style dwelling, located at 194 Great Road (Route 117),

adjacent to the current Stow House of Pizza, when the structure was disassembled and moved out of state.

When the post office relocated to the Lower Village, there was an attempt to save an 1875 Greek Revival dwelling, which was temporarily relocated to the same lot. Unfortunately, due to zoning restrictions, the owner was unable to find an economically feasible use. In 2003, the house was demolished. Stow should explore zoning opportunities that might make it easier to save these structures.

An 1859 Italianate-style house, known as the "Faxon House" and located at 189 Great Road, stands on a site that has been developed as a senior living development. The Planning Board, in its permitting process, successfully negotiated a plan that preserved the Faxon House as part of the design of the development. This was an excellent example of collaboration to preserve an historic property with development and redevelopment. It might be possible, in the future, to augment existing regulations to make such collaboration more of a requirement rather than a negotiated process. This should be explored in the future as an improvement to local permitting regulations.

Other historic homes the Town has recently lost include the following:

- Carbury house, Great Road: dismantled and moved out of state
- Eaton house, Great Road: demolished
- Vogel house, Sudbury Road: demolished
- Weathers house, Sudbury Road: demolished
- Kelley house, Treaty Elm Lane: demolished
- Stephenson house, Gleasondale Road: demolished
- Noonan house, Hudson Road: demolished
- Fletcher Box Mill: demolished
- Hop House: demolished
- Zanders Cider Mill, Delaney Street: significantly altered

FIGURE: 15 Antique home photos

Still existing today are some of Stow's most noteworthy historic homes:

E. Heritage Landscapes

It is increasingly common in municipal planning discussions to refer to "heritage landscapes," loosely defined as the places we picture with a sense of pride and comfort when we run our mind's eye over our hometown. If you took a trip to the other end of the world and felt homesick, what are some of the landscapes and vistas you would be picturing as you thought about the concept of home? Put another way, if you had to take a photo to put on a calendar to represent Stow, what would you photograph? Featured might be a particular apple orchard, a stretch of road, an old barn or farmhouse, or a certain view of the Town Center. These are all examples of vistas we should attempt to protect in the name of preserving our heritage landscapes.

Stow conducted its own Heritage Landscapes project in 2006 in conjunction with the Department of Conservation and Recreation (which provided funding) and Freedom's Way Heritage Association[14], a consortium of 37 Massachusetts communities actively engaged in preserving certain aspects of the community for historical or aesthetic reasons (as opposed to, for example, environmental or diversity reasons). That project gathered more than 20 townspeople representing town boards, nonprofits, and private interests to identify what they considered to be heritage landscapes. The group then narrowed its list down to five designated "priority heritage landscapes," identified as the Assabet River, the Blacksmith Shop, Gleasondale, Lower Village, and Lake Boon/Cottage Neighborhoods.

The committee drew up specific recommendations for the future of each of the priority areas, which can be summarized as follows (for more details, see the Stow Reconnaissance Report in the appendix). The Master Plan Committee agrees that these recommendations are all worthy of pursuit by the Historical Commission once the historical homes inventory is done.

Furthermore, it has been suggested that the Town look to establish an historical park area where larger artifacts, perhaps even including small buildings, can be located, displayed, and preserved in lieu of tearing them down or disposing of them. Stow has potentially many old railroad artifacts and certainly has some buildings whose owners may no longer wish to maintain these structures. The best of these items, could perhaps be clustered at one location under the jurisdiction of either a non-profit historical society or under the control of the Town's Historical Commission. Such an undertaking might also be partially funded with the use of CPA funds.

[14] Freedom's Way Heritage Association has recently obtained National Heritage Area designation by Congress. For more information on Freedom's Way, go to: http://www.freedomsway.org/

1. Assabet River

Recommendations from the Heritage Landscapes project:

- Obtain community representation on the OAR Board and work with them as well as regional organizations such as the SuAsCo Watershed Association in efforts to preserve the river and marshland
- Work in conjunction with the Town of Hudson to resolve issues surrounding the ARRT
- Document historic resources along the river, particularly the crossings, Gleasondale and Crow Island

2. Blacksmith Shop

Recommendations from the Heritage Landscapes project:

- Prepare a Massachusetts Historical Commission (MHC) Form B
- Consider additional documentation by an historic structures report
- Measure, photograph and stabilize building
- Develop a reuse and preservation plan
- Consider town needs for various types of space
- List in the National Register to make the blacksmith shop potentially eligible for Massachusetts Preservation Projects Fund (MPPF)
- Contact the MHC to learn of MPPF status when ready to pursue rehabilitation of the shop

The MPC recommends that the Town explore feasible and cost-effective options for relocating the Blacksmith Shop to accommodate Center School construction.

3. Gleasondale

Recommendations from the Heritage Landscapes project:

- Document the Gleasondale heritage landscape on an MHC Area Form
- Evaluate for appropriate National Register boundaries and prepare National Register nomination
- Pursue local historic district designation for this well preserved village
- Seek input on tax advantages that could be used to rehabilitate and reuse mill complex, and work with the sellers to promote these advantages to prospective buyers

4. Lower Village

Recommendations from the Heritage Landscapes project:

- Document the Lower Village heritage landscape on an MHC Area Form and update 1980s individual property forms
- Evaluate for appropriate National Register boundaries and prepare National Register nomination, particularly for the area near White Pond Road, Red

Acre Road, Pompositticut Street and Route 117 including historic houses, the cemetery and the Common

- Work with the Planning Board to study and develop a village center bylaw that develops a pedestrian streetscape by placing buildings close to the road consistent with extant historic buildings and locating parking behind or screened from view
- Consider neighborhood architectural conservation district designation in order to address size, scale and materials of new construction and additions, consistent with extant historic resources

5. Lake Boon and Cottage Neighborhoods

Recommendations from the Heritage Landscapes project:

- Document the Lake Boon neighborhood on an MHC Area Form and individual forms for certain cottages, the dam and town beach
- Develop a preservation plan considering neighborhood architectural conservation district designation
- Encourage the Planning Board to consider limiting development of large dwellings on the lake shore
- Consider potential use of special permit process particularly in the event that an existing cottage is demolished to build a new house

F. Preserving and Enhancing Natural Land Features

The priority goals for natural resource and open space protection have been identified by other town committees and in published reports such as the Community Development Plan as the following:

- Protect more open space (open space will be discussed further in the next chapter)
- Implement wildlife corridor and linkages of open space with trails
- Protect the existing character consisting of stone walls, trees, etc, including preserving and replacing shade trees
- Protect groundwater quality

Many of the priorities exp**r**essed by residents relating to open space appear oriented toward protection of the natural resources and community character of Stow rather than toward provision of additional recreational uses. Two exceptions to this are the goal of completion of acquisition for the inter-municipal multiple use Assabet River Rail Trail and the acquisition of land along the river. According to those participating in the Community Development Plan (EO418) forum, Crow Island/Track Road's high score in prioritization is related to the potential use of this site for active recreational uses (such as soccer fields and the rail trail connection) in

addition to its natural resource characteristics. Funding for various sections of Track Road has been provided by the Community Preservation Act.

Three immediate opportunities for preserving and enhancing our natural resources are the Emerald Necklace trail network, the Assabet River Rail Trail and Lake Boon. Regarding these areas, the MPC recommends adopting the recommendations from the 2006 Stow Reconnaissance Report.

1. Emerald Necklace

In the next five years, we need to continue work toward completing the Emerald Necklace walking trail of conservation land throughout the Town of Stow. The Stow Conservation Trust (SCT) has led the drive for the creation of this walking trail. Once a year, a hardy group of residents and friends walk this trail, which currently extends about ten miles through Stow. While there are gaps in this trail, the SCT and the Conservation Commission are working together to join all the pieces together.

2. Assabet River Rail Trail

The Assabet River Rail Trail, once a vision, is now a reality in adjoining communities. Stow is the missing link. We need to identify the financial issues, the concerns of current landowners, and the possibilities for action to complete the rail trail in Stow and connect to the pieces in our neighboring towns. We must make proposals that alleviate concerns and explore all options, including incentives for property owners, so as to make this opportunity a reality in Stow. Recently the Town concluded a successful purchase of the remaining right-of-way on Track Road, which connects with Maynard and runs to Sudbury Road in Stow by the Sudbury Road bridge. It is from here to Hudson that the establishment of a trail needs work. Once the trail is connected to Hudson, Stow residents will be able to easily enjoy the existing 5.5 miles of trail that run through that community and into downtown Marlborough. (See Chapter 8 for more information on the Rail Trail.)

3. Lake Boon

As discussed earlier in this chapter and elsewhere in this Master Plan, the eutrophication of Lake Boon is an ongoing problem that will not improve with time. Spatial limitations for wells and septic systems are not going to change. The eutrophication problem is ongoing. The chemical treatments for the weeds have made a difference, but are a short-term fix. They have, however, postponed the necessity for action by slowing the weed growth until decisions about the next step can be made. The drawdown proposal has merits, but there are some problems with it that have to be worked out. In either case, a decision will have to be made soon, if the lake is not to revert to its previous state. This would, over time, turn more and more of the lake into a wetland area instead of a body of water. The MPC recommends that the Town support ongoing action to prevent this from happening.

Many in town feel that we must make every effort to protect this asset, but the full measure of support for this directive is yet to be ascertained. Relevant Town Meeting votes, committee and board policies, and other municipal actions going forward will help the community evaluate the level of willingness the community has to take action. In order to help guide that process, various stakeholders should work toward developing a scope which depicts a vision of what recovery means, what it will look like, and what it will cost. Broad consensus will need to be achieved on that vision. Once the vision is developed, individual problem areas can be detailed and studied. Diverse committee participation and especially the assistance and leadership of the Lake Boon Association, should be sought in developing solutions to this critical problem. Then, a thoughtful implementation plan and schedule could potentially be rolled out which will depict how the community will address the identified problems in order to improve the lake and help it meet the desired vision. Measures such as a Betterment Fee or other funding mechanisms will need to be explored to enable the Town to implement the preferred approach. When the problem analysis is being conducted, special attention should be given to the areas outlined below.

a. Weeds

For years now, it has been recognized that the weed problem in Lake Boon has not been resolved. The basins are becoming filled with vegetative growth. The density of population around the lake both in Stow and in Hudson is overwhelming the land and its ability to keep the lake environment both clean and safe for use. The prognosis for this area is poor, and efforts need to be taken now to prevent further degradation.

b. Fertilizers

We need to educate the residents of lake properties that using fertilizer on their lawns feeds the weeds and perpetuates their spread. The use of fertilizers must be prohibited near the lake, whether through a buffer zone or outright prohibition. Fertilizers are non-point source pollutions that come from a variety of sources and they are one of the biggest offenders in the lake pollution.

c. Septic failures

Existing cesspools and failing septic systems exacerbate the weed problem. Before 1940, Lake Boon was a summer colony with small cottages and cesspools that had two months of use. For the rest of the year, the lake area “rested.” Today large year-round houses on small lots have replaced many of the small cottages, and septic systems on these lots are being stressed from heavy usage. Some failed systems have been replaced, but providing “maximum feasible upgrades” only postpones the inevitable. In the future, lake residents will saturate the ground and its water sources with waste that has nowhere else to go.

Town officials and residents must work together to create a plan to save this valuable resource for future generations. Years ago, the selectmen sponsored an engineering study to explore alternatives to sewers for lake residences. The study proposed a three-phase implementation

that included the Hudson side of Lake Boon in the third phase. The study was never implemented. Meanwhile, aging and failed septic systems continue to adversely affect the lake.

4. Assabet River

There is no question that Stow's charm and the health of the Assabet River are intertwined. The Assabet River is a major component of the SuAsCo Watershed, running "free" through Stow from the dam at Gleasondale to the Ben Smith Dam in Maynard. The Massachusetts Department of Environmental Protection (DEP) is responsible for monitoring its waters to ensure that they are in compliance with the Massachusetts Water Quality Standards (MWQS) (314 CMR 4.0). The DEP ascertained that the Assabet does not comply, and issued a report (2004) entitled "Assabet River Total Maximum Daily Load (TMDL) for Phosphorus"[15] as part of its "pollution budget," designed to restore the health of the river. More recently, the Army Corps of Engineers released its 2009 draft of "Assabet River, Massachusetts Sediment and Dam Removal Feasibility Study." This report explores the cost, process and end results of dredging, limiting winter discharge levels of phosphorus and removing the dams from the Assabet River as measures to bring the river into compliance with the law.

The 2004 report describes the Assabet as an "effluent dominated, impounded river," as it has nine dams, four major publicly owned treatment works (POTW) and three minor ones along its length from Westborough to Concord. Stow is the only town on the river that does not have a POTW discharging into the river. The Assabet fails to comply with the MWQS on the following counts: the phosphorus content and organic enrichment are too high, while the dissolved oxygen is too low. Together, these mean that the river is eutrophied.

Phosphorus, dissolved oxygen levels and organic enrichment are not unrelated. Phosphorus is a major contributor to excessive plant growth which results in organic enrichment, and when the bloom dies, it decays, depleting the dissolved oxygen in the system. Phosphorus comes in two forms: Ortho-phosphorus is dissolved in the water column and is readily available to plants. The second form, "particulate" phosphorus, settles into the sediment, and is not readily available to plants. The sediments are trapped primarily behind the dams. The cycle continues: as the ortho-phosphorus is removed from the water (it is either taken up by plants, or flows out of the system downstream), excess particulate phosphorus dissolves into the water column, where it becomes available to plants. As long as there is any phosphorus in the system, plants can use it. The conventional thinking was that phosphorus discharge in the growing season (April to October) was much more of a concern than during the winter (November to March).

The DEP has identified the sources of the excessive phosphorus. The sources get split into "point source" and "non-point source" categories. The point source pollution sites are the POTWs. The POTWs discharge both forms of phosphorus. The report includes a study that looked at how much of the phosphorus comes from point sources vs. non-point sources. The

[15] Report Number MA82B-01-2004-01; Control Number CN 2010; available from the DEP, or online at: http//www.state.ma.us/dep/brp/wm/tmdls.htm

point sources were found to contribute 82 - 97% of the total phosphorus in all conditions except for rare very wet, high water conditions, when the non-point sources are major contributors. The Elizabeth Brook (at the Maynard end) is listed in the report as a non-point source. Under high water and wet conditions, it carries an extremely high phosphorus load.[16]

Stow was not included in the preliminary talks, or the first draft report but did submit comments at the appropriate time. Many of Stow's concerns were addressed in the revised 2009 report. In addition, Stow has been allowed to join the *Assabet River Study Coordination Team*, but only as non-voting members. Appointed representatives have attended the meetings held between the two reports.

The 2009 Feasibility Study (released in November 2009) cites that the non-growing season phosphorus discharges are not as benign as formerly thought. In fact, they are significant contributors to the sediment phosphorus. The study discusses the prospects of using combined methods to reduce the overall phosphorus budget for the river. These include dredging, dam removal, and limiting the non-growing season phosphorus discharge levels to those required for growing season levels. Dredging on its own is considered to be a short-term, nonpermanent fix, unless the overall point source phosphorus discharge levels are drastically reduced year round. Growing season reduction levels of discharge, combined with the removal of all the dams, and dredging would bring the river closer to its goal of 90% reduction in sediment-bound phosphorus, but still will not get it there. The study discusses each dam individually, as the project would be staged. Removing the Ben Smith Dam would have the largest benefit because it impounds the longest reach of river, so has collected the most phosphorus-rich sediment.

The report also points out that the Ben Smith Dam:

- Is part of an historic district eligible for the National Register of Historic Places
- Has profound effects on the upstream wetlands
- Would be the most expensive to remove (estimated at $13 million)
- Removing it has the blessing of the US Fish and Wildlife Service as part of its project to restore former migratory corridors in the SuAsCo Watershed

Obviously, the removal of the dams would drastically change Stow's section of the Assabet. The excess phosphorus is a problem, but as the reports state, the source of the phosphorus is overwhelmingly from the POTWs. Several related papers and reports have been released[17] in the last few years. These should be carefully read. It is important to note that nothing definitive has been decided about the dam removal.

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[16] Ibid. Page 21 0f 104

[17] Assabet River, Massachusetts Sediment and Dam Removal Feasibility Study; Army Corps of Engineers 2009.
Assabet River Sediment and Dam Removal Study Modeling Report, prepared for the Army Corps of Engineers, 2008

When the 2009 Army Corps report was released (November 2009) the Board of Selectmen held a public meeting that included representatives from the Corps and the firm that did the study. Comments from Stow citizens, and from Stow's boards were collected. On November 19, 2009, Mass DEP and the Army Corps of Engineers held a meeting in Stow to get citizen feedback about the newly released study. Both events were well attended, and the overwhelming consensus of those present was that the dams should not be removed.

Comments from Stow residents and comments from the Stow boards were collected and compiled into a letter strongly opposing dam removal. The letter was sent to the Mass DEP, state and federal representatives and the Army Corps of Engineers during the period open to public comment.

G. Action Items

- Continue efforts to procure funds and work collaboratively with SCT and other groups to complete the Emerald Necklace trail
- Continue procuring parcels and working with property owners to establish contiguous access as a right-of-way to the Rail Trail
- Actively pursue improvements to Lake Boon problems by educating residents as to environmental use of fertilizers, septics, wells, etc.
- Restrict new building permits
- Discourage teardowns
- Limit square footage of new development to protect against overbuilding
- Pursue zoning and bylaw changes to limit development on the lake
- Find ways to preserve existing structures
- Stay engaged in ongoing discussions and studies such as the *Assabet River Study Coordination Team* and maintain an active role in any future studies initiated
- Identify sources and develop strategies to mitigate excess of phosphorus in Elizabeth Brook during high-water, wet weather conditions
- Encourage the DEP to fund follow-up studies of non-growing season phosphorus discharge and its role in the overall nutrient budget of the river

- Explore protection of the Town Center through possibilities such as a historic district, conservancy overlay district, demolition delay bylaw, Mass historic inventory

- Explore protection of historic homes and buildings through possibilities such as a historic inventory; zoning/bylaw changes to discourage teardowns; restrict rebuilds; and inclusion of eligible properties in the State and/or National Historic Register

- Explore improvements to the Lower Village including a village-friendly bylaw;

- Find ways to enhance subdivision rules and site plan regulations to attempt to require stone walls and other natural features to be preserved and maintained

Chapter 6

Open Space and Recreation

CHAPTER 6: Open Space and Recreation

A. Introduction

Residents of Stow recognize what a special place this is and how rare it is that, despite the increasing development pressure that has changed many surrounding communities, Stow has maintained a rural ambience. As evidenced by the recent Master Plan Survey, few resources are as highly valued by Stow residents as their open space.

"The Town's rural character" was the number one answer to the question "What do you like best about Stow?", and not surprisingly, preserving that character showed up recurrently on the question about what residents want to see in 2020. But how exactly can that priority be implemented? Agreeing on the importance of rural vistas and undeveloped fields and forests in which we can exercise, play with our children, meditate and admire nature is one thing, but what mechanisms are in place to ensure that the Town is able to act on that priority?

In 1968, Stow designated certain areas as recreation-conservation district zoning and defined its uses as "intended to protect the public health and safety, to protect persons and property against hazards of flood water inundation and unsuitable and unhealthy development of unsuitable soils, wetlands, marsh land and water courses; to protect the balance of nature, including the habitat for birds, wildlife, and plants essential to the survival of man; to conserve and increase the amenities of the Town, natural conditions and OPEN SPACES for education, recreation, agriculture, and the general welfare." This provides added protection for the Town's open spaces by restricting building near the zone and laying out the many ways that the designated areas can be used, ranging from farming and horticulture to cross-country ski trails and boat landings.

The responsibility for completing an Open Space and Recreation Plan (OSRP) lies with the Stow Conservation Commission (SCC). The SCC appointed an Open Space and Recreation Plan Committee, which worked with Stow's Open Space Committee to complete the Town's plan. The most recent version, released in June 2008, is an excellent document that contains a wealth of useful information and well conceived strategies for protecting open space in numerous areas. Go to http://www.stow-ma.gov/pages/StowMA_BComm/StowMA_OpenSpace/index for details.

Seen as a critical tool for creating an inventory of a community's protected land and water areas and for identifying undeveloped parcels that are a priority for protection, an OSRP is valid if it has been accepted by the state and is updated every five years. By having a valid OSRP, which Stow does, a community also becomes eligible for grant programs offered by the DCS, many of which are specifically geared to land and water preservation.

While an OSRP is a critical factor to consider in making recommendations or decisions about how land and resources can best be deployed, the key challenge that this Master Plan must address, where open land is concerned, is how to reconcile the Town's high priority on open space with the responsibility to find ways to use available resources to meet emerging needs. Although the OSRP provides excellent guidance from the specific perspective of land preservation, there are other questions to consider as well. For example, how can we use existing land and water resources to meet the Town's needs as it grows but still avoid the overdevelopment that would dilute Stow's highly valued rural character? Not only personal preferences but also Department of Environmental Protection guidelines, Board of Health requirements, and the protection of land around wellhead areas need to factor in to these discussions.

Exploring how to accommodate these needs will be the focus of this chapter.

B. Vision

Our vision for open space and recreation lands is as follows:

Stow residents will continue to value their town's sense of community, rural character, open spaces, quiet, agricultural, small-town feel, with linkages of open space and trail networks providing opportunities for biking and hiking in addition to those provided by the Rail Trail.

Preservation and improvement of Stow's environmental resources and open spaces are important considerations when planning for Stow's future development. Environmental resources such as soils, groundwater, surface water, woodlands, marshes, wildlife and open space add to Stow's character and quality of life of its residents as well as provide recreational opportunities. As the Town grows, it will be important to increase the amount of protected open space so that residents can continue to enjoy the sense of openness and the rural character that initially attracted them to Stow.

The Open Space and Recreation Plan identified the following nine objectives for protecting land in Stow:

1. Protect agricultural lands to preserve and enhance Stow's agricultural base, and maintaining its viability for the long term.
2. Protect lands that provide areas for active and passive recreation including ball fields and trails.
3. Protect lands that link existing conservation holdings in Stow and surrounding communities.
4. Protect lands in areas of town currently underserved by protected open space.
5. Protect land with significant surface and ground water resources.
6. Protect land that will preserve Stow's small town nature.
7. Protect important natural habitats and wildlife corridors.
8. Protect important scenic vistas.
9. Protect land with significant historical or cultural resources.

The Master Plan Committee acknowledges the importance of these nine objectives, many of which mirror the goals in this chapter. These will be addressed in another section of this chapter.

C. Progress

Stow should be proud of the progress it has made to date in realizing some of the goals it set for itself in the last Master Plan ("Stow 2000"). In particular, the following goals from the last Stow 2000 have been successfully met.

- Additional lands have been permanently protected. The current Open Space and Recreation Plan as well as the Land Use Task Force Report recommend that one acre of land be protected for every one acre developed.
- Additional land for agriculture has been preserved with Agricultural Preservation Restrictions (APR) on both the Mosley and Tyler properties and two parcels of town owned land are being leased to a local farmer for agricultural purposes. One of these parcels consisting of six acres is a portion of the Snow property where our new recreation complex is sited. If this land is not farmed in the future, it could be used for any municipal purpose.
- Improved trail network within Stow.

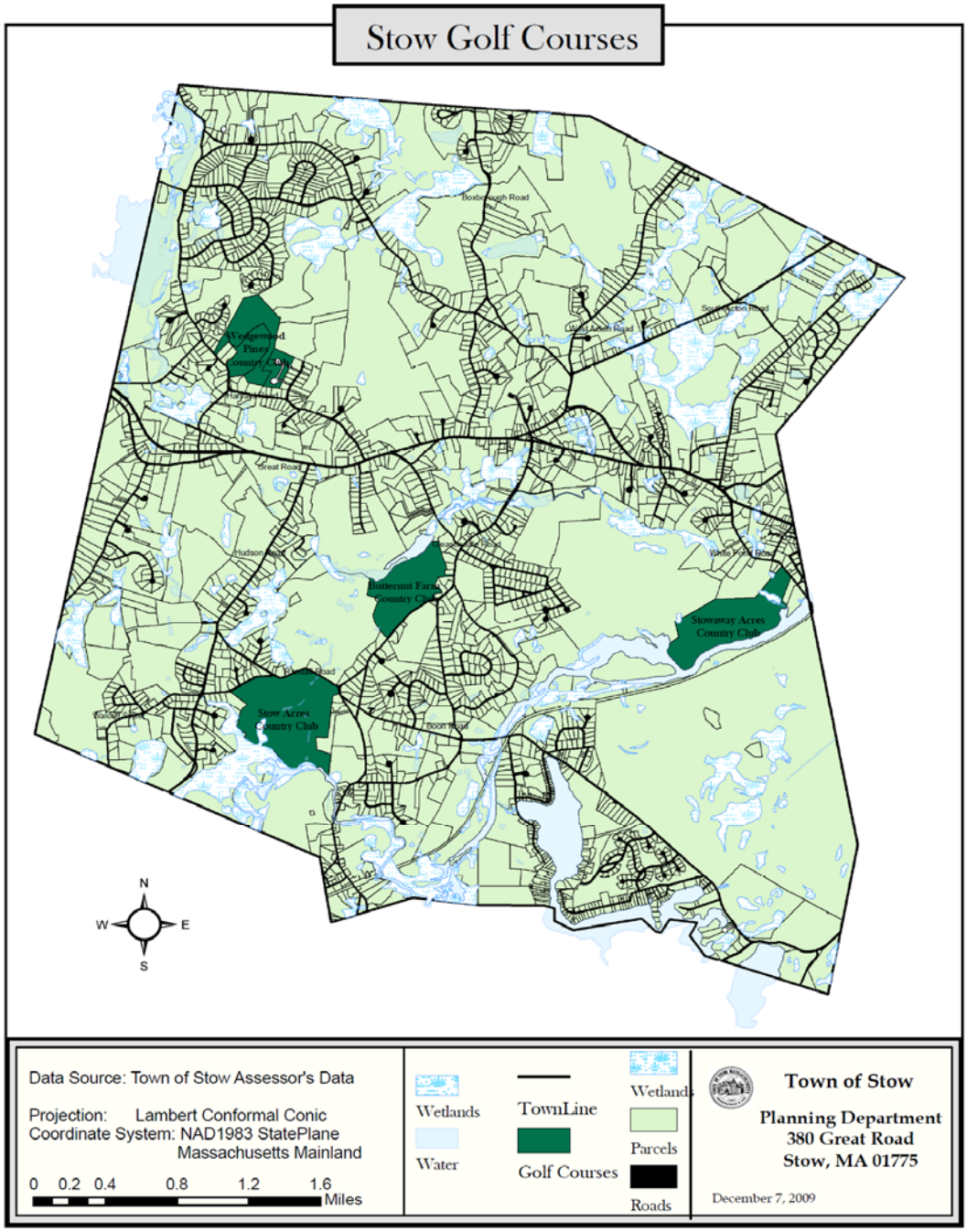
Some progress has been made on several other goals, including acquiring easements on land needed for the Assabet River Rail Trail connections.

D. Golf Courses: What's in Their Future?

Within the Town of Stow lie five privately owned golf courses: Stow Acres North and South, Butternut, Wedgewood and Stowaway. Many residents understandably lump the golf courses into the category of open space, either consciously or subconsciously, because they do indeed provide open vistas of undeveloped land. However, it is important to remember that golf courses have no legal protections to ensure that they remain open space. If the commercial entities that owned the golf courses decided to close up shop, they could sell their land to any buyer they chose, just as any other landowner could do. A parcel that now represents a grassy stretch of land with 18 holes could be converted into a subdivision with numerous houses or a dense 40B development. The following data regarding zoning and development reflect the current status of each golf course. (Note that the abbreviation R/C denotes recreation/ conservation, and that MGL Chapter 61, 61A, and 61B are discussed in the section following the chart.)

Golf course	Acreage	Current zoning	Desired outcomes	Notes
Butternut Golf Club	91.34 acres	Some Recreation Conservation mostly Residential	Active recreation, PCD residential dev. in interior of parcel with open space maintained along Rt. 62	Currently enrolled in Chapter 61B
Stow Acres Country Club	328.06 acres	Residential	Maintain open vistas along Randall Rd, PCD residential dev. with homes in the interior portion, recreation, open space	Currently enrolled in Chapter 61B
Stowaway Golf Course	110.50 acres	Small portion Recreation Conservation, mostly Commercial	Entire parcel should be rezoned Recreation/Conservation as commercial portions are separated by the R/C district; canoe/kayak launch, wildlife habitat, passive and active rec.	Elizabeth Brook frontage. NOT enrolled in Chapter 61B
Wedgewood Pines	146.66 acres	Recreation/ Conservation	Wildlife habitat, passive and active rec. (playing fields)	Currently enrolled in Chapter 61B

FIGURE: 16 Golf Course Map



The Town should consider undertaking a golf course study to explore the desired outcome for each of these parcels. One option to consider is adoption of special zoning regulations for golf courses to guide the Town and the landowner if the time should come that they are no longer to be used as golf courses. For example, applying open space residential design (OSRD) zoning to the golf courses or establishing a new zone specifically for the golf courses, to allow more dense development than allowed in a PCD in exchange for additional open space and preservation of existing viewscapes, may be an appropriate strategy.

OSRD is a "smart growth" principle that provides a method of planning residential development with the goal of conserving open land in a new subdivision. Traditional zoning bylaws requiring, for example, two-acre zoning were originally conceived of as a way of preventing overdevelopment, but these requirements have resulted in a very inefficient use of open space. With traditional zoning, parcels are quickly consumed by houses and lawns, leaving no individual lot with enough land for fields, meadows or forests. OSRD discards traditional zoning bylaws and instead imposes a four-step planning process that, in the words of the Green Neighborhoods Alliance of Massachusetts, "reverses the typical subdivision planning process. First, the open space is designated; second, the houses are sited; third the roads and trails are planned; and fourth, the lot lines are drawn."

In other words, houses are sited more densely in order to allow for larger swaths of unsullied land. This is typically done to allow no greater number of actual new units than a conventional subdivision but to require at least 50% of the land to remain as open space. The benefits to the environment of OSRD are myriad, and include lower water usage (less lawn space), fewer pesticides and chemicals utilized in manicuring lawns, fewer miles of roads for a municipality to maintain, more ground water recharge as impervious areas are reduced, and more. As mentioned above, designating the open space first, before determining where homes will be sited, is an idea worth considering.

In 1995, Stow adopted a Planned Conservation Development (PCD) bylaw, which is an OSRD zone but under different nomenclature. The PCD bylaw permits a reduction of lot dimensional requirements, thereby promoting clustered developments with 60% open land. The regulations provide for single-family and multi-family dwelling units, establish setbacks for building to public ways and property lines, and specify the dimensional requirements and allowed uses of the open land. MGL Chapter 40A Section 9 requires that the land be permanently protected as conservation or park land.

E. Farms, Orchards and Golf Courses: The Reach of Chapter 61

Land is acquired by the Town in various ways: negotiation with developers as part of the permitting process, Chapter 61, donation, tax foreclosure, and town purchase. Of these methods, only Chapter 61 and town purchase require a monetary exchange.

1. An overview of Chapter 61

Certain open land parcels can be classified under Massachusetts General Law Chapter 61 (forestry), 61A (agriculture) and 61B (open space/recreation), which allow for some privately held properties, including farms, orchards and golf courses, used for the stipulated purposes to receive reduced tax assessments in exchange for a promise to maintain the land for the specified use for a specified number of years. In Stow, this status currently applies to 2228.96 acres on 113 separate parcels of land. That represents 19.7% of Stow's total land acreage,

significantly higher than most communities. It is not, however, a surprising percentage when one considers Stow's predominately rural and agricultural makeup.

The statute requires that such a classification includes a commitment by the land owners to offer the Town the right of first refusal if the lands are ever sold for development or converted by the owner to another use. Towns can assign that right to a nonprofit land conservation agency if they so choose.

However, the "first refusal" clause can be somewhat difficult to execute as it requires that a decision be made within 120 days, and often it is challenging to convene a Town Meeting to approve the necessary funds within that time period. One way around this is for the Town to obtain prior approval to purchase key parcels if they become available. However, a source of funding would still need to be readily available, and the appropriation of funds must be done by the legislative body for the community, which in Stow's case is Town Meeting. Thus, it remains difficult for a municipality with a Town Meeting form of government to be able to act quickly on a land acquisition. Alternatively, it is possible for Stow to use CPA funds (with Town Meeting approval) or other accounts to set aside money into a land conservation fund[18] to buy specified parcels of Chapter 61-protected land in the event that the land is put up for sale. Other financial resources available for the purchase of Chapter 61 land include public/private partnerships with nonprofit conservation groups such as Stow Conservation Trust (SCT), OAR (Organization for the Assabet River), and SVT (Sudbury Valley Trustees); and the Conservation Commission Conservation Fund.

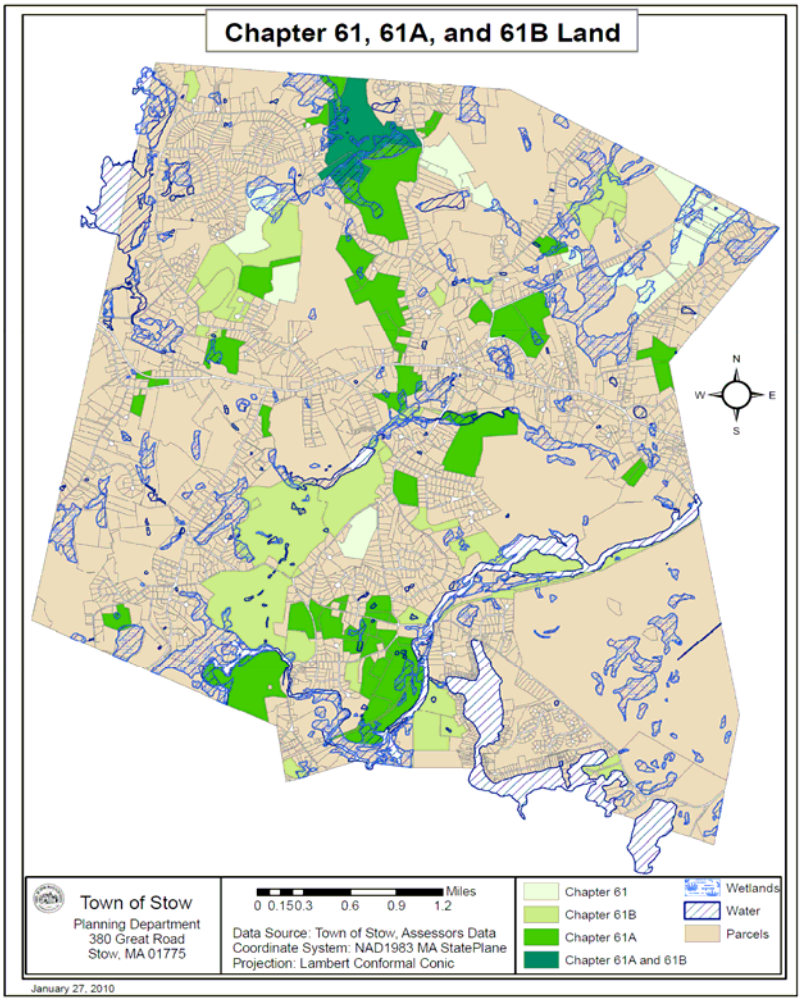
In November 2008, the Selectmen adopted a comprehensive policy regarding sale of Chapter 61 properties; see Appendix . This policy set out procedures it will utilize when parcels become available but did not attempt to prioritize parcels of land the Town might wish to protect.

The Open Space and Recreation Plan includes a complete listing of properties with Chapter 61 status; see Appendix. The MPC recommends that the "Evaluation Criteria for Ranking Parcels" developed by the Open Space Committee and outlined in the OSRP from June 2008 be utilized in evaluating these parcels. The Open Space Committee is updating the Criteria for Ranking Parcels, and once this work is done will resume the ranking of parcels. This is an ongoing and very time-consuming process.

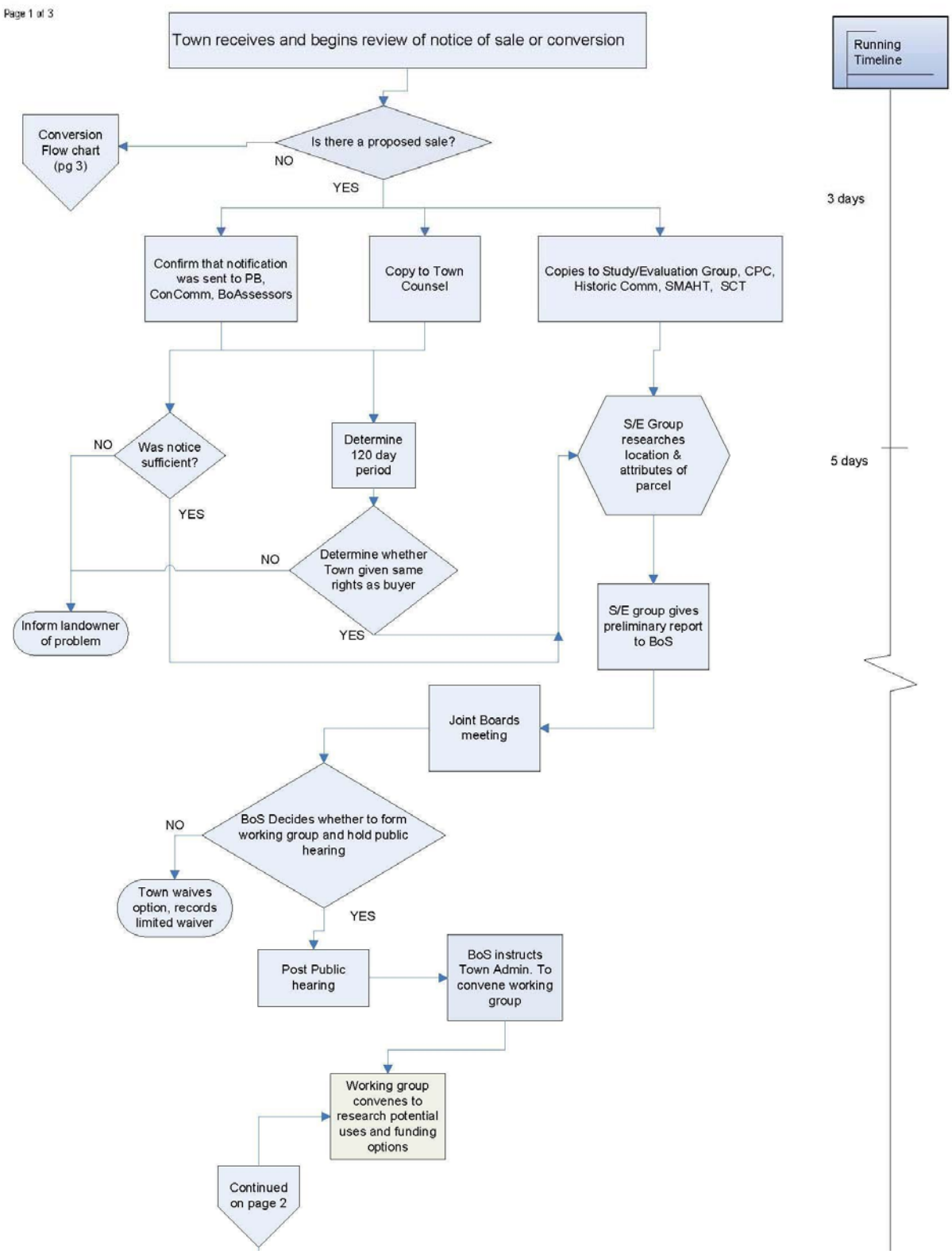
2. Recent changes to Chapter 61

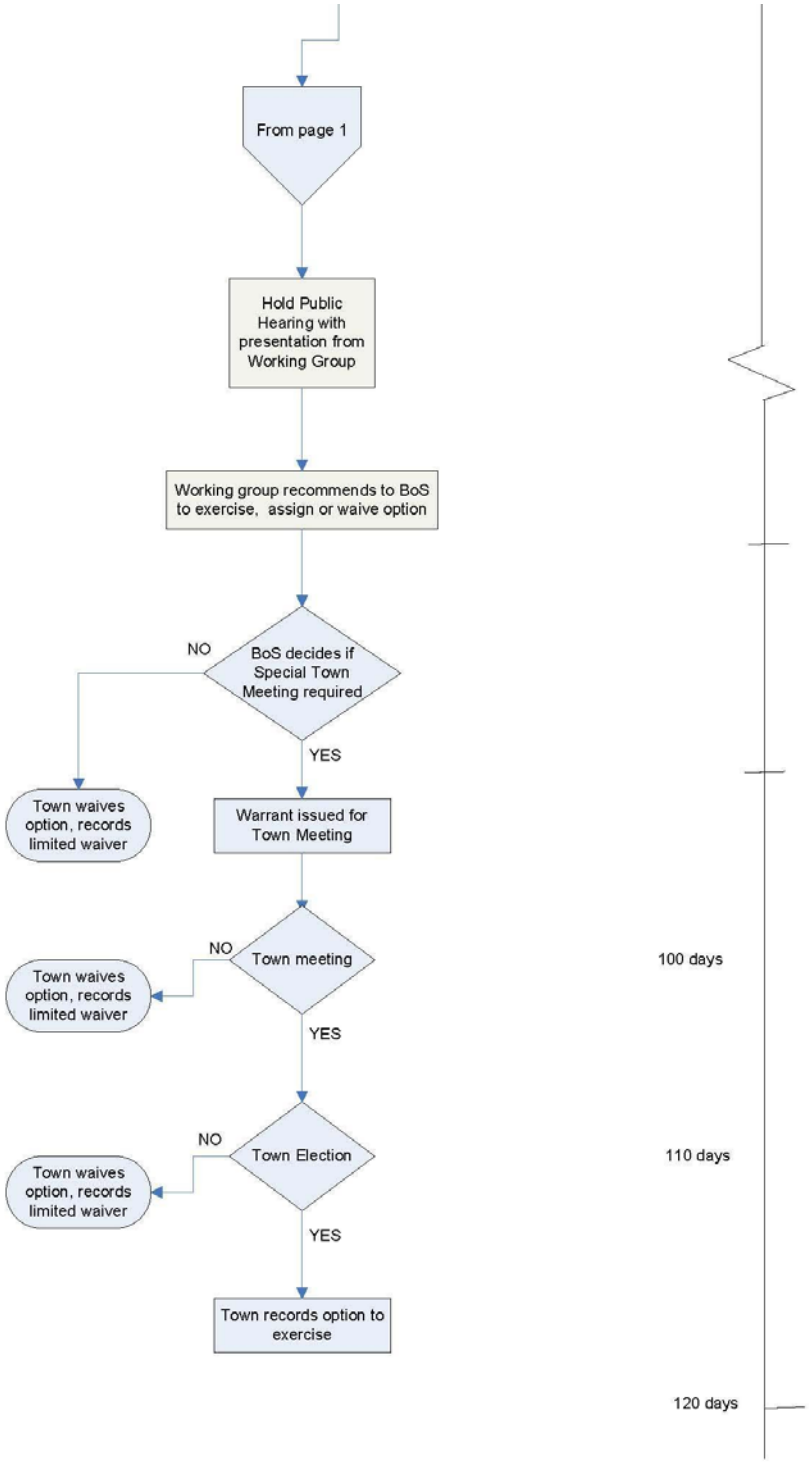
Recent changes (provided by Chapter 394 of the Acts of 2006 and effective as of March 2, 2006) have clarified the existing law and addressed some problems but did not address other issues. The Town should work with our state representatives to proactively seek changes that adopt a more equitable compensation to the Town when rollback taxes are calculated. Rollback taxes should be based on the current appraised or offered value for the property, considering its new use, and be applied to any change in use, which may occur in the succeeding ten-year period from the time the property is removed from Chapter 61 tax protection. See the Appendix for the Land Use Task Force recommendations (#3 on banking of rollback taxes for future land purchases).

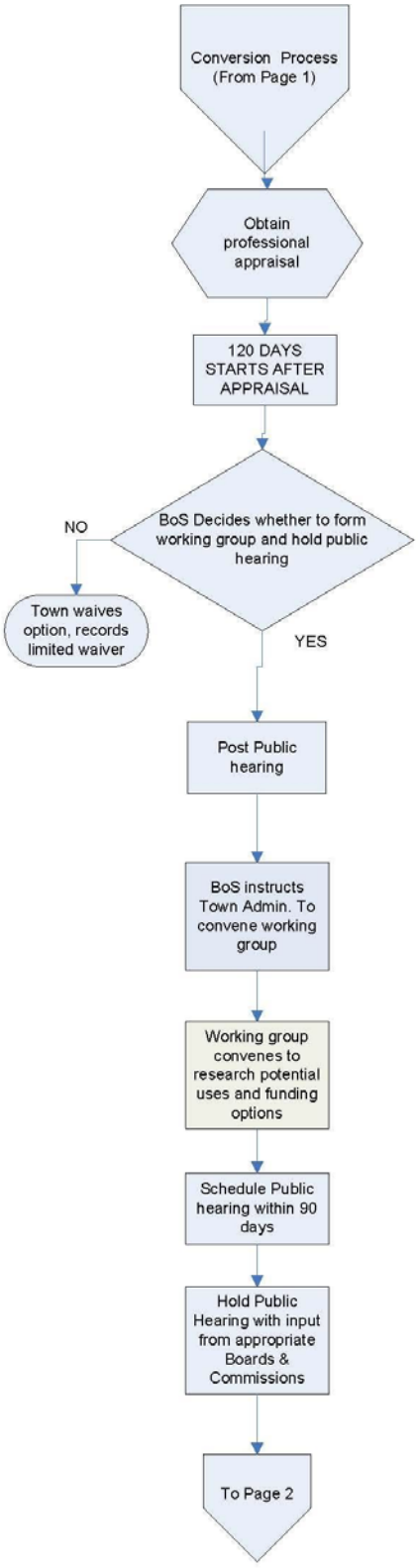
FIGURE: 17 Chapter 61, Chapter 61A & B Parcels in Town as of 2010



The following flow chart shows the typical course of action to be followed by the Town as lands are removed from Chapter 61. This procedure was adopted by the Board of Selectmen in November 2008 as a recommendation from the appointed Land Use Task Force.


Page 1 of 3
Town receives and begins review of notice of sale or conversion
Running Timeline
Conversion Flow chart (pg 3)
Is there a proposed sale?
NO
YES
3 days
Confirm that notification was sent to PB, ConComm, BoAssessors
Copy to Town Counsel
Copies to Study/Evaluation Group, CPC, Historic Comm, SMAHT, SCT
NO
Was notice sufficient?
YES
Determine 120 day period
S/E Group researches location & attributes of parcel
5 days
NO
Determine whether Town given same rights as buyer
YES
Inform landowner of problem
S/E group gives preliminary report to BoS
Joint Boards meeting
NO
BoS Decides whether to form working group and hold public hearing
Town waives option, records limited waiver
YES
Post Public hearing
BoS instructs Town Admin. To convene working group
Working group convenes to research potential uses and funding options
Continued on page 2


From page 1
Hold Public Hearing with presentation from Working Group
Working group recommends to BoS to exercise, assign or waive option
NO
BoS decides if Special Town Meeting required
YES
Town waives option, records limited waiver
Warrant issued for Town Meeting
NO
Town meeting
100 days
Town waives option, records limited waiver
YES
NO
Town Election
110 days
Town waives option, records limited waiver
YES
Town records option to exercise
120 days


Conversion Process (From Page 1)
Obtain professional appraisal
120 DAYS STARTS AFTER APPRAISAL
BoS Decides whether to form working group and hold public hearing
NO
Town waives option, records limited waiver
YES
Post Public hearing
BoS instructs Town Admin. To convene working group
Working group convenes to research potential uses and funding options
Schedule Public hearing within 90 days
Hold Public Hearing with input from appropriate Boards & Commissions
To Page 2

F. *"Right to Farm" Bylaw*

In 2005, Stow adopted a "Right to Farm" General Bylaw (see **http://tinyurl.com/2wew6ok**) mirroring the regulations of MGL Chapter 40A, Chapter 90 and Chapter 128. The purpose of the bylaw is to encourage the centuries-old use of Stow's rich natural resources for the pursuit of agriculture as an economic opportunity and to minimize conflict with abutters and/or town agencies. For example, farms are more protected than other businesses or residences would be from complaints about odors, presence of animals, dust, noise, etc. The bylaw also serves as notification to potential property purchasers within town that the area is considered friendly to agriculture and that the small aforementioned inconveniences can accompany farming practices. Having this bylaw also helps the Town with its annual Commonwealth Capital scorecard and thereby improves Stow's ability to successfully compete for various state grants (see below).

G. *Commonwealth Capital Program*

For the past few years, Massachusetts towns and cities have benefited from the availability of the Commonwealth Capital Program, an initiative designed by state agencies to promote better land use choices through planning and zoning measures that are consistent with Sustainable Development Principles. The state encourages municipalities to implement these measures by using funding as an incentive.

Communities that have planned for land conservation and development and enacted zoning, subdivision and other regulations consistent with the state's Sustainable Development Principles (see Chapter 1) are more likely to receive financial assistance from the state. Over the past four years, this incentive has produced dozens of plans and hundreds of improvements to zoning and other local land use regulations. The Town of Stow was last certified in 2008. The MPC recommends that Stow work to continue to increase its Commonwealth Capital score as long as doing so would not result in a conflict with other desired goals.

H. *Bylaws and Regulations to Protect Open Spaces*

Bylaws and regulations are also in place to protect valuable, open space resources. The following bylaws and regulations can be found on the Town's website:

- Zoning Bylaw
- Wetlands Bylaw
- Planned Conservation Development (PCD) Bylaw: requires 60% open space
- Active Adult Neighborhood Bylaw: requires 30% open space
- Planning Board Rules and Regulations
- Board of Health Regulations
- Subdivision Rules and Regulations

Because the Town does not manage a public water supply or sewage system for residences, one negative by-product is that Stow's zoning promotes suburban sprawl. Our Board of Health and Zoning Bylaw require a minimum of 1½ acres to support an individual well and septic system. An expansive lot size is often needed in order to prevent the two systems, required on each lot, from coming into conflict with one another. It should be noted that the lack of town water and/or sewer helps to slow the build-out of Stow. The MPC recommends that the Stow Board of Health consider a bylaw, more restrictive than Title V, to require package treatments plants for parcels in the Water Resource Protection Overlay District. This would provide additional protection to ground water supplies and ground water recharge areas. One possibility to consider is the potential for an expanded public water supply if the Harvard Acres system is piped to the center of town. The MPC recommends the BOH investigate creating a bylaw that enables the Town to become more stringent than the standard Title V regulations, particularly in water resource protection areas to protect drinking water sources.

I. Encourage Low Impact Development

As part of the development process, we need to continue to promote Low Impact Development (LID) techniques in our Zoning Bylaw, Planning Board Rules and Regulations, and negotiations with developers. See Chapter 9 for more information on LID.

J. Encourage Agricultural Based Businesses

Early businesses within Stow were all resource-based, the resource being agriculture. We must encourage and support the small farms, orchards, and golf courses that embody our agricultural heritage today, along with their supporting businesses, such as farm stands and bed-and-breakfast establishments.

The December 2005 Special Town Meeting created the Stow Agricultural Commission to help preserve the rural character of Stow through the preservation and promotion of agriculture. The Commission will help keep Stow farms viable by promoting agriculture through educational literature, events, and articles. The Commission can act as a voice for agriculture in town government, helping to ensure that the various boards understand the impact of their actions on agriculture.

We encourage the creation of a town committee—perhaps the newly created Agricultural Commission working in cooperation with the Stow Conservation Trust—to focus on promoting Stow's "green" tourism potential, including the promotion of local products. For example, we can realize much potential in marketing "Stow apples" as a recognized "brand" in Massachusetts and New England markets.

K. Recreation

In terms of town planning, it is helpful to define two types of recreation: active recreation and passive recreation. Active recreation encompasses soccer fields, playgrounds, tennis courts, and indoor sports facilities; passive recreation refers to activities which are non-motorized, non-commercial, noncompetitive and require little or no modification to the natural landscape, such as trails for walking, biking and wildlife viewing.

1. Active recreation

Current active recreation facilities in Stow include Memorial Field, Pine Bluffs Recreation Area, Pine Bluffs Beach, Pompo upper field, Center School tennis courts, and the indoor gyms at the schools. The Stow Community Park on Old Bolton Road, our newest recreation complex, contains two basketball courts; two tennis courts; walking paths with exercise stations; two Little League 60-foot baseball fields; a large rectangular field for soccer, lacrosse or field hockey; a pavilion; and associated parking.

A report that the Recreation Commission submitted to the Land Use Task Force in March 2009 (see Appendix) examined the forecast for future needs in terms of both indoor and outdoor recreation as the Town moves closer to its maximum buildout. To accommodate the outdoor recreation needs, approximately 35 acres plus associated parking and storage will be needed. There remains a strong desire for enhancements to canoe/kayak access points to Lake Boon and the Assabet River; these have not been included in the 35-acre computation.

The Stow Recreation Committee recommends in its master plan construction of a multigenerational community center to include a swimming pool, two basketball courts, a fitness center, and a community gathering space. Such a multigenerational center would require adequate separate space for children and seniors alike. This would be a major financial investment, but nonetheless is something the MPC also endorses. In order to take initial steps toward creating such a center, the MPC recommends an ad-hoc committee be appointed by the Board of Selectmen. Public-private partnership opportunities should be explored at the onset of the project before a feasibility study is conducted.

2. Passive recreation

Because of its abundance of undeveloped land and natural space, the Town of Stow lends itself well to passive recreation opportunities. Those that are used frequently include the Assabet River National Wildlife Refuge (NWR), Captain Sargent Land, Delaney Project, Fieldstone, Flagg Hill, Gardner Hill/Town Forest, Heath Hen Meadowbrook Woodland, Kalousdian Land (OAR), Marble Hill, Marlboro-Sudbury State Forest, Pine Bluffs, Red Acre Woodland and Spindle Hill. The landlocked Corzine and Hale Woodlands properties will soon be accessible due to the donation of an easement fronting on Edgehill Road. Walking these lands provides the opportunity for exercise and enjoyment of the outdoors, including viewing a variety of animal and plant life. The open land parcels of the Derby Woods, Trefry Lane and Wildlife

Woods PCDs offer additional opportunities to enjoy the outdoors. The addition of sidewalks to the Town will increase mobility and walking/biking opportunities.

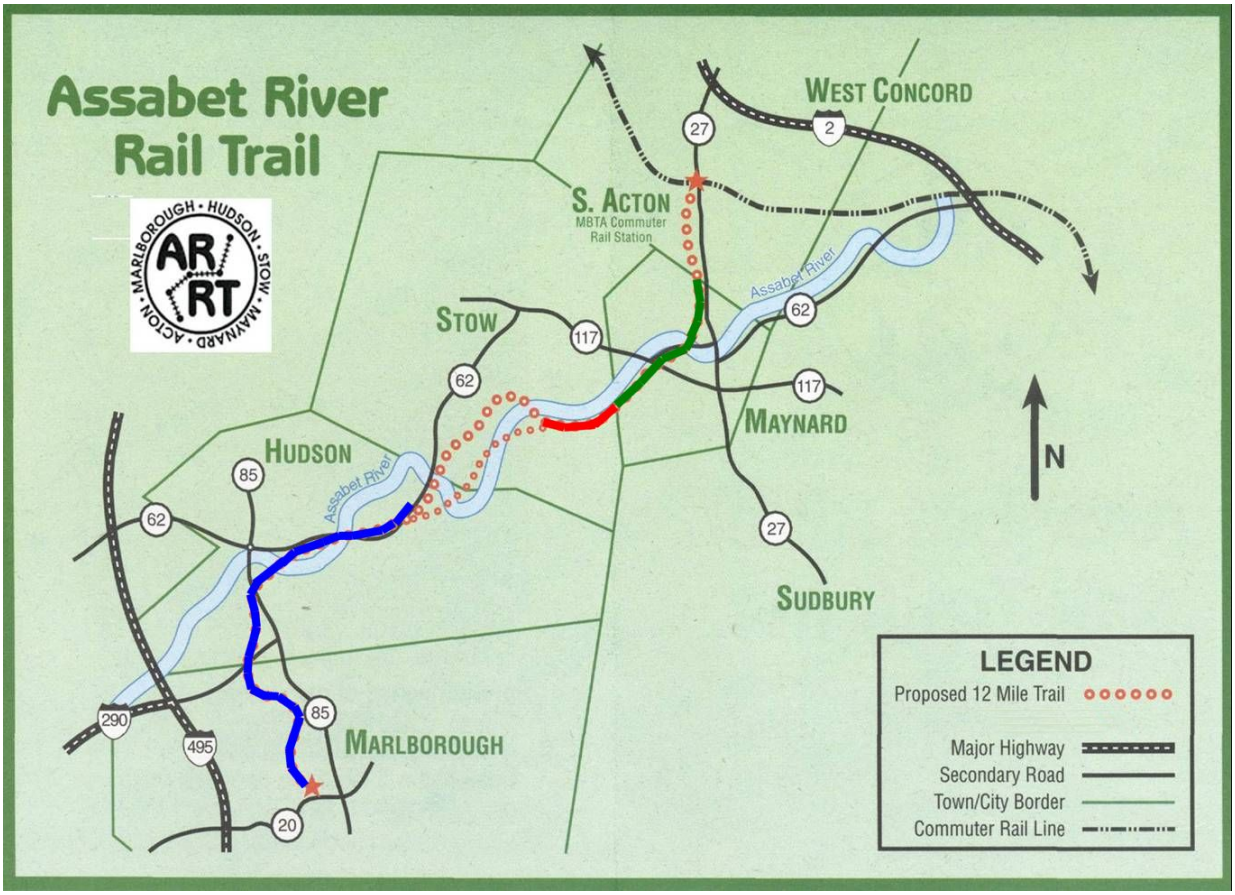
Opportunities to develop more passive recreation areas include the following, which are also discussed in Chapter 5:

a. Emerald Necklace

We need to continue work toward completing the Emerald Necklace walking trail of conservation land throughout the Town of Stow. We must identify and work to secure and protect easements over missing links in the Emerald Necklace and expand the network to Southwest Stow. Where appropriate, specifics are described in the Open Space and Recreation Plan (on file in the office of the Conservation Commission).

b. Assabet River Rail Trail

The Assabet River Rail Trail is now a reality in adjoining communities. Stow is the missing link. We need to identify the financial issues, the concerns of current landowners, and the possibilities for action to complete the rail trail in Stow and connect to the rail trails in our neighboring towns.



The completed 6 miles of the trail in Marlborough and Hudson are in green. The section in red is the proposed trail in Stow, Maynard and Acton. The two green sections in Maynard and one in Stow are walkable, but not paved yet.

c. Assabet River

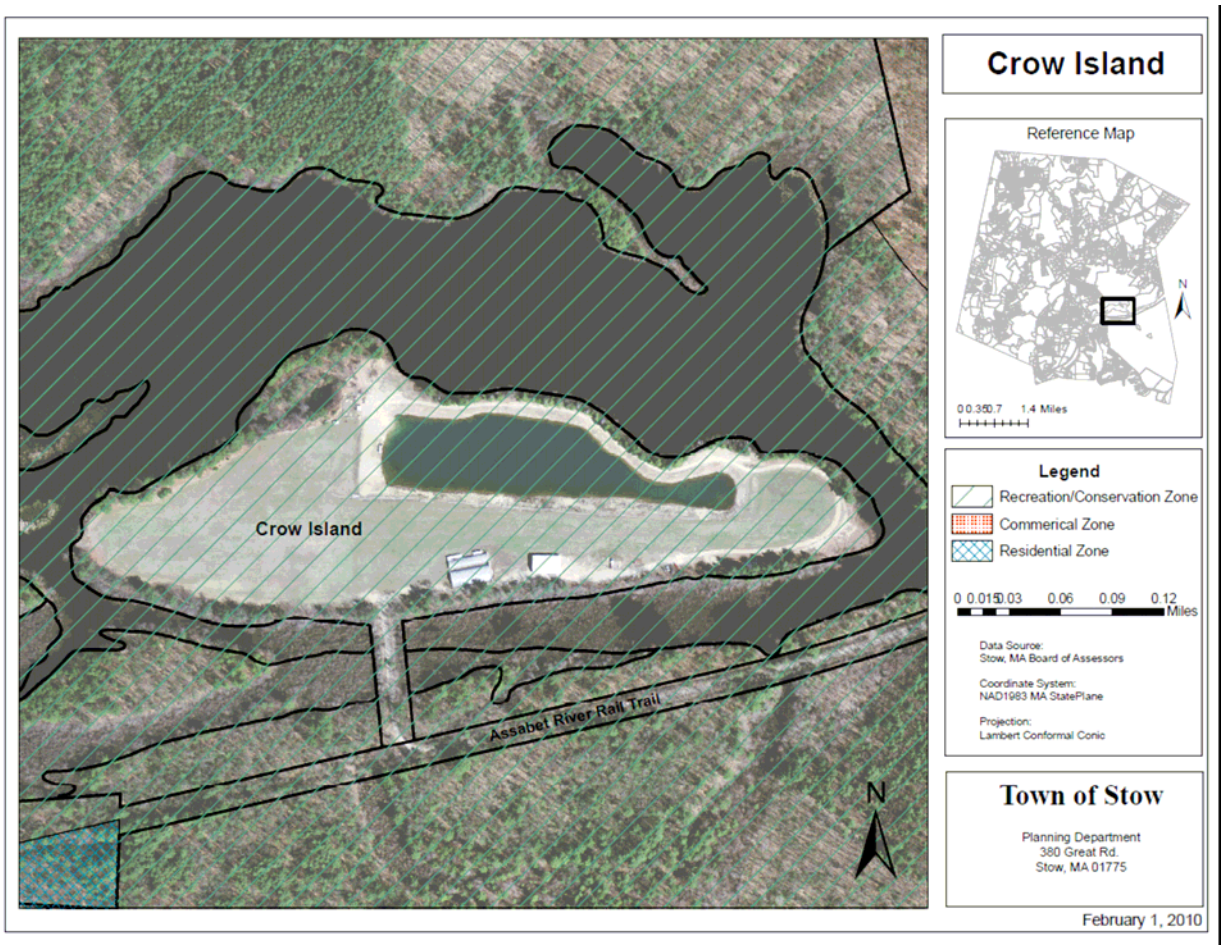
The river is popular for canoeing and kayaking; thus, opportunities to create small boat launch facilities should be explored. The health of the river is constantly threatened by pollution from the wastewater treatment facilities in several neighboring towns. The Town should work collaboratively with the Organization for the Assabet River (OAR) to help protect and improve the river. The Army Corps of Engineers' recently completed Sediment and Dam Removal Feasibility Study on the Assabet River has many potential negative implications for Stow. These include altering the river as it flows through Stow, which would result in lowering the water level, causing a loss of critical water source for farming, golf courses, orchards, fire protection and recreation as well as possible secondary effects on Lake Boon and surrounding shallow wells. The Town has responded to Mass DEP in opposition to dam removal and will continue to closely monitor this situation.

d. Crow Island

The privately owned Crow Island presents attractive options for the Town as a recreational parcel and general access to the Assabet River, and as a link to the Rail Trail, Assabet River National Wildlife Refuge, and Stow's Emerald Necklace. We need to identify the issues and

opportunities in acquiring Crow Island. We should be proactive in negotiating the purchase of Crow Island for conservation and recreational purposes.

FIGURE: 18 Crow Island photo and parcel map



e. Lake Boon

Lake Boon provides many recreational opportunities including boating, swimming and wildlife viewing. Pine Bluffs and the Town Beach area continue to experience erosion and sedimentation issues that will continue to need to be addressed. A much more detailed exploration of the challenges regarding preservation of Lake Boon appears in Chapter 5.

L. Needs

It is critical that all interested parties participate in educating Stow residents as to the benefits that open space provides to the entire community. As stated in the OSRP, the perception that

Stow has a lot of open space is misleading, as 70% of the land in town appears green and open but less than half of that has legal protections to ensure it remains open space.

GIS mapping was used to determine that approximately 30% of the land in Stow has been developed, approximately 30% of the land has been protected, and approximately 40% is potentially available for development. How we choose to utilize this remaining 40% of land in town will forever affect the character of Stow. If we are serious about protecting our "rural character," we must make a concerted effort to do so now.

The OSRP recommends that one acre of land be protected for each acre that is developed in the future. The Land Use Task Force, in their final report, supported this recommendation; the Master Plan Committee supports the 1:1 recommendation of the OSRP. This means that approximately one-half of the potentially developable remaining 40% will be permanently protected. In addition, as requests for development come before the Planning Board, consideration will be given to LID designs and protected open space.

The evaluation criteria for ranking parcels developed by the Open Space Committee will be useful in determining which parcels should be protected. This will be an ongoing process with various town boards and committees. This is an impressive goal, but one that cannot be met without a concerted effort to encourage development to occur on the most suitable parcels, while preserving those with the highest resource value.

Providing permanent protection to land in the Southwest quadrant of Stow, where there are 600 acres of undeveloped and unprotected land as well as two large golf courses with an additional 420 acres, is critical to preserving the "town's rural character" and open space. As this area of town has the least amount of permanently protected land and a large amount of undeveloped land, it will continue to be vulnerable to development.

M. Action Items

The MPC has identified the following goals and action items to address in regard to open space and recreation.

- Protect lands that will preserve Stow's "rural character."
- Complete the Rail Trail by linking existing trails.
- Implement a Golf Course Study with a goal to protect existing scenic vistas and evaluate the preferred method of future development on those parcels.
- Identify issues and opportunities for recreation on, and additional conservation of Crow Island.

- Protect and preserve the health of Lake Boon.
- Protect Open Space in Southwest Stow.
- Acquire and preserve land for future active and passive recreation needs.
- Expand recreation/conservation district zoning to establish Wildlife Habitat corridors which will ensure the continued movement of wildlife as lands are developed. These important parcels should be protected with conservation restrictions.
- Change Planned Conservation Development bylaw to require that the open space be designated prior to determining where the homes will be sited.
- Implement a new bylaw requiring sewage package treatment plants for parcels in the Water Resource Protection District.
- Complete the Stow Emerald Necklace by linking or creating trails.
- Formulate a Demolition Delay Bylaw and evaluate areas of town for implementation.
- Educate the public on the benefits of open space.
- Foster pedestrian mobility through the implementation of sidewalks and other planning strategies.
- Limit the alteration of trees and stonewalls along Stow's scenic roadways by adopting the Scenic Roads Preservation Bylaw.
- Obtain prior Town Meeting approval to purchase key open space parcels when they become available.
- Appoint a committee to explore building a mutigenerational community center.

Chapter 7

Public Facilities and Municipal Services

CHAPTER 7: Public Facilities and Municipal Services

A. Overview

As has been stated throughout this Master Plan, the single strongest theme to emerge from the Master Plan Survey was a nearly unanimous wish on the part of Stow residents to retain the Town's rural character. In relation to municipal services, the MPC believes the best course of action is to retain core community services that exist today while expanding into new service areas when absolutely necessary. Any new services should be carefully evaluated.

Municipal services lie at the core of a community's operations – and its survival. Encompassing the entire spectrum of infrastructure needs, the topic of municipal services also seeps into social services, education, and even recreation. In general, when we talk about municipal services, we are talking about the range of functions that the Town fulfills in order to keep all systems and departments up and running – which in turn keeps the community functioning smoothly. Usually, but not always, municipal services are funded by the Town's operating budget. Not every city or town offers a full range of services, and in general, smaller communities provide fewer services. However, core services usually consist of emergency response (police, fire, department of public works or highway department) and schools. Most suburban communities located between Worcester and Boston would also consider their public library and senior services to be core services.

In addition to the aforementioned core services, examples of municipal services can include water and sewer provisions, electricity, public housing, recreation, trash disposal and ambulance. The next tier that could still be considered municipal falls under the rubric of social services: transportation and other forms of community care for seniors, health services and libraries. School services, while municipal, are funded separately in Massachusetts as a stand-alone appropriation and are managed under an elected school committee, typically with an appointed superintendent. Schools are therefore not subject to the policy direction of the Chief Executive Body in town (for Stow, the Board of Selectmen); nor are schools influenced by the management decisions of the Town Administrator. The exception to this is capital decisions impacting school facilities or school buildings. Nonetheless, the school system and municipal services must be coordinated and both must work, to some degree, in collaboration. Needless to say, each of these functions plays a key role in the community, and the general wealth and size of the community are critical to how readily a community can fund the municipal services it desires.

As a community grows, increases in residential or commercial population can impact the need for services. Therefore, even if all municipal services are running with ease right now, any discussions about future growth and development in the Town need to take place within the context of the municipal services that will be required to support those changes.

There are essentially two ways that towns can approach the subject of municipal services. One is to look at every possible infrastructural need for the community, actual or potential, and figure out whether meeting that need is a priority and if so, how to do that. The other option is to consider it a priority to keep town services lean, offering only those services a community relies on for survival: emergency response and road maintenance (snow removal). Therefore, on a recurrent basis, it is incumbent upon the Town to address the question of which approach it wishes to take. Is the goal to foster safe and effective development plans by meeting as many emerging needs as possible, or to lessen the financial impact on taxpayers by maintaining a low but critical level of municipal services?

B. Budgetary Spending

A quick perusal of the Town's operating budget provides a useful overview of what is currently covered by Stow's municipal services. Decisions about growth, change in the community's demographics, and economic development in the community all impact what other possibilities the Town might need to explore.

The Nashoba Regional School Committee recently released its own extensive Master Plan, which does a very effective job of spelling out the Town's educational needs, and the Open Space and Recreation Plan delves into issues of land conservation and outdoor recreational facility needs. This Master Plan does not attempt to replicate or replace either of those two aforementioned plans because both were highly comprehensive and have been produced quite recently. It would be redundant, therefore, to revisit the School Master Plan or the Open Space and Recreation Plan within the context of this process.

More information on school expenses can be found in subsection F, "Schools."

Within the municipal operating budget, the following amounts were appropriated by the Town for the major service areas over the past five years:

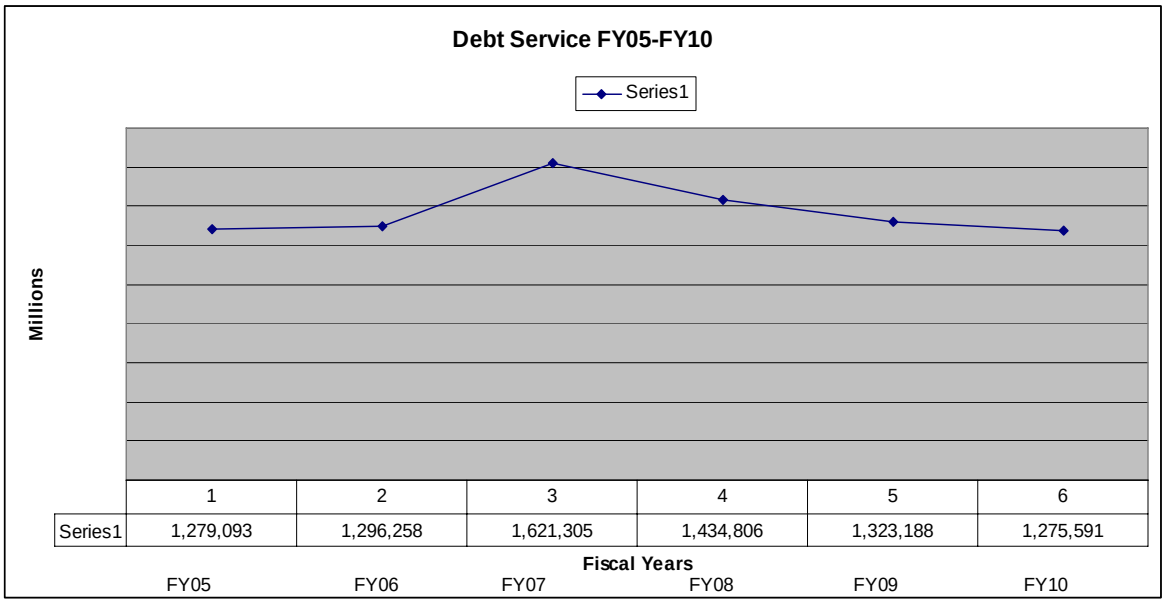
Fiscal Year:	05	06	07	08	09	10	Percent Increase (decrease) FY05 vs. FY10
Department:							
General govt.	663,428	726,614	797,093	813,184	908,714	948,792	**43.01%**
Public safety	1,594,073	1,639,492	1,742,086	1,831,709	1,896,744	1,944,727	**22.00%**
Culture & Recreation	218,548	236,052	246,598	255,700	264,947	271,254	**24.12%**
Public Works & Facilities	676,811	761,198	776,249	815,548	921,294	945,632	**39.72%**
Human Services	170,434	199,620	211,033	231,954	242,850	250,483	**46.97%**
Town wide shared operating expenses	587,530	647,054	677,550	710,400	714,454	733,200	**24.79%**
TOTAL MUNICIPAL	**3,910,824**	**4,210,030**	**4,450,609**	**4,658,495**	**4,949,003**	**5,094,088**	**30.26%**
TOTAL SCHOOLS	**11,048,194**	**11,835,084**	**12,493,700**	**12,959,231**	**13,571,181**	**13,843,439**	**25.30%**
TOTAL DEBT SERVICE	**1,279,093**	**1,296,258**	**1,621,305**	**1,434,806**	**1,323,188**	**1,275,591**	**-0.27%**
TOTAL OPERATING BUDGET	**16,238,111**	**17,341,372**	**18,565,614**	**19,052,532**	**19,843,372**	**20,213,118**	**24.48%**

The data above represent only the total expenses and do not distinguish among funding sources. Later in this chapter we present a discussion of revenue sources and how they have changed over time.

What is most interesting to note about the budget trends is that the fastest-growing sector of the overall budget is human services, which grew nearly 47% over a period of six years. However, as the smallest appropriated value, any change in this line item appears as a substantial budgetary increase. In actual dollar amounts, the budget remains quite modest. Increases in this area also reflect the impact of an aging population, which has likely led to a need to provide more senior services. The second fastest growing area of the budget was general government, and the costs therein are primarily driven by the ever-expanding cost of providing salary and benefits to existing employees. Excluding school employees, since 1993 a total of six new full-time staff positions were added within the municipal government side of the cost equation. In addition, nine part-time positions were added, bringing the total part time employee base to 26 individuals. This is a relatively slow rate of growth in employees, with an average annual increase in total employees of just 1.5%.

Also worthy of note is that debt service has remained virtually level and in fact dropped modestly since FY05. Payment for outstanding debt peaked in FY07 and, due to the retirement of debt on Hale Middle School, it has been declining since that year. This seems to indicate a community that is disciplined in its approach to long-term capital spending. It may also demonstrate that the Town is not relying unduly on capital borrowing to fill equipment needs or other purchases for which municipalities sometimes borrow in lean budget years.

The FY10 actual debt service payment is $1,272,591, which is down from a high of $1,586,317. However, despite the brief decline, looking forward it can be expected that debt service will increase significantly with the expansion and reconstruction of the elementary school building.



Relative to debt service, Stow can also be extremely proud of its recently upgraded bond rating which is now AA on the Standard and Poors rating. Back in 1996, at the time of the last Master Plan, that bond rating was at a Moody's A1 and an S&P "A," indicating the Town's rating has been improved by two levels. Increases in a community's bond rating result from a number of independent variables analyzed by the bonding companies, but generally relate to the fiscal health and stability of the community overall. Sound management practices, sufficient financial reserves, relative community wealth, and consistent leadership all play a role in one's bond rating. Thus, the recent upgrade is another factor highlighting Stow's successful management policies.

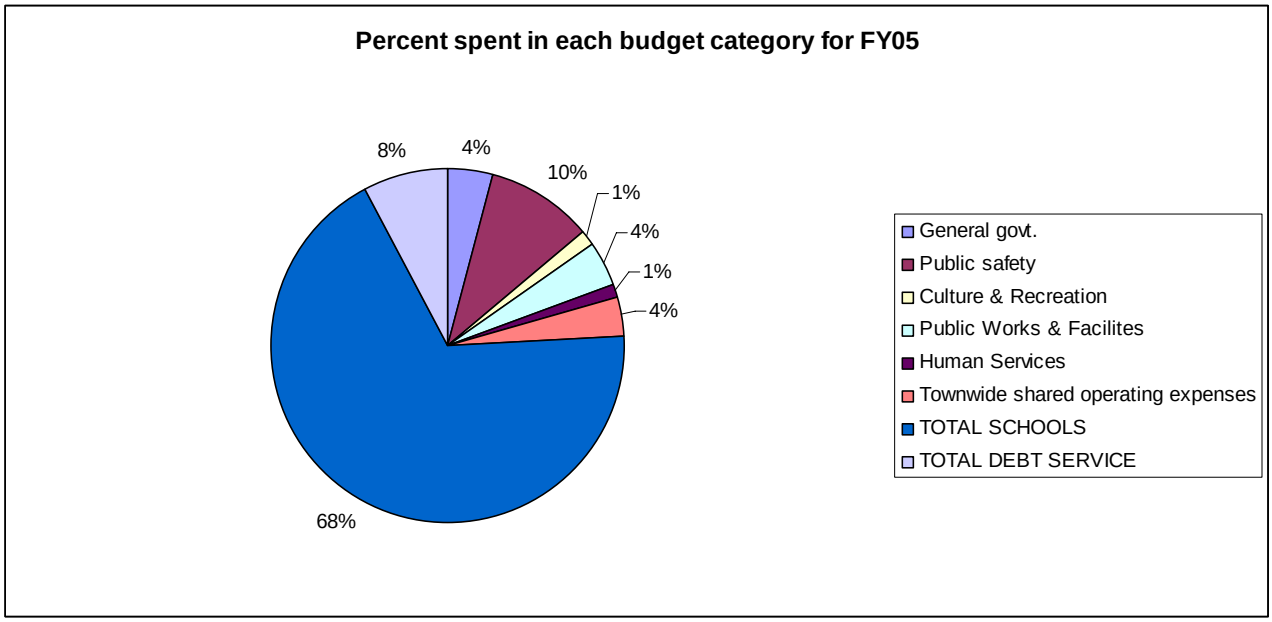
Moreover, it is believed that only five communities in Massachusetts with populations under 10,000 saw their bond ratings upgraded in recent years. This is likely due to the fact that a community's size influences its ability to repay loans. It is also hard for towns with relatively undiversified tax bases to be rated highly because diversification in real estate tends to protect

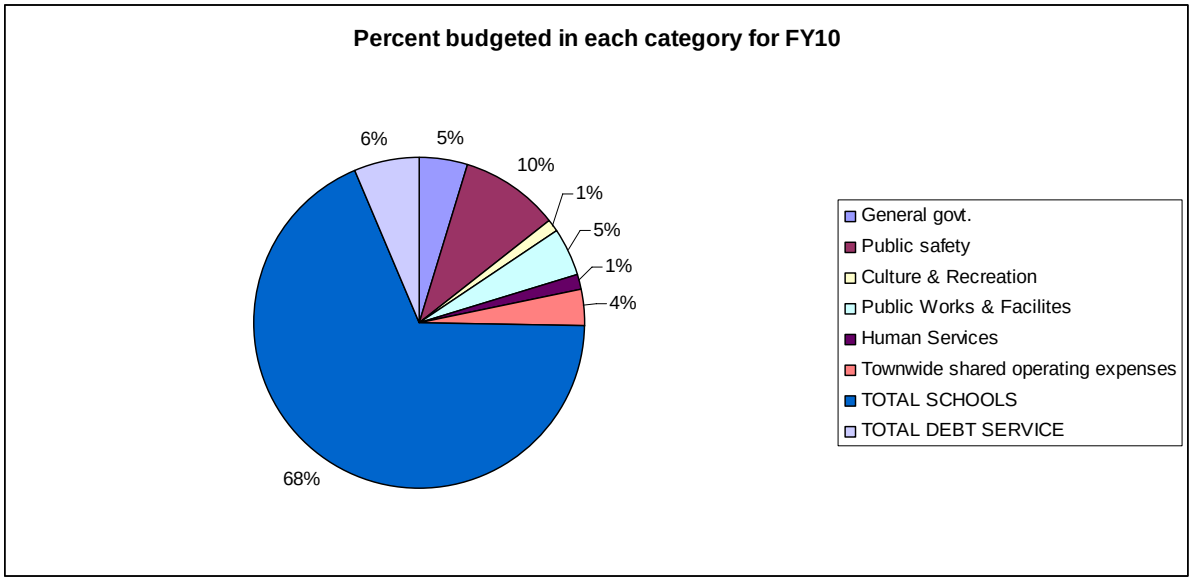
the Town's revenue stream when downtrends in one sector depress values. These are additional reasons that Stow is to be commended for its upgrade in rating. The recent good fortune of its upgraded bond rating will result in a savings of approximately $3,000 per year for Stow.

FIGURE: 19 Credit Ratings Guide

Credit Risk	Moody's	Standard and Poor's	Fitch Ratings
Investment Grade			
Highest Quality	Aaa	AAA	AAA
High Quality	Aa	AA	AA
Upper Medium	A	A	A
Medium	Baa	BBB	BBB
Not Investment Grade	Omitted from Chart		

FIGURE: 20 Budget expenditures by category





Any analysis of budget would be incomplete without examining what portion of the overall budget is spent on what services and taking a look how that has changed over time.

Not surprisingly, as is the case with most municipalities, the largest proportion of spending in all categories went to the schools. In FY05, this category was responsible for 68% of the total operating budget. This trend continues into the FY10 budget, where the school share remains at the same proportion. The growing elements of the pie include general government and public safety, while debt has declined in terms of the total share of the budget from 8% in FY05 to the projected amount in FY10 of 6%.

C. Trends in Revenue and Receipts

1. Local tax revenue

The table below, taken from the Department of Revenue Tax Recapitulation worksheets, illustrates revenue over seven years in each of the various categories: residential, commercial, industrial, and personal property. These data reflect a community that is changing at very modest rates. Remarkably, despite the trend toward larger houses and a greater development interest in residential subdivision, the residential sector of the Town's revenues has remained consistently at 91% of the Town's total tax revenue. The only category for which we are seeing a modest shift is in the declining revenues coming from the industrial sector and slow modest growth in personal property. This latter category suggests that Stow residents and businesses are doing well enough to amass some wealth in order to purchase durable goods, equipment, toys, and other items taxed as personal property.

In real dollars, commercial and residential total revenue has grown 32% since FY 2003. Valuation of property in these two categories has grown 28%. Despite the moribund economy

and recession in the residential building market, the Stow residential and commercial markets do not appear to have been hit particularly hard. The only year that saw a decline in total residential values was from FY08 to FY09, when the residential sector lost only 0.35%. In actuality, of course, the average single family home may have lost more than 0.3% because the above figure includes new residential properties that have come on line during the fiscal year. During that same fiscal period, commercial values did not drop but rather continued to increase reflecting an ongoing and steady growth rate since FY03.

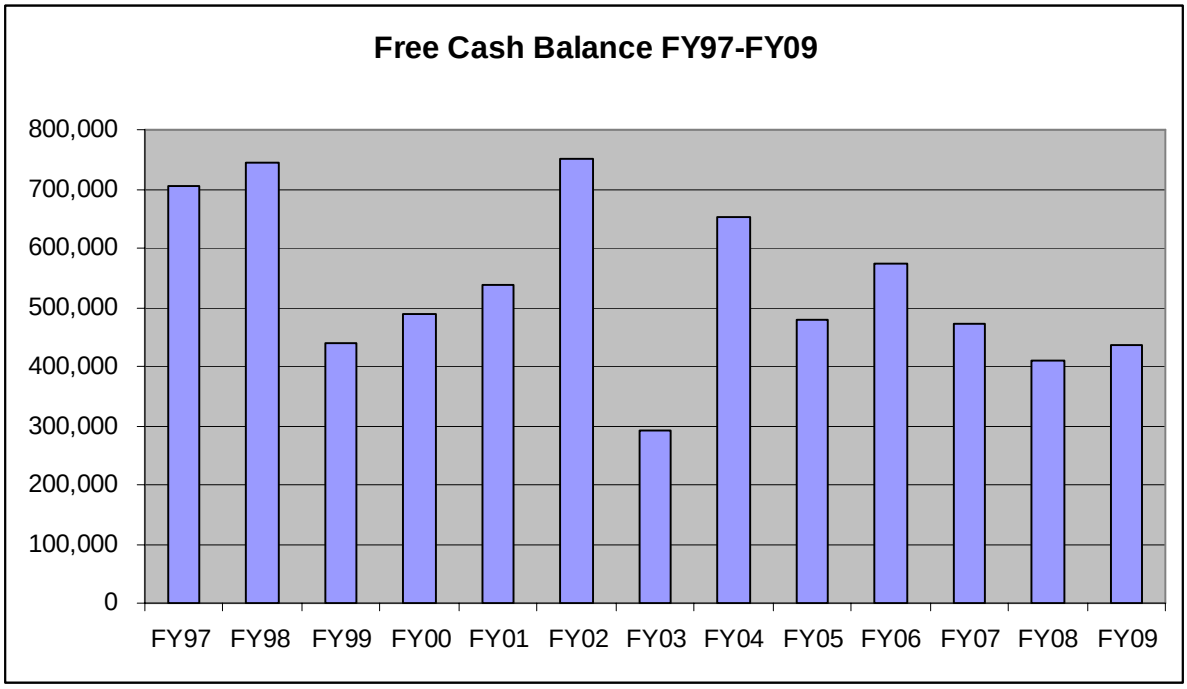
FIGURE: 21 Revenue by type over 7 years

Revenue:	**FY03**	**FY04**	**FY05**	**FY06**	**FY07**	**FY08**	**FY09**
Residential %	91.44	91.49	92.23	91.90	92.02	91.65	91.17
Residential Levy	11,398,798	12,632,947	13,600,171	14,622,502	15,491,485	16,292,773	16,841,547
Total Residential Value	787,210,000	862,906,400	947,087,300	1,041,489,400	1,120,947,300	1,106,095,200	1,102,196,200
Tax Rate	**14.48**	**14.64**	**14.36**	**14.04**	**13.82**	**14.73**	**15.28**
Commercial %	4.78	4.91	4.57	4.53	4.62	4.75	4.76
Commercial Levy	596,160	678,423	673,948	721,403	777,024	844,536	878,620
Commercial Value	41,171,400	46,340,100	46,932,200	51,381,600	56,224,500	57,333,900	57,501,300
Industrial %	2.63	2.36	2.03	2.24	2.07	2.13	2.19
Industrial Levy	327,430	326,432	299,254	356,731	348,320	377,913	403,942
Industrial Value	22,612,100	22,297,500	20,839,600	25,408,000	25,204,500	25,655,600	26,435,600
Personal %	1.15	1.23	1.17	1.33	1.29	1.48	1.89
Personal Prop Levy	143,570	170,085	172,571	211,391	217,550	262,253	349,445
Personal Prop Value	9,915,300	11,617,800	12,017,400	15,056,400	15,740,980	17,804,470	22,869,290

2. Actual Free Cash Balance

The chart below indicates that Stow's smallest free cash balance was in FY03, when the total amount was just under $300,000. That figure more than doubled the following year and has averaged in the vicinity of $425,000 since. Nonetheless, it has been many years since Stow has seen the strong balances it once had, topping more than $700,000.

FIGURE: 22 Free Cash balances FY97-FY09



3. Receipts and Free Cash usage in support of budget

FIGURE: 23 Receipts and Free Cash usage in support of budget FY03-FY09

	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Local Receipts estimated	1,635,900	1,657,030	1,757,906	1,804,595	1,440,281	1,383,500	1,527,300
Free Cash projected for use in balancing budget	600,687	0	287,667	233,262	213,672	244,045	248,000
Available Funds projected for use in recap	206,687	475,705	92,340	55,838	83,464	73,425	71,835

After a significant usage in FY03 in support of that budget, dependency on Free Cash dropped precipitously between FY03 and FY04, and then remained fairly consistent for the ensuing years of FY05 to FY09. The figure of "0" in FY04 also suggests there may have been an anomaly in reporting to the Department of Revenue (DOR) during this period. At 1.25% of the total budget, a Free Cash usage in the $200,000 range indicates fiscal discipline and good spending controls which reduces dependency on this revenue source.

The low usage of Free Cash may not be sustainable as the Town nears its excess levy capacity, which in FY09 stood at just $153,446. A greater proportion of Free Cash may be called upon in future years to balance the budget. However, there is no standard of how much is an appropriate amount to use, and achieving an ideal number depends significantly upon goals and community desires. Some communities prefer to keep taxes as low as possible by utilizing all available financial resources, while others take a more conservative approach and leave some funds in Free Cash to act as a rainy day fund. Others transfer these "excess" funds into Stabilization Accounts which can be accessed only by a two-thirds majority vote of Town Meeting. Stow's Stabilization Fund balance as of December 2009 was $572,793 – an amount roughly equal to 2.3% of the total operating budget.

Local receipts have been expended at a fairly consistent low rate, and this usage has declined 7% in FY09 when compared to FY03.

All of these indicators suggest a healthy and robust fiscal picture. The Town has meaningful reserves and is not overly dependent on Local Receipts or Free Cash. It would be prudent for Stow to continue its present practice of maintaining healthy reserves to cover for unexpected events and to minimize disruption to services during down economic turns. In recent years, Stow has employed a practice of putting around $50,000 into its stabilization fund, which sets aside those monies in a protected account. Management goals around stabilization fund balance include a desire to see the total increased to around $1 million. The Master Plan Committee recommends that the Town pursue this objective.

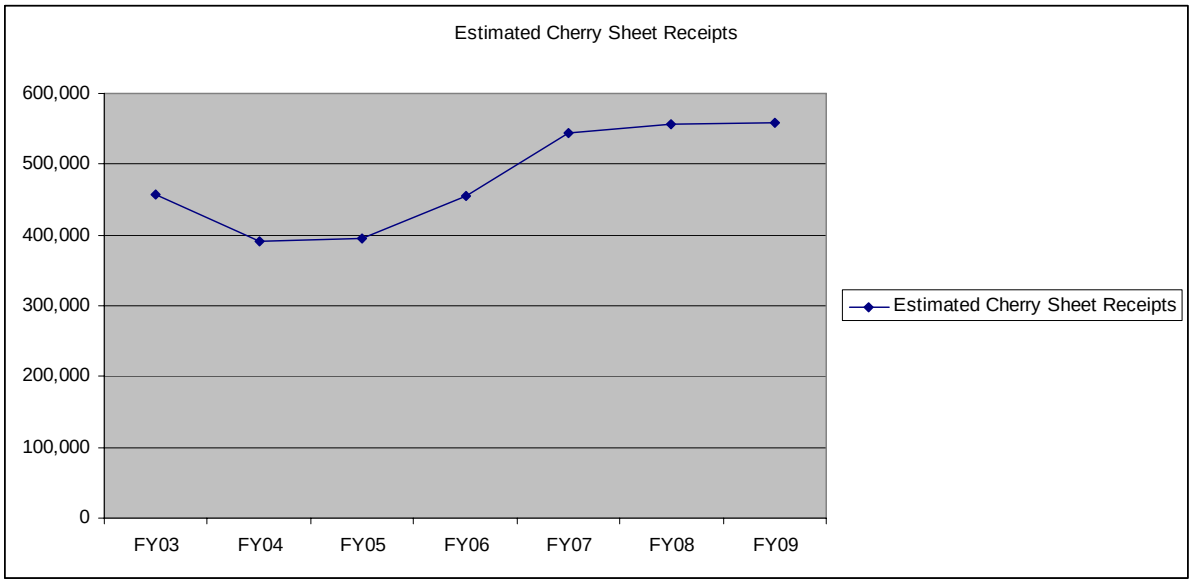
Stow presently has a stored asset balance of approximately $1,110,000, which includes free certified cash at $605,000 and $505,000 in Stabilization Funds. This Free Cash balance is the highest it has been since 2004, which is a highly positive development in this fiscal climate.

Free Cash balances and Stabilization Funds are extremely important to ensuring a community has the ability to make regular purchases of equipment and rolling stock without having to resort to borrowing for routine capital costs. Borrowing regularly for small items virtually doubles the cost paid out for the item when interest and carrying costs are factored into the equation. As a matter of policy, and one which the Master Plan Committee supports, the Town makes an effort not to borrow for any capital item costing less than $100,000.

Stow presently utilizes approximately $200,000 per year of its stored asset balance in support of its capital outlay to purchase items such as police cars and small trucks for the Highway Department, and to make minor repairs on buildings (roofs, painting, boilers, etc.). From time to time, it is worthwhile to evaluate this proportion of distribution relative to the overall budget to ascertain if it is an adequate amount to keep pace with ongoing equipment replacement.

4. Cherry Sheet Receipts (State Revenue)

Named for their original pink paper, cherry sheet receipts are the funds paid out to the Town for various state reimbursement programs, local aid, school aid, etc. Since Chapter 70 School Aid for Stow students goes directly to the regional school system and does not get distributed to the Town, Stow's receipts from state aid are a very modest portion of the Town's total revenue picture. Generally hovering around $500,000, state receipts are a small portion of the funds used to support the Town's operating budget. In FY09, for instance, even when school building assistance payments are lumped together with receipts from state aid, it still amounts to only 5% of the total amount obtained in support of the budget. Since FY03, Cherry Sheet Receipts are up 18.14% after having dropped for a period of time in FY04 and FY05.



An 18.14% increase may seem very positive unless one also analyzes the charges the state imposes for various *benefits* the Town receives. Below is presented a broader picture. This nearly 10-year historical analysis shows that from FY00 to FY09, net receipts (after state assessments are subtracted) increased only 13.72%. This 13.72% figure is not nearly sufficient to keep pace with inflationary factors.

FIGURE: 24 Net Receipts FY2000-FY09

FY	Receipts	Assessments	Net
2000	446,757	37,680	409,077
2001	481,858	25,266	456,592
2002	473,625	33,930	439,695
2003	456,525	43,543	412,982
2004	391,535	56,054	335,481
2005	395,296	64,401	330,895
2006	454,466	75,612	378,854
2007	544,427	79,770	464,657
2008	555,680	81,494	474,186
2009	557,710	83,564	474,146

The two charges that grew the most significantly include mosquito control (28% increase) and MBTA (65%). In the case of the latter, forward funding for the MBTA's debt service was the primary influence on this increase, which amounted to a real dollar increment of an additional $25,000 per year.

This $25,000 MBTA assessment has enabled the Town to join a Regional Transit Authority and redirect its assessment toward services that are more relevant to the needs of Stow residents. Through its membership on the Montachusett Regional Transit Authority (MART), the Town receives services for Senior transportation.

D. Staffing

Below is a summary of the current makeup of the major departments and operating centers within the municipal government (exclusive of schools).

- Police department: 11 employees including chief
- Fire department: two people on duty at all times with EMT certification. Current staffing includes:1 fire chief, 30 call firefighters, 4 full-time firefighters, 1 EMT/firefighter and 2 per diem EMT/firefighters
- Town offices, mostly located in Town Building. Offices serve all areas necessary to running the Town, e.g., Assessors, Town Clerk, Treasurer-Collector, Building Dept., Cemetery Dept., Conservation Commission, Council on Aging, Board of Health, Planning Board, Selectmen, Town Administrator, Town Accountant.
- Library: 1 full-time and 4 part-time employees
- Highway Department: 7 full-time and 5 part-time employees

Total number of paid town employees is 72, of which 26 are part-time and 46 are full-time.

Throughout the course of the development of this Master Plan, one theme seems to have been repeated on a somewhat regular basis. Residents, and in particular active board members, have

identified that Stow may lack some of the professional capacity that it might need in order to function at the desired levels. For instance, this sentiment was described in the Housing chapter where the need to be more proactive in a number of affordable housing areas was observed. These deficient areas include: monitoring to prevent loss of units on the subsidized housing inventory (SHI); developing strategies to better manage 40B applications; promoting better quality housing developments; and taking the lead on expanding the Town's SHI. The need was also articulated in discussions around the Economic Development chapter ,where some have recognized that grant writing, technical expertise, and capital project assistance could all be of value.

Finally, some have questioned whether there is sufficient staff in the Town Administrator's office to fill all of the emerging needs as the Town continues to grow. In particular, capital project management, contracting and procurement, personnel management, and grant writing are duties which are sometime delegated to a professional assistant when the Town's growth is at a point where these high level responsibilities can not be exclusively fulfilled by the Town Administrator.

Discussions around this topic have led to comments that the Town might need a Planning Director, a Community Development Director, or an Assistant Town Administrator. Others have felt that the Town can make do for a while by developing its relationships with consultants who have the specific expertise in the areas in which the Town is presently lacking. Going the route of hiring consultants as needed might help the Town save money on salary and benefits, as long as the consultants' fees do not exceed what would have been paid out for in-house staff. Sufficient outsourced capacity must also be in place to prevent the Town from making costly mistakes which could have been avoided by having proper staff in place.

Delving into employment decisions is outside the realm of this Master Plan, and no personnel decision should be advanced without due care. Nonetheless, the MPC recommends that the Town undertake a limited personnel study. Ideally, the study should pursue an evaluation of existing Town Hall administrative and planning positions, analyze job descriptions, compare duties to towns of similar size and wealth, and interview boards about capacity issues which may need to be addressed. In this fashion, the study could help the Town determine if there are existing staff who could perform some of the functions presently being overlooked or if new hiring might indeed be necessary. The study could help in establishing job descriptions for any positions that are recommended and/or in developing criteria needed to hire appropriate consultants.

E. Operating Issues

There are a number of areas where the Town does not provide any direct services but rather leaves it up to the individual homeowner to obtain the necessary services through private sector contractors. The most notable of these are:

- Trash disposal
- Water
- Sewer

If the private sector continues to be able to fill the needs of residents, one might ask, why would the Town consider changing the way it presently operates? Usually, there is no impetus to do so unless, for some reason, the private sector is no longer able to perform the desired function or if the community changes its appetite for the quality or quantity of service. In the case of trash disposal, if for some reason area transfer stations or landfills closed and caused a decline in vendors, the Town might have to step in and provide the service. Or, if private sector trash pickup routes began to impede traffic, the Town might have to regulate the private vendors or might choose to perform the function itself. Sometimes, aggregating all residences into one contract could yield a much lower price for all, and that in itself could be a motivating factor to influence the Town to take over this service on a fee basis.

Currently, in May of each year, the Board of Health holds a Hazardous Waste Disposal Day. This is one example of an area where residents wanted a greater level of service and thus the Town stepped up to provide it.

Water and sewer are more complex issues and are discussed in detail later in this chapter. However, it is worth noting here that several of the public buildings in the center of Stow have a public water supply but there are no public sewers.

F. Schools

Stow's schools operate within a regionalized K-12 network with two adjoining towns, Bolton and Lancaster. At present, the pre-K program for Stow students is located in Bolton. Students in grades K-8 attend schools in Stow, as listed below. Students in grade 9-12 may attend Nashoba Regional High School in Bolton or Minuteman Regional Vocational Technical School in Lexington.

There are three schools located in Stow:

- Pompositticut School for grades K-2, which contains 36,415 sq. ft. plus 3700 sq. ft. in modulars and 322 students
- Center School for grades 3-5, containing 36,007 sq. ft. and 272 students
- Hale Middle School for grades 6-8, containing 64,650 sq. ft. and 257 students

There is a new campus plan for Center School which includes a renovation/addition plan to the current school. At a special Town Meeting held on October 19, 2009, the majority vote of the meeting passed Article 1 relating to Elementary School Building Construction. This approval instructed the School Building Committee to expend $35,629,000.00 for the Pompositticut/Center School elementary school addition and renovation. Eligibility for a construction grant from the Massachusetts School Building Authority (MSBA) "shall not exceed 50.85% of the eligible approved costs." This grant amount is calculated to be $18,132,259.

On October 29, 2009, voters cast a majority affirmative vote on this school article for the purpose of "allowing the Town of Stow to exempt from the provisions of Proposition two-and-one-half, so called, the amounts required to pay for the bonds issued in order to construct the Pompositticut/Center School elementary school addition and renovation." When the building project is completed, the Pompositticut School will be returned to the Town.

At this time, two-thirds of our tax revenue supports schools. The remainder supports all other expenses for municipal needs. The following table shows how this expenditure compares with surrounding towns (FY08 data).

Town	School	Non-School	Total	% School
Stow	12,952,386	6,484,367	19,436,753	66.6%
Harvard	10,986,488	9,275,925	20,262,413	54.2%
Boxborough	11,449,844	7,331,852	18,781,696	61.0%
Lincoln	12,368,204	13,499,187	25,877,391	47.8%
Berlin	4,316,578	4,295,738	8,612,316	50.1%
Bedford	28,720,867	35,566,716	64,287,583	44.7%
Maynard	13,636,000	14,697,879	28,333,879	48.1%
Bolton	10,221,347	6,173,619	16,394,966	62.3%
Lancaster	8,774,728	6,105,403	14,880,131	59.0%

At nearly 67%, Stow's percentage is among the highest of area towns. This reflects Stow's emphasis on education but probably also is indicative of Stow's relatively low level of other municipal services.

G. Capital Needs and other Emerging Community Desires

1. General facilities

As a community grows and changes, so too do its needs. The following emerging needs have been noted during discussions with departments and residents during this planning process. Town employees, and in particular department heads, were asked to identify and help prioritize municipal needs for their respective departments. How we as a community prioritize those needs among all municipal needs will depend in large part on funding availability and other financial resources. Certainly, not all of the needs identified below can be fulfilled in the short-

term, especially in this tight fiscal period. For the foreseeable several years, local aid will continue to be a dwindling and less reliable source of revenue. Fortunately in Stow, it is only about 5% percent of the budget. Nonetheless, despite fiscal constraints we felt it important to acknowledge these potential capital needs as identified by the various departments:

- Fire & Public Safety: The Fire Department is out of capacity in its present building. It is unable to house all its equipment inside the building. According to both the past and present fire chiefs, the building is not conducive to proper management and deployment of the firefighting personnel. The current building's doors are smaller than Fire Department standards, which results in our being unable to purchase standard size equipment. Specifically, no commercially available extension truck would fit in the current firehouse, and the cost of a custom-made truck that might fit would be much higher. A new facility to replace the current facility is needed. Should Pompositticut School become vacant, it may be a suitable site for a new Fire Station. According to the Fire Chief, a substation elsewhere is not practical at this time as it would require additional staffing as well as equipment. The Fire Chief is currently working on a plan to expand the current building and has recently consulted with the Elementary School Building Committee. These discussions focused on safe access for emergency vehicles and the potential for shared septic and shared water.
- Police department: Climate-controlled room for computer equipment associated with new 911 system, more office space, new dispatch area.
- Highway: The Highway Barn is 30 years old and at capacity. As the Town continues to grow and add roads, the barn will need expansion and renovation, probably in the next 5-10 years. There should be room to expand on its present site. Additional office space, room for changing/sleeping quarters, and additional equipment storage and service areas have been identified as deficient.
- Sidewalks: The Planning Board has formed a Pedestrian Walkway Planning Sub-Committee that will be responsible for preparing a draft pedestrian walkway master plan. The goal of that plan will be to enhance the Town's sidewalk network and make the Town more walkable.
- Library: The interior space could be reconfigured to allow for some expansion, acknowledging that expansion could result in the need for additional staff. The Library Director also identified a current need for additional parking, especially if the nearby church is also having a function.
- Town Building: With most town departments (Board of Health, Clerk's Office, Building Department, etc.) housed in the Town Building, the structure requires additional meeting spaces and more bathrooms along with spaces for document filing and storage. More parking is needed for users of Town Hall, Town Building and public library, especially during evening meetings.

Should Pompositticut School become available, the Town should consider possible other uses including a fire station, community center, or private daycare facility. This is an area that the Master Plan Committee believes should be approached with robust public process and participation.

One idea that has been floated for the reuse of Pompositticut is as a location for the regional school administration offices. However, their needs would not likely fill the entire building, which could leave sufficient space for an intergenerational community center serving seniors and youths alike. Soccer fields and open space could be retained at the location, and the site could become a thriving community facility. Another option is for the Town to sell the site and use the revenue in support of some of the other identified capital needs. The Master Plan Committee recommends that in a near-term upcoming budget, money be set aside for a feasibility study to evaluate the re-use options for this facility.

2. Consideration of a multigenerational Community Center

A Stow Community Center would be a facility that encourages all residents to congregate for any number of activities. We envision one community center that finds creative ways to accommodate all constituents simultaneously: seniors, youth, small children, families. We envision one Stow community facility that, by its physical plant and by its activities, will bring people together. Most spaces within the community center would be shared among various groups and have multiple uses.

One option is that one of our existing schools may become available for this purpose. In future years, the facility and land could be returned to school use if needed. We expect that after a short time, the Stow community center would be a break-even operation and not a drain on taxpayers. The major objective is an attractive and active facility that draws residents together, but it need not be an elaborate or expensive facility. Facilities within the community center should be designed to benefit all sectors of society and might contain some of the following amenities:

- A function space that can welcome up to 150 people
- Meeting rooms with top-quality audio visual equipment
- A gym and fitness center
- A stage and sound system to attract performing artists
- Food preparation and service area for general use and catered events
- Locker rooms with showers
- Storage space
- Specialized services to accommodate pre-school children, teens, clubs, service groups, a learning center, and future needs

Additional community and civic organizations whose needs that might be accommodated within municipal facilities include the following:

- Stow TV/Local Access Channel Advisory Committee: Working space for equipment and one person at a minimum, preferably more. Secure storage for equipment. Sound-proof studio space also desired.
- Food pantry: Room for two refrigerators, two freezers and 20 feet of shelves for dry goods. Need parking for several cars, optimally out of sight.
- Lake Boon Commission: Filing space and possible boat storage at some point in future.
- Boy Scouts: Permanent, reliable meeting space. Also, equipment storage for tents, stoves, canoes, etc.
- Meeting rooms for other ad hoc committees and volunteer organizations.

From a capital planning perspective, it is important to note that building construction projects and water and sewer projects can take a very long time to be properly developed. Public construction in Massachusetts is subject to MGL Chapters 7 and 149, requiring a feasibility study, designer selection process, and filed sub-bids. This process means that it typically takes two or more years to prepare plans and specifications before a project can be bid.

Furthermore, for water and sewer projects, if the Town should decide to pursue any, there are state and federal regulatory agencies (DEP/EPA Water Quality Certification, National Pollutant Discharge Elimination System) from which the Town must obtain licenses, and this too requires a long lead time. Thus, funding decisions should be made proactively so that, to the extent possible, the building or facility is able to be brought on line when the Town projects it will be needed.

3. Utility Poles

It needs to be noted that at least one committee and several individuals commented on the unsightliness of utility poles. There seems to be a growing desire among residents to consider submerging utilities where possible. However, such an undertaking can be extremely costly and complex. For a community that does not have public water and sewer, approaching the problem of burying utilities seems perhaps a bit ambitious.

Nonetheless, because it was mentioned numerous times, we acknowledge it here in the hopes that there may be opportunities in the future to consider this goal. The Planning Board or other entity might want to develop regulations for large-scale reconstruction of commercial areas that requires the developer to underground the utilities. Another approach would be to have the Town install conduit when it rebuilds roads to enable the eventual development of an underground system. In cases where the Town needs to license certain utilities, the Town might consider negotiating for key areas of Town to have the wires placed underground.

Certainly for commercial areas under expansion, it would be appropriate for the Town to consider mandating an underground connection from the street to the building. This would

facilitate connecting at a later date. When eventually the road side utility poles can be submerged, then each individual parking lot would not need to be torn up in order to connect commercial buildings.

There may be other creative options the Town can pursue to facilitate removal of the overhead unsightly wires. The Master Plan Committee is in support of this concept, provided that it is not undertaken at great expense to the Town.

H. Additional Services to Consider for the Future

1. General needs likely to emerge in the future

There are two possible needs that cannot be classified as emerging needs right now but will need to be taken into account in the longer term.

- Trash pickup/recycling: According to the Master Plan Survey, public opinion is mixed regarding the desire to see a change in this area.
- Traffic controls in Lower Village: Something to enable cars to turn against traffic onto 117 during rush hours from shopping areas, Red Acre Road, and Pompositticut streets. A traffic study completed by Fay, Spofford and Thorndike in October 2005 provides information on alternatives for improving circulation in the Lower Village. The Lower Village subcommittee will likely recommend construction of at least one roundabout to facilitate traffic flow on Route 117.

2. Water and wastewater considerations

Lower Village is the first sector in town for which the Town's hand is being forced on making decisions about public water and sewer. Other parts of town may follow suit, so a decision made about Lower Village will have far-reaching implications throughout town.

The Town Administrator cautions that public water and/ or sewers are very expensive undertakings, and the costs and complexity keep escalating as federal and state requirements increase. Pursuing water and sewer is not recommended at this time. That being said, the only way to allow denser development would be to provide either water or sewer to remove the need to maintain offsets within a smaller lot. Perhaps independent water districts that are financially self-sufficient are the solution the Town should encourage. Politically, common sewer is an unlikely solution, as people look to Title V to hold back development.

In 2006, the Town Administrator convened a working group to develop a plan to provide water to the businesses in Lower Village. This action was the result of enforcement efforts by the DEP to require one business owner to find a new source of water. In this case, there was not enough land to allow a well that met the septic setback requirement. The Town Administrator was informed that this was just the first of similar steps to compel other Lower Village businesses to comply with DEP regulations.

The working group's objective was to find a source of water that could be leased to a private water company. The group started by considering land already owned by the Town. The parcels that were reasonably close to Lower Village were under the control of the Conservation Commission. Putting a well on conservation land constitutes a "change of use" and would trigger a process known as an Article 97 Disposition. This revelation led to prolonged discussions with the Conservation Commission and various officials in state government. Everyone who was consulted agreed that installing a well on conservation land would indeed require the Town to go through the Article 97 process.

It became clear that this process would take a lot of time and the chances for approval were very slim. This part of state law was designed to make sure that land in conservation stays that way. Therefore, the idea of a potential well site on conservation land was abandoned.

Offers were made to a private land owner, a governing board for a residential development, Shaw's Supermarket, and the Town of Maynard, but all parties declined to sell water to Stow.

The Town Administrator spent a great deal of time discussing the problem with the area DEP office in Worcester. These conversations led to a commitment from the DEP to provide a low-interest loan to a water company if a water source could be identified. More importantly, the DEP agreed to hold off on further enforcement actions for the time being.

Ultimately, all options for a well site near Lower Village were exhausted. The group then contemplated the possibility of a water line from the well that currently serves the Harvard Acres subdivision. As of now, it is unclear whether the water company will be able to serve Lower Village with water from Harvard Acres.

The working group concluded that there needs to be a critical review of the Town's land needs when parcels become available, and all interested parties must come to a decision regarding the highest-priority use of the land at the time. This long and currently unsuccessful effort clearly illustrates how Stow is handicapped when it comes to supporting commercial and/or industrial activity.

Public water and sewer would provide property owners the incentive and the Town the ability to promote redevelopment of Lower Village. Contamination of groundwater from hazardous waste has occurred in numerous locations throughout the Town and within the Lower Village area. Several of these areas are listed as 21E sites and are subject to cleanup under the Department of Environmental Protection (DEP). DEP has determined that these sites need remediation to rectify the damage to the groundwater; the contamination has been analyzed, and remediation efforts have commenced. However, once groundwater is contaminated, it can often take decades to fully remediate.

DEP is now investigating properties in the Lower Village to determine compliance with current regulations. The Stow Shopping Center site, under DEP orders, recently replaced its wastewater treatment system. DEP is also in discussion with owners of property on the south

side of Route 117 concerning non-compliance issues for drinking water. The presence of businesses that may not be able to meet compliance standards is of great concern and an issue that should be monitored carefully by the Board of Health and Board of Selectmen. Providing a central water source for Lower Village is currently the Selectmen's top priority. Nonetheless, the Master Plan Committee cautions that appropriate development controls should be in place before a public water supply is made available so as to avoid incentives for excessive development.

With the support of the Planning Board's Lower Village Sub-Committee, the Assabet Water Company conducted a feasibility study for developing a privately funded, owned and operated public water supply. They investigated three options:

- Develop a larger and more comprehensive groundwater supply system in Stow
- Connect to the Town of Maynard's water or sewage system
- Connect to the Town of Acton's water system for service

They determined that an extension from the Maynard Water Supply system was the most certain and cost-effective path to pursue. The Town of Maynard did not support this recommendation.

The Town of Stow, acting as a facilitator under the direction of the Town Administrator, is investigating a variety of options to obtain a public water supply for the Lower Village that would be privately owned and operated or provided by a neighboring town.

The MPC wholeheartedly endorses exploring arrangements with private water suppliers and recommends that the Town Administrator and departments work collaboratively with appropriate private entities to expand water supply to schools, municipal facilities and private users.

Availability of water in Lower Village and other commercial areas would be a great boon to helping attract businesses to this area and creating incentives for existing establishments to renovate or expand. The concomitant need for sewer to support economic development may still stymie development in this area. Without large areas of land for septic or package treatment plants, development is still out of reach for any but the largest companies who can afford to put in their own drinking water wells and effluent treatment facilities. The Board of Health should be encouraged to continually evaluate new technologies and techniques to enhance the ability of private individuals and companies to provide clean drinking water and treat raw effluent. There may be opportunities that arise in the future that will enable sharing of septic or other means of combining resources so that small scale commercial development will become more viable.

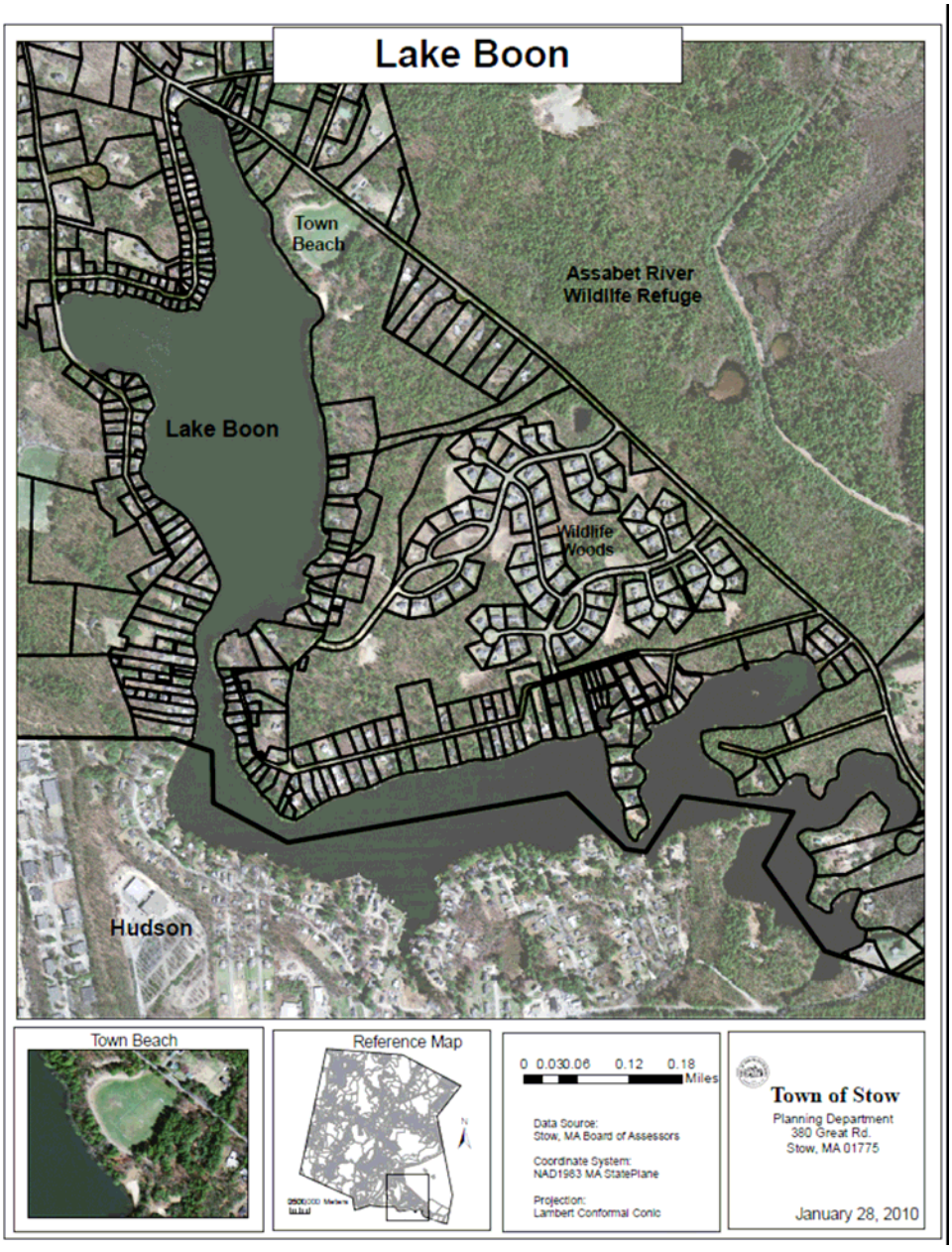
I. Issues Associated with Lake Boon

Problems concerning Lake Boon have already been covered to a large degree in Chapters 5 and 6. From a municipal standpoint, there are several issues to consider regarding Lake Boon, some to be addressed by the Lake Boon Commission and others by the Town as a whole.

Because the lake straddles both Stow and Hudson, decisions regarding Lake Boon in its entirety must often be made jointly with the Town of Hudson under the policy direction of the Lake Boon Commission. A decision about a drawdown of Lake Boon is under appeal and currently under the jurisdiction of the Massachusetts DEP.

Water quality for drinking is a much more complex issue. The residential lots surrounding Lake Boon tend to be approximately one-eighth of an acre on average and densely sited. Original homes on these lots were primarily summer cottages, and not year-round winterized residences. Over the years, these cottages have been torn down and replaced with larger structures.

FIGURE: 25 Visual of Lake Boon, surrounding parcels, & locator map



Larger homes generally require larger septic system capacity. However, because it is in an area where the groundwater table is high and wells and septics are, by necessity, sited close together, the Lake Boon area is often plagued with septic and well system failures. This is a part of town that must be examined closely for the policy implications associated with what the Town might need to do to address public health issues that arise from failing septic and water supply contamination. The Master Plan Committee recommends that this area be further evaluated, with special consideration to the following: building limitations or moratoriums on new homes; public water or sewer system; zoning changes; etc.

The proximity of the homes to the lake itself also presents the need for greater public education around the issue of phosphorus contamination of the lake. The Master Plan Committee recommends the Town embark on an outreach program to educate residents in this area to reduce fertilization of lawns and gardens and to reduce the use of phosphorus-laden detergents (in laundry and dishwashing) and other contaminants that enter the lake and groundwater through run-off and/or infiltration from septic systems. The Town of Stow has adopted an extensive stormwater management plan that can be viewed at Town Hall or the Highway Department office.

To learn more about issues related to Lake Boon, see the Lake Boon Association website at www.lakeboon.org, as well as the discussions of this topic in the preceding chapters.

J. Action items

- Increase stabilization fund balance to approximately $1 million to cover for unexpected events and to minimize disruption to services during economic downturns
- Undertake a limited personnel study that would include evaluation of existing Town Hall administrative and planning positions, analyze job descriptions, compare duties to towns of similar size and wealth and interview boards about capacity issues
- Set money aside in the near future for a feasibility study to evaluate the re-use options for the Pompositticut School facility.
- Explore arrangements with private water suppliers and work collaboratively with appropriate private entities to expand water supply to schools, municipal facilities and private users.
- Further evaluate septic system policy in Lake Boon neighborhood, with special consideration to the following: building limitations or moratoriums on new homes; public water or sewer system; zoning changes; etc.
- Undertake outreach program to educate residents in the Lake Boon neighborhood to decrease phosphorus contamination by reducing fertilization of lawns and gardens and to reduce the use of phosphorus-laden detergents (in laundry and dishwashing) and other contaminants that enter the lake and groundwater through run-off and/or infiltration from septic systems.

Chapter 8

Transportation

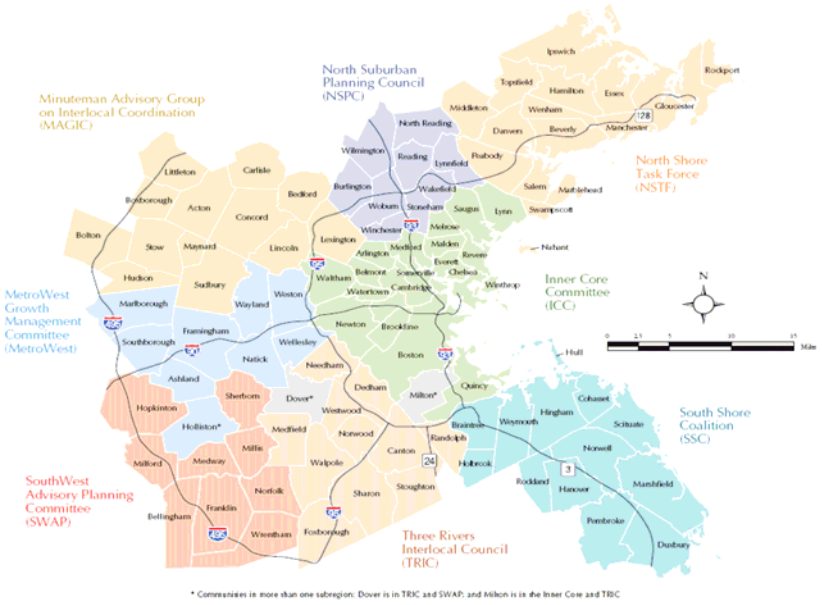
CHAPTER 8: Transportation

A. Background

Transportation and all the issues it encompasses are a key component of our community's Master Plan. This chapter deals with a variety of issues surrounding mobility, connectivity, and access.

"Transportation" is a broad term and can mean different things to different people. We use the term for everything from our state highways to the Assabet River Rail Trail, and from the way we use our sidewalks to the option of a public shuttle that could drop people off at the train station. However, for the purposes of this chapter, we are primarily concerned with those issues related to transportation that can be impacted and influenced by the local policy choices made by the Town of Stow. Issues that fall into this category include roads and roadway maintenance, participation in a Regional Transit Authority, development of trails, sidewalks, and other linkages, safety, parking, congestion, and traffic impacts.

FIGURE: 26 Metropolitan Planning Organization

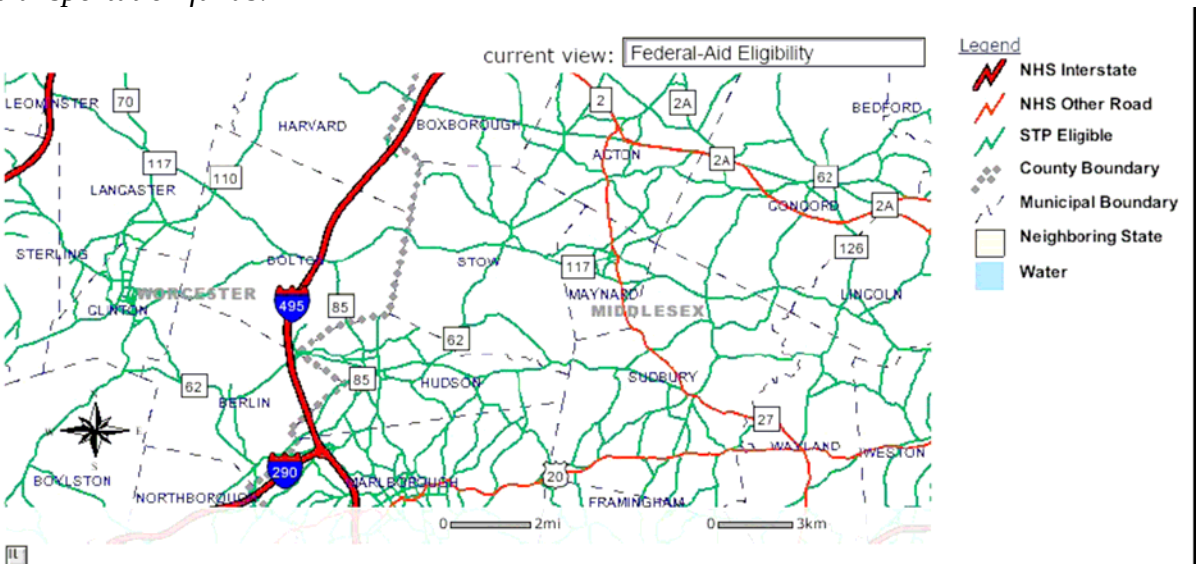


Stow is a member of the Boston Region Metropolitan Planning Organization (MPO), which coincides with the boundaries and falls within the planning region of the Metropolitan Area Planning Council (MAPC), a planning organization established by MGL Chapter 40B, Sections 24-29 and comprising 101 cities and towns in the greater Boston region. Stow is within the MAPC subregion known as "MAGIC," which stands for the Minuteman Advisory Group on Interlocal Coordination. The Boston MPO is responsible for programming transportation funds for federal aid projects within its jurisdiction.

It is relevant to note that should Stow wish to seek Boston MPO funding of any projects, only certain roadways designated as eligible can receive federal aid assistance. Those roads tend to be the roads with particular functional classifications such as *Collectors and Arterials*.

The Massachusetts Department of Transportation (MassDOT) website notes the following:

> *Functional classification defines the character of services that a particular roadway is intended to provide. Roads serve to provide mobility for vehicle access to locations. The process of functional classification was mandated by the Intermodal Surface Transportation Efficiency Act of 1991 and implemented in 1993 by the Office of Transportation Planning in cooperation with the 13 regional planning agencies.*
>
> *The roads noted in green below are those roadways which can receive federal aid transportation funds:*



B. Vision

We envision a transportation network for our community that is safe and convenient for pedestrian and vehicular traffic alike while also preserving and enhancing Stow's quality of life. Our preferred network would encourage healthy living and recreation by making it easy for people to walk or bike if they wished to do so; it would lessen congestion for those who drive their own cars; and it would offer sufficient public transportation options for those who choose to cut back on their individual car use, whether for environmental, economical or physical fitness reasons.

C. Comparison to the Last Plan

In 1996, it was reported in the Master Plan (titled "Stow 2000") that Stow had 50 miles of public roads and 10 miles of private roads. The total miles of roads a community must

maintain impact the municipality's receipt of Chapter 90 road maintenance funding, which is calculated in part based on a formula that includes total miles of local roads (and in part on population and employment data). Stow's apportionment in 2010 was $204,963, based on 51.57 miles of public roads, population: 5,902, and employment: 2,098. As of May 2009, the Town of Stow has 60.32 miles of public roads. The Master Plan Committee recommends that the Town update the road inventory with the Department of Transportation on an annual basis. This will enable the Town to maximize its receipt of Chapter 90 monies and obtain full credit for the roads it has within its borders.

In recent years, two traffic studies focusing on specific areas of Town have also been conducted. Copies of those studies are available at the Planning Department. Those plans have helped to inform the concepts and recommendations later in this chapter.

Since funding is the greatest impediment to making roadway improvements, it is also important for the Town to monitor opportunities for funding through grants or other funding streams. As mentioned above a select few roads are eligible for Boston MPO funding through the Transportation Improvement Plan (TIP). However, in order to obtain such funding, the Town would need to go through a lengthy design and review process with MassDOT. Nonetheless, participating annually in the TIP development by, at the very least, designating a local TIP Coordinator is one way to ensure that no opportunity is missed or overlooked. This is especially important for state numbered routes and bridges within the community.

D. DATA

1996 Master Plan Commuting Data

Commuting to Work	
No. of workers 16 yrs. +	2,939
Drive alone	82.1%
Drive in carpool	6.94%
Use public transportation	3.03%
Use other means	0.54%
Walk or work at home	7.38%
Mean travel time to work	23.67 minutes

Census 2000 Commuting Data

Commuting to Work	
No. of workers 16 yrs. +	3,112
Drive alone	84.2
Drive in carpool	4.6%
Use public transportation	3.5%
Use other means	0.1%
Walk or work at home	7.1%
Mean travel time to work	31.1 minutes

There has been very little materially relevant change in commuting patterns since 1996. However, minor, perhaps insignificant, shifts do seem to be occurring. Unfortunately, single occupancy vehicular trips as a mode of transportation have increased slightly. Fewer people are using public transportation and fewer are using other means of travel to get to work. This may reflect the increasing dispersal of jobs throughout the region in a greater sprawling pattern with less employment concentrated in central urban areas. As the I-495 and 128 regions continue to grow, fewer workers are likely to be traveling into Boston, and options for public transportation, carpooling, and other alternative modes are less viable when employment is decentralized.

With the soon to be released Federal Census for 2010, the Town will have more updated information on which to base any future policies relative to transportation. Perhaps, if smart growth initiatives begin to bear fruit, there will be more opportunities in the future to encourage ride-share, and small-scale transit such as shuttle buses and van pools.

In 2004, concurrent with the drafting of a Community Development Plan, a forum was held at which participants generated a list of transportation-related issues and concerns. Many are no longer relevant today, either because they have now been resolved or because priorities have changed; however, the MPC believes the following still have merit. The bullet reflects the original 2004 text; the wording in parentheses reflects the MPC's current position.

- There is a need for electronic signs. (One has recently been acquired. The MPC agrees that usage of this sign will be a valuable asset.)

- Lower Village study to include traffic circulation and economic development options. The Lower Village Subcommittee recently conducted an extensive traffic study. The key result of that study was recommendation of a roundabout. (The MPC recommends that the Selectmen pursue funding for further steps, such as a feasibility study and preliminary design, through either grant opportunities or other municipal appropriations.)

- Improve parking at Town Building. (In May 2009, Town Meeting voted appropriation of funds to improve parking at the Town Building. The MPC recommends that this work continue.)

E. Discussion of Needs

1. Intersections

As the Town of Stow continues to grow, congestion and safety issues surrounding intersection capacity are likely to become more of a concern. It is important for the community to regularly monitor both intersection functioning and intersection safety factors so that there is a clear sense of which intersections may need improvements. Keeping an eye on this list will ensure that the Town has problem intersections evaluated when nearby development permitting presents an opportunity for the Town to request traffic studies. The Town might also choose to seek program design and/or improvement funds for projects of greatest concern.

Transportation specialists assign an "LOS," or "level of service," rating to intersections in roadways throughout the commonwealth. The rating reflects the delay a driver experiences when traveling through an intersection. The standardized measure of level of service ranges from A to F. In a suburban setting, the typical functioning level of service range is C-E, which means a delay of 20 to 80 seconds for motorists attempting to make a specific turning movement. Generally, an E represents a compromised intersection operating near its capacity and an F is a failed vehicular movement. However, it is not uncommon for an intersection to be rated F for left turns only or rated E during rush hour but considered to function adequately at other times of the day. Each intersection's level of service is determined by the configuration of the intersection, and the ability of an intersection to accommodate the traffic demand that is placed upon it.

The Town's Safety Officer and Fire Chief have identified the following list of intersections as areas of concern. The Master Plan Committee further includes those intersections noted below as intersections to watch carefully when development impacts occur:

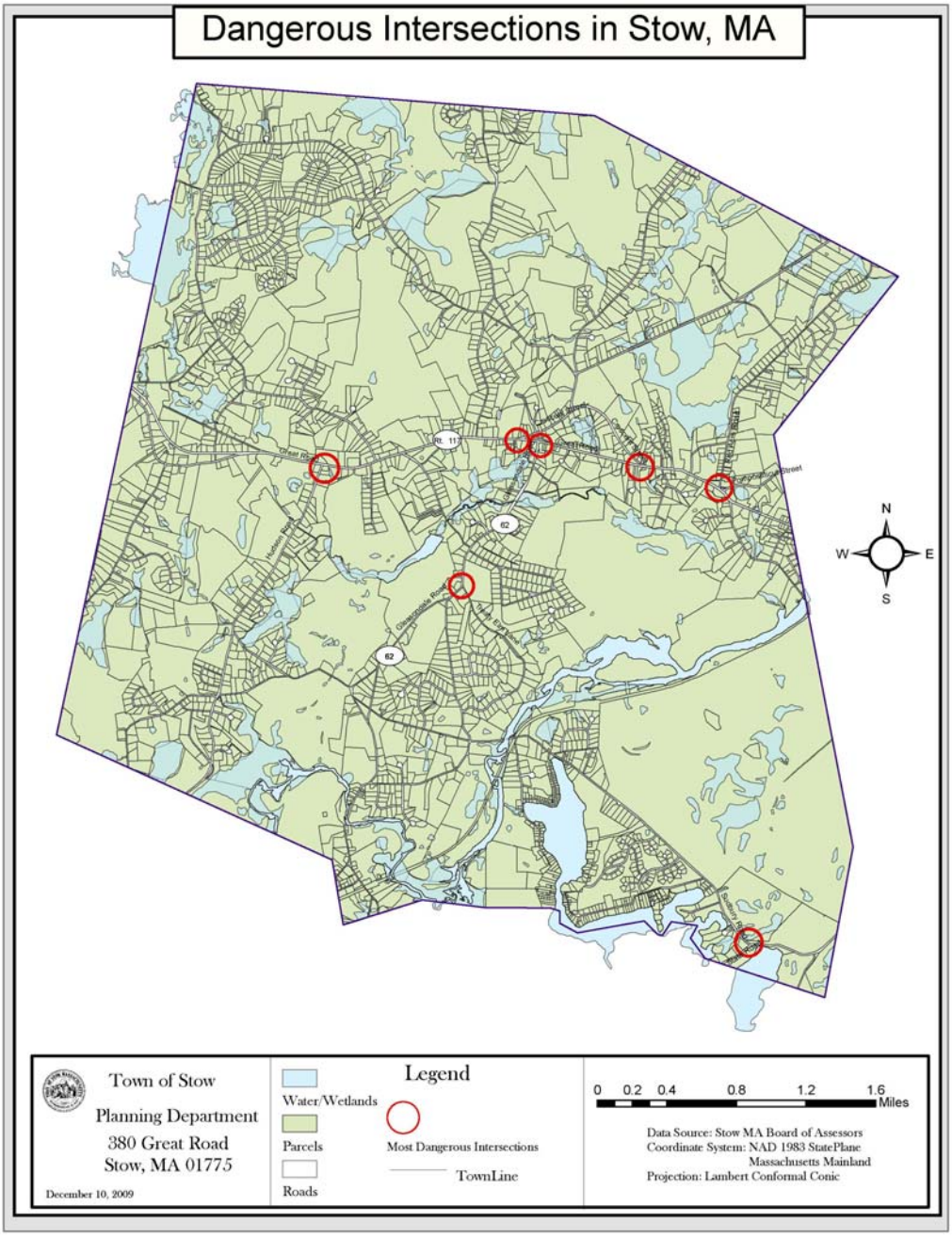
FIGURE: 27 Table of intersections of concern

Intersection Name	**Quadrant**	**LOS (if known)**	**High Crash rating? (Y/N)**	**Issue / Concern (eg. Pedestrian crosswalks, delay, turning movements)**
Route 117 at Red Acre Rd	Northeast	Red Acre Road southbound = F	2001 reported = 0 2002 reported = 2 2003 reported = 1	Pedestrian crosswalks, delay, turning movements
Route 117 at Pompositticut Street	Northeast	Pompositticut Street southbound: a.m. peak = C p.m. peak = F	2001 reported = 1 2002 reported = 0 2003 reported = 1	Pedestrian crosswalks, delay, turning movements
Gleasondale at Treaty Elm	Southeast			Sight lines/dangerous curve
Gleasondale and Great Road	Northeast and Southeast			(Limited visibility responding from the Fire Station looking west on Route 117) Lack of pedestrian crossways
Hudson Road and Route 117	Southwest			Limited visibility
State Road (Hudson line to Sudbury Road)	Southeast			Limited visibility
Crescent Street (Both intersections with Route 117	Northeast			Limited visibility

In addition, the Lower Village Traffic Study, developed by Fay, Spofford & Thorndike identified at least 12 turning movements into roads or driveways along Great Road that are currently at LOS F and several more that are at LOS E. That study evaluated a number of different solutions to address safety and congestion in Lower Village. Intersection enhancements, a roundabout, and signalization were the three primary alternatives evaluated in that study. For those interested in traffic considerations, that study can be obtained from the Planning Department. It should be noted that the Lower Village Committee strongly favors the roundabout option at two locations (Rt. 117, Red Acre, & Pompositticut Roads and Rt. 117 & Elm Ridge Road) while some residents and perhaps even businesses are not in support of that

option. Nonetheless, for safety reasons and to address congestion and pedestrian mobility, some action needs to be taken in the Lower Village area. The Master Plan Committee recommends further evaluation, dialog, and consensus building to be undertaken so that improvements can move forward. Some of these intersections are further depicted on the following map:

FIGURE: 28 Map of Dangerous Intersections



In addition, the MPC suggests as a lower-order priority that a traffic calming policy be developed. The following links provide useful information on how other communities have successfully implemented traffic calming policies:

Federal Highway: http://www.fhwa.dot.gov/environment/tcalm/index.htm

Northampton - http://www.northamptonma.gov/tpc/trafficcalming/

Newton - http://www.ci.newton.ma.us/cdbg/transportation/documents/traffic_calming_guidelines.pdf

Burlington VT - http://www.dpw.ci.burlington.vt.us/transportation/neighborhoods/

MassDOT (formerly MassHighway) also has entire sections in its design manual dedicated to traffic calming and bike/pedestrian safety. See chapters 11 and 16 of that document in particular: **http://tinyurl.com/5bddeo**

2. Bike and pedestrian mobility

a. Sidewalks

There is considerable interest in expanding the sidewalk network in Stow. Some people in town have expressed a desire to have sidewalks for mobility in getting from place to place, but a significant majority have identified recreational use as their primary motivation for wanting sidewalks in town. The recent Master Plan Survey revealed the following:

The Planning Board recently formed a Pedestrian Walkway Planning Sub-Committee, comprising two Planning Board members, one member of the Board of Selectman and two members-at-large, tasked with the preparation of a Draft Pedestrian Walkway Master Plan to enhance the Town's sidewalk network. The committee will consult with the Superintendent of Streets, Board of Selectmen, Conservation Commission and Board of Health and incorporate the Town's goals of creating a pedestrian link between neighborhoods and an "Emerald Necklace Trail" linking conservation areas with walking trails, where feasible.

It will be important for this committee to also consider opportunities for key linkages between subdivisions and cul-de-sacs where easements may be needed in the future. This is an often overlooked opportunity to connect neighborhoods via trails or walkways and reduce the

number of vehicle trips that must be taken to drive children to a house around the block or to visit a neighbor. Strategic planning around large tracts of undeveloped land can help the Planning Board make requests of future developers to include these easements and/or build the walkway connections as part of their subdivision plan. Often, a small connection between backyards can be accomplished with a few hundred feet of trail, while but that same trip by car would amount to a drive of a quarter-mile or more. To assist in this endeavor, it would be productive for the Town to develop GIS mapping of all existing easements, rights of way, and trail connections to provide a visual representation of opportunities to enhance connectivity.

One recommendation pertaining to sidewalks worth noting is the notion of developing "pathways" or "pedestrian ways" that are set back from the road away from traffic. Several nearby Towns (such as Sudbury and Lincoln) use this approach when constructing new sidewalks to avoid disturbing street trees, rock walls, and other natural land features. While ROW can be an obstacle to this type of sidewalk, the benefits can often outweigh the sometimes added complexity of working with abutters to lay out a sidewalk of this type. Snow plowing, for instance, does not end up being pushed onto these more detached pedestrian ways as they are distant from the impacted area.

The biggest impediment to building sidewalks is, of course, funding, as the capital costs can be quite daunting. Moreover, obtaining easements and developing engineering solutions to navigate around stone walls, trees, significant grade changes, and other obstacles can be equally challenging. Stow may want to look to communities such as Sudbury and Lincoln for an example of path-building that can accomplish many of the same goals as sidewalks but in some cases be built to a less robust standard. Paths in these communities tend to meander around obstacles in the natural and built environment and minimize disruption. As an added benefit, abutting property owners are often more accepting of such designs.

Finally, it may be worth exploring the feasibility of utilizing betterment assessments as a source of complementary funds to augment direct town appropriations. In this fashion, neighborhoods advocating most vociferously for a sidewalk can elect to incur a tax surcharge and match municipal funds to advance their projects. Such betterment surcharges are typically amortized over 20 years and shared among the property owners either on a per house basis or per linear foot of frontage. Either method can be valid depending on the particular circumstances of the street receiving the betterment.

3. Safety

Increasingly, roadway planning now includes a component for bike and pedestrian safety. The Safe Routes to School program, founded in 2005, provides limited funding to help communities address getting children safely to school on bike or foot. The Master Plan Committee recommends that Stow investigate the possibility of participating in the program. The committee also recommends evaluating curb cuts.

4. Roundabouts

Modern roundabouts have become a favored solution, in lieu of a traffic signal, to improve vehicular circulation and safety. When properly located, designed, and constructed they reduce overall vehicular speed while simultaneously reducing congestion. The idea is that cars flow continuously through the roundabout but at slower speeds. Unlike traditional "rotaries" vehicles enter roundabouts at a 90 degree approach and must therefore slow to a near stop prior to entering circulation. However, some people feel that a roundabout can sacrifice pedestrian mobility through an intersection as it can be challenging to site crosswalks with adequate site-distances to provide safety. Considerable literature can now be found on the use of roundabouts and MassDOT is favoring the use of these devices as they also eliminate the need to maintain traffic lights and pay for electricity usage. For more information on roundabouts, the reader is directed to:

http://www.mhd.state.ma.us/downloads/designGuide/CH_6.pdf

It should be noted here that the Lower Village Committee is strongly favoring a roundabout at the intersections of 117, Red Acre Road, and Pompositticut Roads along with a roundabout at Route 117 and Elm Ridge Road. That committee also feels roundabouts should be considered when the Town evaluates design alternatives for other intersections throughout town. The Master Plan Committee supports pursuing improvements to traffic in Lower Village. However, the Master Plan Committee also wants to acknowledge that public opinion may not yet be ready to embrace roundabouts. Further outreach, education, and analysis might be necessary to achieve consensus before the Town could move forward with design plans at various locations.

In general the Master Plan Committee is in favor of passive traffic solutions throughout town where such solutions make sense from a safety perspective. It is our preference to avoid the installation of numerous traffic lights that may only be needed during peak periods of travel. Traffic calming, pedestrian refuge islands, and other creative methods to slow traffic or channelize it in a safer fashion is preferable to the cost and unsightliness of adding new traffic lights.

5. Shoulder width

Roadway widths are typically being increased to accommodate a 4-foot shoulder for bicyclists, and new techniques are often added to allow greater ease in crossing roads. This can sometimes present a problem for a community such as Stow which is trying to preserve rural character and protect wetlands. Any increase in overall road width can often come into direct conflict with the desire to keep stone walls, meandering ways, and maintain the scenic elements of the roadway. Nonetheless, where possible, when roadways are being reconstructed, every effort should be made to accommodate a shoulder for bike and pedestrian use.

6. Crosswalks

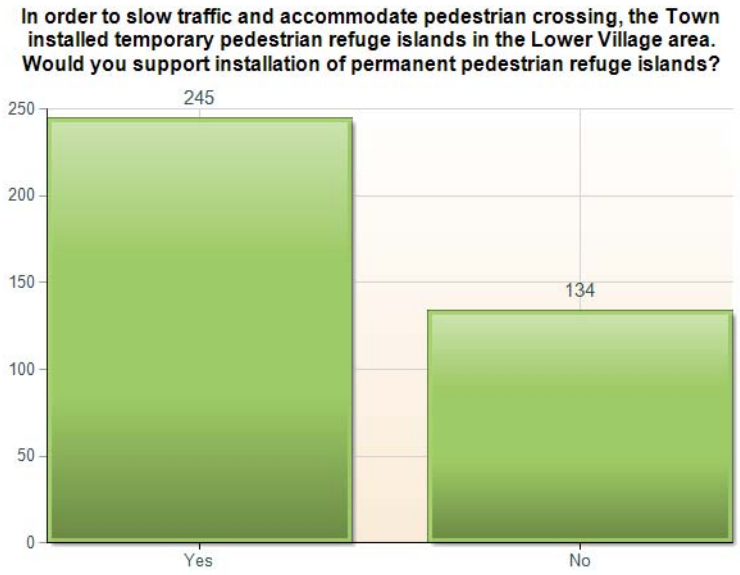
Pedestrians are an integral part of the transportation system, and should be able to cross roads safely. Although marked crosswalks are traditionally used to facilitate pedestrian crossings, in some instances other treatments should be considered to provide a safer environment for pedestrians. Alternative treatments could include:

- Angled crosswalks in pedestrian refuge islands to direct pedestrians to face oncoming traffic
- Raised crosswalks
- "Dragon teeth" to designate an upcoming crosswalk
- Pedestrian refuge islands
- Pedestrian signals
- "Stop for Pedestrians" signage

The Town should continually work to improve safety and encourage pedestrian traffic. The Master Plan Committee recommends that the Town adopt guidelines identifying the preferred kind of crosswalk treatment for various types of crossings and then use that policy to implement a consistent format throughout town. Priority locations for new crosswalks should be at school crossing locations and destination areas such as the Lower Village business zoned area and town recreation fields.

7. Refuge islands

Pedestrian refuge islands are usually defined as a small section of pavement or sidewalk, surrounded by asphalt or other road materials, where pedestrians can stop halfway across the street while crossing the roadway. Not only do they make pedestrians safer by giving them a traffic-free spot on which to stand; they also have the secondary effect of creating an interruption to the traffic flow that slows cars down. Our Master Plan Survey revealed strong support for refuge islands as shown on the following graph:



8. Trails

The Assabet River Rail Trail (ARRT) has been under design and development for more than a decade. This trail will eventually be a 5-town multiuse trail connecting the communities of Marlborough, Hudson, Stow, Maynard, and Acton. The Marlborough and Hudson section, comprising approximately 5.5 miles, has been constructed and is open for public use. The Acton and Maynard sections are presently under design. For more information on the trail in general, go to www.ARRT.org. In Stow, the ARRT Committee has been engaged in discussions over an extended period of time to try to find ways for Stow to complete its section of the trail. See Figure 17 in Chapter 6 for ARRT Map.

The Town has acquired a two-mile easement over a portion of the railroad right-of-way which is presently in private use as "Track Road." Efforts may soon be underway to evaluate design possibilities for a trail along that section. However the actual route for some areas of the trail is still to be determined.

The two-mile easement over "Track Road is depicted in green. Sudbury Road is depicted in yellow. The Maynard Town Line is depicted in red.

The Stow ARRT Committee voted on Feb. 17, 2009 to use existing trails in the Assabet National Wildlife Refuge for some of the route through Stow. The committee is now working on ways to connect the northern end with the Rail Trail in Maynard and the southern end with the Hudson Rail Trail. The Master Plan Committee strongly supports prompt completion of this project since state and federal funds may not be available much longer.

From the collection of R.R.Conard B&MRRHS

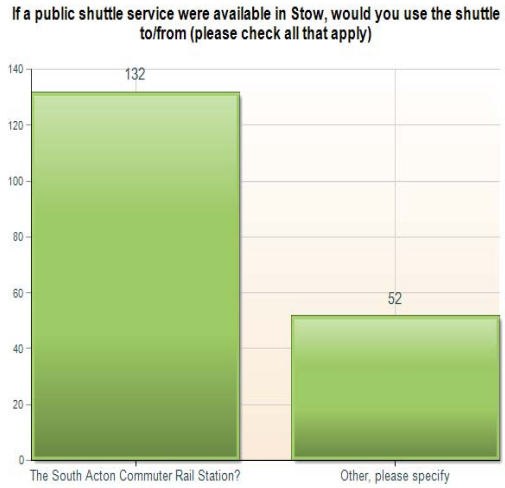
9. Public Transit

In 2007, the Board of Selectmen voted to join the Montachusett Regional Transit Authority (MART), a separately constituted legal entity that provides transit services. The primary motivation behind this vote was a recent state law that allowed towns without MBTA service to deduct money paid to RTAs from their annual MBTA assessments. MART is one of Massachusetts' 15 regional transit authorities. It is a public, non-profit organization charged with providing public transportation to an area consisting of the cities of Fitchburg, Leominster and Gardner, and the adjoining towns of Ashburnham, Ayer, Shirley, Lancaster, Sterling, Hubbardston, Royalston, Littleton, Winchendon, Ashby, Templeton, Westminster, Hardwick, Lunenburg, Harvard, Bolton, Boxborough, and Stow.

MART operates 15 fixed route bus services together with paratransit services. It also provides connections to the MBTA Commuter Rail line at Fitchburg station. Currently, MART provides Stow with a senior van. Discussions have taken place regarding a shuttle service to the South Acton train station, but there are no specific plans to increase MART’s service within Stow at the moment.

The Master Plan Survey revealed that there is a reasonable level of interest among the populace for a shuttle from Stow to the South Acton train station as well as a few nearby shopping areas. Of the 387 respondents, 87% answered "yes" to the question "If a public shuttle service were available in Stow, would you use the shuttle to/from the South Acton Commuter Rail Station?", while 34% said they would use a public shuttle service to nearby retail and business areas in Stow as well as in Maynard, Acton and/or Concord.

There are other factors we must consider as well when evaluating if we have adequate transit services in town:



- Is the Town providing a sufficient level of public transportation for those who wish to use it?
- Are factions such as the elderly and disabled for whom driving may not be an option adequately served by public transportation options?

The MAGIC subregion of MAPC is presently pursuing a number of studies and initiatives to help expand suburban mobility within the region. One is a study with a working group, to identify the small-scale public and private transit options within the region and make suggestions on cross-community connections to augment those present activities. For more information on MAGIC's activities, go to http://www.mapc.org/subregions/minuteman-advisory-group-inter

The other study is an effort to evaluate whether or not bus rapid transit (BRT) could be developed in conjunction with the proposed rail trail slated to be built on the MassCentral Branch Railroad. This trail is known as the Wayside Trail and it runs roughly from Waltham through, Weston, Wayland, Sudbury, Stow, Hudson, Bolton, and on to Clinton. A BRT or some other form of public transit in conjunction with the trail would be of great benefit to the residents of Stow, who presently have no public transportation options (except the Senior Shuttle). The MPC recommends that Stow participate actively in the efforts of this MAGIC study and follow closely the possibilities and recommendations that could come out of this study. It may also be appropriate for the Board of Selectmen to designate an individual to act as Stow's liaison in this matter. A point person could become the local expert, providing information to appropriate Boards including the Selectmen and Planning Boards and represent Stow's interests at various meetings and venues at which this topic will be discussed.

A. ***Action Items***

- Pursue participation in the state's Safe Routes to School program

- Participate actively in the efforts of the MAGIC study to evaluate whether or not bus rapid transit (BRT) could be developed in conjunction with the proposed rail trail slated to be built on the MassCentral Branch Railroad and follow closely the possibilities and recommendations that could come out of this study.

- Pursue funding for further steps that would follow up on the recent Lower Village traffic study, such as a feasibility study and preliminary design, through either grant opportunities or other municipal appropriations.

- Pursue means to connect the northern end of the Stow Assabet River Rail Trail with the Rail Trail in Maynard and the southern end with the Hudson Rail Trail while state and federal funding are still available to do so

- Pursue the development of a town-wide Traffic Calming policy and include in it the preferred construction form of crosswalk treatments appropriate for various types of roadway crossings

- Monitor and participate in decision making on opportunities for expanded transit service through MART or MBTA

- Explore opportunities for funding of roadway projects through the Boston MPO including designating a staff person to act as the municipality's TIP Coordinator.

Chapter 9

Zoning & Land Use Recommendations

CHAPTER 9: Zoning & Land Use Recommendations

A. Overview of Zoning Concepts

As stated in Chapter 2, Stow's Zoning Bylaw was adopted in 1949 and plays a fundamental role in defining and maintaining the kind of community that residents have chosen in terms of what parcels of land can be used for what kinds of purposes.

Some communities, including Stow, use visual representation in the form of a map to stipulate zoning requirements; other communities rely on written descriptions of areas and sectors to define zoning parameters. Whichever method is used, the Zoning Bylaw not only determines which parts of town are residential and which are commercial but also how nonresidential space may be used.

For situations in which a town believes it is in its best interest to make a change to the Zoning Bylaw, there are various means in which to do this. One way is by creating an overlay district, which does not revoke the previous zoning applied to an area but puts additional options on it. For example, an area zoned for retail can take on a mixed use overlay, which would allow residential and commercial uses to co-exist in the same facility. Overlay districts are typically reserved for unique uses that are less common but still appropriate for the underlying zone. Other common examples of overlays include "wireless communications" (or cell tower) zones, "over-55" housing districts, "adult entertainment," and more. There is no limit to how many overlays a community can layer over a zone.

A town's Planning Board can invoke additional control over development decisions by requiring site plan approval or other regulatory procedures or by designating certain types of uses to be done through a special permit application. This enables the Planning Board to condition approvals based on requirements that mitigate issues such as traffic, parking, light spillover, noise, landscape screening, etc.

B. Broader Statewide Context – Zoning Reform

During the time of the writing of this Master Plan, a broader statewide dialogue has been taking place regarding zoning reform in Massachusetts. The present gubernatorial administration under Deval Patrick has established zoning reform as a key policy element on which to focus. Prior to the Deval Patrick administration, the Land Use Reform Act (LURA) was released to the legislature but failed to garner enough support to make its way through the legislature. Following up on this work, when Gov. Patrick took office, he created a Zoning Reform Task Force with the objective of introducing new legislation in 2009.

The Task Force was charged with the difficult goal of trying to simplify the State's zoning laws which underlie all local zoning bylaws. Unlike previous attempts at reform, there was a considerable effort to involve the development industry to understand its point of view, while also involving municipalities in this dialog. Not surprisingly, cities and towns cited lack of control around approval not required (ANR) subdivisions and a worry that reform would undermine local control. Developers generally sounded the concern that bylaws differ from one community to the next and the overall permit approval process just takes too long. While this is an oversimplification of what is a complex law, it is nonetheless important to note that this area is being looked at for comprehensive reform.

Around the same time, and working at similar objectives in parallel to the governor's task force, another group of legislators and municipal officials established the Zoning Reform Working Group. This second group started with Land Use Reform Act (LURA) as its basis and further evolved the legislation to what is now generally known as CPA II or the Community Planning Act. Concurrently, the governor's Zoning Reform Task Force began consideration of LUPA – the Land Use Partnership Act – in the fall of 2008. Various proponents of these two separate measures are working to integrate the best approaches from each bill to come up with a compromise position that will ultimately garner enough support to pass the legislature. This compromise legislation is presently known as the Comprehensive Land Use Reform and Partnerships Act (CLURPA).

In this context, it is important for Stow to stay up to date on these zoning reforms, as the final legislation may require modifications to Stow's current zoning rules or regulations in order to maintain compliance with state law. Alternatively, the legislation may present some opportunities and benefits for the so-called "opt-in" communities which agree by local option to modify some zoning provisions in exchange for key benefits pertaining to things such as grandfathering provisions and/or control over "approval not required" (ANR) lot creation.

The Town of Stow has been thus far following the debate and issued a comprehensive letter about its serious concerns with the two pieces of legislation. That letter can be obtained by request from the Planning Department.

For more on zoning reform, see the following websites:

LUPA **http://tinyurl.com/2wt7n5w**
[N1]
CPA 2
http://www.massmunilaw.org/zoning.htm?sid=60 – click on Zoning Reform

CLURPA: http://www.apa-ma.org/572

As has been stated elsewhere, it is important to note that this document cannot by itself modify zoning. Zoning changes should always, where possible, be preceded by meaningful public deliberation and broad-based community consensus. For some of the suggestions below, additional study or professional expertise may be needed in developing appropriate bylaw language or in evaluating the impacts of a proposed change.

Furthermore, it is important to understand how zoning provisions are modified in practice. A zoning change presently requires a two-thirds super-majority vote of the legislative body, which in Stow's case is its Open Town Meeting (at which only registered voters can participate). Annual Town Meeting Warrants containing the language of all Articles to be voted upon are mailed to each household in Stow at least seven days prior to the Town Meeting. The body responsible for calling the Town Meeting and setting its date is the Board of Selectmen. Warrant articles can be submitted in one of three ways: by a property owner with a legal interest in the property to which the zoning change applies, by any town agency acting through a majority if its members, or by Citizen's Petition. The Town Clerk can guide any resident interested in learning more about Citizen's Petitions.

Once a warrant article has been filed for each zoning article, the Planning Board must conduct a public hearing at least 21 days in advance of Town Meeting. From the results of that Public Hearing, the Planning Board then makes a recommendation to Town Meeting on the zoning article in question.

For more information on the local process surrounding zoning modifications, contact the Town Clerk and/or the Board of Selectmen's offices, or read the zoning section on Stow's website at http://www.stow-ma.gov/pages/StowMA_Planning/Zoning%20Bylaw%20-%20Amended%20through%20May%203,%202010%20.pdf

C. Opportunities for New Zoning Tools

The Town of Stow has done an excellent job of updating its local zoning code to keep abreast of changing standards. The Planning Board, Planning Coordinator, Selectmen, and other key leaders are to be commended for their ongoing efforts to update bylaws and embrace new zoning concepts. For this reason, unlike many other communities, Stow is in the enviable position of not needing to overhaul local zoning in order to modernize practices. However, there are always areas that can be improved upon. This section puts forth some options and new ideas that the community might wish to explore.

1. Adaptive Reuse Bylaws

Adaptive reuse bylaws are special provisions intended to help encourage the reuse of unusual structures in town. They are sometimes called mill reuse overlay districts, historic structures reuse bylaws, etc. Typically, but not always, adaptive reuse bylaws are applied as an overlay district to existing areas of town in which the community wants to encourage new uses to emerge. Thus, a community seeking to encourage small business incubator space might apply an overlay of this sort to old retail areas of town, giving the overlay area the additional zoning uses of office space, light manufacturing, etc.

In Stow's case, the Master Plan Committee is very interested in pursuing an Adaptive Reuse Overlay for the Gleasondale Mill complex of structures.

The present concept for this site is that it be redeveloped to allow a combination of both residential and commercial activity. It is not yet clear whether the site would lend itself best to the uses being segregated by building within the same parcel or whether the buildings themselves could support mixed uses. In order to further develop this concept, some additional study would likely be required.

The Town should gather more data on the site itself and compile examples of zoning bylaws it might wish to emulate. Once it has a clear vision for how the uses would be mixed and at what proposed density, along with data on the site itself, and a sample bylaw drafted, targeted outreach to nearby neighbors and residents should then be conducted. Following positive feedback on the concept plan, it would be appropriate to bring a bylaw to Town Meeting for its approval. Refer to Chapter 4 for more information and recommendations.

Some links on this topic including sample bylaws from various communities are below:

Smart growth toolkit (model bylaw)
http://www.mass.gov/envir/smart_growth_toolkit/bylaws/MRD-Incremental-Bylaw.pdf

Town of Millbury - http://www.millbury-ma.org/Public_Documents/MillburyMA_ZoningBylaws/new/section27adaptive%20reuseover

Town of Hudson -
http://www.townofhudson.org/Public_Documents/HudsonMA_WebDocs/Zoning%20By-Laws%20May08-AppendixA.pdf

2. Mixed Use Zoning Bylaw

Somewhat similar to Adaptive Reuse is the concept of mixed use zoning overlay districts. In practice, actual mixed-use bylaws can differ dramatically from one community to another. Nonetheless, in its simplest sense, a mixed use overlay is a zoning provision that allows more than one use to be conducted on the same parcel of land. While adaptive reuse can often allow mixed uses, it differs from straight mixed use in that it requires a structure to be reused or redeveloped. That is not always the case for a mixed use district, which offers the possibility of a combination of uses within one or more new construction buildings. Nonetheless, despite this mix of uses which an overlay might grant to an area, the zoning provision can be crafted to enable the community to encourage exactly what type of mixed use it wishes to see evolve. Height and density restrictions can be applied, as can overall floor area ratios, maximum percentage of each type of use, and even building construction type. This type of zoning tool can provide great flexibility and control for the local community.

In a variety of forums, a number of Stow boards and committees have been exploring a desire to encourage village center zoning. However, interpretations of that concept might differ. The Master Plan Committee has refined its vision to include a desire to promote the rezoning of some parts of town that are presently commercial to allow residential apartments or condominiums to be constructed upstairs at the same retail or commercial site. Village-style zoning can often include the stipulation that parking be in the rear, while the structure itself is located relatively close to the front of the parcel. This encourages buildings of the sort that one would have found being developed one hundred or more years ago in a traditional New England town.

The Master Plan Committee believes this would encourage more diversity of housing types, allow for residential dwellings in close proximity to services (thus reducing vehicle trips), and help to bolster the local economy as residents who live close to retail will often patronize those nearby establishments. Mixed use is generally accepted as a smart growth tool for these reasons and more:

- Encourages diversity in the Town's housing stock
- Provides design guidelines to promote village-style redevelopment with a mixture of uses
- Encourages revitalization of existing commercial uses and historic buildings
- Provides a focal point for pedestrian-related uses
- Reduces roadway congestion
- Promotes a greater sense of community

Prior to advancing this type of zoning bylaw, the Town would need to carefully define the areas of town to which the bylaw will apply. It might be sensible to start with a relatively few areas of town to test the concept before implementing it elsewhere in town. Currently, the areas where this is being considered are the Lower Village business zone and the Gleasondale Mill.

Then, design guidelines should be developed concurrently with the bylaw to enable residents to understand the desired outcomes of the zoning district. Additional public meetings may need to be conducted in order to gauge residents' sentiments relative to the suggested zoning boundaries and to refine program objectives.

3. Municipal Buildings reuse

As Stow has a number of municipal buildings that may become obsolete as new schools are built or older buildings replaced, it may behoove the Town to consider creating a municipal buildings zoning overlay. Such an ordinance could give the Town the maximum options available for redevelopment of these structures and potentially yield a better return if the Town pursues sale or lease of the property to an outside party. This type of overlay zoning bylaw could establish in advance the permissible and non-permissible uses that will be allowed within these structures. It could also establish whether all or part of the existing buildings can or can not be demolished, and whether expansion of the structures will be allowed.

D. Low Impact Development

Low Impact Development (LID) is a smart growth tool that employs an ecosystem-based approach. It allows for greater development potential with less environmental impact. This is done through the use of smarter designs and advanced technologies that achieve a better balance between conservation, growth, and ecosystem protection, and public health and quality of life. Along with protecting wildlife corridors to the extent possible, LID uses the natural terrain and manages runoff at its source. Examples include swales and rain gardens, pervious pavement, and multi-purpose landscaping and vegetation. The state's Stormwater Management Guidelines, which promote LID techniques, have been incorporated into Stow's Subdivision Rules and Regulations and into the policy handbook of the Planning Board.

(For more information on Low Impact Development, see the Executive Office of Energy and Environmental Affairs website at www.mass.gov.)

E. Areas for Potential Zoning Change

1. Mandatory OSRD

Open Space Residential Design (OSRD) is the term commonly used for residential zoning that enables houses to be built on smaller lots, clustered closer together, while larger acreage, often 51% or more is left as undisturbed open space. In Stow this type of zoning is called *Planned Conservation Development* (PCD).
The general rules in Stow for this overlay district are as follows:

- Minimum Tract Size – to utilize this zoning subdivision option, the parcel must have at least ten acres and be located in a Residential District
- Permitted Uses –
    - Single-family dwellings, single-family dwellings with accessory apartments
    - Multi-family dwellings (not more than 25% of the total number of dwelling units to be constructed under the PCD subdivision and no more than four dwelling units per building)
    - Accessory uses and structures incidental to principal uses indicated above are allowed as long as they are not the primary use
- Number of Lots - The number of lots allowed in the PCD shall be the number of lots into which the parcel could be divided and built upon under the normally applicable dimensional requirements and land use regulations.
- The minimum lot area per dwelling is 20,000 sq. ft.
- Minimum frontage - 100 feet (this requirement may be reduced to 50 feet if the lot is served by a common drive)
- Minimum front, rear and side yard setbacks of 20 feet
- Open Land - A minimum of 60% of the total area of the tract of land shall be designated as open land dedicated and used for conservation, historic preservation and education, outdoor education, recreation, park purposes, agriculture, horticulture, forestry, or for a combination of these uses
    - Open land shall not contain more than 50% wetlands
    - Wells and sewage disposal areas or facilities may be located on the Open Land as permitted or regulated by Title 5 or local Board of Health regulations, if these facilities are serving the PCD
- No building shall be located within 100 feet of an existing public way or within 50 feet of the boundary line of the PCD or the Open Land set aside as part of the subdivision

As described in Chapter 6, the benefits of OSRD are numerous and include reduced impervious areas, reduced municipal maintenance of roads (shorter plowing routes), reduced lawn area (leading to reduced pesticides and fertilizer being discharged), increased undisturbed natural habitat, etc. With all of the positive outcomes of OSRD, Stow might consider making this type of residential subdivision the norm with by-right subdivision submission and eliminate the

option of building a conventional subdivision as-of-right. In so doing, it could retain the conventional option by Special Permit. Whenever a town makes one type of permit easier to get and increases the difficulty of another, this is a clear signal to developers indicating which type of development the municipality prefers.

Since there are relatively few advantages, if any, of a conventional subdivision, the Master Plan Committee feels that long term, OSRD is the preferred residential zoning strategy for Stow. Again, depending on public sentiment which should be gauged in a variety of public venues, the Town might implement such a change on an area basis before going entirely to this new approach. It may also require additional planning staff or professional peer review consultants to assist the Town in reviewing the OSRD. This is because the OSRD requires the developer to demonstrate how many lots can be obtained for a subdivision, after subtracting wetlands and other unbuildable areas. This yield number is then utilized to determine how many units are permissible under the OSRD. Since this extra step somewhat increases the complexity of the OSRD filing, it may be worthwhile for Stow to explore other means to simplify the unit yield calculation and enable a more streamlined filing system.

In the past, there has been some confusion and disagreement in Stow as to how open space created through OSRD should be utilized by the Town. This is a key issue and one which can generate controversy. Some have suggested that the newly preserved spaces be established through a permanent bylaw change as lands available for passive recreation only. However, the MPC recommends a different approach. It suggests that the Planning Board evaluate carefully, within the context of its public hearings on each OSRD subdivision, what uses are appropriate and allowable for these open space areas. This determination should then become a special condition permanently attached to the subdivision approval permit. Such a methodology will establish clarity and forestall confusion later on. Down the road, should a neighborhood or developer wish to change the open space use designation, it would have to do so in the context of a change to its subdivision permit which would open a public hearing requirement and enable a fair public participation process in order to make such a change.

2. Golf Courses

As discussed in several earlier chapters, the five golf courses in Stow present a concern from an open space perspective, should the present owners decide to sell the land for development. In some cases, the large sections of golf course abutting major routes make them key view sheds in the community. It is incumbent upon the Town to find ways to either protect these major parcels or to ensure that if they are developed, the type of development is conducive to Stow's long term vision of maintaining its rural character. Since the golf courses themselves offer key vistas and natural settings the Master Plan Committee recommends the Town explore zoning tools that might help preserve these areas. Similar to the OSRD discussion above, zoning constraints the Town might want to consider include mandatory preservation areas or land set-asides of key vistas in exchange for higher density on the inland portions of the parcels with a lot yield equal to or greater than that which the owner could develop under a conventional

subdivision. The Town could then go further and consider density bonuses for developments that include greater percentages of open space. However, unlike OSRD, in the case of the golf courses the Town might want to consider pre-designating the preservation areas. Such a process would of course require careful evaluation, study, public process, and frank and open dialogue with property owners.

4. Demolition Delay Bylaw

As stated in the 1996 Master Plan, residents clearly want to preserve historic buildings and sites; however based on past experiences when historic districts were proposed, it is unclear if they would be willing to approve the additional level of regulation that can often be associated with official adoption of historic districts. We should consider passing a Demolition Delay bylaw as an alternative measure for historic preservation. The purpose of a Demolition Delay bylaw is to postpone demolition permits for a specified period of time while requiring interested parties to evaluate all alternatives to the demolition of a structure. Such a bylaw must first identify the structures to which it should apply and that designation becomes part of the bylaw considered by Town Meeting. Thus, it is possible to create a narrowly targeted bylaw to avoid over regulating structures that would not need to be included in this bylaw . The Town could in this fashion strategically focus on only those properties most worthy of preservation.

5. Historic Structure Reuse

One of the ways to prevent demolition of important historic structures is to expand the range of reuse options available to owners. Stow is fortunate to have such tools already built into its bylaws for many of the zoning districts in town. For example, Section 3.2.3.5 of the Zoning Bylaw spells out that as follows:

> *Uses not otherwise permitted in the Residential District, if such uses preserve historic and/or culturally significant BUILDINGS and STRUCTURES, provided that the historic and/or cultural character of the site, and BUILDING or STRUCTURE, in the opinion of the Special Permit Granting Authority, is not significantly altered, and the Special Permit Granting Authority finds that such uses, with any necessary mitigation measures, are in harmony with the character and uses permitted in the Residential District. This Section shall not eliminate the requirements of Section 3.2.2.5, which shall remain intact as written.*

While the above clause does allow many uses inside historic structures, it does so by requiring a Special Permit which adds time, money, and costs to a normal project. Furthermore, there are several zoning districts which do not include the above provision. To ease the process of permitting and encourage reuse of historic structures, it may be worth developing pre-approved uses and establishing them as a "by-right" provision within the bylaw. As mentioned above, many developers and homeowners are still reluctant to seek a Special Permit. With such a change, the Town could, for instance, consider allowing only in-law apartments or home offices as of right in the bylaw. Or, it could go further and even stand-alone housing units

(condominiums or apartments) to be constructed inside these structures in a way that preserves the character of the exterior of structure and the neighborhood.

It is important to publicize the availability of this zoning tool and the building department and planning departments should go out of their way to advise people of this option if they come in inquiring about building demolition. The Town's historic society could also publish a pamphlet describing some of these zoning options to encourage building reuse.

F. ***Districts to consider restricting building permits***

1. Lake Boon area

As septic systems continue to fail and water wells potentially become compromised, the Town may eventually find itself in a situation where it must limit annual building permits in the Lake Boon area. This approach could help the Town limit growth by slowing the number of expansions, tear-downs, and new development near the lake. Making it harder for summer residences to be converted to year-round use is another by-product of rationing building permits. Although it might seem a draconian approach, it may be the necessary step the Town will have to take to protect the health of residents presently dwelling in this neighborhood. As described elsewhere, this area needs further study and zoning and building permit restrictions are just one tool the Town might consider as it further evaluates the needs of this area.

2. Other areas where growth is not smart

Similar to the Lake Boon watershed, Stow is ripe with sensitive environmental areas near the Assabet River, wetlands, and other water bodies described in the Natural Resources section. As a matter of policy, the Town might want to limit development in this areas by restricting building permits or expanding its Wetlands Protection By-law making it more difficult to build in proximity to wetlands, rivers, streams, in floodplain, etc.

G. ***Commercial Areas***

1. Promote "village-style"

Old historic New England villages had structures built close to the street with services located in the rear (parking and stockpiling of goods behind buildings). These villages often had residential upper floors and were sited very close together. Business owners' current notions of commercial development discourage this type of development and encourage, instead, large parking fields in front with buildings set so far back it is hard to identify the stores from the road. An example of this is shown to the right. From the road, this strip mall is non-descript and unimaginative. However, there are still key commercial areas along major routes in Stow that have yet to be fully developed. Before they are carved up into strip-mall style development, the Town might want to consider modifying the development constraints in the bylaw to encourage a more traditional style of buildings set closer to the road with parking servicing those buildings set behind.

Other development constraints could dictate the type and style of building architecture, signage guidelines, lighting, and other elements that if controlled could help promote a village-feel to future buildings. This type of development is often more pedestrian friendly with large front sidewalks and other connecting linkages between parcels and tends to discourage large parking fields:

FIGURE: 29 Existing Retail in Town

2. Expand allowable commercial uses

It has been a while since the Town has evaluated its allowable commercial uses permitted in existing retail zones. Discussions around the Master Plan Committee table suggested there is an opportunity for the Town to examine present uses and perhaps add some new additional uses that were not previously permissible. This is a task appropriate for the Economic Development Committee should it be created and also a task for the Planning Board.

Chapter 10

Implementation

CHAPTER 10: Implementation

M.G.L. Chapter 41, Section 81d, provides a clear statement of the requirements for implementation of master plans. The implementation section "….defines and schedules the specific municipal actions necessary to achieve the objectives of each element [section] of the master plan. Scheduled expansion or replacement of public facilities or circulation [transportation] system components and the anticipated costs and revenues associated with accomplishment of such activities shall be detailed in this element. This element shall specify the process by which the municipality's regulatory structures shall be amended so as to be consistent with the master plan."

To view the text of the statue, go to http://www.mass.gov/legis/laws/mgl/41-81d.htm

The Master Plan is established under the jurisdiction of the Planning Board. However, it deals with many elements in the community that are not directly under the control of the Planning Board. For instance, capital planning of municipal facilities generally falls under the policy direction of the Board of Selectmen and within the job description of the Town Administrator. Thus, it is important to involve a wide range of local leaders in implementing the goals of the plan.

However, nearly as soon as a Master Plan is published, some elements become obsolete due to new information emerging, urgent needs surfacing, and in some cases a change in political will. The long-term Master Plan attempts to project as nearly as possible what the community's goals and priorities should be into the future. Nonetheless, it is critical for this section and the specific tasks within the Master Plan to be evaluated on a regular basis. Annually is ideal but certainly at least every other year, the community should engage in a dialog around its priorities.

Because a Master Plan looks comprehensively at known deficiencies and structural goals voiced by the community, it is not possible to have completely adequate information on each of the topical areas in order to set short-term priorities. For instance, how can we know if a fire station or a new school should be built within the next two years, five years, or ten years, without first evaluating the costs of each project? Similarly, while we can say it is desirable for the community not to get involved in providing water or sewer services, will that approach change by necessity should Stow's groundwater become contaminated or should a local water supplier serving hundreds of houses no longer be financially solvent? These examples highlight why priorities can and perhaps should change in response to new information. These examples also suggest the importance of pre-planning toward larger goals.

Where possible, in order to assist the community in taking steps to implement this plan, we suggest smaller steps to take toward accomplishing the larger goals. As an example, in the Economic Development chapter we identify having a more diversified local tax base as a goal

and we indicate a number of actions to assist in this endeavor. There are also a number of areas where we suggest zoning improvements but we are careful to emphasize the need to have a robust public process in developing those zoning amendments.

Because of the changing factors discussed above, Master Plan Committee members had mixed feelings as to the value of ordering goals and priorities by rank across the various topical areas. Nonetheless, an attempt to do so was made in the following sections where a number of charts are offered. These charts were created as a tool to assist the reader in identifying the items that did rise to the top as being among the most important short-term and long-term goals. We have also made an effort in these charts to specify which entities in town should bear the primary responsibility for implementing specific goals. However, as another note of caution, the "responsible party" could change if the Town seeks a different course of action than is prescribed in this document. Or, the "responsible party" could be modified to reflect new ways of doing things such as expanded or consolidated departments, newly formed committees, active resident participation, etc.

The Master Plan Committee is also pleased to report that the Board of Selectmen intends to take an active role in implementing this document. Following its publication, steps will be taken to ensure that the goals and priorities are regularly evaluated against existing expenditures, staffing, and management plans.

Specifically, the Town of Stow will create an implementation team under the direction of the Board of Selectmen to establish an evaluative system governing the decision-making process in undertaking the programs and projects identified in the Master Plan. The process will include an assessment of all priorities identified in the Master Plan and ultimately, the development of an actionable, long-range community development plan. Working in concert with the appropriate boards and committees, the Selectmen will facilitate overall design, funding, construction, and management of the Master Plan's highest priorities.

This implementation team will be responsible for the ongoing process of identifying costs associated with undertaking individual items and in recommending to the Finance Committee and Town Meeting the programming of revenue to pay for the various undertakings.

The Master Plan Committee suggests this implementation team include a member from each of the topical areas discussed in the plan as well as a member from the Finance Committee, the Town Administrator's office, and the major department heads in town. The Implementation Team might wish to take an active role in evaluating the Capital Plan, budget, and Town Meeting Warrant by way of submitting an annual report to Town Meeting indicating which articles support the goals of the Master Plan and which do not.

Furthermore, the Implementation Team might wish to develop measurement indicators by which the progress toward achieving various goals will be measured. These types of indicators are sometimes also called "benchmarks" and other times termed "evaluation measures." It is important to have some means of determining progress toward meeting a goal.

Within this document there may be some goals that have yet to be fully fleshed out due to the comprehensive nature of this report and the difficulty in including specificity on every topic. Therefore, a final task for the Implementation Team could be to serve as a catalyst to help develop further clarity on goals in their nascent stage.

While there are goals and priorities for each element listed at the end of some chapters, they are also distilled here into these cohesive tables printed below. Again, these tables will assist the reader and the Implementation Team in comparing the various priorities and needs competing for scarce revenues.

When considering implementation, it is important to note that the Master Plan is best used as a living document and not one shelved upon completion. For this reason, the Master Plan Committee has taken due care to release drafts of this document along the way to various committees and other interested parties. It then held a public forum on April 12, 2010 to obtain feedback from the community and met again to consider specific suggestions, edits, and comments.

The Master Plan Committee wishes to thank all of the Boards and Committees, as well as individuals who provided written comments subsequent to the draft release of this document. We have tried to include revisions addressing as many of the comments as possible. In some cases we received comments that conflict with one another, thus making it difficult to satisfy all reviewers. Nonetheless, we did our best to incorporate as much as we felt was appropriate.

As a final stage of releasing the document, the Master Plan Committee intends to go around to each of the various board and committees plus department heads and discuss with them the elements of this plan that are pertinent to areas within their control. Where various individuals or boards and committees are designated to carry the ball on specific goals, these parties will be consulted and engaged in the endeavor of implementation.

Through this process we hope to establish a truly collaborative approach to successfully implement this Mater Plan.

The following section includes a variety of charts intended to present priority action items in a variety of different ways to enhance the readers understanding of what this plan ultimately determined were important goals. When all information was culled from the various chapters, there were 70 items that merited inclusion and emphasis in this final implementation chapter. In order to distill all of this information, committee members rank ordered each of the items with a system using "1" for *low priority*, "2" for *medium priority*, and "3" for *high priority*. Then we took an average among all committee members' responses and discussed the results to verify that the data were representative of how the committee wished to portray the importance of each item. The committee then followed a similar process to rank the relative time frame for implementation of each action item. "1" was used for *short term* for items that that the committee felt the Town should tackle in the next 1-2 years. "2" signified *medium term* for those projects to undertake in years 3-5, and "3" depicted *longer term* projects which would take 6 or more years to either initiate or complete.

In the priority ranking, we then sorted the results to be able to list them in descending order with the highest priority items at the top of the chart. That chart is presented below:

FIGURE: 30 Comprehensive Implementation Chart

Priority Rank	Ch.	Action item	Average Priority Rank	Committee Priority
1	5	**Identify sources and develop strategies to mitigate excess of phosphorus in Elizabeth Brook during high-water, wet weather conditions**	2.8333	High
1	3	**Monitor and maintain affordability of the Subsidized Housing Inventory to avoid loss of individual units as they come up for resale.**	2.833	High
1	5	**Actively pursue improvements to Lake Boon problems by educating residents about key environmental issues especially use of fertilizers and products containing phosphorus, proper septic maintenance, well water quality, etc.**	2.833	High
1	6	**Implement a Golf Course Study with a goal to protect existing scenic vistas and evaluate the preferred method of future development on those parcels.**	2.833	High
1	6	**Protect and preserve the health of Lake Boon.**	2.833	High
2	4	**Establish Lower Village Mixed-Use Overlay District**	2.8	High
2	5	**Pursue zoning and bylaw changes to limit development on the lake**	2.8	High

Priority Rank	Ch.	Action item	Average Priority Rank	Committee Priority
3	4	**Work with owners of commercial properties that do not meet DEP compliance standards and monitor those that might be on the verge of noncompliance to see how they can be assisted in securing DEP approval.**	2.6666	High
3	3	**Capitalize the Stow Municipal Affordable Housing Trust through a number of resources, including payments through the fees in-lieu of actual units, private donations of land and funding, and negotiated fees from developers. In addition, the Community Preservation Committee could be asked to make a recommendation at Annual Town Meeting to allocate the 10% required funding for affordable housing to the Affordable Housing Trust Fund for a specific project purpose. A better capitalized trust will allow the Stow Affordable Housing Trust to respond quickly to new affordable housing opportunities without having to wait for the next Town Meeting for fund allocation approval.**	2.666	High
3	5	**Stay engaged in ongoing discussions and studies such as the Assabet River Study Coordination Team and maintain an active role in any future studies initiated**	2.666	High
3	6	**Protect Open Space in Southwest Stow.**	2.666	High
3	6	**Foster pedestrian mobility through the implementation of sidewalks and other planning strategies.**	2.666	High
3	7	**Explore arrangements with private water suppliers and work collaboratively with appropriate private entities to expand water supply to schools, municipal facilities and private users.**	2.666	High
3	8	**Pursue funding for further steps that would follow up on the recent Lower Village traffic study, such as a feasibility study and preliminary design, through either grant opportunities or other municipal appropriations.**	2.666	High
3	8	**Pursue means to connect the northern end of the Stow Assabet River Rail Trail with the Rail Trail in Maynard and the southern end with the Hudson Rail Trail while state and federal funding are still available to do so.**	2.666	High

Priority Rank	Ch.	Action item	Average Priority Rank	Committee Priority
4	4	**Evaluate Zoning and consider modifications for parcels in the Industrial District in and around Minute Man Air Field to promote lower-intensity uses such as support facilities for cleaning or landscaping services/ businesses, or small light industrial facilities, incubator businesses and commercial recreation**	2.6	High
4	6	**Protect lands that will preserve Stow's "rural character".**	2.6	High
5	3	**Create an inventory of land parcels that are potentially suitable for some amount of affordable/work force housing, mixed income, or mixed use development. This action also includes integrating affordable housing into the Open Space and Recreation Plan. (Part of this task has already been completed by the Land Use Task Force. Refer to their 2009 report for the details.)**	2.5	High
5	5	**Encourage the DEP to fund follow-up studies of non-growing season phosphorus discharge and its role in the overall nutrient budget of the river**	2.5	High
5	6	**Complete the Rail Trail by linking existing trails.**	2.5	High
5	7	**Increase stabilization fund balance to approximately $1 million to cover for unexpected events and to minimize disruption to services during economic downturns**	2.5	High
5	7	**Undertake a limited personnel study that would include evaluation of existing Town Hall administrative and planning positions, analyze job descriptions, compare duties to towns of similar size and wealth and interview boards about capacity issues**	2.5	High
5	7	**Set money aside in the near future for a feasibility study to evaluate the re-use options for the Pompositticut School facility.**	2.5	High
5	7	**Undertake outreach program to educate residents in the Lake Boon neighborhood to decrease phosphorus contamination by reduce fertilization of lawns and gardens and to reduce the use of phosphorus-laden detergents (in laundry and dishwashing) and other contaminants that enter the lake and groundwater through run-off and/or infiltration from septic systems.**	2.5	High
6	4	**Establish Gleasondale Mill Mixed-Use Overlay District**	2.4	Medium

Priority Rank	Ch.	Action item	Average Priority Rank	Committee Priority
6	4	**Identify the appropriate smart growth principles that are applicable to Southwest Stow and methods to achieve those principles.**	2.4	Medium
6	8	**Monitor and participate in decision making on opportunities for expanded transit service through MART or MBTA**	2.4	Medium
6	8	**Explore opportunities for funding of roadway projects through the Boston MPO including designating a staff person to act as the municipality's TIP Coordinator.**	2.4	Medium
7	3	**Modify zoning to allow residential development under more conditions that would increase the diversity of housing types and choice, integrating affordable housing into more areas as well. For example, the Town could consider allowing free-standing multi-family housing, creating an overlay district with incentives for the development of "cottage housing", etc.**	2.333	Medium
7	3	**Provide gap financing to leverage project financing as such funding. Typically CPA money in the case of small towns, often provides the last "gap filler" to make projects feasible and the key leverage to secure necessary financing from state and federal agencies as well as private lenders.**	2.333	Medium
7	3	**Help qualifying residents access housing assistance including a wide range of programs and services for counseling, support with housing-related expenses, and home improvements.**	2.333	Medium
7	5	**Continue procuring parcels and working with property owners to establish contiguous access as a right-of-way to the Rail Trail**	2.333	Medium
7	5	**Discourage teardowns**	2.333	Medium
7	6	**Expand recreation/conservation district zoning to establish Wildlife Habitat corridors which will ensure the continued movement of wildlife as lands are developed. These important parcels should be protected with conservation restrictions.**	2.333	Medium
7	6	**Change Planned Conservation Development bylaw to require that the open space be designated prior to determining where the homes will be sited.**	2.333	Medium

Priority Rank	Ch.	Action item	Average Priority Rank	Committee Priority
7	7	**Further evaluate septic system policy in Lake Boon neighborhood, with special consideration to the following: building limitations or moratoriums on new homes; public water or sewer system; zoning changes; etc.**	2.333	Medium
7	8	**Participate actively in the efforts of the MAGIC study to evaluate whether or not bus rapid transit (BRT) could be developed in conjunction with the proposed rail trail slated to be built on the MassCentral Branch Railroad and follow closely the possibilities and recommendations that could come out of this study.**	2.333	Medium
8	4	**Implement Smart Growth Principles in Northwest Stow including compact development, preservation of the environment, and conservation of natural resources;**	2.2	Medium
9	3	**Modify or replace existing regulations for Planned Conservation Development to include incentives for affordable housing (PCDs are subject to inclusion of affordable housing) and several other provisions to strengthen the bylaw and make it more responsive to more current needs and priorities. For example, density incentives could be added to the PCD bylaw. Also, the Town should look at the provisions in the model bylaws developed by the Metropolitan Area Planning Council and other organizations.**	2.166666	Medium
9	3	**Continue to pursue the Affordable Housing Deed Restriction Program that has been funded with $250,000 in CPA funds to purchase deed restrictions from lower income property owners, converting these units to long-term affordability upon resale. A priority should be the purchase of permanent deed restrictions on the Elm Ridge homes and Plantation Apartments.**	2.16666	Medium
10	4	**Engage those with diverse perspectives to participate in dialog about appropriate ways to improve economic development.**	2.1666	Medium
10	3	**Modify the Comprehensive Permit Policy (December 2002) to provide more explicit architectural design guidelines, emphasize acceptable density ranges, be consistent with new state guidelines and better reflect housing strategies and production goals. Also, the Comprehensive Permit Policy should be revisited to determine if the conclusion that the most "acute" need is rental housing for all income levels and to determine if this is still what the Town wants.**	2.166	Medium

Priority Rank	Ch.	Action item	Average Priority Rank	Committee Priority
10	4	**Work with Planning Board to consider developing peer review guidelines and having peer review consultants at-the-ready or "on-call" to assist when large projects come up.**	2.166	Medium
10	5	**Continue efforts to procure funds and work collaboratively with SCT and other groups to complete the Emerald Necklace trail**	2.166	Medium
10	6	**Acquire and preserve land for future active and passive recreation needs.**	2.166	Medium
10	6	**Implement a new bylaw requiring sewage package treatment plants for parcels in the Water Resource Protection District.**	2.166	Medium
10	6	**Appoint a committee to explore building a mutigenerational community center.**	2.166	Medium
11	3	**Conduct ongoing community outreach to continue to inform local leaders and residents on the importance of affordable and work force housing and to present information on local housing initiatives.**	2	Low
11	3	**Consider obtaining resources to help with implementation of the Housing Production Plan 2010" document by hiring, sharing or using consultants.**	2	Low
11	3	**Establish a reasonable fee to the Town for peer review services from applicants of comprehensive permits per requirements set forth in 760 CMR 56.05 and 56.06.**	2	Low
11	3	**Modify the inclusion of affordable housing zoning bylaw (2003 Annual Town Meeting) to allow more housing types in such developments, including a more reasonable restriction on multi-family housing; insert more specific density provisions to permit a specified amount of units beyond what would be allowed in a conventional plan and sufficient to fully offset the costs of the affordable units; provide for a percentage of homes affordable to "below-market" households, i.e., households with incomes 81-110% of area median income. Also, modify the fee in-lieu-of provision to more accurately reflect the Town's cost to provide affordable housing units.**	2	Low

Priority Rank	Ch.	Action item	Average Priority Rank	Committee Priority
11	3	**Offer predevelopment funding through CPA funds to ensure that the development will be feasible, particularly given site conditions.**	2	Low
11	3	**Support permitting as appropriate, to expedite approvals and lend local support during the permitting process on affordable housing developments.**	2	Low
11	5	**Find ways to preserve existing structures**	2	Low
11	6	**Identify issues and opportunities for recreation on, and additional conservation of Crow Island.**	2	Low
11	6	**Complete the Stow Emerald Necklace by linking or creating trails.**	2	Low
11	6	**Limit the alteration of trees and stonewalls along Stow's scenic roadways by adopting the Scenic Roads Preservation Bylaw.**	2	Low
11	6	**Obtain prior Town Meeting approval to purchase key open space parcels when they become available.**	2	Low
11	8	**Pursue participation in the state's Safe Routes to School program**	2	Low
11	8	**Pursue the development of a town-wide Traffic Calming policy and include in it the preferred construction form of crosswalk treatments appropriate for various types of roadway crossings**	2	Low
12	3	**Provide suitable public property for development as the contribution or "bargain sale" of land owned by the Town or other public entities but not essential for government purposes.**	1.8333	Low
12	5	**Restrict total number of new building permits**	1.833	Low
12	5	**Limit square footage of new development to protect against overbuilding**	1.833	Low
12	5	**Explore protection of historic homes and buildings through possibilities such as a historic inventory; zoning/bylaw changes to discourage teardowns; restrict rebuilds**	1.833	Low
12	5	**Explore improvements to the Lower Village including a village-friendly bylaw; inclusion in the National Register**	1.833	Low

12	6	**Formulate a Demolition Delay Bylaw and evaluate areas of town for implementation.**	1.833	Low
13	5	**Explore protection of the Town Center through possibilities such as a historic district, conservancy overlay district, demolition delay bylaw, Mass historic inventory**	1.666	Low
14	4	**Facilitate creation of a town committee, perhaps working in cooperation with the Agricultural Commission, to develop a bureau of tourism and actively market what Stow has to offer, including the promotion of local products and recreation.**	1.5	Low
15	6	**Educate the public on the benefits of open space.**	1.5	Low

The next chart contains some of the same information organized instead by chapter. Intentionally omitted from this chart is a recommendation on which department or board or committee should likely be tasked with the responsibility of implementing the priority. There is a constant fluctuation of available resources, volunteer and staff capacity, and other emerging needs. Given this reality, the Master Plan Committee felt that the implementation team, in conjunction with the Town Administrator is best suited to assign priorities to responsible parties. Nonetheless, the chart can serve as a good starting point to begin to discuss these tasks with the various boards and committees who will likely be drawn into the work. Feedback from those involved should inform the implementation team on how it should proceed.

Also included in this chart is the proposed or anticipated timeline for implementing the various tasks. This too is subject to feedback, changing conditions, and further information that might provide insight into the need to accelerate or increase when a project gets implemented.

Also included in this chart is the proposed or anticipated timeline for implementing the various tasks. This too is subject to feedback, changing conditions, and further information that might provide insight into the need to accelerate or increase when a project gets implemented.

FIGURE: 31 Chapter Priorities

Ch.	Task	Average Time Frame	Time Frame
3	**Conduct ongoing community outreach to continue to inform local leaders and residents on the importance of affordable and work force housing and to present information on local housing initiatives.**	1.166	Short
3	**Establish a reasonable fee to the Town for peer review services from applicants of comprehensive permits per requirements set forth in 760 CMR 56.05 and 56.06.**	1.333	Short
3	**Monitor and maintain affordability of the Subsidized Housing Inventory to avoid loss of individual units as they come up for resale.**	1.333	Short
3	**Help qualifying residents access housing assistance including a wide range of programs and services for counseling, support with housing-related expenses, and home improvements.**	1.5	Short
3	**Modify the Comprehensive Permit Policy (December 2002) to provide more explicit architectural design guidelines, emphasize acceptable density ranges, be consistent with new state guidelines and better reflect housing strategies and production goals. Also, the Comprehensive Permit Policy should be revisited to determine if the conclusion that the most "acute" need is rental housing for all income levels and to determine if this is still what the Town wants.**	1.666	Medium
3	**Modify zoning to allow residential development under more conditions that would increase the diversity of housing types and choice, integrating affordable housing into more areas as well. For example, the Town could consider allowing free-standing multi-family housing, creating an overlay district with incentives for the development of "cottage housing", etc.**	1.666	Medium

Ch.	Task	Average Time Frame	Time Frame
3	**Modify the inclusion of affordable housing zoning bylaw (2003 Annual Town Meeting) to allow more housing types in such developments, including a more reasonable restriction on multi-family housing; insert more specific density provisions to permit a specified amount of units beyond what would be allowed in a conventional plan and sufficient to fully offset the costs of the affordable units; provide for a percentage of homes affordable to "below-market" households, i.e., households with incomes 81-110% of area median income. Also, modify the fee in-lieu-of provision to more accurately reflect the Town's cost to provide affordable housing units.**	1.666	Medium
3	**Modify or replace existing regulations for Planned Conservation Development to include incentives for affordable housing (PCDs are subject to inclusion of affordable housing) and several other provisions to strengthen the bylaw and make it more responsive to more current needs and priorities. For example, density incentives could be added to the PCD bylaw. Also, the Town should look at the provisions in the model bylaws developed by the Metropolitan Area Planning Council and other organizations.**	1.666	Medium
3	**Offer predevelopment funding through CPA funds to ensure that the development will be feasible, particularly given site conditions.**	1.666	Medium
3	**Consider obtaining resources to help with implementation of the Housing Production Plan 2010" document by hiring, sharing or using consultants.**	1.833	Medium
3	**Support permitting as appropriate, to expedite approvals and lend local support during the permitting process on affordable housing developments.**	1.833	Medium

Ch.	Task	Average Time Frame	Time Frame
3	**Capitalize the Stow Municipal Affordable Housing Trust through a number of resources, including payments through the fees in-lieu of actual units, private donations of land and funding, and negotiated fees from developers. In addition, the Community Preservation Committee could be asked to make a recommendation at Annual Town Meeting to allocate the 10% required funding for affordable housing to the Affordable Housing Trust Fund for a specific project. This will allow the Stow Affordable Housing Trust to respond quickly to new affordable housing opportunities without having to wait for the next Town Meeting for fund allocation approval.**	2	Medium
3	**Create an inventory of land parcels that are potentially suitable for some amount of affordable/work force housing, mixed income, or mixed use development. This action also includes integrating affordable housing into the Open Space and Recreation Plan. (Part of this task has already been completed by the Land Use Task Force. Refer to their 2009 report for the details.)**	2	Medium
3	**Provide suitable public property for development as the contribution or "bargain sale" of land owned by the Town or other public entities but not essential for government purposes.**	2	Medium
3	**Provide gap financing to leverage project financing as such funding. Typically CPA money in the case of small towns, often provides the last "gap filler" to make projects feasible and the key leverage to secure necessary financing from state and federal agencies as well as private lenders.**	2	Medium
3	**Continue to pursue the Affordable Housing Deed Restriction Program that has been funded with $250,000 in CPA funds to purchase deed restrictions from lower income property owners, converting these units to long-term affordability upon resale. A priority should be the purchase of permanent deed restrictions on the Elm Ridge homes and Plantation Apartments.**	2.155	Long
4	**Establish Lower Village Mixed-Use Overlay District.**	1.2	Short
4	**Establish Gleasondale Mill Mixed-Use Overlay District.**	1.4	Short
4	**Work with owners of commercial properties that do not meet DEP compliance standards and monitor those that might be on the verge of noncompliance to see how they can be assisted in securing DEP approval.**	1.5	Short

Ch.	Task	Average Time Frame	Time Frame
4	**Identify the appropriate smart growth principles that are applicable to Southwest Stow and methods to achieve those principles.**	1.6	Short
4	**Evaluate Zoning and consider modifications for parcels in the Industrial District in and around Minute Man Air Field to promote lower-intensity uses such as support facilities for cleaning or landscaping services/ businesses, or small light industrial facilities, incubator businesses and commercial recreation.**	1.6	Short
4	**Work with Planning Board to consider developing peer review guidelines and having peer review consultants at-the-ready or "on-call" to assist when large projects come up.**	1.666	Medium
4	**Engage those with diverse perspectives to participate in dialog about appropriate ways to improve economic development.**	1.666	Medium
4	**Implement Smart Growth Principles in Northwest Stow including compact development, preservation of the environment, and conservation of natural resources.**	1.8	Medium
4	**Facilitate creation of a town committee, perhaps working in cooperation with the Agricultural Commission, to develop a bureau of tourism and actively market what Stow has to offer, including the promotion of local products and recreation.**	2.333	Long
5	**Pursue zoning and bylaw changes to limit development on the lake.**	1.4	Short
5	**Actively pursue improvements to Lake Boon problems by educating residents about key environmental issues especially use of fertilizers and products containing phosphorus, proper septics maintenance, well water quality, etc.**	1.5	Short
5	**Encourage the DEP to fund follow-up studies of non-growing season phosphorus discharge and its role in the overall nutrient budget of the river.**	1.5	Short
5	**Discourage teardowns.**	1.666	Medium

Ch.	Task	Average Time Frame	Time Frame
5	**Stay engaged in ongoing discussions and studies such as the Assabet River Study Coordination Team and maintain an active role in any future studies initiated.**	1.666	Medium
5	**Identify sources and develop strategies to mitigate excess of phosphorus in Elizabeth Brook during high-water, wet weather conditions.**	1.666	Medium
5	**Explore improvements to the Lower Village including a village-friendly bylaw; inclusion in the National Register.**	1.833	Medium
5	**Find ways to preserve existing structures.**	2	Medium
5	**Continue efforts to procure funds and work collaboratively with SCT and other groups to complete the Emerald Necklace trail.**	2.166	Long
5	**Continue procuring parcels and working with property owners to establish contiguous access as a right-of-way to the Rail Trail.**	2.333	Long
5	**Restrict total number of new building permits.**	2.333	Long
5	**Limit square footage of new development to protect against overbuilding.**	2.333	Long
5	**Explore protection of historic homes and buildings through possibilities such as a historic inventory; zoning/bylaw changes to discourage teardowns; restrict rebuilds.**	2.333	Long
5	**Explore protection of the Town Center through possibilities such as a historic district, conservancy overlay district, demolition delay bylaw, Mass historic inventory.**	2.5	Long
6	**Protect and preserve the health of Lake Boon.**	1.5	Short
6	**Protect lands that will preserve Stow's "rural character"**	1.6	Short
6	**Implement a Golf Course Study with a goal to protect existing scenic vistas and evaluate the preferred method of future development on those parcels.**	1.666	Medium
6	**Change Planned Conservation Development bylaw to require that the open space be designated prior to determining where the homes will be sited.**	1.666	Medium

Ch.	Task	Average Time Frame	Time Frame
6	**Educate the public on the benefits of open space.**	1.666	Medium
6	**Protect Open Space in Southwest Stow.**	1.833	Medium
6	**Expand recreation/conservation district zoning to establish Wildlife Habitat corridors which will ensure the continued movement of wildlife as lands are developed. These important parcels should be protected with conservation restrictions.**	2	Medium
6	**Implement a new bylaw requiring sewage package treatment plants for parcels in the Water Resource Protection District.**	2	Medium
6	**Formulate a Demolition Delay Bylaw and evaluate areas of town for implementation.**	2	Medium
6	**Foster pedestrian mobility through the implementation of sidewalks and other planning strategies.**	2	Medium
6	**Limit the alteration of trees and stonewalls along Stow's scenic roadways by adopting the Scenic Roads Preservation Bylaw.**	2	Medium
6	**Obtain prior Town Meeting approval to purchase key open space parcels when they become available.**	2	Medium
6	**Obtain prior Town Meeting approval to purchase key open space parcels when they become available.**	2	Medium
6	**Appoint a committee to explore building a mutigenerational community center.**	2	Medium
6	**Complete the Rail Trail by linking existing trails.**	2.166	Long
6	**Identify issues and opportunities for recreation on, and additional conservation of Crow Island.**	2.166	Long
6	**Acquire and preserve land for future active and passive recreation needs.**	2.666	Long
6	**Complete the Stow Emerald Necklace by linking or creating trails.**	2.666	Long
7	**Set money aside in the near future for a feasibility study to evaluate the re-use options for the Pompositticut School facility.**	1.166	Short

Ch.	Task	Average Time Frame	Time Frame
7	**Explore arrangements with private water suppliers and work collaboratively with appropriate private entities to expand water supply to schools, municipal facilities and private users.**	1.166	Short
7	**Undertake outreach program to educate residents in the Lake Boon neighborhood to decrease phosphorus contamination by reduce fertilization of lawns and gardens and to reduce the use of phosphorus-laden detergents (in laundry and dishwashing) and other contaminants that enter the lake and groundwater through run-off and/or infiltration from septic systems.**	1.333	Short
7	**Undertake a limited personnel study that would include evaluation of existing Town Hall administrative and planning positions, analyze job descriptions, compare duties to towns of similar size and wealth and interview boards about capacity issues.**	1.666	Medium
7	**Further evaluate septic system policy in Lake Boon neighborhood, with special consideration to the following: building limitations or moratoriums on new homes; public water or sewer system; zoning changes; etc.**	1.666	Medium
7	**Increase stabilization fund balance to approximately $1 million to cover for unexpected events and to minimize disruption to services during economic downturns.**	2.166	Long
8	**Monitor and participate in decision making on opportunities for expanded transit service through MART or MBTA.**	1.4	Short
8	**Pursue means to connect the northern end of the Stow Assabet River Rail Trail with the Rail Trail in Maynard and the southern end with the Hudson Rail Trail while state and federal funding are still available to do so.**	1.5	Short
8	**Explore opportunities for funding of roadway projects through the Boston MPO including designating a staff person to act as the municipality's TIP Coordinator.**	1.6	Short
8	**Participate actively in the efforts of the MAGIC study to evaluate whether or not bus rapid transit (BRT) could be developed in conjunction with the proposed rail trail slated to be built on the MassCentral Branch Railroad and follow closely the possibilities and recommendations that could come out of this study.**	1.666	Medium

Ch.	Task	Average Time Frame	Time Frame
8	**Pursue funding for further steps that would follow up on the recent Lower Village traffic study, such as a feasibility study and preliminary design, through either grant opportunities or other municipal appropriations.**	1.666	Medium
8	**Pursue participation in the state's Safe Routes to School program**	2	Medium
8	**Pursue the development of a town-wide Traffic Calming policy and include in it the preferred construction form of crosswalk treatments appropriate for various types of roadway crossings**	2.2	Long

Chapter 11

Appendices and Supplemental Information

CHAPTER 11: Appendices and Supplemental Information

Some items as noted are contained in hard copy in a separately bound appendix. For more information or to request hard copies of the appendix and/or the entire Master Plan, please contact the Planning Department at:

Town of Stow
Planning Department
380 Great Road
Stow, MA 01775
(978) 897-5098
planning@stow-ma.gov

A. Acronyms and Abbreviations

AAN	Active Adult Neighborhood
APR	Agricultural Preservation Restriction
BMP	Best Management Practices
BOH	Board of Health
BOS	Board of Selectmen
CC	Conservation Commission
CIP	Commercial, Industrial, and Personal Property
COA	Council on Aging
CPA	Community Preservation Act
CPC	Community Preservation Committee
CPI	Consumer Price Index
DCS	Division of Conservation Services
DEP	Department of Environmental Protection
DHCD	Department of Housing and Community Development
DIF	District Improvement Financing
EPA	Environmental Protection Agency
HAC	Housing Appeals Committee
HUD	U.S. Department of Housing and Urban Development
LID	Low Impact Development
LIP	Local Initiative Program
LOS	Level of Service
MAPC	Metropolitan Area Planning Council
MGL	Massachusetts General Law
MHC	Massachusetts Historical Commission
MP	Master Plan
MPC	Master Plan Committee
OAR	Organization for the Assabet River
OSC	Open Space Committee
OSRD	Open Space Residential Design
PCD	Planned Conservation Development
PMSA	Primary Metropolitan Statistical Area
ROW	Right of Way
SCC	Stow Cultural Council
SCHC	Stow Community Housing Corporation
SCT	Stow Conservation Trust
SEHC	Stow Elderly Housing Corporation
SHA	Stow Housing Authority
SHI	Subsidized Housing Inventory
SMAHT	Stow Municipal Affordable Housing Trust
SVT	Sudbury Valley Trustees
TDR	Transfer of Development Rights
TIF	Tax increment financing
ZBA	Zoning Board of Appeals

B. Build Out Analysis

Potential Build Out - In the year 2000, the Executive Office of Environmental Affairs (EOEA) published a projection for the Town of Stow showing the potential build out given the existing zoning bylaws and undeveloped land. At build out, Stow's population will be 9,582 residents vs. our present 6,385 residents with a school population of 1,726 students vs. our present population of 1,148 students. Dwelling units will increase from the present 2,300 to 3,447. This does not count the dwelling units permitted under Stow's Active Adult Neighborhood Overlay District (the underlying district is industrial or commercial) and Chapter 40B developments, which are not considered by the EOEA. The detailed projections can be viewed at the EOEA website.

The following is a brief tabulation of the build out results:

Demographic Projections

Population		
1990	5,328	people
2000	5,902	people
Build out	9,482	people
Students		
1990	884	students
2000	1,027	students
Build out	1,726	students
Households		
1990	1,793	dwellings
2000	2,128	dwellings
Build out	3,447	dwellings
Water Use (gallons/day)		
1990	79,128	gallons
Build out	595,043	gallons
Build Out Impact		
Additional residents	3,689	people
Additional school children	699	children
Additional residential units	1,319	dwellings
Additional developable land area (acres)	2,857	acres
Additional solid waste (tons/year)	1,888	tons
Additional roadways at build out (miles)	30	miles

C. *Additional appendix items contained in separate volume:*

1. **Density Through Design**
2. **Stow Reconnaissance Report (Landscapes Heritage project)**
3. **Chapter 61 policy, adopted by the Board of Selectmen**
4. **Listing of properties with Chapter 61 status**
5. **"Right to Farm" General Bylaw**
6. **Recreation Commission's Report to Land Use Task Force - March 2009**
7. **Open Space and Recreation – "Stow Forever Green" - June 2008**
8. **Elementary School Master Plan - "Stow Public Schools" - May 2007**
9. **Community Development Plan - 2004**
10. **"Housing Choice - A Housing Plan for Stow"**
11. **Mixed Use Zoning Project, Priority Development Fund Project - 2005**
12. **Visual Preference Survey – 2005**
13. **Land Use Task Force Final Report – 2009**
14. **Recreation Department Master Plan – 2007**

D. *Maps & Visuals*

Larger-format and/or color versions of the maps and figures presented in this document can be viewed at the Planning Department.

Stow Master Plan Update

Appendix 1-8

Volume 1 of 2

Adopted by the Planning Board, November 7, 2010

Appendix Index

APPENDIX 1

Density Through Design

Volume 1

DENSITY through DESIGN

Design Recommendations

Sudbury & Medway

Volume I consists of two separate design and regulatory recommendation reports for:

Sudbury, Massachusetts

Medway, Massachusetts

This project was a collaboration between students of regional planning, landscape architecture and architecture at the University of Massachusetts Amherst. It was directed by Professors Elisabeth Hamin and Dean Cardasis who were assisted by Michael DiPasquale of the CPTC and Nedim Kemer.

The project was funded by a grant from the 495/MetroWest Corridor Partnership.

SUDBURY DESIGN RECOMMENDATIONS / Executive Summary

The following report is the product of a studio project developed by the Department of Landscape Architecture and Regional Planning at the University of Massachusetts-Amherst, in conjunction with the 495/MetroWest Corridor Partnership and the Town of Sudbury, Massachusetts. Central to our assignment was to develop an innovative design and regulatory solution for the Melone property in Sudbury Massachusetts. Because the Melone Property is a gravel pit expected to be totally excavated within two years, Sudbury has selected it as a prime location for future development. The development of this site served as a vehicle to address the core issues of the study, which are: increasing residential density, providing workforce housing options, and encouraging environmentally sustainable development.

We found Sudbury to be a community well aware of the need for lower cost workforce housing, and open to ideas on how to manage it. Sudbury is predominately made up of single-family homes, and the average home price at $681,000 is well out of range to even someone earning the local median household income of $130,000. Development of the Melone Site provides the town with the opportunity to address the issues of density, workforce housing and sustainability.

The findings in this report represent research including: an extensive site analysis of the physical and working conditions of the parcel; site visits to photograph, sketch, study and assess the site; conceptual design work to model existing conditions and preliminary concepts; a market analysis to study the existing economic, housing and school costs of Sudbury; a regulatory analysis to examine existing Bylaws, Subdivision Regulations and the Master Plan; interviews and meetings with local planning officials and stakeholders as well as experts from the Metropolitan Area Planning Council. Close contact was also kept with the town and planning officials from Sudbury.

The site analysis shows that the Melone property has amenities that make it a prime location for residential development. Once excavation is complete, the site will offer a “blank slate” for development. Abutting wetlands and conservation area are some of the natural features the area has to offer and trailheads to these areas lead right up to the site. The unique slopes of the Melone site will offer protection from cold northwest winter winds, and offer maximum solar orientation and spectacular views. Our market analysis suggests that a project with lower-cost but well-designed homes could be highly successful in the marketplace.

The regulatory recommendations made by this study strive to help Sudbury's housing goals align with the vision documented in their Master Plan (2001), which encourages a greater diversity of housing opportunities in the town. Our report recommends the following:

- "Sustainability" Overlay Zone
  - A new overlay zone to promote smaller, more ecologically efficient houses to reduce the financial burden of rents and mortgages.
- Inclusionary Zoning
  - A broader approach to inclusionary zoning, creating a provision for workforce housing rather than only statutorily-affordable housing.
- Amendments to the Cluster Development Bylaw
  - The integration of attached housing to encourage a diverse housing stock and provide for different household sizes and as well as household incomes.
- Accessory Apartment Dwelling Units.
  - Amending the current bylaws and creating incentive programs to stimulate the development of Accessory Dwelling Units, and maximize their potential as an option for workforce housing.

While these recommendations are designed for Sudbury we believe that they will be applicable to other communities within the I-495 corridor.

Two different design schemes for the Melone property have been created. Both design concepts maximize open space and increase density through sustainable measures. The Drumlin Scheme remains true to the historic architectural of Sudbury, arranging the architecture and vegetation to form a connection of large, open spaces and smaller community spaces. The Orchard Scheme brings more contemporary feel to the site. A grid arranges the architecture, and a path system provides capillary movement to large, open terraces, while affordability is enhanced by using modular dwellings.

Figure A: *Architectural concept*

Figure B: *Typical neighborhood clusters*

Through our recommendations and research, our team aspires to increase the diversity and density of the housing stock in the town of Sudbury through sustainable design and the preservation of community character. By using the Melone property as a pilot project for what density can look like in the MetroWest region, we seek to encourage other communities within the corridor to undertake similar projects.

MEDWAY DESIGN RECOMMENDATIONS / Executive Summary

Medway, Massachusetts, is one of dozens of municipalities in I-495/MetroWest corridor experiencing a shortage of low- to moderately-priced homes. This lack of "workforce housing" poses financial hardships for residents and discourages companies from locating in the region. As a result, communities in the region have witnessed an exodus of young professionals and families during the last decade. Without new solutions to this problem, Massachusetts' economy and quality of life are at risk.

This report offers an innovative design for a workforce housing development at a 100-acre site in Medway, supported by market analysis, regulatory recommendations and implementation strategies. It has been generated during a graduate level interdisciplinary studio at the University of Massachusetts at Amherst involving students and faculty in regional planning, landscape architecture and architecture. The work was completed as part of a unique collaboration with the Arc of Innovation/495 MetroWest Partnership, which represents the interests of Medway and 31 other municipalities in the region. While the site design and recommendations offered are specific to Medway's Oak Grove Bottle Cap Lots site, the lessons are of value to many communities in the region.

The Problem

Homes are Unaffordable and Don't Meet the Needs of the New Century

Massachusetts housing costs are very high, forcing many residents to move out of state; between 2000 and 2005, the population of 25- to 34-year olds in the Commonwealth declined by 82,572 (U.S. Census). Retention of this group is crucial for high tech and corporate employers to remain competitive. In Medway, the average home price has risen from $166,500 in the 1990s to $430,000 in 2005. Medway is 189 units short of meeting the 10% affordable goal set by Massachusetts General Laws Chapter 40B (U.S. Census 2000). Those earning above the maximum to qualify for affordable housing also face housing challenges. "Work force housing" buyers, such as teachers, nurses and fire fighters can only afford houses priced at approximately $170,000 (Bureau of Labor Statistics, Warren Group, & Ginnie Mae Foundation).

Along with lower prices, different housing styles will be needed by the future residents of Medway. Currently, 81% of units in Medway are single family detached (U.S. Census 2000). Medway's 55-plus population is expected to grow by about 2,000 people by 2030 (MAPC 2004). Married couples with children are no longer the majority household in the U.S. Today, 76% of all households are single

parents, and singles or couples without children (U.S. Census 2000). Taken together, these trends demonstrate a strong need for smaller, more affordable homes.

Lack of Tax Base Diversity

In Medway, homeowners bear a much larger share of the municipal budget than the average town (Town of Medway, Assessors Database; Municipal Finance Task Force 2005). This is a concern because typically every residential tax dollar received requires that a town pay out $1.19 worth of services--whereas for every commercial and industrial tax dollar received, the town provides only $.29 worth of services (American Farmland Trust 2000).

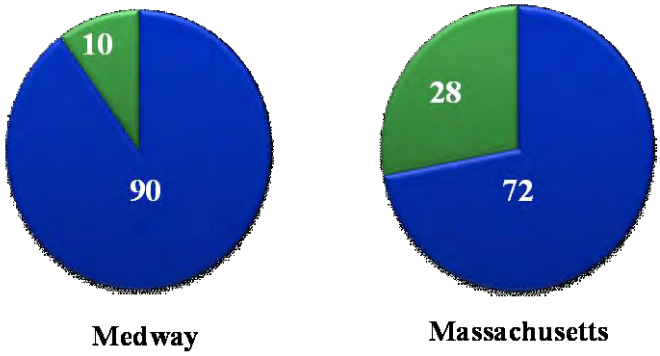


Figure C: *Residential (blue) versus commercial (green) share of municipal budget*
Source: Town of Medway, Assessors Database, Municipal Finance Task Force 2005

Outdated Zoning

Mandatory large-lot (one house per acre and higher) zoning poses a significant barrier to the creation of affordable housing. Land costs are high and costs are passed on to homebuyers. Mixed-use zoning can lessen auto dependence, use existing infrastructure, create a lively community and widen retail customer bases, yet few municipalities in the 495 Corridor have zoning to allow this flexibility of uses.

Proposed Solutions

Workforce Housing with a Traditional Neighborhood Density

Oak Grove Village is a workforce housing proposal for the 100-acre Bottle Cap Lots site along Route 109 at Medway's western border. It includes 180 two- and three-story townhouses at 10 units/acre and 120 apartments at 15 units/acre. This density is similar to neighborhoods built immediately before and after World War II. The proposed homes are affordable and reasonably-priced market-rate units with attractive architecture that incorporates sustainable materials and features. Connectivity is provided with a proposed transit connection to commuter rail (at the Franklin MBTA station), walkable streets, sidewalks and hiking trails. Sustainability is enhanced by maximizing solar gain and low-impact on-site storm

water management. The proposal includes a high percentage of publicly accessible open space, provided through the preservation of existing woodland and the creation of parks and plazas.

Figure D: *Traditional neighborhood density in a wooded context in Medway*

Mixed-Use and Industrial Development

Adjacent to Oak Grove Village is approximately 200,000 square feet of proposed industrial space and 185,000 square feet of proposed commercial, retail and office space. The property tax revenue from this build out would help to reduce the tax burden on homeowners.

The design proposes enhancing Route 109 as the western gateway to Medway with attractive mixed-use office, commercial, retail and apartments. Because market fluctuation is difficult to predict, this approach provides flexibility that will be a future asset. Continuing the industrial portion of the site to the south is crucial for maintaining and enhancing the presence of Medway's largest employer, Cybex, an exercise equipment manufacturer. While the commercial/industrial markets have been challenging in recent years, market research shows improvement, with positive absorption, declining vacancies and growing asking rents for industrial, retail and office sites in 2007 in the Route 495 sub-region (Grub and Ellis).

Figure E: *Mixed uses: commercial below: residential above*

Regulatory Recommendations

Oak Grove Village could not be permitted under Medway's existing zoning regulations. Therefore, two regulatory options are offered: a Mixed Use Overlay and a Form-based Overlay. Both options:

- Facilitate the implementation of the recommended site design.
- Offer developer incentives, such as density bonuses and mixed-use tenant flexibility.
- Maximize the new sewer infrastructure to be built by the Town.

The proposal illustrates the potential of sites outside town centers to qualify as "Smart Growth Districts" under Massachusetts Chapter 40R program, which may include reimbursement for additional public school costs from new pupils.

Recommendations for Community Engagement and Implementation

A key challenge to implementing the proposal will be achieving a two-thirds rezoning vote at a Town Meeting. Therefore, our recommendations focus on raising community awareness of workforce housing needs, communicating the benefits of the plan and building coalitions. The Town can utilize Requests for Proposals (RFPs) as opportunities to set the agenda. Engagement at the regional and state levels includes promoting appropriate eligibility requirements and securing funding for 40R and 40S, as well as promoting zoning reform legislation (Community Planning Act II.)

Conclusion

As land becomes more scare and expensive, developing at low densities will be increasingly impractical. Building at greater densities is one of the best strategies for reducing land costs and accommodating growing populations while reducing development pressure on natural areas.

This workforce housing proposal would allow Medway to better serve its current and future residents and prepare for demographic changes. This report provides research and analysis that show how new development at traditional neighborhood densities can be marketable, politically feasible, and environmentally sustainable.

ACKNOWLEDGEMENTS

This studio report was produced through an extraordinary collaboration between the 495/MetroWest Corridor Partnership, the Town of Medway and the Department of Landscape Architecture and Regional Planning at the University of Massachusetts at Amherst. The students wish to thank the people who gave generously of their time and resources to ensure the studio‘s success. These include Andy Rodenhiser, Suzy Affleck-Childs, Glenn Trindade, Chan Rogers, Dennis Crowley and other officials from the Town of Medway; Ron Roux, Mark Kablack, Kathy Joubert, Senator Pamela Resor, David LaPoint and the other members of the Studio Review Committee of the 495/MetroWest Corridor Partnership; and Paul Matthews, Executive Director, and the entire staff of 495/MetroWest Corridor Partnership. We extend special thanks to Adam Ploetz, Manager of Sustainable Programs of Partnership, for his strategic guidance throughout the studio process.

Finally, we extend great thanks to our instructors, Elisabeth Hamin, Dean Cardasis and Michael DiPasquale, as well as our teaching assistant, Nedim Kemer and other LARP faculty who have offered comments and critique along the way, for giving us the opportunity to address and better understand workforce housing, an issue that affects the quality of life for people throughout Massachusetts.

TABLE OF CONTENTS

1. INTRODUCTION

1.1. Impetus for project

Encouraging relatively dense suburban development in the 495 corridor is the focus of the ongoing study sponsored by the 495/MetroWest Corridor Partnership. The Partnership is a business-civic organization that "promotes economic vitality and sustains natural resources while enhancing the quality of life in the 495/MetroWest region."

Central to the economic vitality and quality of life for the region known as the "Arc of Innovation" is affordable housing for a wide range of incomes and lifestyles.[1] For this reason, the Partnership recently sponsored the "Suburban Residential Development Density Project." Communities interested in participating in this study submitted a letter of interest, which outlined the steps they have made to address the current housing crisis in their community and the reasons they would benefit from being included in this project. The town of Medway was chosen as an initial participant by the 495/MetroWest Corridor Partnership.

The Partnership contracted with the Department of Regional Planning and Landscape Architecture at the University of Massachusetts-Amherst to complete a studio project that would perform two primary responsibilities throughout the spring semester:

1. Research aspects of higher density developments.

2. Design an attractive higher density development for the towns of Medway and Sudbury.

During the first half of the semester, the following steps were completed for the research aspect of the project:

- Regulatory barriers that impede higher density housing from being constructed
- Driving factors behind community opposition to density
- Innovative design techniques that address the challenge of developing higher density housing that will be both successful in the marketplace and sustainable
- Precedents throughout the U.S. that show how municipalities have addressed public fears about density and how innovative zoning regulations allow for greater density

[1] The "Arc of Innovation" is defined by Route 9 and I-495 from Route 1 to Route 2. This region contains thirty-two communities and half a million residents. In addition, it hosts the headquarters of numerous national corporations and has an annual payroll of $13.5 billion, second only to Boston in Massachusetts.

This report focuses on the design phase of the work that was completed during the second half of the Spring 2007 semester. The goal was to develop recommendations for the town of Medway and its chosen site based on the above research, which could then be applied to the rest of the 495 region. To meet this goal, an analysis of the site; market, demographic, and employment trends; laws and regulations; and implementation strategies and community process was conducted. This research and analysis provides the foundation for a recommended new development that will be marketable, politically feasible, and responsive to the site.

1.2. Context

Medway is faced with the problem of accommodating more affordable workforce housing in a market that does not support affordability. The average school teacher, nurse, and fireman can afford to spend just under $200,000 on a home at their current salaries (Ginnie Mae Foundation, Bureau of Labor Statistics). With home sales in Medway averaging around $430,000, this means housing remains unaffordable to a large segment of the population by more than $200,000 (Warren Group). This problem will likely become even more accentuated since housing costs and Medway‘s population are both expected to increase in the future (State of the Nation‘s Housing 2006, MAPC 2004). The current growth pattern—low density, large-lot zoning—will not accommodate the increasing population. Instead inefficient land consumption continues to drive up housing costs and drives the workforce out of the MetroWest region. Medway‘s financial situation only adds to the affordability problem. Ninety percent of the town‘s tax base comes from residential property taxes. Medway town officials have stressed the importance of redistributing the tax base in order to take the burden off of the growing residential population. In order to maintain this workforce and remove the tax burden from the residents, more mixed-use, compact, and affordable development must be constructed.

1.3. Description of Medway

The town of Medway is located approximately twenty-two miles southwest of Boston between I-495 and MA-128 in the MetroWest region. It is bordered by Milford to the west, Holliston to the North, Millis to the east, and Norfolk, Franklin, and Bellingham to the south. According to the US Census, ninety-seven percent of the population identified as being white, the median household income was around $75,000, ninety percent of residents drove to work, and forty-five percent of adults had at least a Bachelors Degree.

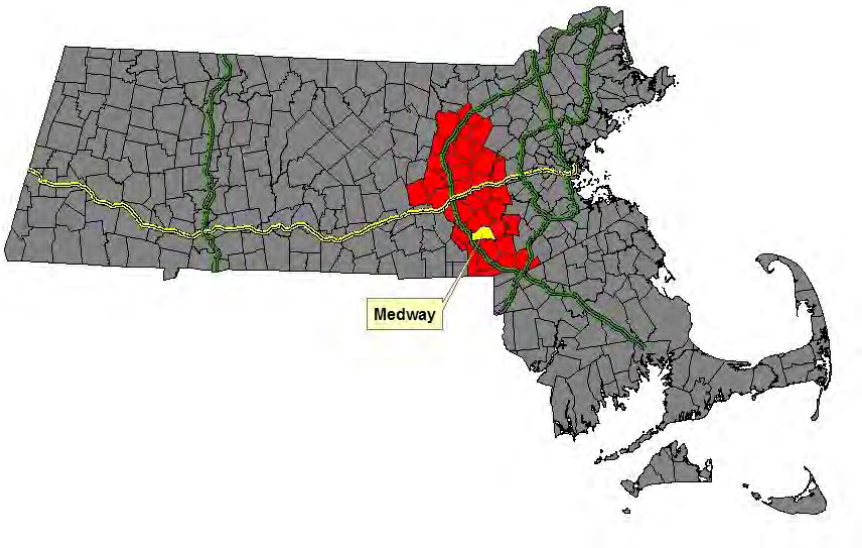


Figure 1: *Medway locus map (Source:MassGIS)*

Medway was incorporated in 1713. The earliest nodes of development occurred along the Charles River, which runs along the town‘s southern border. Development occurred first in the village of Medway, where the town hall is, and later spread to the village of West Medway, which currently contains the town‘s only historic district.

Figure 2. *Town of Medway and its Two Village Centers*
(Source:MassGIS)

Because of their position along the Charles River, the two village centers naturally developed into manufacturing centers. Factories were erected, including the characteristic New England textile, straw, and grist mills. Due to the nature of their products, most of the factories have since burned down. The first period of residential build-out took place during this period of industrial and agricultural growth in the mid-1800s—two and a half story farmhouses with attached barns serve as representative examples (Hoag 2007).

In the next century, a shift occurred from agricultural and industrial land usage toward primarily residential. Medway experienced a post-WWII housing boom, which transformed the landscape of Medway. Agrarian tracts of land were subdivided for the construction of single family detached homes. The most recent build-out took place in the 1990's. Residential homes grew in square footage and began to sit on larger lots with increased setbacks. Many new service buildings were also constructed such as a new police and fire station (Hoffman, 2007).

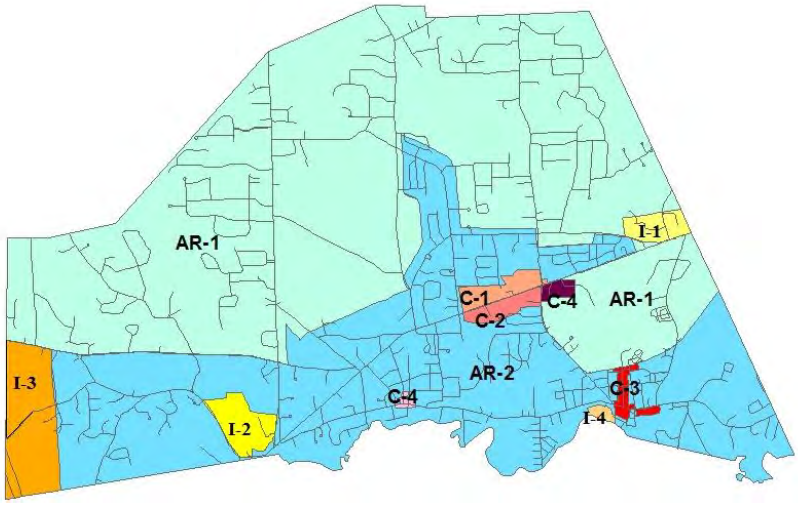


Figure 3. *Medway Zoning Districts (Source:MassGIS)*

Currently, ninety percent of Medway is zoned residential (MassGIS). The residential zones are indicated in blue (Figure 3). Agricultural and Residential I (light blue) is zoned for single family homes at one unit per acre. Agricultural and Residential II (darker blue) allows a slightly higher density at two units per acre or duplexes at two and a half units per acres. Only 10 percent of land in Medway is zoned for industrial and commercial use. The industrial zones are shown in yellow and orange. The Cybex plant, an exercise equipment manufacturer, is located within the largest industrial zone in Medway, Industrial

district III. They are very important to the area since seventy percent of their employees reside in Medway or surrounding towns (Wright). The last type of zoning in Medway is commercial, shown in red and pink (Medway Zoning Bylaw & Map).

This kind of large lot zoning is neither sustainable nor affordable. The landscape of Medway changed considerably from 1971 as agrarian tracts of land have been subdivided for the construction of single family detached homes that sit on large lots. By 1999, forty percent of the land in Medway was used for housing. Less than one percent of this of this number was comprised of multi family housing (MassGIS).

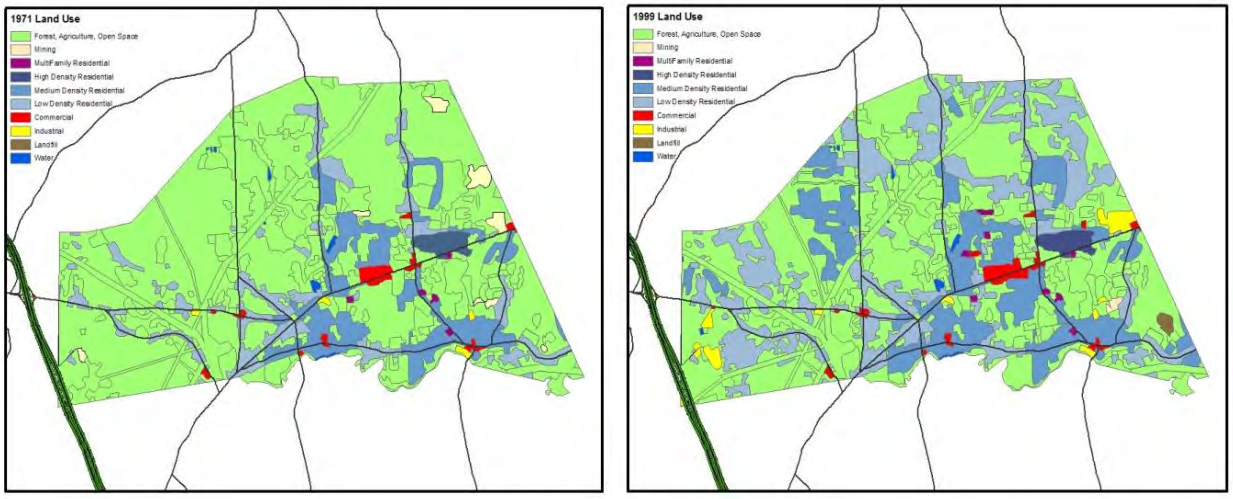


Figure 4. *Medway Land Use Change, 1971-1999 (Source:MassGIS)*

A build-out analysis done by Executive Office of Environmental Affairs in 2001 stated that 5,658 more people can be accommodated through current zoning. If Medway does not want to reach maximum build-out by the mid-21st century then the town needs to encourage denser patterns of development.

1.4. Site Orientation

The site chosen by town officials in conjunction with the Arc of Innovation has the opportunity to be a model for how density could be designed in an environmentally, economically and socially sustainable way. It is located at the Medway/Milford town line just east of Interstate 495. It is bordered by Route 109 to the North, West St. to the east and Alder St. to the south. Trotter Drive runs north-south through the site, providing access to the Cybex facility and other industrially zoned land.

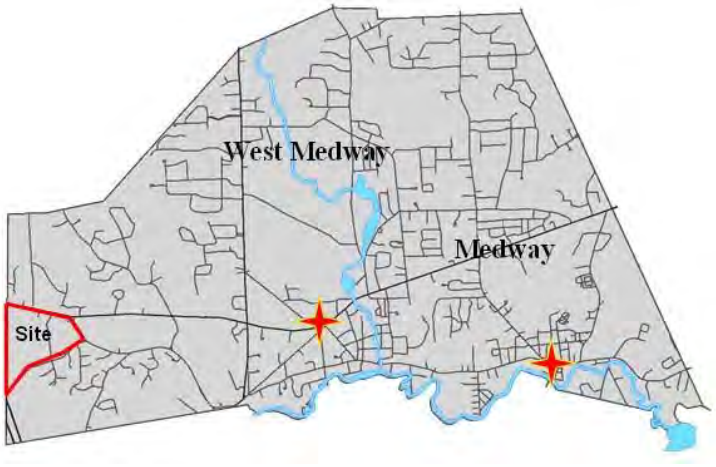


***Figure 5**. Site in relation to Medway village centers (Source: MassGIS)*

Many of the parcels on the site are very small, in fact 242 parcels are under 1,000 square feet. The Clicquot Club, a soda company founded in nearby Millis in 1881, gave away these individual tracts to consumers with a winning soda bottle cap during a beverage contest in the 1920s. The ―Bottle cap Lots" can be found on either side of Trotter Drive, mainly aligning with Route 109 (Milford Street) to the north and West Street to the east (Town of Medway). In order to further describe and explain the site, Chapter 4 will provide an in-depth site analysis. Before the site analysis, it is first important to show the methodology and market research (Chapter 2 and Chapter 3) used to establish the concepts for the site design.

***Figure 6:** Remaining Bottle Cap Lots, Medway (Source: MassGIS, Assessors Parcels 2006); Cliquot Club soda can, c. 1920; (Source: Clicquot Club Café).*

2. METHODOLOGY

2.1. An Interdisciplinary Studio with an Emphasis on Community Engagement

Students have had a unique and valuable learning opportunity in this studio because of its interdisciplinary nature and emphasis on community engagement. The most successful development projects involve professionals from several disciplines, including construction, planning, landscape architecture, architecture, engineering and real estate. Professionals need to work together with a mutual understanding of what others are doing and what they strive to gain from the project. The joint nature of this studio has allowed students to experience some of the ways that planners and landscape architects can work together with other collaborators. For example, the site design team was able to respond to the research that the marketing team had conducted and modify the program for the site. Likewise, recommendations for zoning regulations were informed by the site design. Lastly, throughout the entire studio, input from stakeholders in Medway and at the Partnership has largely directed the process to date.

2.2. The Iterative Process

The following steps were taken in an iterative fashion, building from each successive stage:

- Application of research from the first half of the studio
- Stakeholder input via interviews and feedback from presentations
- Data collection, analysis and documentation
  - Market trends
  - Demographics
  - Existing site conditions
  - Existing regulations
- Development of goals, objectives and site program
- Fiscal impact analysis
- Review of best regulatory practices
- Site design development
- Formulation of recommendations
  - Site design
  - Regulatory changes
  - Implementation

2.3. Application of Research

The components of this report, in addition to being interrelated throughout their development, also reflect the application of the research projects from the first half of the semester. For instance, the research

report that presented outstanding examples of higher density neighborhoods such as Radburn, New Jersey helped shape design concepts for the Medway site. The research report on regulatory barriers also affected the development of this plan by determining which regulations would have to be overcome if the design were ever to be implemented.

The research report on community opposition to density provided design strategies to help mitigate concerns related to higher density that have been incorporated in this proposal. For example, it has been shown that access to alternative transit, sidewalks, and mixed-uses are important to the success of denser neighborhoods. A 1999 study in the Journal of Planning Literature entitled "Disentangling the Concept of Density" by Arza Churchman, showed that certain environmental cues serve to reduce perceived density. The cues that were selected for application on this site are the following:

- Visual and functional accessibility from dwelling units to open spaces;
- Division of units into small clusters;
- Fewer dwelling units that use the same building entrance;
- Retention of on-site vegetation as visual and auditory buffers;
- Provision of convenient parking; and
- Varying the shape and proportions of lots.

Another study noted that concerns about safety could be addressed through the careful placement of landscaping and the provision of adequate lighting.

The research report on precedents for achieving greater residential density influenced the regulatory recommendations by detailing the design elements of successful neighborhoods in various regions of the country. This report has been instrumental in the development of the community process recommendations because it discussed how the collaboration of many stakeholders has shaped projects that were satisfying to the greatest number of people. It also detailed specific products that are helpful during the implementation phase of projects.

2.4. Meetings and Presentations

Studio members received and responded to frequent guidance and feedback from Medway community members and the Partnership's Studio Review Committee members. Table 1 below is a listing of meetings and presentations.

Stakeholder(s)	Date	Topic	Location

Arc of Innovation, Adam Ploetz	29-Jan-07	Regional workforce housing project initiation	UMass Amherst
Medway municipal officials	7-Feb-07	Municipal planning challenges and priorities, site orientation	Medway Town Hall, BottLe Cap Lots site
Medway municipal officials	14-Feb-07	Site investigation, municipal priorities	Medway Town Hall, Bottle Cap Lots site
UMass Landscape Architecture and Regional Planning Faculty	14-Mar-07	Presentation of research findings and critique	UMass Amherst
Arc of Innovation Design Review Committee (including Medway officials)	16-Mar-07	Presentation of research findings with committee feedback	Arc of Innovation offices, Westborough
Arc of Innovation Design Review Committee (including Medway officials)	4-Apr-07	Presentation of initial site concept schematics with feedback	Arc of Innovation offices, Westborough
Medway municipal officials, developers, planning board members	11-Apr-07	Presentation of revised site concept schematics with feedback	Medway Town Hall
Arc of Innovation, Adam Ploetz	30-Apr-07	Presentation of regulatory analysis, recommendations, marketing analysis	UMass Amherst
UMass Landscape Architecture and Regional Planning Faculty	9-May-07	Presentation of final design concepts, market and regulatory analysis with recommendations	UMass Amherst
Arc of Innovation Design Review Committee (including Medway officials)	11-May-07	Presentation of final design concepts, market and regulatory analysis with recommendations	Arc of Innovation offices, Westborough

Table 1: *Meetings and Presentations*

3. MARKET ANALYSIS and RECOMMENDATIONS

3.1. Introduction

There are two general purposes of the market analysis: first, to identify future opportunities for growth on the Oak Grove Bottle Cap Lots site, and second, to provide valuable information to the municipal government for use during the process of presenting the site design to the public. Chapter 3 will identify future opportunities for growth on the site, and provide analysis details for the socioeconomic, real estate, and employment characteristics of Medway as well as the most current industrial, retail, and office market trends in the region. This chapter will also discuss costs associated with different housing scenarios and family types and the cost and benefit of various land use scenarios. The analysis will assist the municipality in determining the most realistic and feasible development opportunities that are possible on the site.

This chapter provides recommendations that inform the design of the site, help determine the allocation of building layout and mitigate concerns surrounding development, and finally, provides key information to the regulatory team as they determine zoning changes to accommodate sector-specific growth.

3.2. Housing Market Analysis

Currently the nation is experiencing a slow down in the housing market as new housing sales are dropping significantly throughout the hottest markets in the United States. However, some leading experts believe that the slow down will be short-lived. In 2006, the U.S. economy grew at a slower pace than expected, largely as a result of the sluggish real estate market. According to a study published in 2006 by the Joint Center for Housing Studies, titled *The State of the Nation's Housing*, builders throughout the country have responded to softening markets by scaling back production. For instance, Massachusetts experienced a 5 to 9 percent decrease in single-family home production from 2004-2005 (p. 6). The slow down is being mitigated by the stable growth of jobs and households, strong home appreciation and recovering rental markets.

High Cost of Living in Massachusetts

A recent report prepared by the Center for Urban and Regional Policy at Northeastern University stated that Boston ranks highest in cost of living in the country. A regression analysis was used in the report to show that housing cost is the most significant factor driving the high out-migration and high unemployment levels (Bluestone, 2006). Local zoning regulations enforcing large lot development, impact fees and long permitting processes, and restrictions on land available for residential use, have driven up prices for homes and decreased the incentive for creating affordable housing in the State of Massachusetts (Goodman and Palma, 2004).

It is currently a statewide priority to encourage development of moderately and affordably priced housing in nearly every town in the state. The lack of housing supply in the Commonwealth is another major factor in the high prices of homes. Between 1990 and the year 2000, the number of new households increased by 8.7 percent, while the number of new housing units increased by only 6 percent (Goodman and Palma, 2004). An additional 70,000 homes would have to have been produced in the State of Massachusetts to keep up with demand.

Regional Land Use 1998-2002

Between 1998 and 2002, homes in much of the state were built on average lot sizes of one to two acres. However, the median lot size for multi-family construction was less than .25 acres. This implies that the predominance of single-family homes has driven the low-density development in the town (MIT CRE, 2006).

Medway lies outside of Route 128, a region that utilizes more land per dwelling unit than inside Rt. 128. Additionally, compared to the significantly higher populated metropolitan Boston area, communities outside of Route 128 use much more land per person.

The Medway Housing Market

The Town of Medway is predominantly a single-family home market, with very few apartments and condos. Ninety-three percent of the land in the Medway is zoned for single-family residential and agricultural use (EOEA Buildout Analysis, 2007). In 2006, 83.1 percent of Medway‘s housing stock was single-family. Of the 4,329 housing units in Medway, 67 are vacant, which represents a 1.6 percent total vacancy rate. Typically, when the vacancy rate is lower than 5 percent the supply is not keeping up with demand and/or the consumer is faced with limited options, and increasing rates (MSL Online, 2006).

Home Sales and Prices

After a construction surge in the 1980s, the 1990s saw an increase in sales through the early part of the 21st Century. From 2002 to present, the sales of single-family units have plummeted, reflecting an end to the housing boom in Medway. These trends also correlate with the slowdown to the metropolitan Boston housing market (Heudorfer and Bluestone, 2006). However, the sales of condos have remained mostly stable since the mid 1990s (Figure 6).

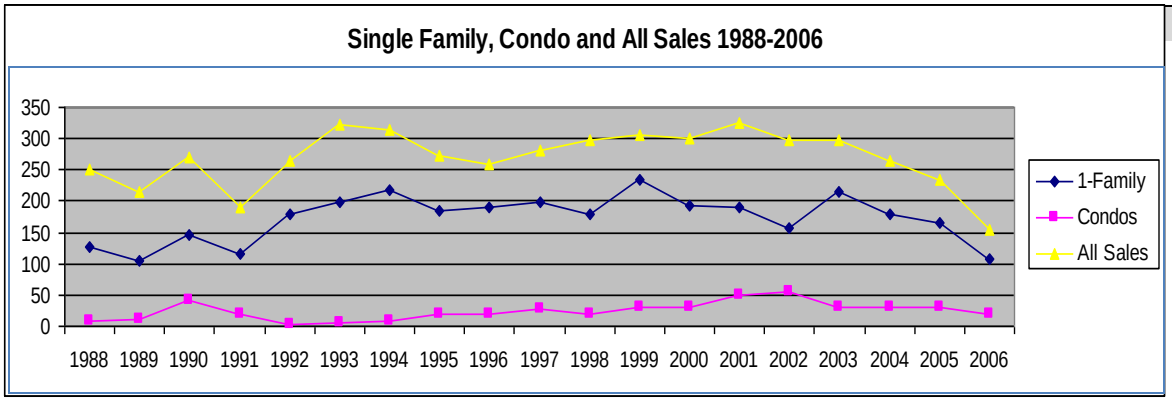


Figure 6. *Single Family, Condo and All Sales 1988-2006 (Source: Warren Group, 2007)*

Between 1980 and 2004, the overwhelming majority of building permits issued in Medway was for single-family homes (US Census Building Permits Survey). Figure 7 contains the building permits issued from 1990 to 2005, and shows that building permits have declined steeply from 103 in 2001 to 31 in 2005.

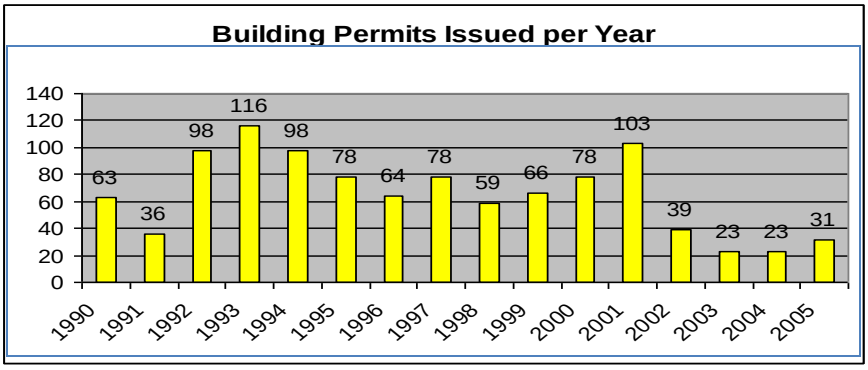


Figure 7: *Building Permits Issued Per Year (Source: The Town of Medway, 2007)*

The median price for both single-family homes and condominiums has been increasing since the early 1990s. The rise in the sale price of condominiums is particularly alarming since they are a more affordable housing alternative to single-family homes (Heudorfer and Bluestone, 2006) (Figure 8).

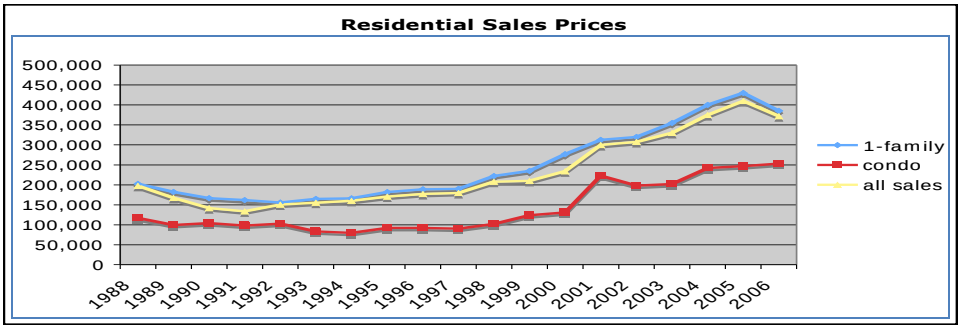


Figure 8: *Residential Sales Prices (Source: Warren Group, 2007)*

The national housing trends of increasing sale prices, decreasing sales and scaling back of inventory are reflected in the Town of Medway (State of the Nation's Housing, 2006). This slowdown is being somewhat mitigated by the increasing number of jobs and low unemployment rate in the town.

Workforce Housing

Similar to most of Massachusetts, the housing market in Medway is not favorable to first-time homebuyers or lower to medium-income professionals. In Medway, the estimated median household income in 2005 was $87,957, while the median price of a single-family home from 2004 to 2005 increased by 7.5 percent, or from $399,950 to $430,000. The median household price affordable to Medway residents in 2005 was $399,804 (Heudorfer and Bluestone, 2006). Figure 9 depicts the gap between the salary of selected workforce professionals and the median sale price for homes in Medway.

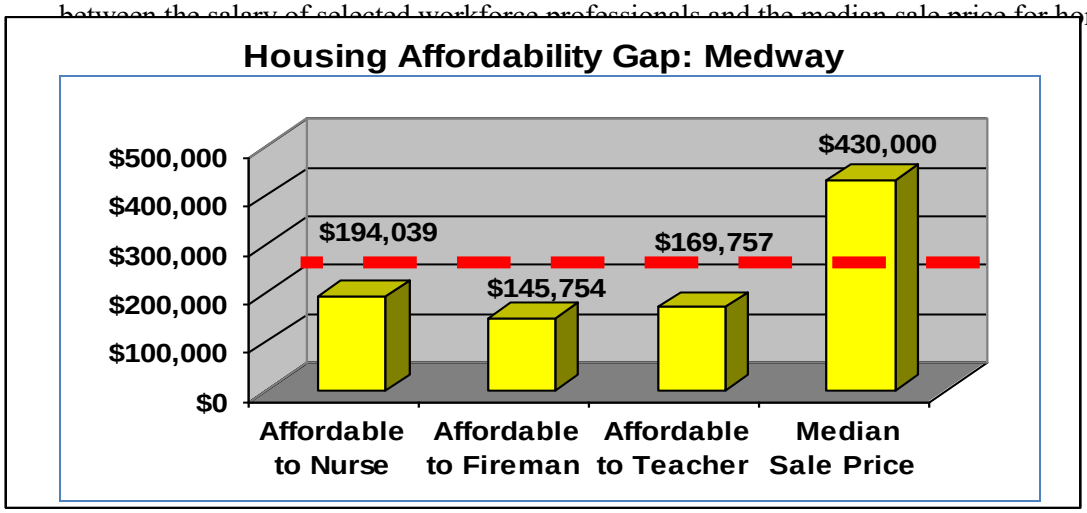


Figure 9: *Medway Housing Affordability Gap (Sources: Bureau of Labor Statistics, Metropolitan Area Occupational Employment Wage Estimates, Framingham NECTA Division; Warren Group, "Town Stats," Median Sales Price per Calendar Year, Medway, MA; Ginnie Mae Foundation,"Homeownership and Guide Calculators)*

A teacher on an average salary of about $55,000 a year is able to afford a home that costs about $170,000, assuming the teacher spends no more than 30 percent of their income on housing costs. The median home price is $430,000 – creating a gap of about $260,000 for people who are typically considered —workforce housing" buyers.

The Medway Renting Market

In the year 2000, the vacancy rate for Medway was 0 percent (US Census, 2000). In the same year, Medway's median rent of $720 was below the median gross rent for Norfolk County at $853. However, a web-based search for apartments reveals that there are not many apartments to choose from in Medway: seven websites revealed only thirteen total apartments.

	I BR	2BR	3 BR	4BR
Internet Search	800	887	$1,500*	$2,000*
State-MA FY 2007 Fair Market Rent	1135	1419	1775	2084
FY 2007 HUD Fair Market Rent	1164	1366	1634	1795

*one apartment identified in this category

Table 2: *Estimated Median Rental Rates and Fair Market Rates (Source: Summary Profile 3, Census 2000)*

As shown in Table 2, Medway's rental housing is relatively affordable, with the exception of 4-bedroom apartments, when compared to the HUD fair market rent. However, the lack of available apartments restricts the amount of people that can take advantage of these prices.

The Medway Housing Authority (MHA, 2007) stated that they had 194 units available, of which 94 were under the stated subsidized housing unit list and designated for the elderly only. The remaining 100 were on the federal subsidized housing units list, of which 70 were designated for the elderly and 30 for families. Currently, the MHA for families is closed and the expected waiting time is 2 years. For the elderly, the waiting time can take only a few months. The MHA stated that there were not many rental units available in the Medway market. These data support the need for affordable and workforce housing in Medway (MHA, 2007).

Summary of Housing Market Analysis

The state trends of increasing land consumption and house production in light of smaller population growth is also reflected in Medway. Low density development, combined with an increasing lack of housing supply are two key factors that cause the high prices. The lower production of homes, without any major effort to create workforce and affordable housing will ensure that housing prices continue to rise and the affordable housing supply will diminish. Lack of available land through zoning restrictions is among the main regulatory causes for the high house prices. The lack of single-family, multi-family, and rental housing supply also adds to the cost burden. The impact of increasing home prices and lack of housing supply in Medway is similar to the state trends of losing domestic residents to states with a lower cost of living.

3.3. Demographic Change from 1990-2000

The future demographic changes in the region will increase pressure in Medway to create workforce housing. Between 1990 and 2000 the population of Medway grew from 9,931 to 12,448: a change of 25.3 percent. Despite statewide trends of net population loss, the population of Medway is projected to

increase over the next few decades (MAPC, 2006). The age cohort pyramid found in the appendix reflects an aging population (Appendix B, Figure 31). The largest cohorts are between the ages of 35-39 and 40-44. The smallest age cohort under 65 is the 20-29 year-olds (US Census 1990, 2000). The small size of this age group may largely be attributable to the lack of affordable housing in the town, region, or state. Statewide during the decade of the nineties, the size of the cohort of 20-34 year-olds declined by 16 percent (CUPR, 2006). In order to retain this age group, Medway and the region should seriously consider the development of workforce housing.

Regional Population Growth

The region's population is expected to increase by 465,000 people by 2030. The developing suburbs along 1-495 are expected to have the greatest percentage gains in population growth because of their abundant unprotected open space. Growth in the region will come mainly from baby boomers and international immigration as net out-migration continues to drain the state's population (*Our Changing Population*, MAPC, 2006, *State of the Nation's Housing*, 2006). Figure 10 highlights the expected population decline of persons between the ages of 30-45.

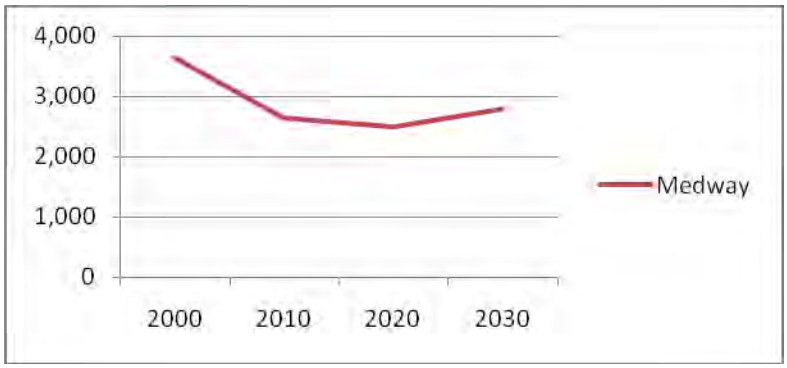


Figure 10: *Population Decline (30-45 years old)*
(*Source: MAPC, 2004)*

Currently, the buildout analysis states that 5,658 more people can be accommodated (EOEA Buildout Analysis, 2007). With either of these two scenarios, the town of Medway should build more densely to accommodate the growth trends to prevent from reaching buildout by the middle of the 21st century (MAPC, 2006).

Aging Population

The 55+ population will increase by 1,226 people by 2030. This represents 73% of the Medway population growth projected for the next 20+ years. If the high cost of housing causes seniors to retire

elsewhere, much of the population growth in Medway and the region will evaporate (MAPC, 2006). Figure 11 highlights the increase of people aged 55 and over.

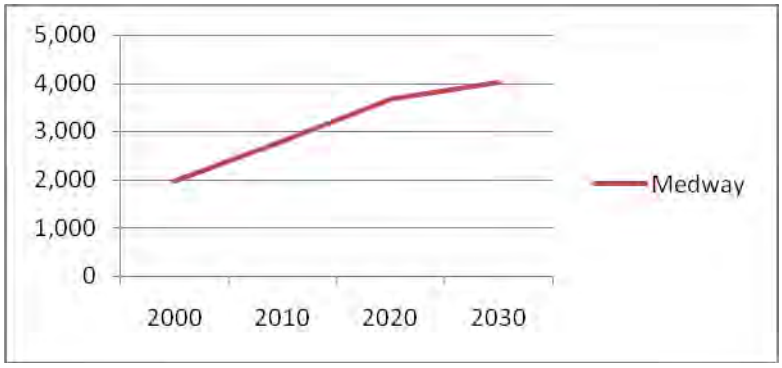


Figure 11: *Population Increase (55+)* *(Source: MAPC, 2004)*

School Age Population

The region is also expected to lose 6 percent of the school age population. In 2008, Medway is expected to lose 23 students from its public schools, about 1 percent of total enrollment. The decreasing student enrollment, in addition to various family types that exist in Medway, imply that the town will not incur significant school costs from adding workforce housing (Medway Public Schools, 2007). By the year 2030, the MAPC predicts that there will be a decrease of 36 persons ranging in ages from 5-19 years old in Medway (MAPC, 2004).

Economic Benefit by Household Type

Nationally, the number of married couples with children is expected to grow modestly, but they will continue to contribute the greatest amount of total consumer spending to the economy. For every dollar married couple households with children spend, childless couples spend only 83 cents, single parents 53 cents, and single persons 48 cents (*The State of the Nation Housing*, 2006). Therefore, the school cost associated with families with children is somewhat offset by the higher consumer spending compared to other family types. Figure 12 details the economic impact that various household types have on consumer spending.

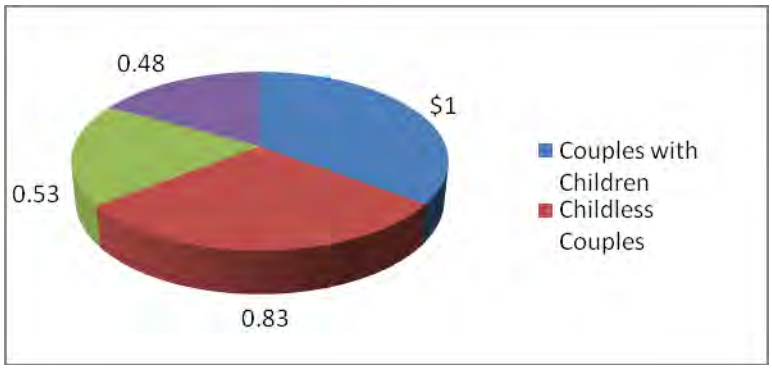
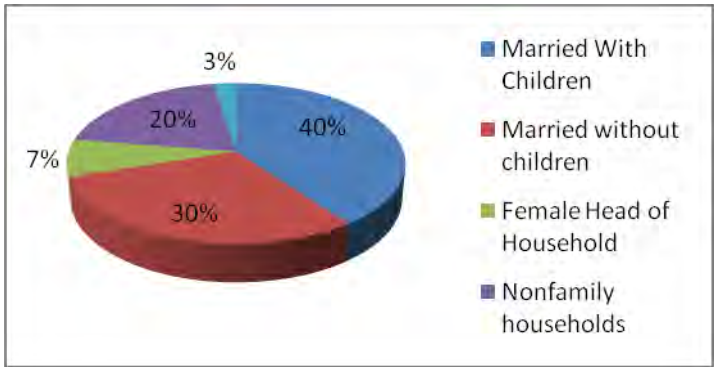


Figure 12: *Household expenditures per dollar by types of household*

(Source: State of the Nation's Housing, 2006)

Medway has a mix of family and household types. In 2006, 40 percent of families were married with children, 30 percent were married without children, and 7.5 percent had a female head of household only (MSL Online, 2006). These numbers reflect a 1.5 percent decrease in married couples with children and a 3.1 percent increase in female head of households (Census, 2000). The percentage of nonfamily households has remained the same at 20 percent. This small change in Medway signifies that the population will likely maintain similar households in the future. Figure 13 highlights the percentage of the various family types in Medway in 2006.



Source: MSL Online, 2006

Figure 13: *Medway family types*

International Migration and Diversity

International migration and growing diversity will not impact the Town of Medway as much as the rest of the region because of the town's lack of affordable housing. In 2000, only 4.7 percent of Medway's population was composed of foreign-born individuals (Census, 2000). Unlike Medway, by 2030, 31 percent of the MAPC region is expected to be Black, Hispanic, Asian or another non-white race (MAPC, 2005). Nonetheless, if recent growth patterns continue most non-white populations will be confined to a

dozen urban centers. It is important that suburban towns like Medway prepare for additional incoming immigrants and domestic people of color by providing workforce housing. This will prevent segregation, and will balance the employment base in the region given the current trends of out migration throughout the region. Additionally, some immigrants have bachelor degrees and others do not, attracting employers from diverse industries will ensure that Medway takes advantage of the different skill levels of incoming groups.

The Bottom Line

Medway will require redevelopment of commercial and industrial properties, and increased emphasis on apartment buildings and townhouses to accommodate the expected growth in the aging, minority, and workforce population (MAPC, 2006, p. 1). Much of the region's population growth will evaporate if the aging population and international migrants decide to reside elsewhere. Furthermore, many of Medway's residents are married without children or live in a non-family household. The creation of workforce housing will allow Medway to better service its residents and prepare for the predicted demographic changes.

Constructing denser developments of multi-family homes will be crucial in maintaining the rural character of the community. This could prevent the loss of open space given that the MAPC predicts that the region could lose 130,000 acres of open space to residential development (MAPC, 2006, p. 1). Furthermore, growth will place pressure on local roads and watersheds that are beyond the reach of regional water and transit systems. By building more multi-family homes, the town will be able to channel growth, minimize the impact on roads, and take advantage of the savings associated with more efficient use of infrastructure (Diamond, 1995; Burchell, et. al, 2005).

3.4 Analysis of Industrial, Commercial, and Retail Markets

Boston Industrial Market

Based on a fourth quarter, 2006 industrial market trends report of the Boston area by Grubb & Ellis Company, the Boston industrial market absorbed 900,000 square feet of space during this period. This growth was the largest single gain since the second quarter of 2005. According to the report, the largest gains are mainly attributable to new lease activity in the South and North submarkets. Vacancy stands at 13.4 percent and average asking rents have risen to $7.96 per square foot, an increase of $0.12 since the third quarter. The manufacturing sector improved during 2006 because of lower energy prices, and this improvement rubbed off positively on the industrial real estate market.

In the South, a spike in warehouse and distribution demand helped the submarket achieve absorption rate growth of nearly 500,000 sq. feet. On the other hand, the West submarket (of which Medway is included) posted a fourth consecutive quarterly drop in tenancy. The West has seen vacancy rise and asking rents drop in 2006. Vacancy in the West submarket as of the fourth quarter of 2006 was 13.5 percent. Asking rents in the West submarket were $8.34 per square foot.

Industrial growth remains slow and available space will need to be filled before vacancy dips below 10 percent, thus signifying a balanced market. Market vacancy is declining and Grubb & Ellis suggest a trend toward positive absorption throughout 2007. There has been an increase in employment in the packaging and food processing sectors, giving a rise to manufacturing jobs.

Grubb & Ellis report that new industrial construction will not significantly impact the leasing market in 2007. Because construction costs are high, developers are hesitant to develop new projects in the outer suburbs. In oversupplied industrial areas many new retail and multi-use facilities are being converted from industrial properties. Nevertheless, Grubb & Ellis state that new development of industrial properties could be successful provided the amenities satisfy demand and the location is convenient.

Office Market

According to Grubb & Ellis, the Interstate 495 submarkets dropped their vacancy 2.2 percentage points down to 24.2 percentage points. The average Class A asking rent in Interstate 495 broke the $20.00 mark for the first time since 2003, rising $0.40 from the fourth quarter of 2006 up to $20.19 per square foot (Grubb & Ellis, 2007). The Greater Boston office market expanded by half of a million square feet during the first quarter of 2007, while vacancy dropped to 13.2 percent. The first quarter 2007 reports suggest that the office market in the Boston region and the West region (including Medway) is improving.

Retail Market

According to Grubb & Ellis, despite increasing gasoline prices, consumers continue to provide the necessary stimulus for retail expansion nationally. Upscale and discount retailers are outpacing middle market retailers. Sale prices for prime pad sites increased by 9 percent during 2006. Grubb & Ellis predict that retail should continue to perform well during 2007.

Competing Communities

Of the five communities that border Medway, Milford poses the greatest commercial and industrial competition given their proximity to Medway and distinguished business history. Today Milford is known as the industrial center of the area, with a diverse set of retail, wholesale businesses, manufacturing firms and numerous services (*Community Profile*, Town of Milford, 2005). In addition,

Milford has a strip mall, a Target, Wal-Mart, a few banks, pharmacy stores, grocery stores, and convenience stores. There are also 6 hotels in Milford: The Radisson, The Marriot Courtyard, The Days Inn, the Tage Inn, Holiday Inn Express, and the Fairfield Inns & Suites, for a total of 673 rooms and suites.

The rest of the bordering communities (Holliston, Bellingham, Franklyn, Millis) contain additional banks, department stores, and pharmacies. The Wrentham Village outlet, a major outlet center is located in nearby Wrentham. Currently, some developers are attempting to build a lifestyle center in Bellingham and Mansfield (author's interview with Harmon Lewis, commercial realtor).

Since the site lies half a mile from Exit 19 of I-495, the process of determining suitable land uses for the site necessitated an understanding of the zoning and land uses of Holliston, Hopkinton, Milford, Bellingham, and Franklin. These communities also have land zoned near the Interstate for residential, commercial, and industrial purposes and would be competing for development interest. A comparison between lands zoned for industrial and commercial use and land actually in use within 1 mile buffers of Exits 16-21 of I-495 shows that most of the land zoned for commercial and industrial use along this stretch of the Interstate is still not built out (Figure 14). This means that these districts potentially have the capacity to accommodate more growth.

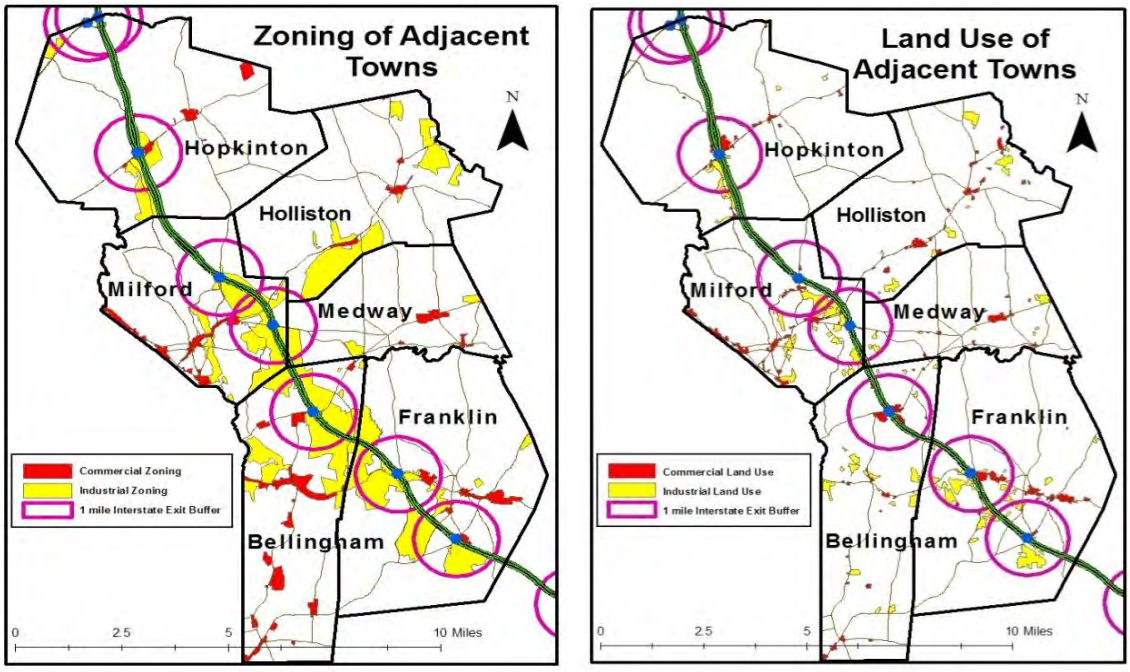


Figure 14: *Zoning and land use within 1 mile of I-495 Exits 16 through 22 Source: Mass GIS*

None of the towns along this stretch of 495 currently have a mixed-use zoning base district within this buffer or even within two miles of an Interstate exit (Mass GIS, Town of Bellingham Zoning By-law, Town of Franklin Zoning By-law, Town of Holliston Zoning By-law, Town of Hopkinton Zoning By-law, and Town of Milford Zoning By-law). For this reason, Medway could capitalize on the site's proximity to the Interstate exit and achieve greater market interest for its comparatively small industrial zoned land if mixed-use flexibility were offered to developers.

Medway may best utilize a mix of commercial and industrial development on the Oak Grove Bottle Cap Lots site given the insufficient acreage for more competitive retail or industrial firms. The retail should be geared towards the future residents of the new development and the employees of nearby industrial companies. Suggested types of retail/commercial include dry cleaners, day care, gym, a convenience store and restaurants or small food shops and a hotel/conference center. Since there are several banks in within a few minutes from the site, an ATM may be installed in case residents need to collect money for purchases in businesses located on the site.

Employment Analysis

The Metropolitan Boston region is expected to add 240,000 jobs from 2000 – 2030. Medway is expected to contribute to the employment growth in this region by adding up to 1,000 workers by 2030. The service sectors will have the largest number of new jobs. Municipal level employment projections indicate that the largest job gains will be in the inner core of the region and along major highways in communities that are already major job centers. Anticipated job growth in some communities may not materialize if local water supplies are limited and other resources are not available. Figure 31 in the Appendix B highlights Metropolitan Boston's employment gains from 2000 to 2030.

Employment Characteristics

Employment grew steadily in Medway during the past 3 years, with growth concentrated in the services, retail trade, leisure and hospitality, and manufacturing sectors. The trends in employment from 2001 through 2006 are presented in Table 20 within Appendix B.

From 2001 to 2005 the employment in retail trade, leisure and hospitality increased at a rate of 71 percent and 31 percent respectively, while manufacturing decreased during the same period by 2 percent. Manufacturing decreased during the years 2001-2004, but increased in 2005 and is predicted to have increased in 2006. During the years of 2001-2005, all industrial wage and salary employment increased by an average of 4 percent each year. Total employment grew at the same average annual rate of 3 percent during the year of 2001-2005. The average increase in the employment rate in Medway is much

higher than Norfolk County and the Town of Milford, which are -0.7 percent and 1.3 percent, respectively.

Market Summary

Medway's increased job growth coupled with workforce housing will facilitate further commercial and industrial expansion by making Medway an affordable place to live for the emerging workforce as well as middle age workers. Since the MetroWest submarket is the weakest market in the region, a combination of commercial and industrial property will diversify the town's risk. Industrial parks are scarce in Medway, and the Medway site is very well situated close to Interstate 495 for industrial uses. A mixed-use site will also help reduce the tax burden on residents and bring the job-housing balance back to equilibrium.

3.5. Fiscal Impact Analysis

Taxes

Our research showed that the primary concern regarding dense residential density was the financial impact to schools and to town services brought on by an increased number of school-aged children. Municipal officials stated that they would like to redistribute the tax base to alleviate some of the burden from homeowners. Table 3 below details the amount of tax revenue to the town from various uses as well as the percentage of the total revenue. Residential property taxes far outnumber the commercial and industrial taxes raised by the town. The Town of Medway has a tax rate of $13.32 per $1,000 of assessed value for all property types.

Table 3: Fiscal year 2007 tax classification

Use	Amount $= Assessed Value	Tax Levy	Percentage	Tax Rate
Residential	$1,630,436,798	21,717,413	89.40%	13.32
Commercial	$70,263,152	935,905	3.90%	13.32
Industrial	$68,274,650	909,418	3.70%	13.32
Personal Property	$54,190,080	721,812	3.00%	13.32
Total Assessed Value	$1,823,164,260	24,284,548	100%	-

Source: Massachusetts Department of Revenue, Division of Local Services

The industrial and commercial property value in the site was calculated based on the average value per square foot of Lotus, a Chinese restaurant in the area and Cybex, and multiplying them based on the proposed design footprints. In addition, multiplying the average housing cost of $300,000 with the 180

apartments in the site estimated the residential value. The result shows around 30 percent of the tax revenue will be generated by commercial and industrial use on the site and 70 percent by residential use, equal to the state average tax percentage.

Table 4: Estimated tax revenue from Oak Grove Village

Size	Square Footage	Amount of Assessed Value	Tax Rate	Tax Revenue ($)	Percentage
Residential	300,000	54,000,000	13.32	719,280	71.50%
Commercial	100,000	10,915,555.56	13.32	145,395	14.50%
Industrial	200,000	10,532,833.33	13.32	140,297	14.00%

Source: Land value and building value from Medway Assessor's data

Cost of services impact

To understand the potential cost of services to the Town of Medway and the residents, who bear the greatest tax burden, the following tables detail the budget for the fiscal year 2007 and the average single-family tax bill. Education is by far the greatest expense. For this reason, taxpayers have a legitimate concern in an increase in the number of school children, which would increase the cost to the Town and the taxpayer burden even more.

Table 5: FY 2007 Medway municipal budget

Expenses	FY 07 Budgeted
Education Total	$20,497,184
General Government	$1,517,387
Town Wide General Government	$9,030,913
Public Works	$1,424,401
Public Safety	$2,440,632
Health and Human Services	$183,383
Culture and Recreation	$283,111
Total Town Meeting Appropriation	$35,377,011

Source: Town of Medway

Table 6: FY 2007 Medway average annual single family tax bill

Number of Single Family Parcels	3,587
Assessed Value of Single Family	$412,451
Average Single Family Tax Bill	$5,494

Source: Town of Medway

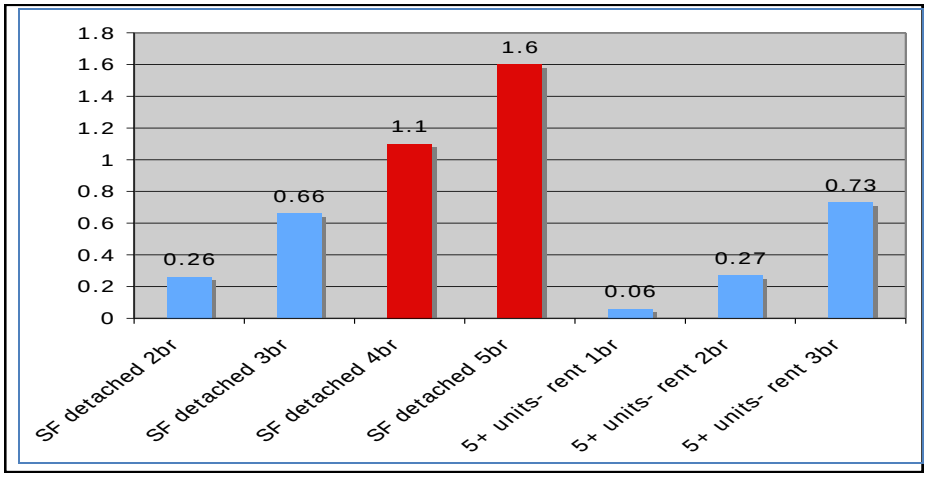
A 2006 study by the American Farmland Trust found that the median cost per dollar of revenue raised to provide public services to different land uses was greatest for residential uses. According to their study, it costs municipalities 4 times as much to provide public services for residential land uses than for commercial and industrial land uses. Usually, residential land uses do not cover their costs, so they are subsidized by other land uses. For this reason, commercial and industrial, as well as working and open land is generally favored over residential land use for maintaining a fiscal balance in a municipality.

School impact:

Our research found that the biggest concern surrounding dense residential development in Medway is the school cost impact. An increase in students in the town schools brings an inevitable financial impact to those schools and an increase in the average tax bill of homeowners. It is nearly impossible to prevent school cost impacts given new residential development; however, research suggests that the impact on schools from single-family residential development may actually be greater than from development of other housing types.

According to the US Census 2000 there were 4,248 housing units in Medway. The average household size of occupied housing units was 2.95 persons. Owner-occupied housing units had an average of 3.14 persons, while renter-occupied housing units had an average of 1.92 persons. Renter-occupied housing units had an average of 1.22 fewer persons than owner-occupied housing. If these averages are factored into school cost calculations, it can be assumed that renter-occupied housing actually has a lower impact on schools than expected because there are fewer people per renter-occupied housing unit. The following chart depicts the average number of school-aged children in different housing types in the State of Massachusetts. The data is based upon a 2006 study performed by the Center for Urban Policy Research at Rutgers University (Burchell et al.)

Figure 15: School-aged children per household type



Source: Burchell et. al., 2006

The most noteworthy factors are the two bars in red, which signify the most typical new constructions in the region: the 4 and 5-bedroom single-family homes. In contrast, the smaller single-family homes and renter units in buildings with 5 or more units actually produce fewer school-aged children. A recent study found that multi-family homes provide significant school cost saving benefits, described below.

> *"The net cost to the typical community (in Massachusetts), based on modest priced single-family homes with a $250,000 assessment, will average $5,000 per home per year. For typical mixed income development, only 43% of the communities experience net costs- and the average amount for each of them is estimated to be $320 per apartment unit" (Carman et al., 2005).*

According to the Medway Public Schools FY 2008 Working Draft Budget, total student enrollment in the public schools is expected to drop from 2,887 in 2006 to 2,856 in 2007 and to 2,833 in 2008. The total cost to taxpayers for school funding, however, is expected to increase to $16,493,135 (Draft Budget, 2008). In FY 2005 the cost to taxpayers to operate all schools was $15,407,031; $15,530,185 in FY 2006; and $15,975,174 in FY 2007. As the number of school children is expected to decrease from 2006 to 2008 the cost to taxpayers for operating schools is expected to increase (Medway Public Schools, 2007).

The cost of operating schools in Medway incurred by taxpayers could potentially be offset by development of other uses that do not produce school-aged children. Additionally, the expected decrease of school-aged children is another reason why additional development will not tremendously impact the town. The town can also choose to promote additional school children as a benefit to their future, particularly given the demographic trends of losing people in the emerging workforce and middle age workers (30-45 year olds).

Recommendation

A mix of uses is the most feasible development scheme on the site. These uses should include some mix of office, commercial and industrial properties to reduce some of the burden to taxpayers, as well as modest renter units to retain the workforce age cohort and lower to middle-income persons. Since Grubb & Ellis reported that the Metrowest market had mediocre performance in a number of economic respects, a combination of commercial and industrial property could diversify the town's risk. Industrial parks are scarce in Medway, and the site is very well situated close to Route 495 for industrial uses.

Market trends show that mixed-used developments are popular. If well designed, the market could absorb a 50/50 residential and commercial development. A mixed-use development in the Oak Grove Bottle Cap Lots site could be attractive for commuters and also could attract shoppers from off site. Research has demonstrated that for walkable communities to be successful residents must have access to a number of necessary amenities. Development on the Medway site should include some retail and commercial properties in order to provide these necessary amenities. The analysis in this section provides optimism that the site can provide opportunities for industrial, commercial, office, and residential growth, and that together they can satisfy many goals.

Based on the fiscal impact and school cost analysis, the site will provide cost saving benefits by creating mixed-used development that requires fewer services and produces less school children than the single-family developments found in Medway. The savings will multiply if the projected decrease in school children continues over the next 20 years. The implementation of the c. 40R district, which will be addressed in the regulation section, will aid the town in absorbing unforeseen school cost. The data shows that such site development will aid in improving the town's fiscal condition by bringing additional revenue that will provide some relief for taxpayers. The creation of a workforce mixed-use development will allow the Town of Medway to add alternative and affordable living arrangements that adequately address the needs of the town residents and increase the town's employment base.

4: SITE DESIGN

4.1. Goals and Objectives

The aim for this studio was to create a viable workforce housing development that would also diversify the municipal tax base. The design team worked together with planners to develop five main goals in order to suggest a site planning strategy that would meet those town-wide goals. The first goal of the design was to offer a variety of housing options to bring workforce to the MetroWest region while providing for existing residents and people of different ages and incomes. Two and three-story townhouses have been designed at 10 units/acre and apartments at 15 units/acre with a mix of affordable and reasonably priced market-rate units with a modern spin on New England architecture.

A positive fiscal impact has been ensured for the town and its residents by introducing a 200,000 sq ft of industrial development and 185,000 sq ft of commercial development along with a sewer connection to the site. Connectivity to the region has been established by providing a transit stop in the main commercial block on Route 109 and by providing walkable, safe streets with sidewalks and a hiking trail network. he design has promoted sustainability by maximizing solar gain with south-facing windows and by managing all storm water on site through a system of aesthetic swales and ponds. Finally, a high percentage of open space has been provided to be shared by residents and employees alike. This was accomplished through the preservation of existing woodland and by creating public green spaces, public plazas, and also private gardens.

4.2. Program

The Medway site is comprised of approximately 100 acres. Of these, only about 50 acres (2,178,000 square feet) are developable after accounting for wetlands (24 acres), the Cybex facility (5.4 acres), roads and existing houses. The goal of our client, as well as for this studio exercise, is to provide workforce housing on this site; the needs of the town also include achieving a greater share of their property tax base from commercial owners. We have therefore accommodated residential, industrial, and commercial/retail uses in our program for the Oak Grove Bottle Cap site. We have programmed the land use for the 50 acres of developable land as follows:

Table 7: Site land use breakdown

Use	Site Percentage	Square footage
Residential	15%	325,000
Industrial	9.2%	200,000
Commercial/retail	8.5%	185,000
Public open space	35%	740,420
Private open space	3.3%	71,900
Parking	15%	326,700
Roads and utilities	15%	326,700

4.3. Site Analysis

In order to determine the best design for this site guided by the percentage breakdowns above, it was necessary to study the existing physical site conditions. The Oak Grove Bottle Cap site is located at the Medway/Milford town line just east of I-495. It is bordered by Route 109 to the North, West Street to the east and Alder Street to the south. Trotter Drive runs north-south through the site, providing access to the Cybex facility.

The soils on the site are comprised of wetland soils in addition to Canton-Charlton fine sandy loam. These soils are excessively well-drained and vary in size from stones to boulders. In terms of the design, good infiltration of storm water is likely and the stones can also play a part as an aesthetic feature on this site (USGS Soil Survey).

The landform for this property is gently undulating throughout with no significantly steep slopes. The high points are 276 feet above sea level and the low point is at 246 feet with a maximum grade change of only 30 feet. The land steps down from a centralized ridge area toward the wetlands and the roads that bound the site. Because of this, a storm water management system must be enacted that will catch and treat runoff before it arrives at the low points and runs off site.

Wetlands cover approximately 25 percent of our site (24 acres) and continue into the neighboring town of Milford. Construction within 25 feet of this resource is completely prohibited. Also, since a perennial stream runs along the western border of the site and is culverted under Route 109 and Alder Street, building cannot occur within a designated 200‘ buffer.

Three distinct types of vegetation exist, the first of which are wetland species over 25 percent of the site. An upland canopy forest of mainly white and black oak in various stages of succession exists along with a few major stands of white pines. The Oak Grove site is predominantly forest with a small amount of water and pasture.

Approximately 70% of the property is zoned industrial while 30 percent is zoned residential and agricultural II which allows two dwelling units per acre and required 35 foot setbacks.

4.4. Early Concepts/Schematics

Campground Concept

The initial design concepts revolved around the site history and sustainability through preservation of existing woodland and creation of open space. The first schematic design, the ―Campground Concept," emphasized the history of this unique site in which hundreds of tiny parcels of land were given away in the Cliquot Club soda contest as camping lots.

Figure 16: Campground Concept 80 Scale Plan

In keeping with the theme of this woodland as camping ground, the goal was to preserve as much of the existing vegetation as possible and to utilize narrow gravel roads for vehicular access. Small pockets of trees were strategically plucked from the forest in order to nestle the housing units carefully into the environment. The preserved woodland, the most unifying feature of the site, would continue to provide habitat to animals as well as filter sunlight providing delicate patterns of light in all seasons. A network of hiking trails from the houses through the woods and down to the wetlands completes the campground theme and provide for recreational needs.

Greenbelt Concept

The second concept utilized two classic examples of spatial organization which created two significant open space networks—a series of small open spaces with one central public space and a greenbelt linking the industrial and residential sides of the site. The design team took looked to Ebenezer Howard‘s Garden

City model in which the architecture defines a centralized green space and a greenbelt forms a concentric ring around that architecture.

Figure 17: Greenbelt Concept 80 Scale Plan

In the ~~–~~Greenbelt Concept," this open space system would serve as a pedestrian connection throughout the 100 acre site. Further, Stein and Wright's housing ~~–~~superblock" found in Radburn, New Jersey, was used to create public courtyards that are accessible to each housing community with shared parking lots on the outside of the units. By using both of these models, the team was able to completely separate pedestrian and vehicular movement through a series of systems.

In both of these schemes, a mixed-use corridor was proposed along the site's northern boundary, Route 109, to help alleviate the tax burden that Medway residents are currently facing.

4.5. Final Concept

The early stages of schematic development proved useful in guiding the final design concepts by maintaining the same underlying themes: the site‘s history, vegetation cover, and historic models for designing systems across the site.

Transect Concept

The design alternative which has been developed to completion is the ―Transect Concept.” This scheme combines the idea of preserving some woodland from the Campground Concept with a greenway as a trail and pedestrian network from the Greenbelt Concept to form a buffer from the existing single-family houses off the site. This greenway also serves as the last level of retention for our on-site storm water management system.

Figure 18: *Transect Concept 80 Scale Plan*

The Transect Concept takes the model from the Congress for New Urbanism, which marks stages of transition from urban to rural land uses and from highest to lowest density, respectively. This model was applied to this mixed-use site by keeping the light industrial and commercial uses on the western portion of the site already zoned for industrial. The densest housing then occurs in the form of mixed-use development with first floor retail/commercial and upper floor high-density apartments and condos. Moving east across the site, this density lessens to 10 unit per acre townhouses arranged in Radburn —superblocks" and finally to multifamily houses integrated with existing single-family detached houses along West and Alder streets. These larger-footprint multi-renter units assimilate into the existing landscape with their New England-style architecture and provide a visual low-density buffer to the site from existing houses off-site.

In the initial versions of this scheme, an attempt was made to integrate the Cybex facility with the design as a whole. A realignment of Trotter Drive further to the east was proposed to allow commercial buildings to be built on its west side as well as a park area to be utilized by Cybex employees and residents alike. A hotel and conference center was also proposed on the east side of Trotter to create a transition from industrial buildings to residential following the transect model. The realignment of the road would have provided the opportunity for an entry space or gateway defined by mixed-use architecture. Its one-way secondary entrance would have served as a bus stop and drop-off zone. The parking for commercial and retail buildings in this scheme was located off the road and behind the buildings for greater visual appeal, as supported by a study by the Center for Rural Massachusetts.

The decision, however, to realign the main thoroughfare through the site was not financially feasible. Secondly, parking lots which were hidden from view of the main road are less apt to bring business to the commercial area than those in plain view. Therefore, the preferred design alternative outlines newly-configured industrial and commercial districts as well as adjustments to the residential zone in response to exploration of design in detailed plan and section.

4.6. Preferred Design Alternative

The Oak Grove Bottle Cap site provides an opportunity to create a western gateway for the town of Medway. It also provides the opportunity to revitalize the town‘s tax base and to integrate a much needed workforce housing neighborhood. The schematic master plan for the preferred design alternative includes industrial buildings, a mixed-use corridor along route 109 and a residential development to the east of Trotter Drive. The industrial and commercial layout consists of flexible structures that could accommodate a variety of businesses.

Figure 19: *Example of mixed use first floor retail/ second floor residential and office*

The mixed-use corridor along route 109 will provide an architecturally defined gateway for people entering Medway from route I-495, creating a sense of arrival for the town. Tree-lined sidewalks, on-street parking and additional parking lots viewable from the road will encourage use of the commercial and retail stores on ground floors. Apartments on the upper floors will be at 15 to 20 units per acre. None of the structures will exceed four stories.

Figure 20: *Recommended full site design alternative*

The industrial complex includes the existing Cybex facility and accommodates the future expansion of the exercise equipment manufacturer. It will provide a gateway to the proposed industrial belt that will extend south into Bellingham. An increase of 200,000 square feet of industrial structures and an addition of 185,000 square feet of commercial in this scheme would help diversify the property tax base and take some of the financial burden for town services off the homeowners of Medway.

Because of the residential focus of the studio, the neighborhood area was designed in greater detail to create the master plan shown on page 36. The plan consists of 180 units at 10 units per acre, organized

into 11 neighborhoods. Four of these neighborhoods related to a large central open space, and seven relate to a green belt.

Figure 21: Oak Grove Village Master Plan

A transition from the higher density commercial and industrial area to a more residential area was provided. To achieve this, the denser development and commercial structures were located along Route

109 with a hotel/conference center along Trotter Drive. As one moves southeast density decreases and structures transition to residential with a low density buffer along the eastern perimeter of the site (see concept Transect model in Figure 23 below).

Figure 22: Neighborhood layout

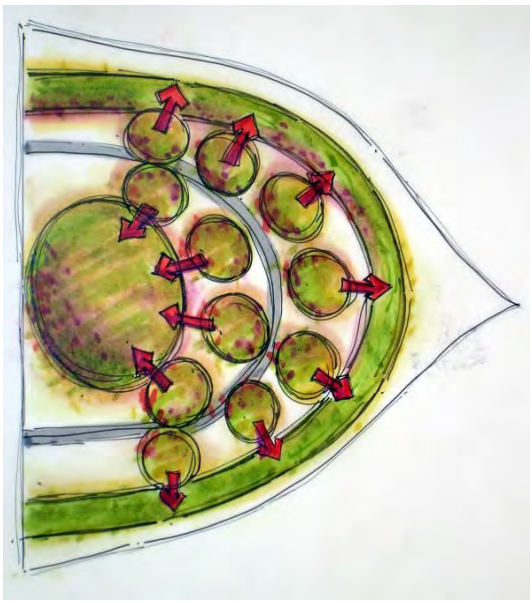
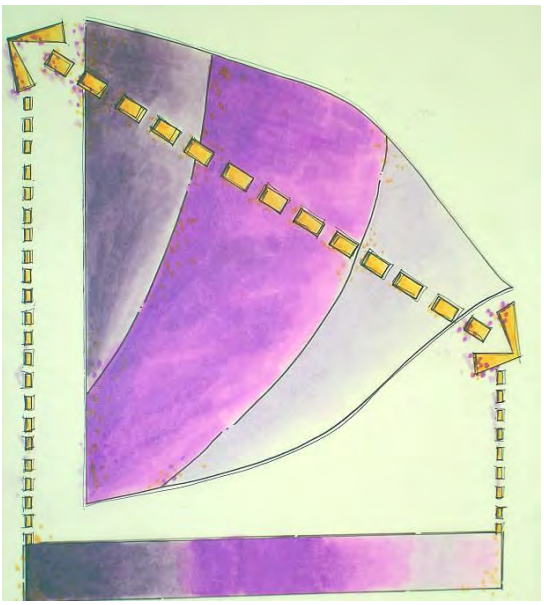


Figure 23: Transect model



The 11 neighborhoods share a public open space (Figure 22 above). This gently sloping glade is just large enough to host a soccer or football game and is surrounded by a stream like swale system. Storm water management is handled on site (see Figure 24 below). Water is first captured in the central ring of retention that surrounds the public open space. Water then travels through gravel-lined swales and reaches small basins at the ends of the parking lots. From here, any overflow reaches the final ring of retention within the green belt along the main pedestrian path.

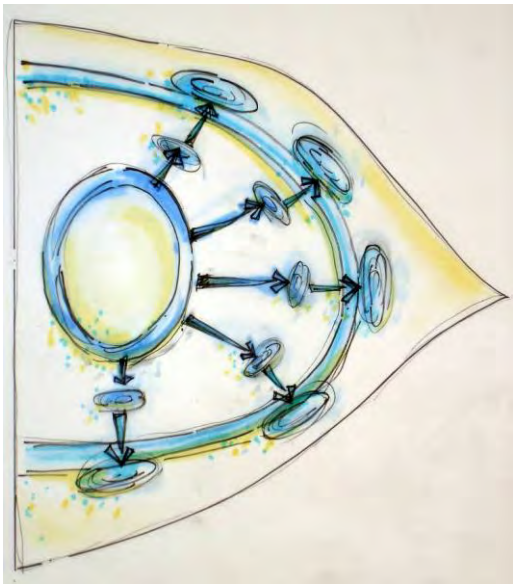


Figure 24: *Storm water management system diagram*

Each housing cluster surrounds a community open space. Each unit has a private garden which is an extension of their indoor living space. These private gardens overlook the small greens defined by architecture and trees. A secondary path leads from the units to the primary hiking trail that connects to the wetland area on the western portion of the site. The design team has provided a variety of housing types with floor areas ranging from 800 to 1,200 square feet for townhouses. Prices would range from $140,000 to $210,000 which is much more attainable for the workforce.

Figure 25:*Oak Grove Village housing neighborhood cluster*

Figure 26: *Community open space*

Figure 27: *Hiking trail connecting to secondary pedestrian loop*

The architectural style provides a modern spin on the local vernacular. Sustainable materials and methods would be employed. Medium Density Outerboard (MDO) will be used for the siding. Unlike wood siding, MDO is extremely durable and does not need to be replaced. High R-value windows and structurally integrated panels help to insulate the units and reduce heating costs. Recycled standing seam roofs with slightly reflective surfaces will help reduce heat island effect. Units will be plumbed for active solar/thermal and share wet walls to reduce cost. Units have small footprints but open floor plans and the extension of living space into the garden make them feel more spacious.

Figure 27: *Local vernacular with modern edge and sustainable materials*

Figure 28: *Section through parking lot, row houses, private garden and community open space.*

Figure 29: *Section through row houses, community open space and pathway.*

4.7. Summary

This preferred design alternative proposes a mixed-use gateway for the town of Medway that accommodates industrial growth. It also incorporates a viable workforce housing development with a variety of housing types and neighborhood character.

5: REGULATORY ANALYSIS and RECOMMENDATIONS

This chapter presents an analysis of the existing regulatory environment for the site of the proposed Oak Grove Village. Potential regulatory approaches are evaluated and two recommendations are offered.

The principal findings are:

- Medway's current zoning for the site does not permit the residential densities necessary to achieve work force housing, or ―traditional neighborhood density," of the proposed Oak Grove Village design.
- Medway's current commercial and industrial districts do not provide sufficient flexibility to respond to changing market demand for varied uses of the project site in the long term.
- The absence of mixed-use zoning in Medway and the four other municipalities within 1-mile concentric buffers of Exits 16-20 suggests that a mixed-use approach at the Oak Grove site could be a competitive advantage in attracting commercial and retail businesses to the town's Route 109 western gateway.
- The combination of traditional neighborhood densities and mixed-use overlay district envisioned by the Oak Grove Village proposal present a strong case for eligibility as a Chapter 40R Smart Growth District, which could aid Medway in securing funds to offset potential additional school costs from new development.

The two recommendations offered involve the creation of an overlay district along Route 109 and in the residential portion of the site bounded by Trotter Drive, West Street and Alder Street (existing Industrial zoning would remain unaltered). Research indicates that mixed-uses may achieve more sustainable land uses and a better overall balance of tax revenues, a key priority of the town. The first of these recommendations would be a ―traditional" mixed-use district that would allow a greater variety of uses, including higher density residential, commercial, retail and light industrial. The second recommendation would seek to achieve this mixed-use environment using through a form-based code that would focus on the appearance of structures and their relationship to the immediate environment.

5.1. Analysis of Existing Regulatory Conditions

This section provides a summary of existing municipal zoning and state laws that may be involved in implementing the Recommended Site Concept.

Zoning Base Districts Summary

The Town of Medway has three base zoning districts shown in Figure 29 below:

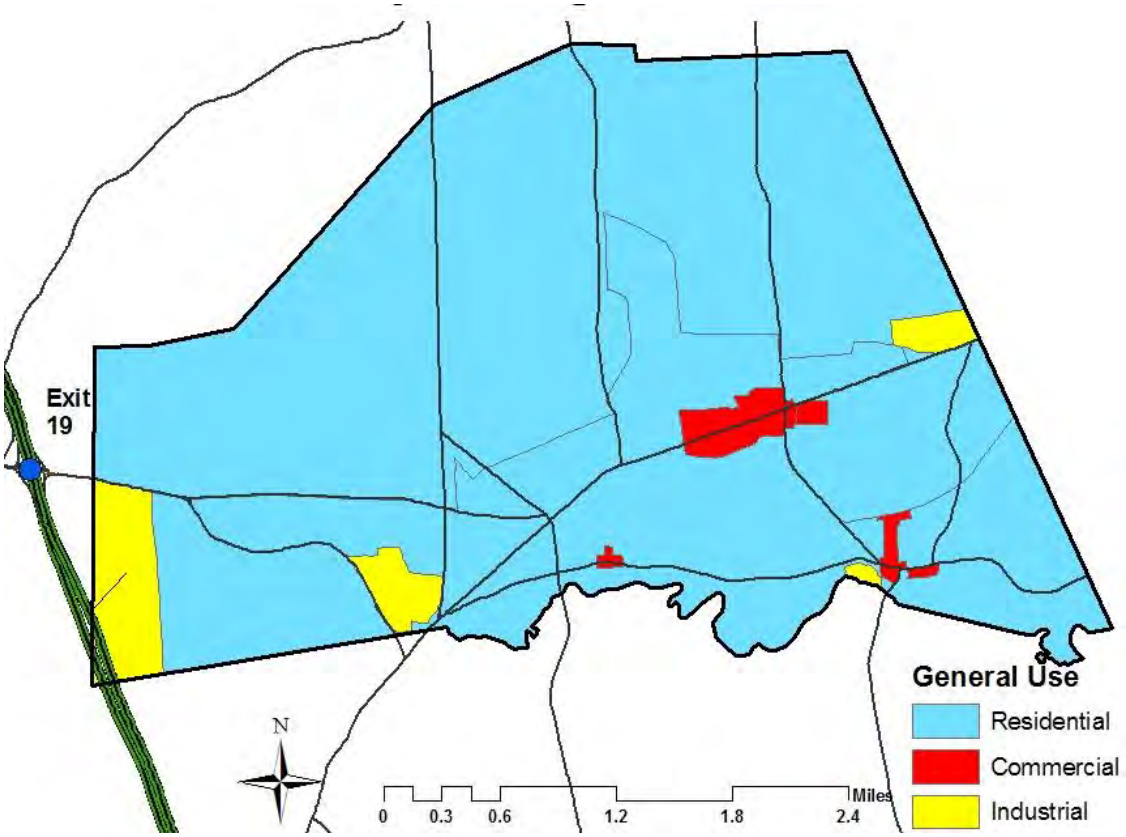


Figure 25: *Medway Zoning*

Source: MassGIS, Town of Medway

- Agricultural/Residential I and II (93.6% of town land): District I allows single family homes at 1 dwelling unit per acre (du/ac). District II allows single family homes at 2 du/ac and two-family homes at 2.5 du/ac. Three-family homes and apartment buildings are not allowed.
- Commercial I, II, III, IV, and VI (1.6% of town land): All four commercial districts have consistent lot size minimums of 20,000 sq ft (.46 ac), a maximum building height of 40 ft, and maximum building coverage of 30%. Setbacks vary from 35 to 50 ft and parking requirements vary from 200 sq ft per space to 300 sq ft per space. Retail is not allowed in Commercial District II.
- Industrial I, II and III (4.6% of town land): Minimum lot size ranges from 20,000 to 40,000 sq ft, and minimum setbacks are all 30 ft. District II allows electric generation and transmission facilities.

Table 8: Medway zoning bulk requirements summary

District	Min Lot sq ft	Frontage ft	Front Setback ft	Maximum Bldg Coverage	Principal Use	Parking	Buffer
Ag/Res I	44,000	180	35		SFM		
Ag/Res II	22,500	150	35		SFH & MFH		
Commercial I	20,000	100	50	30%	Retail, Office, Municipal	200 sq ft: 1 space	
Commercial II	20,000	100	50	30%	Office only	200 sq ft: 1 space	
Commercial III	20,000	100	35	30%	Retail	300 sq ft: 1 space	
Commercial IV	20,000	100	35	30%	Retail, office		
Commercial VI	20,000	100	35	30%	Retail, office	300 sq ft: 1 space	50ft on south line
Industrial I	20,000	100	30	40%	Industrial	1 space: 2 employees	30 ft to residential
Industrial II	20,000	100	30	40%	Electric generation permitted	1 space: 2 employees	30 ft to residential
Industrial III	40,000	100	30	40%	Industrial	1 space: 2 employees	200-ft res. buffer

**Commercial V eliminated in 1999; Industrial IV eliminated in 2003.*

Zoning Overlay Districts Summary

The Town of Medway has one special open space district and two overlay districts:

- Open Space Residential District: The provisions of this district are available only in Agricultural/Residential I and II districts to protect open space. Density bonuses are allowed (dependent on amount of buildable land) for maintaining 50% open space to be deeded to Town, nonprofit or owners association. A mix of housing types and high quality landscaping are required. Minimum frontage of 50 feet and common driveways are allowed to reduce built areas. Up to 10% of open space may be used for recreation (i.e., bike path, trails, parks). A special permit is required.

- Adult Retirement Community Overlay District: This district allows age-restricted development for adults age 55 and older by special permit. The development must be on a minimum of 10 acres. A density bonus of up to 9 du/ac is allowed, depending on residential configuration. The open space requirement is 50%; waivers are possible. Required frontage is 250 feet.
- Adaptive Overlay District (adopted 2004): This district promotes economic development and the preservation of historic structures in commercial districts by allowing re-use of existing structures for retail, commercial and/or residential uses. Combined uses in one structure require a special permit.

Medway Subdivision Control Law

Medway's subdivision control laws ensures that lots will be provided adequate access to the street in ways that are "safe and convenient." They also coordinate the roads within the subdivision so that they are suitable to Medway and surrounding towns. The purpose of these regulations is to provide for the overall safety of town residents from fire, flood and other emergencies. In doing so, they require that adequate access is provided for emergency vehicles (fire, police, etc…) and maintenance equipment. The regulations recognize the importance that each lot is provided adequate water, sewerage, drainage, and utilities.

In addition to town safety, subdivision control laws can regulate some landscaping aspects that are important such as adequate street lighting and sidewalk width. Also, the laws are used to enhance the natural beauty as well as the rural and historic character of the community.

The unusual number of small lots to be consolidated for this project poses significant parcel consolidation and subdivision challenges, and a new subdivision plan will likely be required before development can take place.

Site Plan Approval

Planning Board approval of a site plan for any new development will be required pursuant to municipal and state zoning regulations. Building Permits will not be issued until Site Plan Approval is offered through a Certificate of Recommendation from the Planning Board to the Board of Selectmen.

Site Plan Approval is not required for as-of-right residential structures located in residential zoning districts. Site Plan Approval is required for construction and alterations to other uses. A multi-family residential structure does not require Site Plan Approval if overlay makes it an as-of-right use in the project area.

Wetlands Protection

Compliance with local and state wetlands regulations will be critical to the successful development of the Oak Grove Bottle Cap Lots site, as wetland resources exist on approximately 25% of the area according to MassGIS layers. The Wetlands Bylaws set forth a 100-foot buffer area surrounding resource areas and approval from the conservation commission is needed to build anywhere within this buffer. Construction within 25 feet of a resource, however, is completely prohibited. Since a perennial stream runs through the western edge of the site, construction is further restricted by a state-mandated 200-foot buffer. Field delineation will be necessary to determine the precise extent of these resources and appropriate mitigation to comply with the Massachusetts Wetlands Protection Act and Rivers Protection Act as administered by the Medway Conservation Commission.

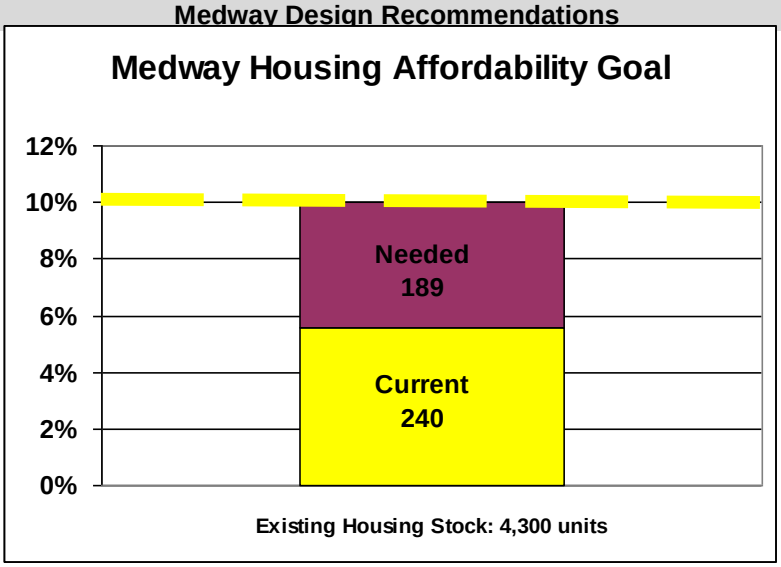
State Regulatory Environment

Successful development of the Oak Grove Bottle Cap Lots site will require compliance with a series of state regulatory requirements. Foremost among these will be those related to smart growth and housing production, as embodied in Chapters 40B, 40R and 40S of the Massachusetts Zoning Act. Discussion follows.

Chapter 40B Affordable Housing Comprehensive Permit Law

The site proposal offers an opportunity for Medway to meet and surpass the 10% goal for affordable housing established by Chapter 40B of Massachusetts zoning laws, as well as Medway‘s own goals to increase the availability of affordable homes to residents (Town of Medway Master Plan 1999). Currently, 5.6%, or 240, of Medway‘s approximately 4,300 dwelling unit are affordable, according to the definition of affordability established by the U.S. Department of Housing and Urban Development.[2] An additional 189 affordable homes, either rented or purchased, are necessary to achieve the 10% goal and relieve the town of the obligations of the Chapter 40B Comprehensive Permit process. Research has found most towns prefer to work with a ―friendly” Chapter 40B developer willing to address municipal needs rather than lose zoning control under the Comprehensive Permit.

[2] Affordable units are those that are affordable to households earning 80% below the area median income (AMI) established by HUD.



Source: U.S. Census, MAPC

In order to count as a 40B project, 25% of all the development's residential units need to be set aside as affordable' units under this definition.[3] Municipalities that do not meet the 10% minimum affordable housing requirement, must provide developers of affordable housing with a streamlined process through the permitting phase. In addition, developers may also build multi-family structures or single-family houses at higher densities than normally permitted through local zoning.

Since it was enacted in 1969, Chapter 40B has successfully encouraged affordable housing by allowing the construction of many projects that most likely would not have been built under the existing zoning regulations. However, many communities remain wary of it because it limits their control over what gets built and where. Therefore, many municipalities proactively seek out residential development projects that address important provisions of local zoning to avoid having a 40B project that accommodates few municipal needs imposed in the future (Citizens Housing and Planning Association 2006, Hill 2005).

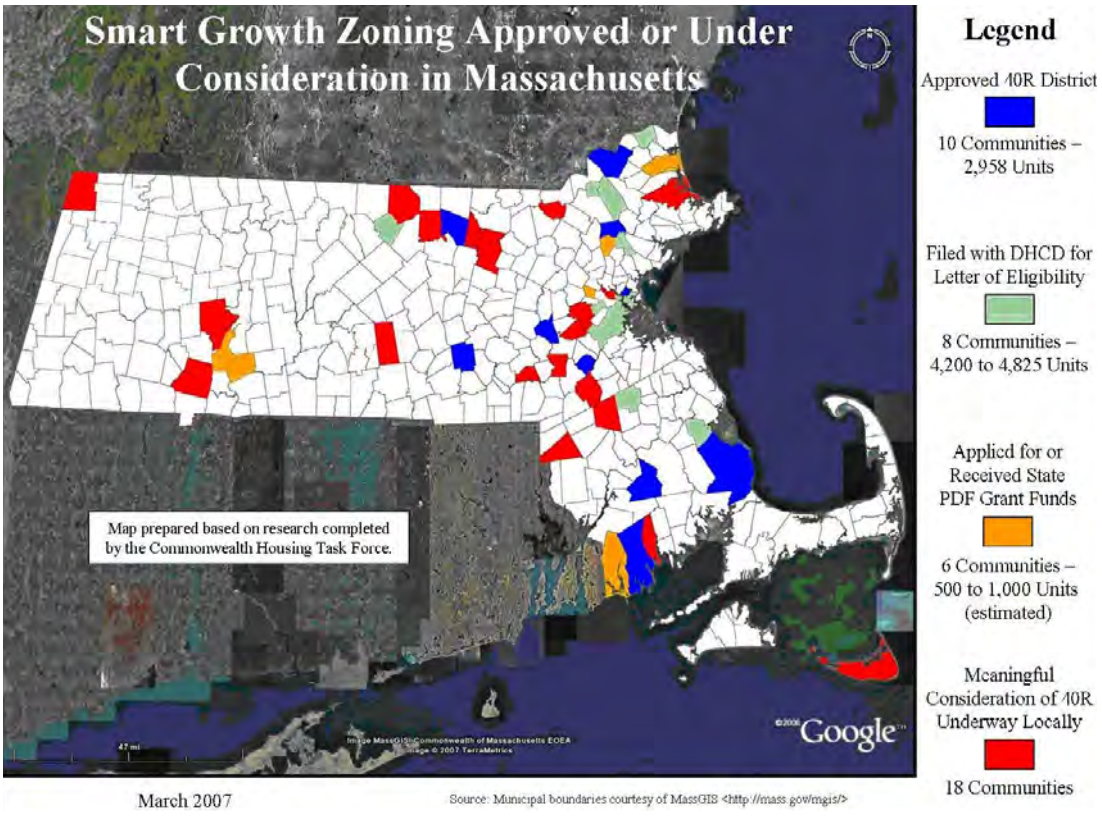
If two of every three units of the proposed Oak Grove Village were sold as affordable, or if 25 percent of at least 189 units are rented as affordable, Medway would satisfy its Chapter 40B goal.

5.2. Chapter 40R Smart Growth Districts

The Oak Grove Bottle Cap Lots site represents an opportunity to make use of Massachusetts' Chapter 40R legislation for "Smart Growth" districts. Table 5 shows communities in Massachusetts that have been approved for a 40R district as well as communities that are interested in adopting one.

[3] Through long-term affordability restrictions.

Table 10: Chapter 40R communities status as of March 2007



Source: Bluestone 24-April 2007; MassGIS

To receive approval for 40R status, a municipality must adopt a Smart Growth Zoning District to make them eligible to obtain state funds. These funds include a one time density bonus of $3,000 for each unit, awarded to the municipality upon issuance of a building permit, plus incentive payments of up to $600,000, depending on the number of units. The new district essentially acts as a zoning overlay in a chosen area or areas. This type of zoning allows a developer to choose the existing zoning or use the underlying Smart Growth Zoning District, thereby enabling some flexibility and encouraging creativity on the part of the developer.

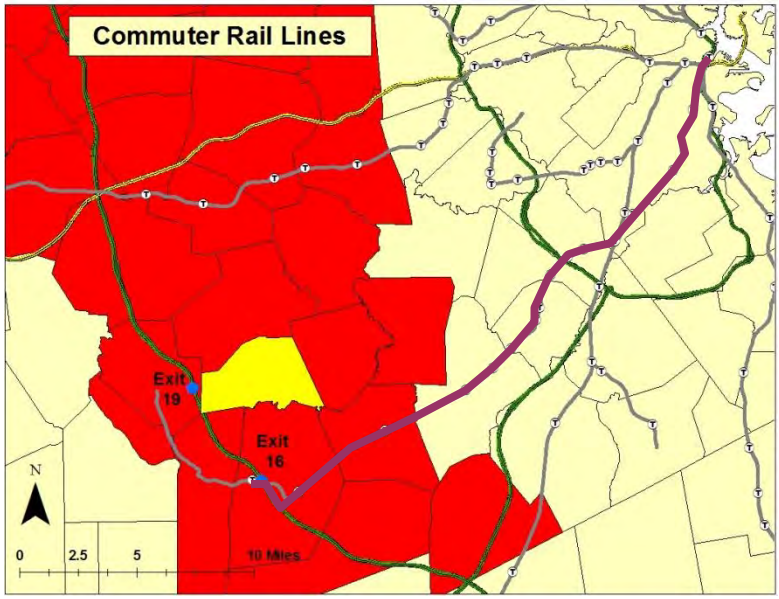
To be considered an —eligible location" for 40R approval, the proposed district must be within one-half mile of a —transit terminal," which includes rapid transit, commuter rail, bus, and ferry terminals. The district must also be in an —area of concentrated development," such as a city or town center or near existing commercial districts. Finally, utilities, land and transportation access must be underutilized.

The following are some of the key additional Chapter 40R requirements for a Smart Growth Zoning District:

- The zoning ordinance must provide for the residential uses to permit a mix of housing for families, individuals, persons with special needs, or the elderly.
- Housing density allowed in the developable land area of a proposed district must be at least:
  - 20 units per acre for multi-family housing;
  - 8 units per acre for single-family homes;
  - 12 units per acre for 2 and 3 family homes.
- Provide that not less than 20 % of the residential units constructed in projects of more than 12 units will be affordable, and ensure that not less than 20 % of the total residential units constructed in each district will be affordable.
- Permit infill housing on existing vacant lots and additional housing units in existing buildings.
- There must be full compliance with federal, state and local fair housing laws.
- The proposed district may not exceed 15 percent of the total land area in the municipality.

The Oak Grove Bottle Cap Lots site may qualify for state funding because it meets several criteria for an eligible location. It is within one-half miles of I-495 Exit 19, which would mean new development could utilize existing transportation infrastructure. In addition, the future sewer line will bring significant new utility capacity to the site which would otherwise be underutilized. The site is also only four miles north of the Franklin I-495 MBTA Commuter Rail station, so a requirement for transit service, such as a shuttle to the Medway town center and an express shuttle to the Franklin I-495 MBTA Commuter Rail station, could aid in meeting this criteria. Also, the Bottle Cap Lots site is home to Medway‘s largest corporation and future mixed use of the site could help achieve the 40R requirement that the proposed district be near current and future areas of concentrated development. A significant number of trips are already generated by the site everyday, and MassHighway traffic counts for 2005 estimate 15,000 to 18,000 average daily vehicle trips (ADT) past the site entrance at Trotter Drive. Currently, little multi-family housing exists along I-495. Due to its location, the site would be highly suitable for dense housing and mixed-use development. Residents could easily access I-495 and enjoy the benefits of walking to the grocery store, bank, or daycare.

Table 11: Medway commuter rail access – Franklin Line



Source: MassGIS

Chapter 40S Smart Growth School Cost Reimbursement

In nearly all communities throughout Massachusetts, the potential cost of public education for new students who may reside in proposed development is a leading concern in the evaluation of new projects. This concern arises from the fact that the cost per pupil to a town is significant (in Medway it ranges from approximately $7,000 to $9,000 per year, according to the Medway School District and Massachusetts Department of Housing and Community Development). This typically leads to the situation where the cost of all community services for new development exceeds the property tax revenues received from new households. In the specific case of Medway the student costs are a concern, as additional funds are not available for an increase in students.

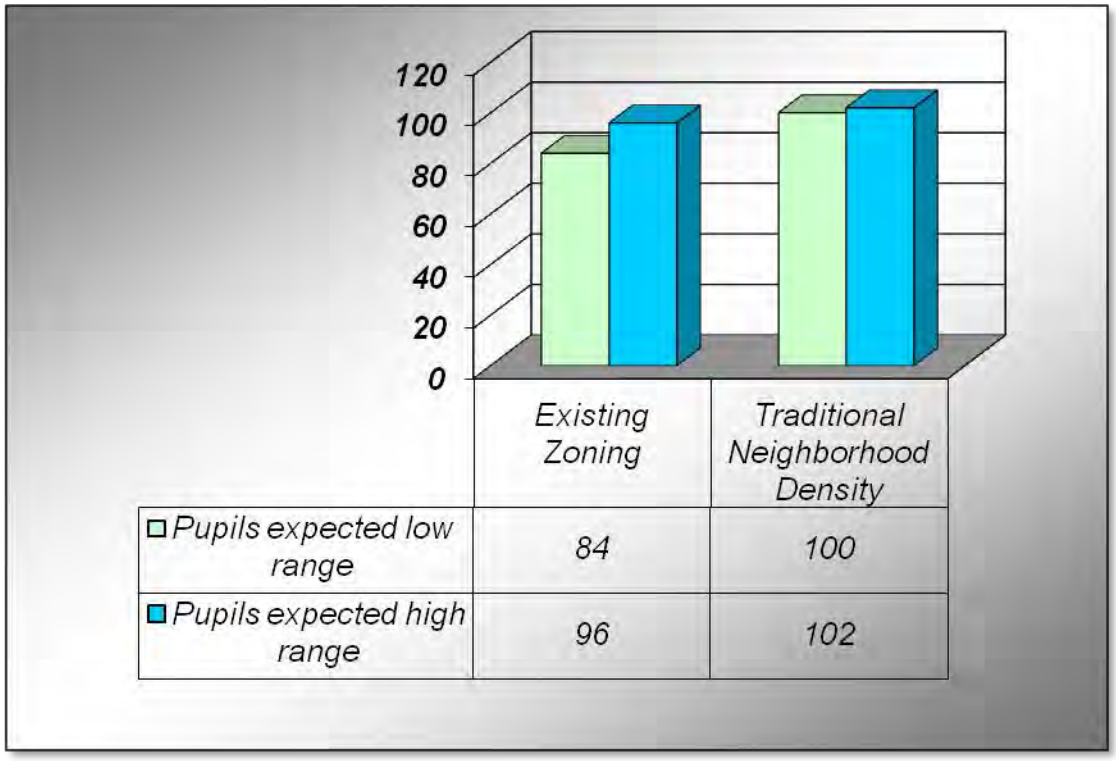
In order to help mitigate these school cost impacts from new development on municipalities, in 2005 Massachusetts Legislature created Chapter 40S, known as the Smart Growth School Cost Reimbursement. State funds from the Chapter 40S program are available to municipalities with an approved Chapter 40R Smart Growth district and document the additional cost of new students. (At this writing, Chapter 40S funding is being debated in the Legislature for the 2007-08 state budget.)

Assuming eventual site build-out will occur, establishing Smart Growth eligibility is essential to recouping additional public school costs resulting from new pupils living in new development. Families in apartments and townhouses have far fewer children than those living in single-family homes (Rutgers 2006). The rough calculation provided in Table 7 uses the Rutgers pupil per household findings to

illustrate that the number of public school children that can be expected with the 2- and 3-bedroom units proposed under Traditional Neighborhood Density will be approximately the same (96 verus 102) under a build out of single family homes, as allowed by existing zoning.

Chapter 40S provides the reimbursement to ensure that local education costs from new development does not exceed property tax revenues.

Table 12: Pupil impact estimates – Existing zoning vs. Bottle Cap Lots Site at full build out



Under Existing Zoning, 70-80 single family homes could eventually be built on the 40 acres of developable land. Using the Rutgers finding of 1.2 pupils per home, approximately 84 to 96 pupils could be expected under this scenario. If the 300 homes of the Oak Grove Village proposal were built, there would be 300 homes – 255 two-bedroom units at .27 pupils per unit, and 45 three-bedroom units at .73 pupils per unit, resulting in 100 to 102 new pupils. This demonstrates that denser housing can bring roughly the same impact to local schools as existing zoning; however, under existing zoning, Medway is not eligible for full reimbursement of the cost of additional pupils, as offered by Chapter 40S.

NPDES Phase II

The low-impact stormwater management system proposed for the site would help Medway meet new federal environmental standards. The 2001 revisions to the National Pollution Discharge Elimination System Stormwater Runoff, known as NPDES Phase II, may affect the Bottle Cap Lots site because Medway is classified by USEPA as an ~~"u~~rbanized area" for the purposes of regulation under this legislation. NPDES is a federal program administered by the states; however, in Massachusetts, the USEPA is the administering authority. Therefore, all development will need to comply with NDPES Phase II requirements to minimize impervious areas, design stormwater systems to handle two-year storms and maximize on-site stormwater re-charge.

State Historic Preservation Office & Massachusetts Environmental Policy Act Office

The Massachusetts Historical Commission as well as the Massachusetts Environmental Protection Agency will need to be contacted if the town secures any type of public funding for development as the site potentially could be considered a historic and cultural resource. A review process is mandated by Section 106 of the National Historic Preservation Act and the National Environmental Policy Act at the federal level as well as Massachusetts General Laws Chapter 9 and the Massachusetts Environmental Policy Act at the state level. The 242 parcels that form the majority of the site resulted from a contest that gave individual tracts of land measuring less than 1,000 square feet to those with a winning bottle cap. Most of these lots never saw any type of construction, but the subdivision plat still exists, complete with paper streets. Table 8 shows the location of the 242 remaining Bottle Cap lots.

Figure 261: Remaining Bottle Cap Lots parcels

MassGIS; Medway Assessors Parcels 2006; lots smaller than 1,000 sq ft

Massachusetts Opportunity Relocation and Expansion (MORE) Program

The Town of Medway applied for and received assistance from the Commonwealth through the MORE program for partial funding of the sewer line extension to the Industrial Park. MORE criteria are geared to support projects that offer substantial job growth; the applicant must demonstration that development will be served by the new infrastructure as well as create a minimum of 150 new jobs for five years.

5.3. Regulatory Objectives

Research and outreach in the community and region established the following key objectives for development of the Bottle Cap lot.

- Achieve Workforce Housing/Traditional Neighborhood Density of 10-15 du/ac.
- Allow multi-family homes and apartments but discourage detached single family homes.
- Encourage mixed-use for maximum long term market flexibility, including residential, office, and retail.
- Encourage compact development and low-impact development to achieve sustainability.
- Qualify the development for Ch. 40R by achieving required "smart growth" density, transit and other thresholds.
- Include open space requirements of at least 30% to preserve contiguous habitat and aid in stormwater management.

- Include passive recreational facilities accessible to all town residents.
- Include developer incentives by allowing some uses or structures by-right or with limited use of special permit.
- Maintain existing Industrial III zone and allow for future expansion to the south.

These objectives translated to the criteria used to evaluate the relative advantages and disadvantages of different regulatory approaches. In the end they were embedded in the final two recommended approaches.

5.4. Regulatory Approaches Considered

The studio team identified a range of possible regulatory approaches for achieving the objectives at the Oak Grove Bottle Cap Lots site. These included:

1. New mixed-use base zoning bylaw to replace existing base residential and portions of industrial zoning.
2. New mixed-use overlay zone to allow existing zoning to remain but offer mixed-use alternative.
3. Planned unit development (PUD) with mixed-use provision.
4. Form-based zoning overlay to proscribe highly specific building forms, setbacks, landscaping and other site requirements.
5. Floating zone with mixed-use options and/or form-based requirements.
6. Performance-based requirements incorporated into one of the options above.

From this range of approaches, four candidate strategies were developed and evaluated for achieving the objectives. There was general agreement among stakeholders that existing Industrial III zoning should remain intact.

CANDIDATE 1: Mixed-Use Base District

This approach would completely replace the parts of the Agricultural/Residential I & II and Industrial III that fall within these boundaries. This would likely be difficult to pass at Town Meeting, as property owners within the proposed district may express concern over their property values. An additional disadvantage is that it adds another base district to the zoning map, which further parcels the town. The significant advantage of this type of regulatory approach is that it can effectively prohibit uses such as single-family detached homes.

CANDIDATE 2: Mixed-Use Overlay District

As an overlay, this district would be geographically delineated on the town zoning map, but protect uses allowed under base zoning. The advantages to this approach include the allowance of a wide variety of uses to respond to the market; the town's familiarity with the existing Adaptive Re-use Overlay District; existing model bylaw language is readily available; protection of the base zoning for Cybex, the town's largest employer. A special permit would be required for nearly all uses, giving the Planning Board greater control than the existing base zoning allows. Developers would find the mixed-use zone attractive because of the increased density that would be allowed (apartments above retail). This would also allow uses, which the Massachusetts Alliance for Economic Development has identified as amenities to industrial and business parks, to complement the future build-out of the industrial park. Two main disadvantages exist with this approach. Requiring developers to obtain a special permit for almost every use places a financial burden on them. In addition, an overlay does not prevent the development of uses like single-family homes, which works against the above objectives.

CANDIDATE 3: Form-based Overlay District

As an overlay, this district would be geographically delineated on the town zoning map, but protect uses allowed under base zoning. The advantages to this approach include a high degree of local control over the actual form and function of any new structures that would be built—whether they are for residential, retail, commercial or light industrial. The end result is a product that is aesthetically pleasing and integrates well into surrounding communities. Unlike the special permit required for the traditional overlay district, structures that conform to the form-based code can be built as-of-right, as well as at greater than existing densities. This would provide developers with significant incentives as they would not have to go through a long special permit process. Two main disadvantages exist with this approach: the prescriptive code could stifle design creativity; and it is unclear if the town has sufficient administrative resources to develop and implement a form-based overlay.

CANDIDATE 4: Floating Formed-based Zoning

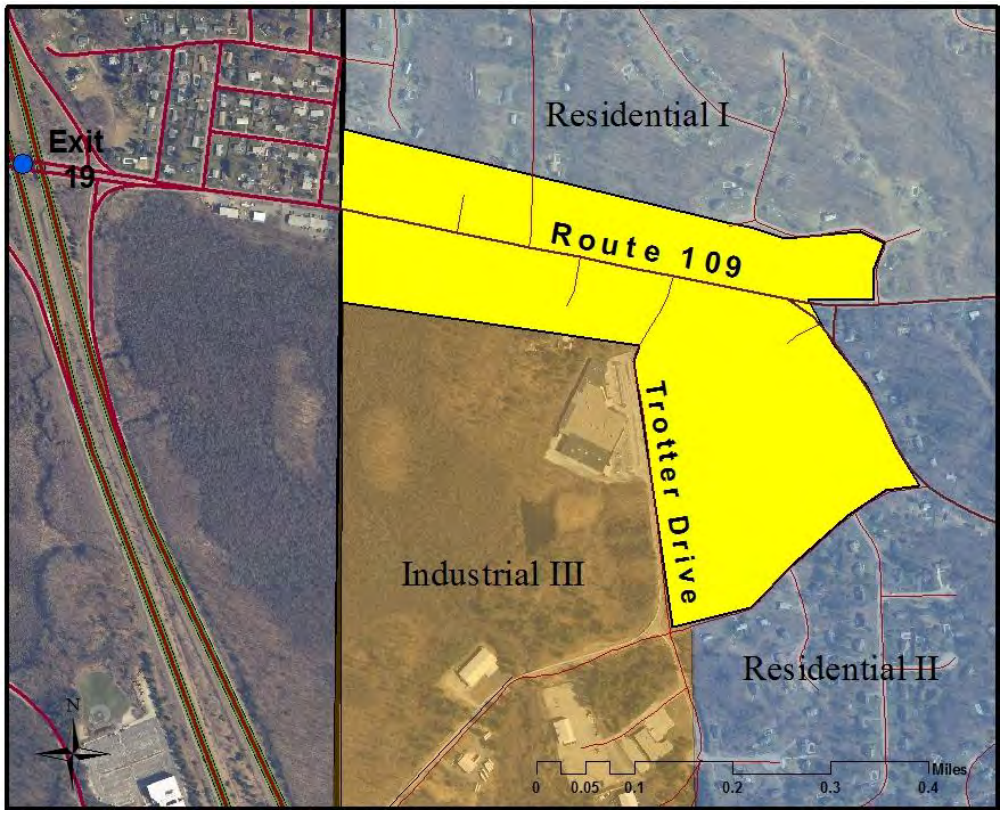
This approach would allow development conforming to a form-based code as described above, but in the nature of a floating zone. A floating zone proscribes permitted uses, setback requirements, and other standards in the same manner as a conventional zoning district, but it is not geographically delineated on the town's zoning map. A developer or property owner would invoke the provisions of the floating zoning code by initiating a rezoning process, which requires Planning Board hearings and a two-thirds vote of Town Meeting. When a planning board approves a development application that meets the criteria outlined in the floating zone, the zone becomes affixed to those acres or that parcel. The advantage of this approach is that the provisions could be enacted anywhere in town that meets the minimum requirements

of the code. There could be a minimum lot size, for example, that would limit such re-zonings to desired parcels. Besides the two disadvantages listed above, a form-based floating zone could become problematic if it is invoked too frequently, causing the Town's zoning to become further parceled and making it ever more difficult to administer. [4]

5.5. Recommended Regulatory Approaches

Analysis of the above regulatory approaches indicates that the geographic area in which the objectives are desired includes the Route 109 gateway and the residential portion of the project site. The following overlay boundaries are recommended: 500 feet either side of Route 109 from the town line at the west to West Street, and the residential area bounded by Trotter Drive and West and Alder Streets. The proposed district would be geographically delineated on the Town zoning map as shown below:

Table 13: Proposed overlay district boundaries



Source: MassGIS

RECOMMENDATION 1: Mixed-use Overlay District

This approach would allow the underlying base Industrial IV and Agricultural/Residential II zones to remain while offering developers an opportunity to achieve Traditional Neighborhood Density by opting

[4] Glenn Garber, UMass LARP faculty member, interview April 18, 2007

to build a project similar to that suggested by Oak Grove Village under provisions of a new mixed-use overlay district.

This approach would appeal to existing property owners within the proposed district, as it would protect the currently allowed uses (through the existing base zoning) and property interests. Community outreach found significant concern among town officials and industrial property owners for protecting their existing regulatory arrangements. In addition, the town is already familiar with the concept of a mixed-use overlay, having adopted the Adaptive Use Overlay District for West Medway village center in 2004. Therefore, a mixed-use overlay could be more administratively and politically feasible than other approaches. Key principles of Recommendation 1 are summarized in Figure 10.

Table 14: Summary of regulatory Recommendation 1

Mixed-use Overlay District	
Uses Allowed By-right (base zoning)	• Residential, commercial, retail (uses already allowed by-right in Ag/Res II or Industrial IV districts)
Uses by Special Permit	• Residential: Apartments, Condominiums • Commercial: Retail store, offices for business or professional use, restaurant, café, hotel, conference center, bank, shopping center, personal care services (i.e., beauty parlor, barbershop, nail salons), florist, convenience store • Transportation and joint development related • Day care center, health club and similar
Bulk requirements	
Height	• 2-story minimum for retail/commercial • 3-story maximum for retail/commercial
Building footprints	• 5,000 square foot minimum retail/commercial • 25,000 square foot maximum for retail/commercial
Materials	• Permeable surfaces for parking and sidewalks • Permeable road surfaces if possible
Density bonuses	• $3,000 per affordable unit in residential • $5,000 per unit in retail/commercial structure
Separate dimensional and intensity standards for mixed-use structures and residential structures	• More units per structure ratio allowed in mixed-use buildings • All structures with commercial uses on the ground floor must contain residences or offices above • Setback requirements reduced for structures with commercial use on

	ground floor • Limit 25% of all parking intended to serve commercial uses located in front of structures with the majority in the rear
Parking	• Reduced parking requirements from currently required in Commercial and Industrial zones • Allow shared parking (residential in evenings; commercial during the day) to reduce parking need
Sustainability	• Incorporation of US Green Building Council Leadership in Environmental and Energy Design (LEED) building and neighborhood standards
Amenities	
Transit service	• On-site shuttle stop encouraged with service to Franklin I-495 MBTA Commuter Rail station timed to arrive for each train departure/arrival • Parking for 50% of shuttle users
Recreational amenities	• Walking trails • Accessible park and playground facilities open to all town residents
Landscaping	• Plantings to achieve/restore existing vegetation density • Spatial and vegetation buffers to industrial uses • Vegetation buffers between residential-only and mixed-use structures
Subdivision requirements	
Water	• No more than 5% total impervious surfaces • On-site groundwater recharge • Full compliance with NPDES Phase II • Stormwater swales • Rain gardens
Pedestrian facilities	• Sidewalks to all structures • Minimum sidewalk widths of 6 feet • Raised pavement crosswalks, solar-powered user-activated crossing lights
Open space	• 35% minimum (combined public and private)

RECOMMENDATION 2: Form-based Overlay

A form-based overlay district would offer the town greater control over design outcomes. However, implementing a form-based code would involve significant public participation in the development of building and subdivision standards, thereby necessitating greater administrative involvement of municipal

paid staff. However, the end result is a product may be more aesthetically pleasing and better integrated into the surrounding community.

Form-based zoning places greater emphasis on the form of structures and their contextual relationship to the street, rather than the uses contained within the buildings. Except for uses already prohibited in the base zoning districts, all uses would be allowed by-right. Form-based zoning typically entails architectural specifications relating to style, detail, height, and massing.

A form-based approach could provide better control in achieving the desired western community gateway along Route 109 on the northern boundary of the site. Medway's Design Review Committee would play a key role in the development and administration of a form-based zoning overlay, with final approval by the Planning Board and, ultimately, Town Meeting. When a development meets the provisions specified in the code, the use is allowed by-right. Developers should find the mixed-use overlay attractive because of the increased density that would be allowed (apartments above retail). The overlay would allow uses, which the Massachusetts Alliance for Economic Development identified as amenities to industrial and business parks, to complement the future build-out of the industrial park. Flexibility of use will also prove to be more marketable to developers, which, in turn, should benefit the town's tax base.

The following are methods to guide the Planning Board and Design Review Committee in achieving the outlined objectives for the site with a form-based code. The town may wish to consider other form-based provisions, as well.

Table 15: Summary of Regulatory Recommendation 2

Form-based Standards Overlay District	
Allowed Uses By-right with site plan review	• All uses allowed by right in the base Ag/Res II or Industrial IV districts • Residential: Apartments, Condominiums • Commercial: Retail store, offices for business or professional use, restaurant, café, hotel, conference center, bank, shopping center, personal care services (i.e., beauty parlor, barbershop, nail salons), florist, convenience store. • Transportation joint development related • Day care center, health club and similar
Allowed by Special Permit	No special permit would be required
Bulk Requirements	
Dwelling units per acre - mixed-	15 – 20

use structures	
Dwelling units per acre - residential structures	8 – 12
Dwelling units per structure for mixed-use buildings	2 - 6
Dwelling units per structure for residential buildings	1 – 5
Sidewalk width	10 ft
Street width	24 ft
Parking per residential unit	1.5 spaces per unit
Parking per square feet of commercial space	1 space per 200 sq ft
Setbacks for mixed-use structures	
Front	0 ft
Side	0 ft
Rear	0 ft
Setbacks for residential from public way	
Front	30 ft
Side	15 ft
Rear	15 ft
Setbacks for residential from private way or parking lot	
Front	0 to 30 ft
Side	0 to 15 ft
Rear	0 to 15 ft
Building footprint for mixed-use bldgs (as % of buildable area)	30%
Building footprint for residential bldgs (as % of buildable area)	60%
Distance between mixed-use structures	0 to 25 ft
Distance between residential structures	1 to 25 ft
Floor area per commercial unit	1,000 to 20,000 sq ft

Floor area per residential unit	600 to 1,200 sq ft
Architectural Standards	
Windows	To be decided by community
Entrys	”
Porches	”
Roofs	”
Arcades	”
Facades	”
Materials	”
Width	”
Types	”
Styles	”
Landscape Standards	
Trees	”
Shrubs	”
Planters	”

5.6. Evaluation of Recommendations

The following table provides a summary evaluation of Recommendations 1 and 2 with respect to the established goals and existing zoning.

Table 16: Evaluation of Recommendations 1 and 2

Criteria	Existing Zoning	Recommendation 1 Mixed-used	Recommendation 2 Form-based
Achieves Work Force Housing/Traditional Neighborhood Density of 12-15 du/ac	NO	YES	YES
Discourages single-family detached dwellings	NO	YES	YES
Maximizes 1-2 bedroom units to minimize school costs	NO	YES	YES
Transit access	NO	YES	YES
Maximizes underutilized infrastructure	NO	YES	YES
Allows Medway to achieve Ch. 40B affordable housing 10% goal	NO	YES	YES
Creates a mix of housing types	NO	YES	YES
Requires 30% open space	NO	YES	YES
Includes trails, other recreation facilities	NO	YES	YES
Highly specific control over building appearance, setbacks and landscaping	NO	NO	YES
Predictable subdivision design	NO	?	YES
Sustainability, low-impact development (LID) stormwater	NO	?	YES
Controlled setbacks, building appearance, landscaping	NO	?	YES
Individual design creativity	?	?	NO
Administrative/cost feasibility	□ YES	YES	NO
Legislative/political feasibility	□ YES	YES	?

Many of the original goals of the regulatory analysis are satisfied by both the mixed-use and form-based overlays. Differences emerge in areas controlled by subdivision regulations, administrative level of effort and political feasibility. A form-based code offers more control, but may also limit the creativity of future design efforts. Therefore, further analysis of both recommendations is necessary before a preferred approach can be adopted.

6. COMMUNITY ENGAGEMENT and IMPLEMENTATION

This chapter offers suggestions for continuing the community engagement process initiated by this UMass studio project and implementing the Oak Grove Village site proposal described in Chapter 4 and the regulatory recommendations in Chapter 5.

The suggested community engagement process and implementation plan involves stakeholders at the municipal, regional and state levels. At the municipal level, one of the key challenges will be obtaining town approval to create an overlay district to allow greater residential density and complementary mixed uses. Therefore, many of the recommendations in this chapter focus on raising community awareness of workforce housing needs and building coalitions to achieve a successful two-thirds rezoning vote at a future Medway Town Meeting.

At the regional level, the Partnership and its members have an opportunity to play a central role in advancing new ideas and solutions to the workforce housing crisis. State level involvement will also be valuable to engage agencies and elected officials in the programs, especially Chapter 40R and 40S, which are central to the success of the proposed site design and regulatory revisions.

6.1. Community Engagement to Date

Since it began in late January 2007, the UMass studio process has included the participation of Medway elected officials, administrators and residents, the Partnership's Studio Review Committee members and developers from the region. The insight and information offered by these participants has been essential to the success of the studio. Therefore, it is recommended that these stakeholders form the nucleus for the next phase of the community engagement process to help promote the site proposal and discussion of regulatory recommendations. See the Appendix for a summary of community engagement to date, including primary concerns revealed by stakeholders in interviews and feedback from stakeholders at four meetings in April and May 2007 where studio members presented interim and final recommendations.

6.2. Recommended Participatory Process Moving Forward

Perspective on the Process

The involvement of Design Review and community members in the studio process has helped the UMass Studio team create a design proposal (Oak Grove Village) with the potential to address many of the stakeholder needs and concerns identified during the research and public involvement phases of the studio project. The proposal and accompanying regulatory recommendations offer a sustainable design that

maximizes the new sewer infrastructure to be built by the town; it offers significant incentives for developers in the form of density bonuses and mixed use tenant flexibility; it creates substantially more open space and recreational amenities than could be expected or required under existing zoning; and it creates pedestrian and transit connectivity where none would otherwise exist. Perhaps most importantly, the design proposal and recommendations would provide affordable, convenient and attractive housing for in the $250,000-$300,000 per unit price range, which is essential to meet the future needs of Medway residents.

The upcoming community process will provide new forums for the expression and consideration of stakeholder interests. This process will be based on four principles:

- Collaboration;
- An outward focus that helps place the project in the context of the surrounding neighborhood;
- A focus on addressing the housing, commercial, open space and recreational needs of the Medway community at large; and
- Achieving a sustainable, ecologically friendly, economically viable, and socially acceptable final development (Khede 2002).

The implementation of a workforce housing development on the Oak Grove Bottle Cap Lots site will require engaged stakeholders at all levels. Participants must be willing to explore nontraditional ideas about site design, zoning regulations and the role of regional and state entities in housing production. All must be willing to be candid and positive in their approach to the issue of work force housing—from the broadest policy levels down to the words and language they use to debate and evaluate solutions.

6.3. Engaging Stakeholders in the Promotion of Denser Residential Development

The Studio team has identified four broad categories of stakeholders and subgroups. Recommendations for engaging these actors are described below. At the municipal level the main goal of engagement is to develop the Oak Grove Bottle Cap Lots site in accordance with the recommendations in this report and will involve partnerships at the regional, state and corporate/institutional levels. Concurrently, recommended activities at the state level, such as removing regulatory barriers to denser residential development and increasing funding for programs such as 40R and 40S would better facilitate the development of workforce housing not only in Medway, but throughout the state.

Municipal

The municipal outreach process will be the central focus of the community engagement process. Indeed, Medway's elected officials, board members and Town Hall administrators have been working with success to improve housing opportunities for many years. Their recent adoption of an adaptive use overlay district and Chapter 43D expedited permitting provisions, as well as ongoing work to create a Traditional Neighborhood District overlay zone under a Smart Growth grant received from the Commonwealth of Massachusetts in 2006 are evidence of the community's forward-looking approach.

The municipal community process for the workforce housing initiative may build on the Town's success to date. Including a broad range of municipal stakeholders will help insure the success of subsequent public engagement.

This report suggests the Town of Medway consider appointing a Working Group to serve as the focus of community engagement and implementation process. Groups of this nature are typically most effective when they are limited to 12-20 members. The Working Group would be responsible for developing and carrying out a Work Plan that would lead the Town toward the expressed goal of issuing a Request for Proposals for the Bottle Cap Lots site. The Work Plan would include broad goals, specific objectives, a list of participants, and a schedule of meetings and milestone dates.

The participation of the following municipal stakeholders should be considered:

Boards and Committees	Town Administration	Community Groups, Employers and Institutions
Select Board	Planning Board Administrator	Abutters and owners of involved parcels
Planning Board	Town Clerk	United Chamber of Commerce
Conservation Commission	Building Commissioner	Realtors
Board of Health	Conservation Agent	Citizens group(s)
Finance Committee	Police and Fire Chiefs	
Industrial Committee	School Superintendent	
Design Review Committee	Public Works Director	
Water and Sewer Commission	Tree Warden	

Regional

The engagement of regional stakeholders will enhance the workforce housing initiative, as many other communities in Greater Boston are facing similar challenges to those of Medway. Indeed, the Oak Grove

Village site proposal and regulatory recommendations may provide a resource to other communities in the 495 Corridor that are grappling with similar concerns.

The Arc of Innovation 495/MetroWest Partnership is an established stakeholder on this issue. The continued involvement of the organization, including the Studio Review Committee, its 32 member communities and corporate members is vital to upcoming efforts. The Partnership may wish to utilize its standing Housing and Design Review Committees as the focus of regular meetings with other regional stakeholders and agencies that are active in the workforce housing. These may include the Metropolitan Area Planning Commission, Chambers of Commerce and Business Associations in MetroWest, and housing advocacy organizations, such as the Massachusetts Housing Partnership and the Citizens Housing and Planning Association. Finally, the Massachusetts Chapter of the American Planning Association may be an important resource in the regional engagement effort, as well as the state-level effort described below.

State

Chapter 5 identifies many state-level regulations that may affect the success of the workforce housing initiative, as well as opportunities to update these regulations to broaden the number of sites throughout Massachusetts, particularly in suburban communities like Medway that may have sites where desirable residential densities could be achieved. State level activities would dovetail closely with the regional engagement program suggested above. The involvement of the following agencies should be considered:

Massachusetts Department of Housing and Community Development
Massachusetts Department of Economic Development and Energy
Joint Committee on Housing of the Massachusetts Legislature
Massachusetts Water Resources Authority
Massachusetts Bay Transportation Authority
MassHighway

Corporate/Institutional

One of the central issues that the UMass Studio sought to address for the Partnership is the lack of housing for employees of biotech and other growing industries that wish to locate in I-495 corridor. Interviews with respondents identified the shortage of affordable housing for entry-level and young professionals as a central impediment to the region‘s ability to attract growing firms. Furthermore, the research phase of the studio identified corporate support as a key ingredient to successful developments of

higher density housing. Listed below are a range of corporate and institutional stakeholders that the Partnership may wish to include in upcoming phases of the project.

Cybex, other major local employers
Regional hospitals and health care providers
Regional academic institutions
Real estate development firms
Financial institutions
Hotel and hospitality operators

Table 17: Regulatory Implementation Recommendations

MUNICIPAL STRATEGIES		RESPONSIBILITY	TIMEFRAME*	PRIORITY
1	Designate Working Group	Select Board	Immediate	High
2	Draft Work Plan	Working Group	Short term	High
3	Workshops and briefings for all elected officials and town boards.	Working Group	Short term	High
4	Presentations to Planning Board and/or ZBA meetings/hearings.	Working Group	Short term	Medium
5	General public outreach via newspapers, Town newsletter and website.	Working Group, Planning Board	Ongoing	High
6	Preparation for Town Meeting vote(s).	Working Group, Planning Board	Middle term	High
7	Town Meeting vote	Planning Board, Design Review	Middle term	High
8	Prepare and issue Request for Proposals	Working Group, Select Board	Long term	High

REGIONAL STRATEGIES		RESPONSIBILITY	TIMEFRAME	PRIORITY
1	Arc of Innovation/495 Partnership briefings	Arc of Innovation	Short term	Medium
2	Regional agency coordination and partnership	Arc of Innovation	Immediate	High
3	Outreach to nonprofit housing agencies	Arc of Innovation	Short term	High
STATE-LEVEL STRATEGIES		**RESPONSIBILITY**	**TIMEFRAME**	**PRIORITY**

1	Briefings for elected officials of the Arc/495 region	Arc of Innovation	Short term	Medium
2	Testimony or presentation to Legislative Joint Committee on Housing	Arc of Innovation	Short term	High
3	Presentation to Mass. Dept. of Housing and Community Development	Arc of Innovation	Short term	High

CORPORATE / INSTITUTIONAL STRATEGIES		RESPONSIBILITY	TIMEFRAME	PRIORITY
1	Outreach to Cybex, local employers	Project Manager	Immediate	High
2	Breifings and working sessions with Arc of Innovation corporate members	Arc of Innovation	Short term	Medium
3	Coordination with Biotech industry professional association(s), other tech sector firms	Arc of Innovation	Short term	Medium
4	Meeting with Milford Regional Hospital, other regional institutions	Planning Board	Short term	High

**Timeframe: Immediate-6 Months; Short term-1 year; Middle term-2 years; Long term–5 years*

6.4. Recommended Outreach Products and Messages

Implementation will require an array of products to support outreach efforts described above. The following products are recommended:

1. Visualizations
    - Site plans and perspectives to show site buildout allowed under existing zoning (the worst case scenario).
    - Site plans, perspectives, computer generated photo composites of the site proposal as allowed under the recommended regulation revisions. The Town of Medway will be provided with electronic copies of the images in Chapter 4 Site Design.
2. Brochure that can be mailed or handed out at meetings
3. Website (as part of Town website)

- Frequent updates to encourage repeat visits.
- Content to include news, upcoming meetings, maps, visualizations, other links.

4. Press releases, magazine articles, opinion pieces
5. PowerPoint show
6. Workshop agenda

Throughout the development of these products, messages should be clear and consistent. The following recommendations and talking points may be used as a guide for the content of these products.

- Use the term ‗Traditional Neighborhood Density', rather than ‗high density.' (See Studio Report ―Community Factors Driving Opposition to Density" of March 8, 2007).
- Address residents' concerns, such as school costs. Reference the Community Opposition to Density research report for responses to typical concerns and tips on mitigating those issues.
- Focus on the benefits of the plan:
  - This project is necessary to make the most efficient use of a planned sewer extension, which is essential for retaining Cybex, Medway's largest employer, and inviting new industrial tenants.
  - Efforts were made to preserve the existing industrial parcels.
  - The plan provides publicly accessible open space.
  - Smaller, more affordable housing will make it easier for retirees and 18-35 year-olds to stay in town.
  - Mixed-use development will help to balance Medway's tax base. Inform residents who are concerned with changes to the look of Route 109 of the importance of visibility to the success of those businesses.
  - At a regional scale, environmental priorities include preserving critical resources such as farmland and large continuous blocks of forest. This can only be achieved by reducing development pressure on those areas. Traditional neighborhood design is an important part of that regional strategy.
- Highlight the consequences of inaction:
  - Important community members such as firefighters, nurses, utility workers and others might find themselves needing to move out of town to find housing that they can afford.
  - Without this project, Medway will continue to be short of meeting its 10 percent affordable housing goal, and therefore vulnerable to a 40B development that is not subject to zoning.

6.5. Utilizing the Request for Proposal (RFP) as an Opportunity

As the project design and vision develops, stakeholders will express interests that they would like to see incorporated into the site. Officials should maximize the opportunity to influence the process and products of development as identified by stakeholders by specifying these items in the Request for Proposal:

- Maintenance of community open space should be borne by the developer and the condo or homeowner association.
- The developer should be required to provide the Town with visualization products that can be used to gain public support.
- Require impact fees and/or specific infrastructure upgrades to address the impacts of the new development.
- Amenities such as parks and playgrounds, public drinking fountains and benches should be required.
- De-emphasizing the view of parking lots from the street is desirable, however, it necessitates adequate signage.
- Providing a safe environment with appropriate landscaping and lighting plans is essential.

6.6. A Vision for the Future

Massachusetts is facing a pressing land use problem. A startling report issued by the Mass Audubon in 2003, titled: *Losing Ground: At What Cost?* draws attention to the loss of land in the entire state. In particular, loss of agricultural land to development is distributed throughout the I-495 region and the Connecticut River valley. Between 1985 and 1999 the state continued to lose 40 acres per day to —isible" development (as interpreted from aerial photography). Nine out of ten acres were used for residential development, while 65 percent of this land was used for low-density, large-lot housing. Statewide since 1970, average residential building lot sizes have increased 47 percent (Mass Audubon 2003).

In the next fifty years, communities in Massachusetts will face demands that engender the increased urbanization of suburbs and the increased suburbanization of rural areas. As land becomes scarcer, developing at low densities will be increasingly impractical. Building at greater densities is the best strategy for accommodating people while reducing development pressure on farms and forests. Besides the intrinsic value of natural areas, the ecosystem services that they provide are simply too valuable to squander. Additionally, Towns that attempt to maintain their community character by enforcing primarily large, single-family homes will likely face deficit financing, as Medway is experiencing. Failure to build a

variety of housing types will exclude the groups of people that give communities a diversity of interests, experiences, and human and labor capital.

The Oak Grove Village site proposal, market analysis and regulatory recommendations offer several important lessons:

- Mixed-use development has the potential to balance the tax base in towns that have a high proportion of residential uses.
- Mixed-use developments with built-in flexibility for different uses may be more successful in the face of market fluctuations.
- Mixed-use developments are consistent with state Smart Growth and sustainability goals.
- Higher density housing decreases excessive land consumption.
- Work force housing ensures that people of all income levels are afforded decent housing.

The State of Massachusetts has taken innovative actions in attempts to achieve smarter land use and address the economic and social issues resulting from the high cost of living in the state. Nevertheless, programs such as 40R and 40S need increased funding to encourage towns to seek participation when prime sites become available for development. The Arc of Innovation may be able to play a crucial role in encouraging the state to look for sources of money to provide funding for these programs so that towns can maximize their potential benefit. The Arc of Innovation may also encourage the State to revaluate requirements for 40R eligibility to make sure that they are not too inflexible to address all of the types of sites that would be appropriate for a Smart Growth District. For instance, the minimum density requirement may need to be revised to include a range of appropriate densities depending on a rural, suburban or urban context.

The Arc of Innovation may also be able to promote solutions to Massachusetts‘ land use problems by vocally supporting state level zoning reform legislation. The proposed Massachusetts Community Planning Act II (CPA II) reforms in the areas of plan/regulatory consistency, grandfathering, approval not required plans (ANRs), the two-thirds Town Meeting zoning vote, affordable housing, and impact fees (APA Massachusetts Chapter 2005). Many of the proposed changes in the CPA II will better facilitate sustainable, workforce housing throughout the State.

Statewide problems are manifested at the local level. To resolve these issues, towns require the support provided by entities such as regional planning agencies and the Arc of Innovation. Many towns in the state lack the resources to be able to address growth issues, and collaboration with these entities would ensure long-term growth management. In every region of the State there are at least a few organizations that can offer land use expertise. Smarter land use cannot be achieved overnight; nonetheless, it is

achievable through determination and a consensus that smarter decisions today will yield better outcomes in the future.

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Appendix A

Stakeholder Interviews

Interviews were conducted with more than a dozen Medway officials, the Partnership's Studio Review Committee members, real estate experts and other professionals (See research report on Community Opposition to Density for list of interviewees and interview summaries). These key informants suggested that a successful workforce housing program should address the following primary concerns:

- Higher taxes for increased municipal services;
- School costs from new pupils and the potential/perceived costs to local schools;
- Lack of municipal authority to charge school-related impact fees;
- Lack of confidence that Chapter 40R and 40S will provide assistance;
- Fast rate of residential growth;
- Traffic and parking;
- Strong desire to maintain local control of aesthetics and existing zoning bylaws;
- General opposition to any project with a density greater than 1 du/ac;
- Poor quality design and/or construction of existing denser housing developments;
- Additional costs for water and/or sewer hook ups;
- Resistance to mixed use zones from residents and commercial landlords;
- Lack of understanding of ~~"t~~raditional" housing densities; and
- Lack of predictability in the permitting process.

Meetings, Presentations and Feedback

Studio team members met several times with stakeholders to receive feedback on preliminary design and regulatory approaches. On April 4, 2007, the studio team presented two design concepts to the Partnership's Design Review Committee, which offered the following feedback:

- Preference for maximizing industrial uses and reducing commercial office space;
- Eliminate or reduce single-family detached homes in favor of townhouse-style apartments and multiplexes
- Consider impact of Milford retail and industrial zones nearby;
- Gear future retail toward the future residents of the new development, employees of Cybex and potential new nearby industrial tenants; and
- Design and regulatory scheme should accommodate such possible future retail/commercial tenants as dry cleaners, day care, gym, small grocery store and restaurants.

On April 11, 2007, the studio team presented revised design concepts to officials and residents of Medway, Studio Review Committee members and several residential developers. This group provided the following feedback:

- The success of hotel or commercial establishments depends on visibility from the highway and roadway (Route I-495 and Route 109);
- Housing affordability could be improved by designing higher density apartment buildings of 24-48 units each (rather than townhouses), building smaller units, building close to infrastructure and avoiding boulder outcrops on the site;
- Pre-fabricated construction may reduce costs and still yield desired quality; and
- Retail sites of 20,000-30,000 square feet may be more marketable and attract larger stores and restaurants than —mom n' pop" establishments.

Studio members presented final designs and regulatory recommendations to UMass Landscape Architecture and Regional Planning faculty on May 9 and to the Arc of Innovation Design Review Committee on May 11 and received the following comments:

- The residential scheme is well-designed and has an appropriate density for the site;
- The mixed-use gateway along Route 109 is a good strategy for achieving the fiscal balance sought by the town;
- The hotel/conference center concept should be developed further;
- Parcel ownership will need to be considered going forward;
- In addition to the two overlay districts considered, the regulatory recommendations might have also benefited from examining a new base district in greater detail: and
- The visualizations prepared for the site proposal will be valuable to the forthcoming public involvement process.

Appendix B

Table 18: Housing types, units and lot sizes for Boston Metro and subregions

Location	Type	Units	Median Lot Size/ Land per Unit
Boston Metro Area	Single Family	30,387	**0.91 acres**
	Multi-family	14,362	**0.13 acres**
	Apartments	5,047	**0.06 acres**
	Condominiums	9,315	**0.19 acres**
Inside Route 128	Single Family	2,707	**0.28 acres**
	Multi-family	5,157	**0.05 acres**
	Apartments	2,323	**0.03 acres**
	Condominiums	2,834	**0.06 acres**
Outside Route 128	Single Family	27,680	**0.92 acres**
	Multi-family	9,205	**0.21 acres**
	Apartments	2,724	**0.11 acres**
	Condominiums	6,481	**0.29 acres**

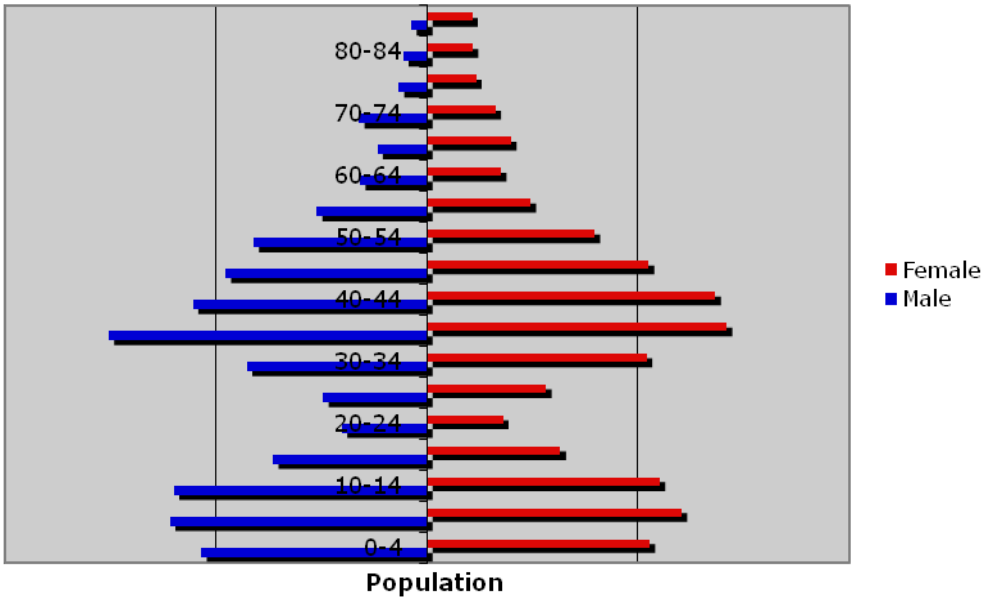
Source: MIT Center for Real Estate, 2006

Table 19: Employment Analysis for Boston Metro

Average Monthly Employment	All Industries	Retail Trade	Leisure and Hospitality	Manufacturing	Increasing Rate for all Industries from Previous Year
2001	2730	261	286	520	--
2002	2699	303	286	482	-1.1%
2003	2649	279	311	443	-1.9%
2004	2704	294	331	440	2.1%
2005	3088	446	375	508	14.2%
2006 (predicted)	3322	465	368	537	7.6%

Source: The Department of Workforce Development, Massachusetts, 2006

Figure 27: Town of Medway age cohort pyramid



Source: US Census 2000

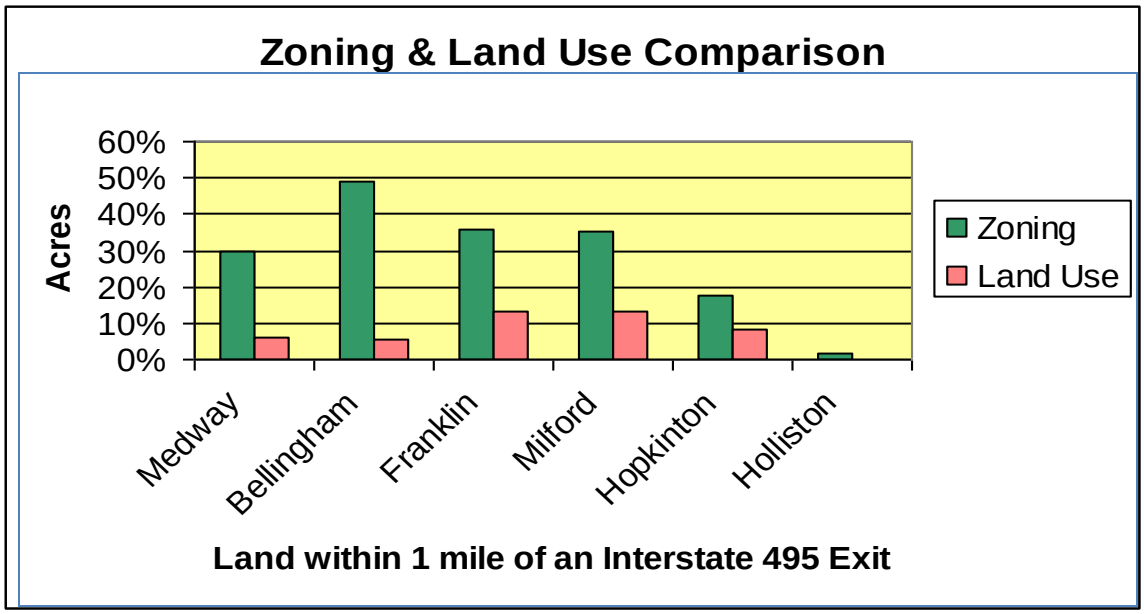
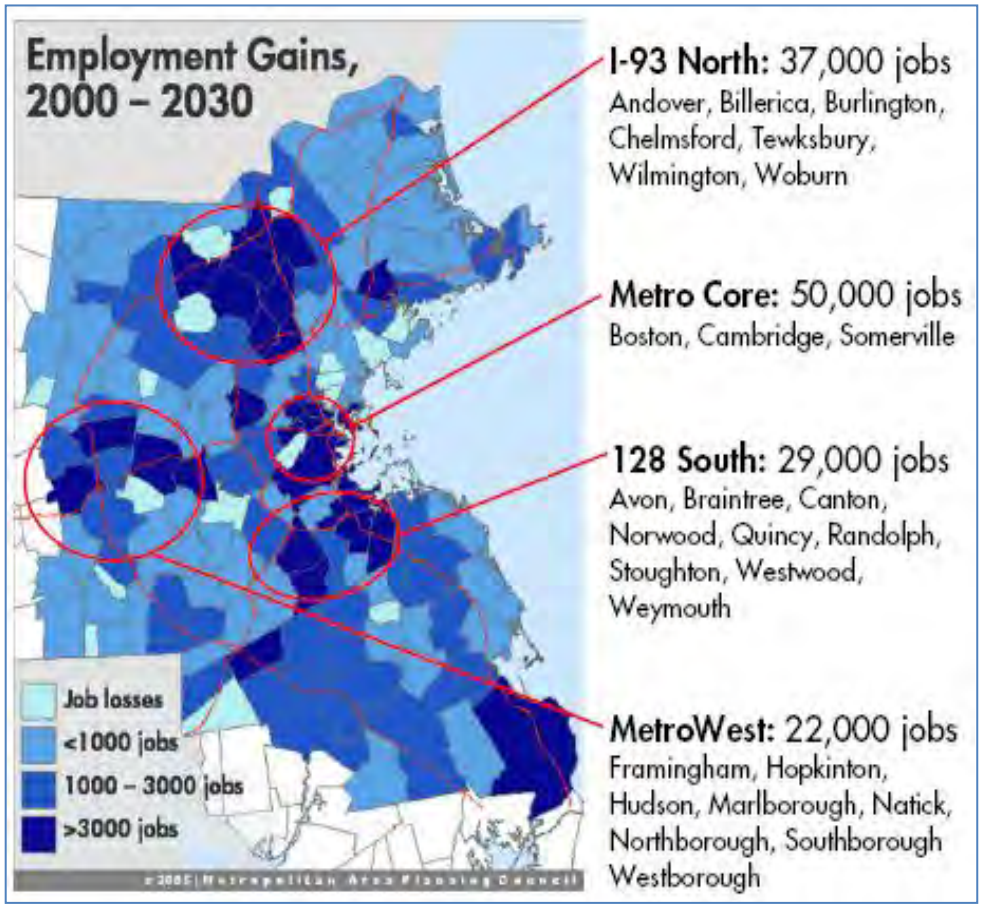


Table 20: Industrial and commercial zoning analysis-Medway and neighboring municipalities

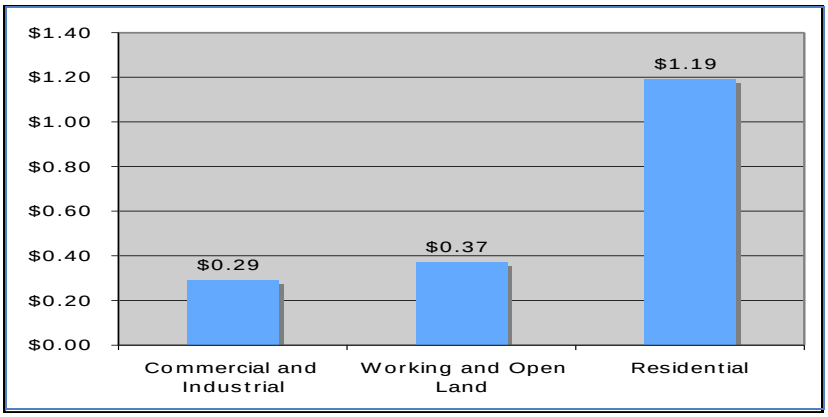
Industrial & Commercial Zoning and Land Use Comparison				
Land within 1 mile of an Interstate 495 exit, in acres				
Town	**Land zoned**	**%**	**Land used**	**%**
Medway	162.79	29.92%	31.62	5.81%
Bellingham	983.01	49.14%	111.44	5.57%
Franklin	1,433.65	35.83%	522.41	13.06%
Milford	1,110.46	35.30%	419.15	13.32%
Hopkinton	354.35	17.71%	170.36	8.52%
Holliston	3.52	1.53%	0.00	0.00%

Figure 29: Metro Boston employment forecast employment gains 2000 to 2030



Source: MAPC

Figure 30: Cost Per Dollar of Revenue to Provide Public Service



Source: American Farmland Trust, 2006

Volume 2

DENSITY through DESIGN

Research Reports

Volume II consist of four separate research reports on:

1. Factors Driving Community Opposition to Residential Density
2. Regulatory Barriers to Increase Residential Density
3. Precedents for Achieving Greater Residential Density
4. Innovative Design Techniques to Achieve Residential Density

This project was a collaboration between students of regional planning, landscape architecture and architecture at the University of Massachusetts Amherst. It was directed by Professors Elisabeth Hamin and Dean Cardasis who were assisted by Michael DiPasquale of the CPTC and Nedim Kemer.

The project was funded by a grant from the 495/MetroWest Corridor Partnership.

1. FACTORS DRIVING COMMUNITY OPPOSITION TO RESIDENTIAL DENSITY

Understanding the basis of community opposition to denser residential development is essential to the process of creating successful projects. Without this sensitivity, good projects may never be built.

Disagreements between citizens and officials often involve perceptions and values, rather than technical issues. The most frequently raised arguments against denser residential developments are those that involve traffic and congestion, reduced property values, adverse impacts on local aesthetics, and increased costs for community services. In Massachusetts, the potential of increased costs to local schools is one of the leading concerns of project opponents. Fortunately, in each of these areas of concern, there are pertinent responses and additional information that can help opponents overcome their concerns or fears about increased density.

In most communities, there is preference for maintaining existing visual aesthetics and policies regarding housing development. In the 495/MetroWest Corridor, denser residential developments have received a negative reputation because, in the view of municipal planning officials, they tend to be poorly conceived, designed and/or built. In Medway, planning officials suggest that denser residential development is likely to be opposed because of potential increased costs of community services, especially for schools and sewer infrastructure. In Sudbury, the leading concerns identified are the proximity of new development to abutters and residents, as well as the aesthetics of the development itself and its impacts on the existing town aesthetic; projects with a poor appearance tend to generate opposition.

Communities, and the design-phase studio teams, may be able to effectively address community opposition to denser residential development by crafting a site concept and implementation program that emphasizes:

- Excellent site design with classic architecture, low-impact landscaping and transportation alternatives to mitigate traffic impacts;
- Mixed use zoning to enhance tax revenues from the commercial sector;
- Maximizing Chapter 40R and 40S applicability;
- Early involvement of stakeholders with a special focus on the municipal boards and officials; and
- A review of municipal permitting processes to improve predictability.

2. REGULATORY BARRIERS TO INCREASE RESIDENTIAL DENSITY

Studies show that high housing costs in the metropolitan Boston area are due to the insufficient supply of housing. This scarcity of housing has caused housing prices to rise sharply so that homes are no longer affordable for residents attracted to the area for jobs and quality of life. The reasons for this shortfall in supply are complex, but clearly a primary factor in the lack of supply is restrictive municipal zoning and other land use regulations.

Research shows that in Massachusetts, there are two main categories of regulatory barriers to new development: extensive permitting process requirements for housing developers, and zoning regulations that limit the land that is available for higher density development. Both of these factors appear relevant in the MetroWest corridor, where large lot zoning and long permitting processes are quite typical. Specific barriers are as follows:

Impediments to the permitting process for housing developers

- Prolonged permitting process and complicated appeals discourage developers.
- Impact fees and permitting costs place additional cost on homebuyers and developers.
- Contradictory state regulations are enforced by different authorities. Often these governing bodies have little communication with each other.

Zoning regulations that limit the land that is available for higher density development

- Home rule gives municipalities in Massachusetts the power to adopt, amend, and repeal ordinances or bylaws. This allows municipalities to adopt even more stringent bylaws than what is dictated by state legislation.
- In response to local goals, many municipalities have adopted large lot zoning and few opportunities for multi-family developments, placing an absolute constraint on the number of homes which can be built and driving up home prices.
- Euclidean zoning often mandates single use development and makes traditional development patterns with high-density housing and nearby commercial areas almost impossible to create.
- Environmental protection laws, while important, limit the number of buildable lots in Massachusetts. Often, local municipalities will impose even more stringent bylaws.
- Building codes are often variably interpreted at the local level, creating confusion for developers.

Recommendations

Altering regulations based on the findings of this report could significantly improve the environment in which land and housing decisions are made. Additionally, further gradual policy changes striking a balance between incentives and mandates will be crucial to creating more affordable housing and compact development.

- Reducing the minimum lot size would allow for the development of more affordable housing.
- The implementation of form-based zoning codes is an innovative way to promote sustainable development that supports mixed-use neighborhoods with a range of housing types.
- Encouraging appropriate streamlining permitting techniques and other incentives help motivate developers to construct smaller, denser dwellings.

Changes in state legislation should be made in order for municipalities to grow in a more sustainable manner.

3. PRECEDENTS FOR ACHIEVING GREATER RESIDENTIAL DENSITY

This study analyzed nationwide exemplary cases to compile a list of "best practices" to aid the municipalities within the 495/ Metrowest region in addressing the shortage of workforce housing. This list shows that there are many tools municipalities can use to spur relatively dense, affordable housing development. These tools include incentives that make projects more attractive to developers, zoning revisions that foster sustainable, compact development and techniques that encourage community stakeholders to support these kinds of developments.

One of the most important initiatives a municipality can take is to create incentives for developers. By easing the process for developers, and in turn reducing development costs, a municipality can become more attractive for development. These incentives include:

- Density bonuses that provide developers a greater density or Floor Area Ratio (FAR) than traditionally allowed in exchange for affordable rents or sales prices on some of the units.
- A streamlined application process that will speed up the permit and application process for developers, potentially saving them weeks or months of waiting time.
- Transfer of development rights, a land use regulatory tool that provides landowners or developers who wish to build in a preferred-growth area the ability to transfer development rights from areas where growth is discouraged, thus gaining a higher density on their project.

Another avenue that municipalities should take is the creation of flexible zoning measures that provide for a greater range of land-development patterns than allowed under traditional zoning. These measures include:

- Inclusionary zoning that mandates that a set percentage of units in a new residential development, or one being converted to residential, be made affordable.
- Cluster zoning and cluster development that permits the building of residences on smaller lots, with the land saved from the reduction of the lot size creating protected open or recreational spaces.
- Planned unit developments that emphasize flexibility in design by allowing various land-uses to be placed side-by-side, decreased building setbacks and lot sizes, greater building heights, and more housing units.

Zoning and design should directly address municipal goals for the particular neighborhood. Traditional neighborhood developments encourage smaller lots with reduced setbacks, narrow streets, wide sidewalks, and traditional style architecture. Transit-orientated developments concentrate residential development near centers of mass transit, thus emphasizing walkability. Mixed income housing interweaves housing units for varying income levels throughout a new development while maintaining an appearance consistent with market-rate housing. A variety of housing types allow multi-family housing, "in-law" apartments, duplexes, accessory apartments, and rehabilitated structures adapted for residential use by-right in zoning districts across a municipality.

To be successful, these measures designed to increase density and affordability in municipalities must gain the support of the community. Municipalities can take a range of steps to increase public approval for their proposed measures. Some of these are:

- Obtaining public input through workshops, meetings, and forums as a way to involve the public in the planning process;
- Conducting charrettes to develop ideas used for neighborhoods, streets, master planning or even residential density;
- Gaining the support of elected officials, as residents look to them for leadership;
- Building excitement and fostering effective communication through careful word choice;
- Utilizing the local media to disseminate information to residents and thus potentially diffuse unfounded fears from higher density proposals;
- Gaining the support of corporate leaders as they are stakeholders in the community;
- Employing visualization techniques that show proposed plans or development scenarios as a way to encourage public participation and discourage unfounded fears of density; and
- Utilizing the municipal website as useful medium for posting upcoming issues, meetings and agendas, as well as showing maps and other visual aids.

Examples from across the country show that the implementation of development incentives, progressive zoning laws, and a successful citizen participation process can help cities and towns implement relatively dense housing developments that are affordable and sustainable. It is the goal of the study that with the aid of these proposed "best practices," communities of MetroWest will be able to create new methods for implementing workforce housing initiatives.

4. INNOVATIVE DESIGN TECHNIQUES TO ACHIEVE RESIDENTIAL DENSITY

This study examined design techniques to create beautiful, functional higher density housing that addresses many of the concerns and issues noted in the previous reports. We have chosen ten case studies that specifically address the issues of density and sustainability in housing. Through our research we have identified the following as key criteria that make higher density design successful:

- Organization of public and private space,
- Separation of pedestrian and vehicular traffic,
- Strategic techniques that magnify smaller spaces,
- Effective on-site storm water management,
- Use of alternative energy sources and green building materials,
- Techniques that ensure better affordability.

While each case study varies in location, intensity, and innovations, all provide key lessons that have inherent applicability to the MetroWest Corridor.

Case Studies

Radburn, *New Jersey* is an important historical example that sought to put the automobile in its place – away from potential pedestrian walkways and living spaces. In addition, Radburn revolutionized the way neighborhoods are spatially organized, by arranging the housing prior to drawing lot lines.

James Rose Center *in Ridgewood, New Jersey* shows how living spaces can be deconstructed and rearranged to balance public, private, and green spaces. In addition, the work of James Rose demonstrates multiple techniques that magnify small spaces to make them appear larger.

Village Homes *in Davis, California* offers many innovations in natural on-site storm water management, and preserves common open spaces that are connected through pedestrian pathways and are used for fruit bearing trees.

Wellington *in Breckenridge, Colorado* was created in response to a severe shortage of workforce housing. While maintaining stringent affordability standards, Wellington also has key sustainable features including a riparian corridor.

Greenwood Avenue Cottages *in Shoreline, Washington* is a compact infill development of eight small single family homes that demonstrate how very small homes can be both beautiful and successful in the marketplace.

Kentlands *in Gaithersburg, Maryland and Bamberton* (proposed) are two New Urbanist developments by Duany and Plater-Zyberk that incorporate mixed use, diverse housing choices, and walkability in the creation of the planned communities.

Highlands Garden Village and Holiday Neighborhood *in Colorado* are two premiere developments that emphasize green building practices, mixed use development, and a diversity of housing choices.

Caldwell Farm *in Newbury, Massachusetts* serves as an award winning local example of a cluster development that preserved a large amount of open space.

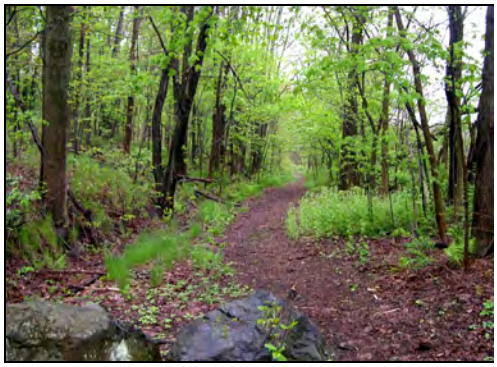
APPENDIX 2

Stow Reconnaissance Report
(Landscapes Heritage project)

STOW RECONNAISSANCE REPORT

FREEDOM'S WAY LANDSCAPE INVENTORY

MASSACHUSETTS HERITAGE LANDSCAPE INVENTORY PROGRAM



Massachusetts Department of Conservation and Recreation

Freedom's Way Heritage Association

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June 2006

Cover Photographs
Sudbury River
Gleason Homestead, Gleasondale
Assabet River Rail Trail

CONTENTS

INTRODUCTION

The Freedom's Way Heritage Association includes 37 Massachusetts communities that are linked by historic events that helped to shape America's democratic form of governance and the intellectual traditions that underpin American freedom, democracy, conservation and social justice. Freedom's Way communities extend from Arlington on the east to Winchendon on the west. They represent a wide range of cities and towns, each shaped by the relationship between nature and culture.

Heritage landscapes are special places created by human interaction with the natural environment that help define the character of a community and reflect its past. They are dynamic and evolving; they reflect the history of a community and provide a sense of place; they show the natural ecology that influenced land use patterns; and they often have scenic qualities. The wealth of landscapes is central to each community's character, yet heritage landscapes are vulnerable and ever changing. For this reason it is important to take the first steps towards their preservation by identifying those landscapes that are particularly valued by the community – a favorite local farm, a distinctive neighborhood or mill village, a unique natural feature or an important river corridor. To this end, the Massachusetts Department of Conservation and Recreation (DCR) and the Freedom's Way Heritage Association (FWHA) have collaborated to bring the Heritage Landscape Inventory program (HLI) to communities in the Freedom's Way area. The primary goal of the program is to help communities identify a wide range of landscape resources, particularly those that are significant and unprotected. The focus is on landscapes that have not been identified in previous survey efforts in a given community. Another important goal of the program is to provide communities with strategies for preserving heritage landscapes.

The methodology for the Heritage Landscape Inventory program was developed in a pilot project conducted in southeast Massachusetts and refined in Essex County. It is outlined in the DCR publication ***Reading the Land*** which has provided guidance for the program since its inception. In summary, each participating community appoints a Local Project Coordinator (LPC) to assist the DCR-FWHA consulting team. The LPC organizes a heritage landscape identification meeting at which interested residents and town officials offer community input by identifying heritage landscapes. This meeting is followed by a fieldwork session including the consulting team and the LPC, often accompanied by other community members. This group visits the priority landscapes identified in the meeting and gathers information about the community. The final product is this Reconnaissance Report, prepared for each participating community. It outlines the history of the community; describes the priority heritage landscapes; discusses planning issues identified by the community; identifies planning tools available in the community; and concludes with preservation recommendations. A list of all of the heritage landscapes identified by the community is included in the Appendix.

STOW HISTORY

Some documentation shows that Native Americans used this area as early as the Middle Archaic Period (8,000-6,000 B.P.). During more recent pre-European settlement periods of development, Stow was known as Pompositticut, a name given by the Native Americans who traveled through this territory, made paths and cleared land on which to grow maize. The first known road passing through Pompositticut (Stow) was laid out in 1646, connecting Sudbury to Lancaster. This was an important step towards European settlement, which occurred later here than in the surrounding towns. The first European settlers arrived in ca.1660 and in 1683 Pompositticut Plantation was incorporated as the town of Stow. The first meetinghouse was built two years later in 1685 on the Common at Lower Village.

Agriculture was the primary economic activity throughout the 18th and the early 19th century. Several sawmills were in operation by the late 18th century and by the turn of the 19th century some farmers turned to coopering, furniture making and shoe manufacturing in the winter.

Other early roads followed presumed Native American trails including the new Lancaster Road of 1715 (now White Pond Road). This road passed through Lower Village which was the commercial and institutional center throughout the 18th and the first quarter of the 19th century. This center had the Lower Common, a meetinghouse, burial ground and a number of fine 18th century dwellings. In 1802-03 Red Acre Road was laid out connecting Stow's Lower Village with Acton. Stage routes passed through Lower Village which was the center point of the stage-coach route between Boston and Lancaster.

In the second quarter of the 19th century there was a shift of the civic center to the west. The new area, Stow Center, was farther west of Lower Village on Great Road, an early east-west route that had been straightened in 1810. The fourth building of the First Parish Church was constructed at Stow Center in 1827, in a location that was more central to residents of Stow. In 1848 the new center was confirmed with the construction of the Stow Town Hall and the reconstruction of the First Parish following a fire that demolished the 1827 structure.

In the early to mid 19th century textile mills had been built on the Assabet and the small industrial village of Gleasondale (first known as Randall Mills) took shape. Small mills, including textile, shoe and box manufacturing, continued to operate throughout the 19th century. A major shift in the manufacturing came in 1850 when the Marlborough Branch of the Fitchburg Railroad opened in the southern part of Stow. The railroad also helped sustain agriculture through the late 19th and early 20th century when dairy farm and orchard owners were able to ship their products.

In addition to Gleasondale, Assabet Village was an industrial center that was part of Stow until it became the separate town of Maynard in 1871. This led to a shift in Stow's historical development and population count which decreased by 800 people and 2,300 acres. Late 19th and early 20th century development included a small summer community on the shores of Lake Boon. Railroad travel and

trolley lines connecting Stow with neighboring communities as well as Boston were used by summer sojourners as well as some workers heading to Hudson and Maynard in the early 1900s. Once the automobile took over, there was a decline in the use of the trolley and railroad, and roads were improved as regional connectors. Great Road (Route 117) continued as the main road through Stow.

Agriculture continued to be an important part of Stow's economy throughout the 20th century with orchards dominating farming activities. In 1960 Stow was still a farming community of just over 2,500 people. There was a shift in population in the last decades of the 20th century as the town became a bedroom community of nearly 6,000 residents. Nevertheless Stow continues to be known for its apple orchards.

PRIORITY HERITAGE LANDSCAPES

Stow's Heritage Landscape Identification meeting, attended by more than 20 residents, some representing town boards and local non-profit organizations, was held on April 12, 2006. During the meeting, residents compiled a lengthy list of the town's heritage landscapes, which is included in the Appendix. Once the comprehensive list was created, attendees were asked to articulate the value of each landscape and the issues relating to its preservation. Based on the information gathered, community members identified a group of priority landscapes to be visited by the consulting team during the fieldwork. Each of the priority landscapes is highly valued, contributes to community character and is not permanently protected or preserved.

Two of these priority landscapes describe village areas associated with Stow's industrial and civic history and demonstrate the multiple layers that many heritage landscapes have. Such layering shows the complexity and interdependence that are characteristics of most heritage landscapes. These priority landscapes, which are listed alphabetically, represent a range of scales and types of resources from individual sites such as a blacksmith shop to a river corridor. The descriptions and recommendations included here are an initial step in identifying resources valued by the community and suggesting action strategies.

Assabet River

The Assabet River winds through the southeast corner of Stow flowing from Westborough where it originates to Concord where it joins with the Sudbury River to become the Concord River. En route the Assabet flows through Hudson, Gleasondale (Stow) and Maynard – all locations of 19th century mills that drew their power from the river. The Assabet River was central to Native American activity in Stow as well as to the industrial development at Gleasondale.

The river and the Assabet Marsh are sensitive areas that are flanked by open land or forest with very few road crossings. The most notable crossing of the Assabet in Stow is the Sudbury Road Bridge where there are fine views of the river and

expansive wetlands. The railroad line crossed the Assabet River south of the Sudbury Road bridge and today only the abutments of that crossing remain. The route of the proposed Assabet River Rail-Trail is easily accessed on the southeast side of the Sudbury Road bridge crossing.

The only other Assabet River crossing in Stow is at Gleasondale where the mills are located. Here the importance of the Assabet River in this industrial village's development is evident. Several early 20th century mill buildings that replaced 19th century mills remain as well as the canal and dam that rerouted the river water into the canal to power the mills.

Concerns expressed by the community about the Assabet include access to the river, the quality of water in the river and the habitat for various plant and animal species. There is virtually no public access to the river except at the Sudbury Road bridge and even that is difficult. The proposed rail-trail along the railroad right-of-way that runs along side of the river would provide many more views of the river than are available today. An easement over the Track Road-Crowe Island property has been negotiated and signed; however there is other private property involved for which easements are problematic. Recently plans to have the railtrail pass through the Assabet Wildlife Refuge have been addressed favorably. The town of Hudson to the south has successfully completed most of the Assabet River Rail Trail in its community. Stow is the next link.

The Organization for the Assabet River (OAR), a non-profit organization whose mission is to protect and preserve the river and its associated marshland and wildlife, has representation on its Board from most bordering towns except Stow; however there are a number of active members from Stow particularly those interested in water quality issues. Another issue of concern to OAR and towns along the Assabet is that currently the flow is predominately processed sewage from Marlborough; thus it is important for regulations on waste water treatment be held to the highest standard.

Recommendations

- Obtain community representation on the OAR Board and work with them and regional organizations such as the SuAsCo Watershed Association in efforts to preserve the river and marshland.

- Work to resolve issues surrounding rail trail. Contact Hudson for ideas on working with property owners and funding sources.

- Document historic resources along the river, particularly the crossings, the mill village of Gleasondale and Crow Island on MHC survey forms.

Blacksmith Shop

The old blacksmith shop is located on the former Peter A. A. Larsen farm, which the town purchased in 1953. Following the purchase of the Great Road property, buildings were demolished or relocated except for Larsen's blacksmith shop and

a stone apple barn. Larsen's house was sold at auction and moved to an adjacent lot. The Center School was constructed on the land east of the two remaining farm buildings.

A semi-circular drive provides access and egress to the school property and encircles a small knoll where the farmhouse once stood. On the east side of the drive is the school, on the north side the stone apple barn and on the west side the gabled roof wood frame blacksmith shop. This last building is situated on the western property line between an asphalt driveway and stone wall that marks the property boundary. Windows of the shop have been boarded up. The main entrance is in the gable end facing Great Road where there is a sliding barn door on an exterior track and hay loft openings above. The stone apple barn is reported to have been built by Larsen in the early 20th century.

The building, which became a blacksmith shop, was moved to this spot from Maynard in 1914. Local Stow blacksmiths continued to operate it, the last being Larsen who had emigrated from Denmark where he had trained as a blacksmith. The old forge has been dismantled.

In 1974 Town Meeting voted to preserve the blacksmith shop and appropriated $250 for its repair at that time. Today the building is used for storage. Thirty years later the building is again in need of repair. Many clapboards need replacing, windows are missing, and the foundation needs support. The roof appears to be in better shape and the building is dry. The chimney has been dismantled down to the roof line but is in tact on the interior.

Recommendations

The town has committed to retaining the blacksmith shop which could be made useful as storage or as a workshop. The Historical Commission may consider further documentation and planning for the building to ensure its preservation.

- Document the blacksmith shop by first preparing an MHC Form B. Consider additional documentation by an historic structures report which would include measured drawings. Enlist the assistance of technical high school students and/or eagle scouts to measure, photograph and stabilize building.

- Develop a reuse and preservation plan. Consider town needs for various types of space.

- Listing in the National Register (as part of a nomination for a Stow Center historic district) may make the blacksmith shop eligible for Massachusetts Preservation Projects Fund, a bricks and mortar program funded by the state legislature. Contact the MHC to learn of MPPF status when ready to pursue rehabilitation of the shop.

Gleasondale

Gleasondale is a good example of the multiple layers of heritage landscapes. The village evolved on the Assabet River and along Gleasondale Road (Rt. 62) with farms, mills, a dam, mill housing for workers and owners, a church, stores and the village post office. The village first was known as Randall's Mills for Abraham Randall who bought the ca. 1735-50 saw and grist mills in 1776. These early mills had been built in the valley of the Assabet River. Randall built his Georgian style house just outside the village and in 1813 he added a cotton mill on the northwest side of the river. During the construction of the cotton mill the laborers had to dig down to "rock bottom" after which the village was called Rock Bottom. By the mid 19th century the textile mills here were owned by Samuel Dale and Benjamin Gleason. Samuel Dale died following a disastrous fire in the mills. Ebenezer Dale took over until his death in 1871 when Gleason bought out Dale's heirs. However, the name Gleasondale did not become official until 1898. Other industries, which operated at Gleasondale, included shoe making and furniture making.

Gleasondale Road winds down into the village center from Sudbury Road where the first miller, Jonathan Randall, built his homestead in ca. 1710 at 6 Sudbury Road. The road passes many good examples of workers' houses from multiple eras of the mill village such as the 1830 Dale Cottage on the east side of the road and the ca. 1830 Severance Houses on the west side, next to the 1916 Gleasondale Mill Worker Housing. On the west side of the road near the entrance to the village is the 1836 Gleason Homestead. Updated by Gleason in the late 19th century, this large Second Empire house has an attached New England barn. Next door is the 1892 Howard Gleason House, an architect-designed Queen Anne dwelling constructed on land subdivided from the earlier Gleason property.

Farther south Gleasondale Road crosses a dam (1883) and canal that runs behind some of the mill buildings. Many of the mill buildings burned several times during the 19th century so that the extant buildings are from the late 19th and early 20th century. The main mill building dates back to the 1870s. Situated on an esker west of the village is the Orchard Hill Farm with two farmhouses (1820 and 1870), 1851 barn complex which was added to over the decades and agricultural fields sloping down to the Assabet River. This was a mill farm that produced food for the mill workers; it continues to operate as a farm today.

Today the mill buildings house a few small businesses; however the complex is for sale. Issues are related to maintenance of the dam and to the septic system necessary for such a complex on the banks of the river.

Recommendations

Documentation of Gleasondale was completed in the early 1980s. The Stow Historical Commission and the Historical Society can work together to develop more thorough documentation, National Register listing and other protective measures.

- Document the Gleasondale heritage landscape on an MHC Area Form and update key individual resource inventory forms taking into account methodology that is more comprehensive for inventory than was the practice 25 years ago and includes landscapes as well as buildings.

- Evaluate for appropriate National Register boundaries and prepare National Register nomination.

- Pursue local historic district designation for this well preserved village. Development of grass roots support should be a major component of the local historic district study report process.

- Seek input on tax advantages that could be used to rehabilitate and reuse mill complex, specifically the Federal Rehabilitation Investment Tax Credit and the Massachusetts Historic Rehabilitation Tax Credit and work with the sellers to promote these advantages to prospective buyers.

Lower Village

Stow's first village center was located at Lower Village where the first meetinghouse (1685, no longer extant), the Minister's Manse (1686), the Common and the Lower Village Cemetery (1683) were established at the intersection of Red Acre Road, White Pond Road and Pompositticut Street with Great Road (Route 117). An 1820 painting of the Lower Common area depicts a bucolic scene with cows on the common, elegant houses and some minor commercial activity with a blacksmith shop and lawyer's office. Today Great Road has a shopping center with large parking lot in front dominating the landscape. This section of Great Road was lined with historic houses and shops, some of which were demolished for construction of the shopping center while others were moved back to Samuel Prescott Drive, which circles behind the shopping center.

Great Road encroaches on the stone wall and steps at the Lower Cemetery edge. The ancient burial ground had a gate at the corner which had been smashed and a Hosmer Hearse House which was demolished after the hearse was purchased by Henry Ford and sent to his Dearborn Michigan museum. There is interest in repairing the wall, steps and gate of the Cemetery.

The town is engaged in two current planning efforts – a village study focusing on the challenges of traffic circulation and a Lower Village Planning Project conducted by Metropolitan Area Planning Council (MAPC). The loss of historic fabric has contributed to concerns about the character of this area, making the retention of historic and possible archaeological assets an important factor in preserving a sense of place at Lower Village.

Recommendations

The two studies that are currently under way are focusing on practical issues and solutions to preserve Lower Village while making vehicular and pedestrian travel safe. It is important for consultants and residents alike to be reminded often of the many historic resources that make up this heritage landscape. This Reconnaissance Report may be used to reinforce the findings of the other studies and to emphasize the need for thorough documentation. The Historical Commission should participate in the above mentioned studies and be ready to advocate for the important heritage resources including road patterns, landscapes, objects, and buildings.

- Document the Lower Village heritage landscape on an MHC Area Form and update 1980s individual property forms taking into account methodology that is more comprehensive for inventory than was the practice 25 years ago when Stow's inventory was completed.

- Evaluate for appropriate National Register boundaries and prepare National Register nomination, particularly for the area near White Pond Road, Red Acre Road, Pompositticut Street and Great Road including historic houses, the cemetery and the Common.

- Work with the Planning Board to study and develop a village center bylaw that develops a pedestrian streetscape by placing buildings close to the road consistent with extant historic buildings and locating parking behind and screened.

- Consider neighborhood architectural conservation district designation in order to address size, scale and materials of new construction and additions, consistent with extant historic resources.

Lake Boon and Cottage Neighborhoods

Lake Boon is a state-designated Great Pond that straddles the Hudson-Stow line. The irregular shape of the lake, the wooded shore line, the town beach, small cottage developments and the causeway at the narrows all contribute to Lake Boon's scenic quality. The lake was named after Matthew Boon who explored the area in the 1660s, lived on Boon Hill off Barton Road, and was killed in King Philip's War in 1676 when only a short distance from his home.

The lake is formed by damming and provided water power to the mills in Maynard and was initially called Boon Pond. The area was known as Boon Plains because the water level changed periodically leaving the area drained of water. Once the dam was no longer opened and the lake was no longer the source for water power the lake became a permanent feature. The Lake is divided into three sections that are connected by the Narrows and that are linked to the Assabet River by Bailey's Brook into which the lake flows at the dam outlet.

Primary land use around the perimeter is now residential with many former summer cottages that have been updated and expanded to become year-around residences. There is a boat access point off of Sudbury Road. The first cottage, Pine Point or the Jackson Cottage, was constructed in 1888. Other summer cottages, also with names, sprang up in subsequent years. The Parker cottages are noteworthy. Once 24 small bungalows (only six remain) on the lake edge constructed in the early 1900s, they were used by family members and rented out to vacationers. By the early 1900s there were enough summer residents to form the Lake Boon Association, a social organization concerned with preserving the quality of life on the lake.

Presently the town of Stow owns the rights to the dam and the Town Beach, called Pine Bluffs, which is the only part of the Lake open to the public. The Town Beach is adjacent to the Parker Cottages many of which were demolished to create the Town Beach. Planning issues related to the lake include over development – particularly the aggrandizement of existing houses or demolition for major construction – the problem of septic systems for properties along the lake and the minimal access to the lake for the majority of Stow and Hudson residents.

Recommendations

Two organizations are concerned with the preservation and protection of the environmental, aesthetic, recreational and economic health of Lake Boon. The Lake Boon Commission is a town agency authorized in 1941 by the State Legislature. The Lake Boon Improvement Association is a private non-profit organization incorporated in 1921. The Historical Commission, working with these two organizations, is the appropriate agency to document and coordinate preservation strategies for Lake Boon and the cottages surrounding it.

- Document the Lake Boon neighborhood on an MHC Area Form and individual forms for certain cottages, the dam and town beach.

- Develop a preservation plan considering neighborhood architectural conservation district designation.

- Encourage the Planning Board to consider limiting development of large dwellings on the lake shore. Consider potential use of special permit process particularly in the event that an existing cottage is demolished to build a new house.

CRITICAL CONCERNS

In addition to the priority landscapes listed in the previous section, residents also identified critical issues related to heritage landscapes and community character. Critical issues are town-wide concerns that are linked to a range or category of heritage landscapes, not to a particular place. These issues are listed in alphabetical order. Community members also expressed interest in learning about preservation tools and strategies that have been effective in other Massachusetts communities and in identifying sources for preservation funding.

Farms

Stow has always been known for its many farms, particularly the orchards, which have been the mainstay of the local economy. These orchards are important economically, and they embody some of the most renowned heritage landscapes. Hence they are important for produce, their scenic quality and as recreational activity of family outings to visit the orchards. Several orchards have farm stores that sell the local products, pick-your-own fruit activities and trails on the

property. Honey Pot Hill Orchard is known for its apples, pears and blueberries, its sunflower display in the summer and the 1810 Whitman House, which is the farmhouse associated with the property. Carver Hill Orchards has been run by the same family, the Lords, since the 1850s. It is known for its cider mill as well as its apples and vegetables.

The cost of doing business, the liabilities of having visitors on these properties and the many regulations that come with food production make it difficult for orchards and farms to stay in business. Often the value of the land for housing far exceeds the farm or orchard proceeds. Thus these businesses and the heritage landscapes that are embodied in the properties are vulnerable to change that would adversely affect the character of the town. The town recently adopted an Agricultural Commission that will begin to identify initiatives to assist farmers and orchardists in conducting business in Stow.

Golf Courses

Stow has four golf clubs that have a total of four 18-hole courses and one 9-hole course. Collectively these include over 500 acres of open space used for recreation. Wedgewood Pines is private; while the other three, Butternut Farm Golf Course, Stowaway Golf Club and Stow Acres Country Club, are public. Each is tucked away on a narrow road off the beaten path. Stow Acres is the largest with two courses on the former Randall Estate. In the 1920s the property was converted to a country club with one golf course and the Randall House as the clubhouse. The second course was added in 1958. This club, originally known as Mapledale, is distinguished for hosting the first national championship for African Americans in 1926 at a time when blacks were unable to play golf at most clubs.

Concern about the economics of golf clubs may be higher in Stow due to the number of courses and the fate of the land should a club or course not be able to sustain this recreational activity. The fact that three of the clubs are public with facilities for events provides opportunity for the general public to enjoy the resource and perhaps share an interest in their futures. Master planning for the town should address potential ways in which to preserve the golf courses.

Scenic Roads

Stow has many scenic roads that retain their narrow width, stone walls, and tree canopies. At the Heritage Landscape Identification meeting residents listed Maple Street, Red Acre Road, Tuttle Lane, Walcott and Whitman Streets among others. These convey a sense of the rural character particularly where farms, orchards and historic dwellings are viewed from the roads. Gleasondale Road (Route 62) also retains all of the scenic qualities mentioned above. Residents are concerned about preserving the quality of the rural roads, especially given the increase in traffic and development on these scenic roads. No protective mechanisms are currently in place. See **Scenic Roads** in General Preservation Planning Recommendations.

EXISTING RESOURCE DOCUMENTATION AND PLANNING TOOLS

Stow already has important planning tools in place to document current conditions within the town; identify issues of concern to town residents; and develop strategies for action. This section of the Reconnaissance Report identifies some of the existing planning documents and tools that provide information relevant to the Heritage Landscape Inventory program.

Inventory of Historic and Archaeological Assets

The Massachusetts Historical Commission's (MHC) Inventory of Historic and Archaeological Assets is a statewide list that identifies significant historic resources throughout the Commonwealth. In order to be included in the inventory, a property must be documented on an MHC inventory form, which is then entered into the MHC database. This searchable database, known as MACRIS, is now available online at http://www.sec.state.ma.us/mhc.

According to the MHC, Stow's inventory documents nearly 200 historic resources ranging from the late 17th century to the early 20th century. Most of the work was completed in the early 1980s when the town undertook a town-wide survey.

Stow has 27 documented ancient Native American sites dating back to the Middle Archaic Period (8,000-6,000 B.P.) and 23 documented historic archaeological sites. Although these numbers are higher than many other communities in the region, it still is likely that there is significantly more archaeology potential in the town, which someday may yield information about Paleo-Indian occupation as early as more than 12,000 years ago.

State and National Registers of Historic Places

The National Register of Historic Places is the official federal list of districts, sites, buildings, structures and objects that have been determined significant in American history, architecture, archaeology, engineering and culture. There are five properties listed in the National Register of Historic Places; four of which are early dwellings that are listed under the thematic nomination "First Period Buildings of Eastern Massachusetts." They include: the Brown-Stow House (172 Harvard Road, ca. 1669); the Hapgood Hezekian House (76 Treaty Elm Lane, ca. 1726); the Tenny Homestead (156 Taylor Road, ca. 1700); and the Walcott-Whitney House (137 Tuttle Lane, ca. 1725). The other listing is the Randall-Hale Homestead. All are automatically listed in the State Register of Historic Places.

Planning Documents and Tools

The Master Plan entitled *Stow 2000* was adopted in 1996. Updating began in May 2005 and was to have been completed by the end of 2005. The Stow Open Space Plan was adopted in 1997; an update is in progress. *Preserving Villages, Archaeological Sites and Archives: Common Themes and Proposed Guidelines for Acton, Groton and Stow* was written in 1993 by BU Preservation Studies students.

In 2001 Stow adopted the Community Preservation Act at a 3% surcharge on real estate taxes; a portion of the proceeds must be used for historic preservation. Historic preservation projects have included improvements to the Old West School and the Blacksmith Shop, both town-owned property. The 2006 Town Meeting voted to set aside $75,000 for each of the following uses: Acquisition and Preservation of Historic Buildings and Landscapes; Acquisition and Preservation of Open Space and Recreation Land; and Acquisition and Support of Affordable Housing.

In December 2005 the town through an act of town meeting established an Agricultural Commission to help sustain farming, particularly orcharding, in Stow and adopted a right-to-farm bylaw. The Spring 2006 Town Meeting adopted a zoning bylaw to phase growth by limiting new construction to 35 units of single family houses per year. In addition the town has contracted with Metropolitan Area Planning Council to conduct a Lower Village and Gleasondale Village Planning Project in the form of studies and recommendations for each of these villages.

GENERAL PRESERVATION PLANNING RECOMMENDATIONS

Recommendations pertaining to priority heritage landscapes can be found beginning on page 4. This section of the Reconnaissance Report offers more general recommendations relevant to preserving the character of the community that would be applicable to a wide range of community resources.

Stow's residents place high value on the community's strong sense of place, which is created by its varied natural features and land use patterns that made use of the fertile land. The town has already taken measures to document and evaluate its most significant buildings and natural areas. It is now looking beyond the traditional resources to the landscapes, streetscapes, rural roads, neighborhoods and other natural and cultural assets that define the overall fabric of the community. Like most municipalities, Stow is facing multiple pressures for change that threaten land-based uses and natural resources, especially its remaining farming areas. Special places within the community that were once taken for granted are now more vulnerable than ever to change.

Preservation planning is a three-step process: **identification, evaluation** and **protection**. Four useful documents to consult before beginning to implement preservation strategies are:

- Department of Conservation and Recreation, *Reading the Land*
- Freedom's Way Heritage Association, *Feasibility Study*
- Massachusetts Historical Commission, *Survey Manual*
- Massachusetts Historical Commission, *Preservation through Bylaws and Ordinances*

Recommendations that apply to a broad range of resources are discussed below. These recommendations are listed in the order in which they are most logically addressed when applying the three-step preservation planning process as described above. Thus the goal will be to (1) identify, (2) evaluate, (3) protect.

Inventory of Heritage Landscapes and other Historic Assets

The vital first step in developing preservation strategies for heritage landscapes is to record information about the resources on MHC inventory forms. One cannot advocate for something unless one knows precisely what it is – the physical characteristics and the historical development.

The survey work completed in the 1980s identified many parts of the heritage landscapes noted in the heritage landscape master list in the appendix. However, survey methodology has advanced and more inclusive methodology would argue for an expanded inventory project looking at resources in a more comprehensive

and connected way than may have been done in the early 1980s. Thus, using the Massachusetts Historical Commission survey methodology:

- Compile a list of resources that are under-represented or not sufficiently documented, beginning with heritage landscapes.

- Document unprotected resources first, beginning with the most threatened resources.

- Make sure to document secondary features on rural and residential properties, such as outbuildings, stone walls and landscape elements.

- Record a wide range of historic resources including landscape features and industrial resources.

- Conduct a community-wide archaeological reconnaissance survey to identify patterns of ancient Native American and historic occupation and to identify known and probable locations of archaeological resources associated with these patterns. Known and potential ancient Native American and historic archaeological sites should be documented in the field for evidence of their cultural association and/or integrity. All survey work should be completed by a professional archaeologist who meets the professional qualifications (950 CMR 70.01) outlined in the State Archaeologist Permit Regulations (950 CMR 70.00). The Inventory of Archaeological Assets of the Commonwealth contains sensitive information about archaeological sites. The inventory is confidential; it is not a public record (G.L. c. 9, ss. 26A (1)). Care should be taken to keep archaeological site information in a secure location with restricted access. Refer to the MHC article "Community-Wide Archaeological Surveys" which appeared in the Preservation Advocate, Fall 2005 which can be found at the following MHC link: http://www.sec.state.ma.us/mhc/mhcpdf/pafall05.pdf.

National Register Program

Survey work will require an evaluation as to whether resources meet the qualifications for National Register listing. This will provide new information about the eligibility of properties. Using the information generated in the survey work and the accompanying National Register evaluations, expand Stow's National Register program by considering National Register nominations for village centers such as Gleasondale, Stow Center and part of Lower Village.

- Develop a National Register listing plan, taking into consideration a property's integrity and vulnerability. Gleasondale, which is in need of recognition in order to advance preservation strategies, should be given priority.

Village and Rural Neighborhood Character

Nearly all preservation strategies address village and neighborhood character in some manner. As described above, thorough documentation on MHC inventory forms is an important first step in the preservation planning process, followed by National Register listing where appropriate. There are three traditional preservation strategies that have been effective in some nearby communities: a demolition delay bylaw, a local historic district bylaw and designation (M.G.L. Chapter 40C) and a neighborhood architectural conservation district bylaw and designation. Each of these is an appropriate mechanism worthy of Stow's consideration.

- **Demolition delay bylaws** provides a time period in which towns can explore alternatives to demolition. The Stow Historical Commission should work with MHC staff to develop a bylaw that would best suit Stow's needs and should work with other town groups to publicize the advantages of a demolition delay bylaw to the community. Many demolition delay bylaws apply to structures that were built more than 50 years ago. The most common delay of demolition is six months; however many communities are finding that a one-year delay is more effective. A demolition delay bylaw requires a majority vote of Town Meeting.

- **Local historic districts**, adopted through a local initiative, recognize special areas within a community where the distinctive characteristics of buildings and places are preserved and protected by the designation. These districts are the strongest form of protection for the preservation of historic resources. They are adopted by a 2/3 vote of Town Meeting and administered by a district commission appointed by the Board of Selectmen. Gleasondale and Upper Village / Stow Center may benefit from local historic district designation.

- **Neighborhood architectural conservation districts** also are local initiatives that recognize special areas within a community where the distinctive characteristics of buildings and places are preserved and protected. They are less restrictive than local historic districts but still embrace neighborhood character. Neighborhood architectural conservation district designation is appropriate for residential neighborhoods that may have less integrity and where more flexibility is needed. The Stow Historical Commission should work with MHC staff to determine how a neighborhood architectural conservation district can help to preserve Stow's Lower Village.

Agricultural Landscapes

Preservation of agricultural landscapes means preservation of the farming activities; otherwise, it simply is the preservation of land as open space. There are instances in which up-to-date farming technology does not make it possible to preserve some of the elements of the settings such as historic barns and silos. It is important to know what the features of an agricultural setting are and which features the community treasures in order to make a case for preservation of

these settings. Stow is aware of the possibilities as it has recently created the Stow Agricultural Commission and adopted a right-to-farm bylaw which supports farming activities. The Stow Historical Commission is encouraged to form a close relationship with this new commission, since there are some common goals. Some preservation tools that the Commission will no doubt explore to preserve the actual farming and orchard activities include:

- Use Community Preservation Act funds to purchase development rights on farms or to assist farmers in the restoration of historic farm buildings for which the owner would be required to donate a preservation restriction (PR) in accordance with M.G.L. Chapter 184, Sections 31-33.

- Continue public-private partnerships to preserve farm land through purchase of conservation restrictions (CRs also using MGL Chapter 184, Sections 31-33) or agricultural preservation restrictions (APRs).

- Adopt a cluster bylaw that requires a buffer between development and farmland.

Scenic Roads

Scenic roads are an integral part of the historic fabric of the community. They are highly valued by Stow residents and visitors alike and were listed as a critical issue. Roads must also accommodate modern transportation needs and decisions regarding roadways are often made with travel requirements as the only consideration. Stow has not yet adopted the Scenic Roads Act (MGL Chapter 40-15C) and designated roads for which there would be review and approval for the removal of trees and stone walls that are within the right-of-way. In addition to roadway issues, much of what we value about scenic roads – the stone walls, views across open fields and the many scenic historic buildings – is not within the public right-of-way. The preservation and protection of scenic roads therefore requires more than one approach.

- Complete an inventory with descriptions and photo documentation of each of the roads in Stow including the character defining features that should be retained.

- Adopt a scenic roads bylaw and designate roads as scenic. Add design criteria to be considered when approving removal of trees and stone walls. Add other design criteria such as a provision allowing only one driveway cut per minimum lot property fronting on scenic roads. Coordinate procedures between Highway Department and Planning Board.

- Consider a scenic overlay district which may provide a no-disturb buffer on private property bordering on scenic roads or adopt flexible zoning standards to protect certain views. Such bylaws could be written to apply to the numbered routes also such as Great Road (Rt. 117) and Gleasondale Road (Rt. 62), which would not be protected by a scenic roads bylaw.

- Develop policies and implementation standards for road maintenance and reconstruction, including bridge reconstructions, which address the scenic and historic characteristics while also addressing safety. This is an important public process in which the community may have to accept responsibility for certain costs to implement standards that are not acceptable to projects funded by Mass Highway Department. Such standards should have a section addressing the way in which the local Highway Department maintains roads, for example requiring a public hearing if any new pavement width is to be added to a town road during reconstruction or repair. Policies can be adopted by local boards having jurisdiction over roads, or can be adopted at Town Meeting through a bylaw. In developing policies consider factors such as road width, clearing of shoulders, walking paths and posted speeds. A delicate balance is required.

Funding of Preservation Projects

Funding for preservation projects is an important aspect of implementing preservation strategies. Both the MHC and DCR have had funding programs to assist communities in preservation related issues including:

- **Survey and Planning Grants**, administered by the MHC, support survey, National Register and preservation planning work.

- The **Massachusetts Preservation Projects Fund (MPPF)**, administered by the MHC, funds restoration and rehabilitation projects.

- The **Historic Landscape Preservation Grant Program (HLPGP)**, administered by DCR, funds planning, rehabilitation, education and stewardship projects focused on historic landscapes, including cemeteries.

Funding for state programs varies from year to year. When planning Stow's heritage landscape inventory program, contact relevant agencies to determine whether funding is available.

Stow adopted the **Community Preservation Act** in 2001 with a 3% surcharge on each real estate tax bill. This has proved to be an excellent source of funding for many heritage landscape projects. Stow already is aware of the way in which the CPA fosters partnerships among historic preservationists, conservationists and affordable housing advocates. Many of the recommendations in this report could be funded with CPA money, including survey and National Register projects, preservation and conservation restrictions, and agricultural preservation restrictions. Additional information about the CPA can be found at www.communitypreservation.org.

CONCLUSION

The Stow Reconnaissance Report is a critical tool in starting to identify the rich and diverse heritage landscapes in Stow and in beginning to think about preservation strategies. Stow will have to determine the best way to implement the recommendations discussed above. One approach that might help Stow begin the process is to form a Heritage Landscape Committee, as described in ***Reading the Land***.

Landscapes identified in this report, especially the priority landscapes, will typically need further documentation on MHC inventory forms. The documentation in turn can be used in publicity efforts to build consensus and gather public support for their preservation. Implementation of recommendations will require a concerted effort of and partnerships among municipal boards and agencies, local non-profit organizations, and state agencies and commissions.

Distribution of this Reconnaissance Report to the municipal land use boards and commissions will assist in making this one of the planning documents that guides Stow in preserving important features of the community's character. The tasks that are recommended will require cooperation and coordination among boards and commissions, particularly Stow's Historical Commission, Planning Board, Conservation Commission and the new Agricultural Commission. It also is advisable to present this information to the Board of Selectmen, the applicants to the Heritage Landscape Inventory program on behalf of the town. Finally distribution of the report to the Historical Society, neighborhood associations, and any other preservation-minded organizations will broaden the audience and assist in gathering interest and support for Stow's heritage landscapes.

APPENDIX: HERITAGE LANDSCAPES IDENTIFIED BY COMMUNITY

This list was generated by local participants at the Heritage Landscape Identification Meeting held in Stow on April 12, 2006 and the follow-up fieldwork on May 11, 2006. **There are undoubtedly other heritage landscapes that were not identified at the HLI meeting noted above.** The chart has two columns, the names and locations of resources are in the first; notes about resources are in the second. Landscapes are grouped by land use category. Abbreviations used are listed below.

APR = Agricultural Preservation Restriction
LHD = Local Historic District
PR = Preservation Restriction
CR = Conservation Restriction
NR = National Register
* = Priority Landscape
\+ = Part of a Priority Landscape

Agriculture	
Apple Barn Great Rd.	Stone building at the Center School used for storing apples on the Peter Larsen property before land was acquired for the school.
Applefield Farm 727 Great Rd.	Vegetable and flowers. Farm stand selling local products.
Carver Hill Orchard Brookside Ave.	Lord family farm since the 1850s. Orchard and vegetable farm with cider mill, farm store, hiking trails.
Derby Orchard 438 Great Rd.	Orchard and farm stand with 23 varieties of apples, cider and peaches.
Honey Pot Hill 144 Sudbury Rd.	Apple orchard as well as pears and blueberries. Farm store selling products (apples, cider, etc.) and pick-your-own fruit. Sunflower display in summer is of note. Whitman House built in 1810.
One Stack Farm 441 Great Rd.	Apple orchard with 12 varieties of apples, some peaches, cider made on-site.
Packard Farm 90 Packard Rd.	The Packard House at 90 Packard Rd. sits on this 47-acre site. More than 100 years ago apple orchards lined Packard Rd. on both sides. Now houses line the road. This farm is under 61A.
Orchard Hill Farm Rockbottom Rd.	In Gleasondale. Was a mill farm that produced food for mill workers. Located on esker above Assabet River.
Pilot Grove Farm 76 Crescent St.	Northern edge of Lower Village. The Federal farmhouse was constructed in 1808 (barn demolished). Today it is a sheep farm today.
Red Acre Farm 253 Red Acre Rd.	Northern edge of Lower Village. The farmhouse was built after 1856 and became the summer house of Harriet Bird in 1902. Later she turned it into a haven for overworked and abused horses. More recently a medical research facility and hearing dog center were part of the operation.

Shelburne Farm 106 West Acton Rd.	Was known as the Old Elm Farm with house Federal/Greek Revival house built in ca. 1800. Apple orchards since the early 1900s. There is a conservation restriction on 48.3 acres of this orchard. Farm animals, hay rides, picnic areas, and The Apple Shop.
Small Farm 184 Gleasondale Rd.	On Route 62, farm stand and pick-your-own flowers, herbs and vegetables.
Nurseries	Two nurseries, Stow Branch Nursery and Village Nursery, serve the town.
Archaeological	
Conant's Sawmill Site	Archaeological site in Town Forest. The foundation of a sawmill that operated from the mid 1660s to 1830.
Native American Sites Various locations	26 ancient sites have been documented in Stow.
Burial Grounds and Cemeteries	
Brookside Cemetery Gleasondale Rd.	Established in 1864 at the intersection of Gleasondale and Box Mill Roads. 5.7 acres.
Hillside Cemetery Crescent St.	Established in 1812. Small burial ground of about 1.5 acres.
Lower Village Cemetery + Pompositticut Rd.	Oldest cemetery. Laid out in 1683. 3.5 acres.
Small Pox Cemetery Lakewood & Sudbury Rds.	Graves of those who died in the 1840's from small pox.
Civic	
Gleasondale *	Stow's industrial village with Gleason houses, workers houses, boarding house, mill farm (now a horse farm), mill and dam. First mill and dam built prior to 1750. In 1813 the Rock Bottom Cotton and Woolen Mill established at Randall's Mill, hence the industrial village first known as Rock Bottom. Name change in 1898 to honor mid 19th century mill owners Benjamin Gleason and Samuel Dale.
Lower Village * Great Road	The original town center laid out in the 1680s on Great Road (now Route 117) at Red Acre, White Pond, Samuel Prescott and Pompositticut Roads. Now the commercial center. Historic houses such as Hosmer's Folly and the Minister's Manse. The first meeting house was established here.

Upper Village	Also known as Stow Center or Town Center. Became the town center with Upper Common when the meetinghouse was relocated here in order to be more centrally located within Stow's borders. Site of the fourth First Parish Church in 1827 which burned and was replaced with current First Parish Church (1848). Also site of Town Hall (1848).
Industrial	
Blacksmith Shop* Great Rd.	Located on the former Peter Larsen property, the building was moved from Maynard in 1914 and became a blacksmith shop here. Larsen kept it open into the 1950s thus it is the last blacksmith shop that was operated in Stow.
Box Mill Dam & Pond	At Carver Hill. Dam dates to 1850.
Gleasondale Mill & Dam +	In industrial village of Gleasondale. The Greek Revival mill was constructed in 1854 and the dam and canal in 1883.
Lake Boon Dam +	Built for the Assabet Mill in Maynard about 1850. Height increased in 1870's.
Institutional / Military	
Center School 403 Great Rd.	Built in 1954 on property of Peter Larsen whose stone apple barn and blacksmith shop remain on the property. The Colonial Revival style school houses Grades 3-6.
Churches	First Parish (1848), the former Gleasondale Methodist-Episcopal Church (1898, 4 Marlboro Road), St. Isidore's Catholic Church (1961, 429 Great Rd.), Union Church (1905, 317 Great Road).
Fort Devens Annex Sudbury, State & White Pond Rds.	The Annex was taken in 1942 from lands in Stow, Sudbury and Maynard. Of 2300 acres 2,½ is in Stow It was in active military use from World War II until 1995. Now operated by U.S. Fish and Wildlife as the Assabet River National Wildlife Refuge. Many historic farms were on the property taken, some of which still stand. Also, archeological sites.
Hale School 55 Hartley Rd.	16.6 acres. Built in 1964. Expanded in late 1990's.
John Kettell Monument	Off Maple Street. One of two earliest recorded settlers.
Matthew Boone Monument	Off Barton Rd. Boon, one of the two earliest recorded settlers, who was killed by Indians in 1676 during King Philip's War.
Pompositticut School 511 Great Rd.	A modern school building housing Grades K-2. Built in 1968.

Randall Library 19 Crescent St.	Built in 1892 in the Richardsonian Romanesque style. It was a gift from the estate of John Witt Randall by his sister, Belinda Randall. Historical Room donated in 1926 by Whitney family. There is a 1975 addition.
Stow Town Hall Great Rd. & Crescent St.	At Stow Center near the Upper Common. Greek Revival building constructed in 1848 with addition in 1895. Now used for meeting space and several town offices. The new town building (1989) is across Great Road from this town hall.
West School Harvard Rd.	Built in 1825 on the foundation of a ca. 1739 school which was the first at this location. The brick one-room school house now is the Stow West School Museum, administered by the Stow Historical Commission.
Miscellaneous	
Cairn 74 West Acton Rd.	At Shelburne Farm. According to the Historical Commission this stone cairn dates to 1640.
Stone Walls	Along roads and in woods and fields.
Natural	
Herons' Nests	Part of the Delaney Project.
Open Space /Parks	
Assabet Wildlife Refuge	See Ft. Devens Annex. (Known locally as the "ammunition dump.") Refuge established in 1999.
Butternut Country Club 115 Wheeler Rd.	Public golf course operated by three generations of the Page family. It was built on an old farm that grew butternut squash.
Flagg Hill Conservation Area West Acton Rd.	286 acres in Stow and Boxborough protected through purchase by the two towns in 1998. Has trails, vernal pools, critical habitat and wildlife.
Lions Club Field	Great Rd. at Hudson Rd.
Lower Village Common +	First town center when laid out in 1680s.
Marble Hill Conservation Area Taylor Rd.	Town owned property of 249 acres adjacent to the Pompositticut School with parking there or on Taylor Road (north end of property). Trails. Native American archeological sites have been identified.

Pine Bluffs Recreation Area + Sudbury Road	Town-owned 35 acres on eastern shore of Lake Boon with town beach and recreation area established in 1971 from the Parker farm and cottage rental properties. Trails
Pilot Grove Hill	Public and private ownership of land on hill. Landmark reputed to have been used historically for sighting by ships coming into Boston Harbor.
Stowaway Golf Course White Pond Rd.	9-hole public golf course since 1960's. Formerly Assabet Country Club in the 1920's.
Stow Acres Country Club 58 Randall Rd.	Golf course (with two 18-hole courses) and historic Randall House built by John Randall, prominent Boston physician made his home in Boston and maintained the Stow property with ca. 1800 Georgian style country retreat. It passed through generations of Randalls to Belinda Randall, sister of John Witt Randall who died intestate. Belinda gave money to many local causes in her family's name. Circa 1920, the Randall property was purchased by Charles M. Cox, a wealthy grain merchant from Boston, who established a golf course here open to African Americans, who were unable to play elsewhere due to segregation practices. First known as Mapledale, this course hosted the first national black men's championship in 1926. Expanded to 36-holes in 1954 by Page brothers of Waltham. The clubhouse (the old Randall house) has been extensively renovated.
Town Forest Bradley Ln.	Also known as Gardner Hill Land (324acres) purchased by the town in 1968. Near Lower Village. Was part of the C.D. Fletcher estate. Elizabeth Brook forms the northern edge. The foundation of Conant's Mill, a sawmill, is within the Town Forest as is Little Bog Trail.
Wedgewood Pines Country Club 215 Harvard Rd.	Private country club with golf course, swimming pool, large clubhouse. 154 acres. Opened in 1996.
Residential	
Boaz Brown House 172 Harvard Rd.	NR First Period Thematic Nomination. One of the oldest houses in Stow, built before 1699. Brown farmed this property and ran a tavern for some time. By the mid 18th century it was part of a 143-acre farm. In 1764 the farm was sold to Stephen Stow.
Cottage Neighborhood +	Cottage neighborhoods around Lake Boon built from 1880's to 1930's are now being stressed by development and mansionization. See Lake Boon Priority Landscape.
Hapgood House 76 Treaty Elm Ln.	NR First Period Thematic nomination. The house was constructed of ca. 1726 for Hezekiah Hapgood.
Hosmer's Folly + 4 Red Acre Rd.	The Rufus Hosmer House was built in Lower Village in ca. 1789 in the Federal style. See Lower Village Priority Landscape

Lake Boon Neighborhood *	Located in southeast corner of Stow, Lake Boon was originally a small pond. Amory Maynard of the Assabet Mill in what was to become Maynard purchased rights in mid century to make a larger pond, which was done by building a dam at Bailey's Brook. This was later raised and the mill pond expanded. After the use of waterpower was discontinued, by 1900, the lake became a summer resort area. Transportation was provided by two train lines, a trolley and a steam boat from Maynard.
Minister's Manse + 9 Red Acre Rd.	A house was constructed for the first minister in 1686. This house, usually identified as the Minister's Manse is possibly somewhat later. See Lower Village Priority Landscape.
Randall-Hale House + 6 Sudbury Rd.	NR. This ca. 1710 house was built by Abraham Randall in Gleasondale. It displays First Period construction with Georgian detail. A large New England barn is on the opposite side of Sudbury Road at the intersection with Gleasondale Road.
Whitney Homestead 485 Great Rd.	Built in ca. 1843 in the Greek Revival style it shows signs of Victorian updating. It has served as a nursing home as well as a single family residence.
Whitney House 27 Whitney Rd.	Part of Whitney Homestead land. Built ca. 1760.
Walcott-Whitney House 137 Tuttle Lane.	NR First Period Thematic nomination. First Period construction with Georgian details built in ca. 1725.
Transportation	
Assabet River Rail Trail	Planned trail along the Marlborough Branch Railroad line that was in operation from 1850 to 1980.
Maple Street	In the western part of town from Bolton northeast to Old Bolton Road. Scenic qualities.
Minuteman Air Field 302 Boxboro Rd.	Airport established in 1963 with its first building housing the locally known restaurant constructed in 1968. Airport was opened to the public in 1969.
Red Acre Road +	Extends from Great Road at Lower Village north to Acton. Scenic qualities. Built in 1802.
Track Road	A road on private property that is part of the old railroad bed of the Marlborough Branch Railroad. Recreational easement negotiated and signed with Town of Stow and property owner of Track Road and Crowe Island for planned Assabet River Rail Trail.
Trolley Waiting Station Great Rd.	Stone structure built in 1916 on the Concord, Maynard and Hudson Electric Railway route.
Tuttle Lane	Picturesque country road branching northwest off of Red Acre Road.
Walcott Street	In the southwest corner of Stow running from Hudson north to Hudson Road.

Whitman Street	Rural north-south road between Gleasondale Road on the north and Boon/Sudbury Road on the south.
Waterbodies	
Assabet River *	Flows through the southeastern part of Stow from Hudson to Maynard. View of Assabet from Sudbury Road Bridge. The Assabet River originates in Westborough and flows north and then northeast for 32 miles to its confluence with the Concord River. Crowe Island is a land form that juts into the Assabet, most is privately owned. It is reached by Track Rd. Assabet River once was known as Elizabeth River, the English version of the Nipmuc name for the river. The name, Assabet, also a version of this name became the name in ca. 1850 and means in Algonquin "the place where materials for making fishnets grow." The current flow is largely processed sewage.
Delaney Project	Includes the herons' nests. The Delaney Multiple Purpose Complex of the SuAsCo Watershed Project was established in 1968 by the U.S. Soil Conservation Service to control flooding from Elizabeth Brook, through the purchase of rights to store 4,000 acre-feet of water along the brook above Delaney Pond in northwest Stow, Bolton and Harvard. The 22-foot Campbell dam was constructed as a flood control project to hold back the waters feeding the Elizabeth brook which are reported to be able to make a 12 inch difference in the Assabet River water level in Maynard during a 100-year storm.
Elizabeth Brook	Tributary of the Assabet River entering the river from the north. At one time this brook was known as Assabet Brook. At the same time the Assabet River was known as the Elizabeth River which is the English version of the Nipmuc name for the river.
Fletcher's Pond	Fed by Elizabeth Brook. A former mill pond.
Heath Hen Meadow Brook	Heath Hen Meadow Brook runs from Boxborough to Ft. Pond Brook in Acton. The brook flows through Shelburne Woodland, purchased by the town in 1997.
Lake Boon +	A Great Pond that straddles Hudson-Stow line. Once a millpond for the mills in Maynard, it is also referred to as Boon's Pond. Primary land use around perimeter is now residential with many former summer cottages. Lake has three sections connected by the Narrows and connected to the Assabet River by Bailey's Brook. Named after Matthew Boon who explored area in 1660s and was killed in King Philip's War in 1676.
Minister's Pond	North of Great Road at Stow Center. Flows south to Elizabeth Brook by manmade drainage stream built by an enterprising minister. The change created additional pasture land.
Sandy Brook	Tributary of the Assabet River.

APPENDIX 3

Chapter 61 Policy

Adopted by the Board of Selectmen, October 28, 2010

Town of Stow
Chapter 61 Review Process Guidelines
(Adopted by the Board of Selectmen, October 28, 2008)

Whereas the Town of Stow ("Town") encourages owners of open lands used for forestry, farming or recreation to enroll their property in the Chapter 61, 61A and 61B preferential tax programs in order to help maintain these lands in their current use, but in doing so, forgoes tax revenue that would otherwise be generated by these lands; and

Whereas owners of land enrolled in these programs are required to grant the Town a 120-day assignable right of first refusal in the event that these lands are proposed to be sold or converted for other uses; and

Whereas the Town has the ability to exercise its right of first refusal on land sold for, or converted to, another use within one year of leaving Chapter 61, 61A and 61B; and

Whereas the Town has ongoing needs for land for municipal purposes including conservation land and finds it in the Town's best interest to give full consideration to the opportunity presented by withdrawal of land from these programs, to gather information from relevant boards and staff, and to determine whether the Town should exercise or assign its right of first refusal;

Whereas the Town has formed a "Study/Evaluation Group", composed of the professional staff of the Stow Planning Board, Stow Board of Selectmen, Stow Conservation Commission, Board of Assessors, Stow Board of Health, and the Chairs or designees Stow Open Space Committee and Stow Agricultural Commission (to assist the Town in evaluating parcels and completing the right of first refusal process.

Therefore the Board of Selectmen adopts these Chapter 61 Guidelines to set forth a clear process by which the Town will review and respond to notices of conversion and sale of lands in Chapters 61, 61A and 61B and determine whether to exercise, assign or waive its right of first refusal on these lands. These guidelines and procedures are adopted solely for the purposes of coordinating local review. Failure to adhere to these guidelines and procedures shall not affect any rights that the Town has under MGL Chapters 61, 61A and 61B, nor shall they affect any rights of the landowner.

Note: For the purposes of this document, the following items that are required by statute are noted in italic type. This is not an exact replication of the wording of the statute. Other items are adopted as part of this set of guidelines. The statute should always be consulted for exact wording.

A. Right of First Refusal

Within 120 days of the landowner's mailing (not receipt) of a proper notice, the Town must either:

1. *Act to exercise its option to purchase (to meet a bona fide purchase offer or, in the case of intended conversion by the landowner, an option to purchase at full and fair market value), recorded at the Registry of Deeds and by certified mail notification to the landowner,*
2. *Assign its rights to a non-profit conservation organization or the Commonwealth or any of its political subdivisions, recorded at the Registry of Deeds, or*
3. *Notify the property owner that it does not intend to exercise its right of first refusal.*
4. *Failure to record either the notice of exercise (and notification of the landowner) or the notice of assignment within 120 days is considered conclusive evidence that the Town will not exercise its right of first refusal.*

B. Requirements for Notice by Property Owner

1. *The 120-day right of first refusal time period begins with a notice of the landowner's intent to sell or convert a parcel for commercial, industrial or residential use. This notice must be sent by certified mail or hand delivered to the Town of Stow Board of Selectmen, in addition to the Planning Board, Board of Assessors and Conservation Commission, and to the State Forester. This notice must include the following:*

    a. *A statement of intent to sell or convert,*
    b. *A statement of proposed use of the land,*
    c. *The location and acreage of land as shown on a map drawn at the scale of the Town's Assessor's maps*
    d. *The name, address and telephone number of the landowner,*
    e. *In the case of an intent to sell, a certified copy of an executed purchase and sale agreement specifying the purchase price and all terms and conditions of the proposed sale, which is limited only to the property classified under the Chapter, and must be a bona fide offer,*
    f. *The purchase and sale agreement must be a bona fide offer, defined as a good faith offer not dependent upon potential changes to current zoning or conditions or contingencies relating to the potential for, or the potential extent of, subdivision of the property for residential use or the potential for, or the potential extent of, development of the property for industrial or commercial use, made by a party unaffiliated with the landowner for a fixed consideration payable upon delivery of the deed,*
    g. *Any additional agreements or a statement of any additional consideration for any contiguous land under the same ownership, and not classified under the Chapter, but sold or to be sold contemporaneously with the proposed sale,*
    h. *A notarized affidavit that the landowner has mailed or delivered the notice will be conclusive evidence that the notice has been mailed in the manner and at the time specified,*
    i. *In the case of an intent to convert the land to other use, the landowner must also notify the Town of the landowner's attorney, if any.*

C. Procedure for Review of Notices and Evaluation of Properties

1. Within three days of receipt of a proper Notice from a landowner, the Board of Selectmen's office will ascertain that Notice, with the required information, was also properly transmitted to the Planning Board, Board of Assessors and Conservation Commission. Within this same period, copies of the Notice will be provided by the Board of Selectmen's Office to members of the Study/Evaluation Group and to the Town Clerk, the Community Preservation Committee, Historic Commission, Stow Municipal Affordable Housing Trust, Stow Conservation Trust, and any other relevant boards and town officials. A cover letter shall indicate the date of a Joint Boards meeting to be scheduled within three weeks of the receipt of the Notice. The Board of Selectmen's office will provide a copy of the Notice and relevant information to Town Counsel for review.

2. The Board of Selectmen's office will also determine the final day of the 120-day period in consultation with Town Counsel and attempt to seek confirmation from the landowner or his/her representative regarding this date.

3. The Board of Selectmen will consult with Town Counsel to review the notice, including the purchase and sale agreement, and determine whether the purchase and sale agreement is deemed a bona fide offer and whether the Town is being given the same opportunity as the buyer with regard to the terms of the agreement. Ideally this determination will be made within five (5) days of receipt of the Notice.

4. *If the Notice is determined to be insufficient, the Board of Selectmen will immediately, but, in no event, in no* later *than 30 days from receipt of the Notice, transmit a letter* via certified mail *notifying the landowner in writing that the proper notice has not been given and informing him/her that the 120-day* time period pursuant to the statute *has not begun.* A copy of this letter will be provided to the Planning Board, Board of Assessors and Conservation Commission and other boards/officials in Paragraph C (1). Unless or until there is agreement with the landowner that the notice is deficient or the offer is not bona fide, the Town's review process should continue.

5. The Board of Selectmen shall request that the Study/Evaluation Committee gather information on the property to determine its recreational, agricultural, forestry and/or conservation values and provide a preliminary report to the Board of Selectmen and Town Administrator within five (5) working days. An analysis of the location of the property relative to other protected lands shall be performed along with an environmental assessment. A determination will be made whether the property contains any unique geological or other environmental features, important soils, a drinking water source, or historical attributes. Zoning and subdivision control regulations will be examined to assess the impact of the potential development on town services.

6. The Board of Selectmen shall hold a Joint Boards meeting, inviting all relevant municipal boards and committees. At that meeting, the information gathered by the Study/Evaluation Committee shall be presented and all boards and committees shall be given the opportunity to present any additional information that may be relevant to the parcel and indicate their potential interest in pursuing exercise of the Town's right of first refusal and the potential of the property to meet the town's needs for land.

7. At the conclusion of the Joint Boards meeting, the Board of Selectmen shall determine whether or not there is interest in proceeding with further evaluation of the property. At that time, if there is no interest, the Board may execute a waiver of the Town's right of first refusal (see D.3 below). If there is interest in further evaluation, the Board shall request that the Town Administrator appoint a Working Group to conduct further evaluation of the

property and bring one or more proposals for the use of the property and the funding for the acquisition to the Board of Selectmen. The membership of the Working Group will likely include members of the Study/Evaluation group but shall be as broad as needed to include all parties with an interest in pursuing acquisition of the property. The working group shall complete any necessary evaluations of the land's suitability for intended uses. The group may request funds to cover costs of the evaluations from public or private sources as they deem necessary.

8. At the conclusion, of the Joint Boards meeting, The Board of Selectmen shall meet and if they decide to continue the process., they shall also schedule and give notice of a public hearing for the purpose of receiving comments on the importance of the property to the Town, its conservation significance and/or potential for use to serve municipal needs and for receiving a report from the Working Group. Ideally, the public hearing will be scheduled by Day 60 of the review process. In those cases where there is a proposed conversion of the land but no sale, the determination of sale price may take as long as 90 days, at which point the public hearing will be scheduled (see section C (7)). *Notice of the hearing is required to be given in accordance with M.G.L. Ch. 39, Section 23B (Open Meeting Law)*. The Board of Selectmen will also notify the Planning Board, Conservation Commission, Open Space Committee and Board of Assessors, and (the other boards and organizations listed in paragraph C (1)). *The option to exercise the right of first refusal may only occur after a public hearing* and an affirmative vote of the Board of Selectmen.

   At the public hearing, the Board of Selectmen will afford interested boards, organizations and individuals the right to comment. If there continues to be interest in pursuing acquisition of the property for municipal uses or in assigning the right of first refusal to a non-profit conservation organization or to the Commonwealth or one of its political subdivisions, the Board of Selectmen may continue the public hearing as needed to allow time to present a more specific proposal for consideration by the Board.

9. *If the landowner is converting the property, and the Town is interested in* exercising an *option to purchase the land at fair market value, the Town will hire a qualified independent appraiser, and obtain the appraisal within 30 days of receiving the notice to convert. If the landowner contests the appraisal, the landowner may hire a qualified independent appraiser and obtain an appraisal within 60 days of the notice to convert. If the Town and the landowner cannot agree on an appraised value, then the two parties will jointly hire a third appraiser and obtain an appraisal within 90 days of the notice to convert. The price of the third appraisal will prevail if there is a sale, but at anytime the landowner may withdraw his or her notice to convert. Upon agreement of a* sales price*, the Town will have 120 days to exercise its option.*

D. Decision by the Town of Stow

Based on input at the public hearing and further research as warranted, the Board of Selectmen will close the hearing and determine whether to pursue the opportunity to exercise the right of first refusal and for what purposes. The Board of Selectmen must choose one of four courses of action:

1. If the Board of Selectmen agrees to bring the option to exercise to a Town Meeting vote, the Board of Selectmen shall:

   - Schedule a Town Meeting for the purpose of appropriating funds to purchase the property, place a warrant article on the town warrant for this purpose, and schedule a debt exclusion vote (if necessary) for the purpose of authorizing expenditure of funds.

The town meeting must be scheduled within the statutory 120-day period, unless an extension of this deadline is agreed to in writing between the parties.

- *Record the notice to exercise the option at the Registry of Deeds as part of an affidavit of a notary public during the 120-day period.*
- *Notify the landowner by certified mail during the 120-day period, at the address specified in the landowner's notice, of the Town's intent to exercise its option.*
- The Town must take title to *the property must occur within 90 days of the Town's decision to exercise its right of first refusal, unless otherwise* extended by written agreement *of the parties.*

2. If the Board of Selectmen desires to assign its right of first refusal to a qualified land trust/conservation agency, the Board of Selectmen shall:

   - *At a public hearing during the 120-day period, vote to assign its right of refusal to the non-profit organization, setting forth any terms and conditions of the assignment. [Note: the non-profit conservation organization or the Commonwealth or any of its political subdivisions must conserve at least 70% of the property in a use consistent with one of the three Chapters, (*forestry, agriculture or recreation*) or no less a percentage conserved than proposed by the developer whose offer gave rise to the assignment, whichever is greater, but may be permitted to undertake a limited development on the balance of the property. The Board of Selectmen may place conditions on this use; for example the number of lots in the limited development can be specified.]*
   - *Record the notice to exercise at the Registry of Deeds as part of an affidavit of a notary public during the 120-day period.*
   - *Notify the landowner by certified mail during the 120-day period, at the address specified in the landowner's notice, of the Town's intent to assign its option to a non-profit conservation organization, stating the name and address of the non-profit organization and the terms and conditions of the assignment.*
   - The assignee must take title to the property *within 90 days of the Town's decision to assign its right of first refusal, unless otherwise* extended by written agreement of the parties.

3. If the Town decides to forgo its right of first refusal, the Board of Selectmen should:

   - Examine wisdom of recording a limited waiver of its rights at the Registry of Deeds. Any waiver of the Town's rights should be specific to the proposed purchase terms so that if the sale falls through and a new proposal comes forth, the 120-day clock will begin again.
   - The Town shall use as much of the 120-day period as is necessary to properly evaluate the property and the potential of exercising or assigning the right of first refusal. It is possible that the Town may decide that it cannot afford to purchase the property, but any such choice should be thoroughly discussed and researched before making such a determination. Where there is consensus on the absence of conservation value or where the Town has negotiated a signed agreement with the landowner and/or developer that meets the municipal needs with regard to the property, the town may choose not to exercise its right. Any such negotiations, however, should occur in consultation with the boards/committees entitled to notice by statute.

4. *The Town can fail to act within the required 120-day period (and any extensions thereof), in which case the Town will be deemed to have failed to exercise its right of first refusal.*

APPENDIX 4

Chapter 61 Properties

PARCEL_ID	LOCATION	OWNER1	FLAG
R31-0060	SOUTH ACTON RD	FLETCHER REALTY TRUST	61
R31-0050	SOUTH ACTON RD	FLETCHER REALTY TRUST	61
R31-0030	SOUTH ACTON RD	FLETCHER REALTY TRUST	61
R31-0080	SOUTH ACTON RD	MOREY GEORGE	61
R31-0090	SOUTH ACTON RD	MOREY GEORGE	61
R31-0100	SOUTH ACTON RD	MOREY GEORGE	61
R31-0110	SOUTH ACTON RD	MOREY GEORGE	61
R31-0120	SOUTH ACTON RD	MOREY GEORGE	61
R31-0130	SOUTH ACTON RD	MOREY GEORGE	61
R31-0140	SOUTH ACTON RD	MOREY GEORGE	61
R31-0170	OFF SOUTH ACTON RD	MOREY GEORGE	61
R31-0160	TUTTLE LN	MOREY GEORGE	61
R31-0570	144 RED ACRE RD	KUNELIUS MARILYN E	61
R19-010A	269 BOXBORO RD	SUREAU CAROLE	61
R08-005A	WEDGEWOOD RD	MERRILL CHRISTOPHER B TR	61
R08-006B	50 DUNSTER DR	50 DUNSTER DRIVE NOMINEE TR	61
R21-0420-009A	SOUTH ACTON ROAD	FLETCHER BRUCE	61
R18-0270-0010	OFF BOXBORO RD	SUREAU CAROLE	61
R15-064A-0040	GLEASONDALE RD	STOW CONSERVATION TRUST INC	61
R19-0100-0020	BOXBORO RD	SUREAU CAROLE	61
R19-0100-0030	BOXBORO RD	SUREAU CAROLE	61
R30-0490	OFF RED ACRE RD	PORCELLA ANNE D	61A
R30-0770	OFF POMPOSITTICUT ST	PORCELLA ANNE D	61A
U09-0310	GREAT RD	FIELD FAITH B	61A
U09-0330	PACKARD RD	FIELD PEDER O	61A
U09-017A	GREAT RD	PORCELLA ANNE D	61A
U09-0180	438 GREAT RD	PORCELLA ANNE D	61A
R29-0730	65 WHITE POND RD	HANSON HAROLD	61A
R29-0720	63 WHITE POND RD	HANSON HAROLD J	61A
R22-002B	66 -69 BROOKSIDE AV	LORD CHARLES H	61A
R21-0200	171 WEST ACTON RD	BOTTINO ROBERT J	61A
R21-0440	SOUTH ACTON RD	PILOT GROVE FARM INC	61A
R17-0290	PACKARD RD	CACCIATORE RAYMOND J	61A
R17-0260	PACKARD RD	CACCIATORE RAYMOND J	61A
R17-0200	PACKARD RD	FIELD PEDER O	61A
R17-0030	WEST ACTON RD	WARREN FRANCIS JR	61A
R17-0010	76 CRESCENT ST	WARREN FRANCIS JR	61A
R17-001A	CRESCENT ST	PILOT GROVE FARM INC	61A
R16-0460	WHEELER RD	PORCELLA ANNE D	61A
R15-0750	184 GLEASONDALE RD	SIPLER DWIGHT P.	61A
R14-0040	BOON RD	MARTIN ANDREW S	61A
R14-0050	149 WHITMAN ST	FROST RAY S	61A
R14-016B	SUDBURY RD	HONEY POT HILL ORCHARDS INC	61A
R14-0140	SUDBURY RD	HONEY POT HILL ORCHARDS INC	61A
R14-0180	BOON RD	HONEY POT HILL ORCHARDS INC	61A
R14-019A-0020	BOON RD	HONEY POT HILL ORCHARDS, INC	61A
R14-020B	BOON RD	MARTIN RICHARD S	61A
R14-0210	102 BOON RD	HANGEN DONALD	61A
R14-0120-0020	SUDBURY RD	HONEY POT HILL ORCHARDS INC	61A
R13-0020	SUDBURY RD	HONEY POT HILL ORCHARDS INC	61A
R13-0060	SUDBURY RD	HONEY POT HILL ORCHARDS INC	61A
R13-0040	SUDBURY RD	HONEY POT HILL ORCHARDS INC	61A
R13-004A	SUDBURY RD	HONEY POT HILL ORCHARDS INC	61A
R13-0020	SUDBURY RD	HONEY POT HILL ORCHARDS INC	61A
R13-0010	SUDBURY RD	HONEY POT HILL ORCHARDS INC	61A
R12-0050	387 GLEASONDALE RD	MCDONALD ROBERT C	61A
R12-0010	25 ROCKBOTTOM RD	PERKINS EDWARD H	61A
R10-0420-0030	32 HUDSON RD	TARANTO RICHARD S/BETTY A	61A
R09-0990	OFF TAYLOR RD	WARD DANIEL E/VICKI A DROMEY	61A
R08-0050	58 WEDGEWOOD RD	BARNES HILL TRUST	61A
R08-0100	TAYLOR RD	WARD DANIEL E/VICKI A DROMEY	61A
R07-0300-0070	TAYLOR RD	MINUTE MAN AIR FIELD INC	61A
R07-0380	BOXBORO RD	MINUTE MAN AIR FIELD INC	61A
R04-0030	154 HARVARD RD	SHEPHERD T NATHANAEL	61A
R03-048A	OLD BOLTON RD	SCANSAROLI ALBERT R	61A
R03-0520	GREAT RD	SCANSAROLI ALBERT R	61A
R03-0480	49 OLD BOLTON RD	SCANSAROLI ALBERT R	61A
R03-0230-0010	70 OLD BOLTON RD	MONG STEVEN R	61A

PARCEL_ID	LOCATION	OWNER1	FLAG
R01-0240-0020	84 WALCOTT ST	GREEN FREDERICK J	61A
R14-016A	SUDBURY RD	HONEY POT HILL ORCHARDS INC	61A
R19-008A	297 BOXBORO RD	WOODHEAD WM&DANIEL/M KATRANIDE	61A
R19-008B	BOXBORO RD	WOODHEAD WM&DANIEL/M KATRANIDE	61A
R08-008C	ASA WHITCOMB WY	WARD DANIEL E	61A
R18-022B-003A	BOXBORO RD	MINUTE MAN REALTY CORP	61A
R07-035B-0040	BOXBORO RD	MINUTE MAN REALTY CORP	61A
R14-003B	BOON RD	MARTIN RICHARD S	61A
R14-0030-0020	BOON RD	MARTIN RICHARD S	61A
R07-0340	TAYLOR RD	MINUTE MAN AIR FIELD INC.	61A61B
R07-0350	302 BOXBORO RD	MINUTE MAN AIR FIELD INC	61A61B
R31-0010	137 TUTTLE LN	KENNEDY RUTH H	61B
R31-0010-001A	131 TUTTLE LN	KENNEDY RUTH H	61B
U02-0540	BARTON RD	COLLINGS ROBERT F	61B
U06-009B	SUDBURY RD	DAWES ROBERT T TRUST	61B
U06-013A	50 HALLOCK POINT RD	DAWES ROBERT T TRUST	61B
R25-0170	137 BARTON RD	COLLINGS ROBERT F	61B
R25-0160	OFF BARTON RD	COLLINGS ROBERT F	61B
R24-0010	OFF SUDBURY RD	ALBRIGHT ANNETTE	61B
R23-0010	WHITE POND RD	ALBRIGHT ANNETTE	61B
R23-0040	SUDBURY RD	ALBRIGHT ANNETTE	61B
R23-0030	CROW IS	ALBRIGHT ROBERT T/ANNETTE L	61B
R20-0470	OFF TUTTLE LN	KENNEDY RUTH H	61B
R17-0090	84 BOXBORO RD	ALBRIGHT ROBERT T	61B
R16-0470	115 WHEELER RD	PAGE FAMILY LIMITED PTNSHP.	61B
R16-0210-0020	127 WHEELER RD	PAGE FAMILY LIMITED PRTNSHP	61B
R16-0300-0020	67 GLEASONDALE RD	MARSHALL BARBARA A.	61B
R15-0340	TREATY ELM LN	RISING DONALD B	61B
R15-047D	TREATY ELM LN	RISING DONALD B	61B
R15-0660	WHEELER RD	PAGE FAMILY LIMITED PARTNERSHP	61B
R14-0080	170 WHITMAN ST	TALPEY THOMAS M	61B
U07-0060-0040	45 C MARLBORO RD	GUTKNECHT D RUTH	61B
R13-0090	61 SUDBURY RD	JONES GREGORY D	61B
R12-0020	449 GLEASONDALE RD	ROCKBOTTOM LIMITED PTNSHP.	61B
R11-011A	OFF HUDSON RD	SCC ASSOCIATES INC	61B
R08-007A	OFF DUNSTER DR	WEDGEWOOD PROPERTIES INC	61B
R06-1130-001A	435 TAYLOR RD	LARSON ARTHUR G	61B
R04-002A	HARVARD RD	SHEPHERD, NANCY H.	61B
R04-0430	OFF HARVARD RD	PITT CONSTRUCTION CORPORATION	61B
R04-039A	215 HARVARD RD	F & S REALTY TRUST	61B
R09-1000	WEDGEWOOD RD	WEDGEWOOD PROPERTIES INC	61B
R21-001D-0010	74 WEST ACTON RD	JEAN H LYNCH TRUST OF 1999	61B
R20-042C	WEST ACTON RD	KENNEDY RUTH H	61B
R11-025B-0080	CROSS ST	SCC ASSOCIATES INC	61B
R11-025B-0030	RANDALL RD	SCC ASSOCIATES INC	61B
R11-037A	58 RANDALL RD	SCC ASSOCIATES INC	61B

APPENDIX 5

“Right to Farm” General Bylaw

Town of Stow
Stow, Massachusetts

Article 15. Right to Farm
General Bylaw

TOWN OF STOW GENERAL BYLAW - ARTICLE 15. RIGHT TO FARM

SECTION 1. LEGISLATIVE PURPOSE AND INTENT

The purpose and intent of this Bylaw is to state with emphasis the Right to Farm accorded to all citizens of the Commonwealth under Article 97 of the Constitution, and all state statutes and regulations thereunder including, but not limited to, Massachusetts General Laws Chapter 40A, Section 3, paragraph 1; Chapter 90, Section 9; Chapter 111, Section 125A; and Chapter 128, Section 1A. We, the citizens of Stow, restate and republish these rights pursuant to the Town's authority conferred by Article 89 of the Articles of Amendment of the Massachusetts Constitution ("Home Rule Amendment").

This General Bylaw encourages the pursuit of agriculture, promotes agriculture-based economic opportunities, and protects farmlands within the Town of Stow by allowing agricultural uses and related activities to function with minimal conflict with abutters and town agencies. This Bylaw shall apply to all jurisdictional areas within the town.

The word "farm" shall include any parcel or contiguous parcels of land, or water bodies, used for the primary purpose of commercial agriculture, or accessory thereto.

The word "farming" or "agriculture" or their derivatives shall include, but not be limited to, the following:

- farming in all its branches and the cultivation and tillage of the soil;
- dairying;
- production, cultivation, growing and harvesting of any agricultural, aquacultural,
- floricultural, viticultural, or horticultural commodities;
- growing and harvesting of forest products upon forest land, and any other forestry or lumbering operations;
- raising of livestock, including horses;
- keeping of horses as a commercial enterprise; and
- keeping and raising of poultry, livestock and other domesticated animals for food and other agricultural purposes, including bees.

"Farming" shall encompass activities including but not limited to the following:

- operation and transportation of slow-moving farm equipment over roads within the town;
- control of pests including, but not limited to, insects, weeds, predators and disease organism
- of plants and animals;
- application of manure, fertilizers and pesticides;
- conducting agriculture-related educational and farm-based recreational activities, including agri-tourism, provided that the activities are related to marketing the agricultural output or services of the farm;

- processing and packaging of the agricultural output of the farm and the operation of a farmer's market or farm stand including signage thereto;
- maintenance, repair or storage of seasonal equipment or apparatus owned or leased by the farm owner or manager used expressly for the purpose of propagation, processing, management or sale of the agricultural products; and
- on-farm relocation of earth and the clearing of ground for farming operations.

SECTION 2. RIGHT TO FARM DECLARATION

The Right to Farm is hereby recognized to exist within the Town of Stow. The above-described agricultural activities may occur on holidays, weekdays and weekends by night or day and shall include the attendant incidental noise, odors, dust and fumes associated with normally accepted agricultural practices. It is hereby determined that whatever impact may be caused to others through the normal practice of agriculture is more than offset by the benefits of farming to the neighborhood, community and society in general. The benefits and protections of this Bylaw are intended to apply exclusively to those commercial agricultural and farming operations and activities conducted in accordance with generally accepted agricultural practices. Moreover, nothing in this Bylaw shall be deemed as acquiring any interest in land, or as imposing any land use regulation, which is properly the subject of state statute, regulation or local zoning law.

SECTION 3. DISCLOSURE NOTIFICATION

Not later than 21 days after the purchase and sale contract is entered into, or prior to the sale or exchange of real property if no purchase and sale agreement exists, for the purchase or exchange of real property, or prior to the acquisition of a leasehold interest or other possessory interest in real property located in the Town of Stow, the landowner shall present the buyer or occupant with a disclosure notification which states the following:

"It is the policy of this community to conserve, protect and encourage the maintenance and improvement of agricultural land for the production of food and other agricultural products, and also for its natural and ecological value. This disclosure notification is to inform buyers or occupants that the property they are about to acquire or occupy lies within a town where farming activities occur.

Such farming activities may include, but are not limited to, activities that cause noise, dust and odors. Buyers or occupants are also informed that the location of property within the town may be impacted by commercial agricultural operations including the ability to access water services for such property under certain circumstances."

A copy of the disclosure notification shall be given on a form prepared by the Town and shall be signed by the prospective landowner prior to the sale, purchase, exchange or occupancy of such real property. A copy of the disclosure

notification must be filed with the Board of Selectmen or its designee prior to the sale, purchase, exchange or occupancy of such real property. In addition to the above, a copy of this disclosure notification shall be provided by the Town to landowners each fiscal year by mail.

SECTION 4. RESOLUTION OF DISPUTES

Any person who seeks to complain about the operation of a farm may, notwithstanding pursuing any other available remedy, file a grievance with the Board of Selectmen, the Zoning Enforcement Officer or the Board of Health in accordance with statute and appropriate bylaws and regulations of the Town. The filing of the grievance does not suspend the time within which to pursue any other available remedies that the aggrieved may have. The Zoning Enforcement Officer or Board of Selectmen shall forward a copy of the grievance to the Agricultural Commission or its agent which shall review and facilitate the resolution of the grievance and report its recommendations to the referring town authority within an agreed upon time frame.

The Board of Health, except in cases of imminent danger or public health risk, shall forward a copy of the grievance to the Agricultural Commission or its agent which shall review and facilitate the resolution of the grievance and report its recommendations to the Board of Health within an agreed upon time frame.

SECTION 5. SEVERABILITY CLAUSE

If any part of this Bylaw is for any reason held to be unconstitutional or invalid, such decision shall not affect the remainder of this Bylaw. The Town of Stow hereby declares the provisions of this Bylaw to be severable.

This Bylaw restates the various protections afforded to commercial farms throughout Massachusetts state law and is intended to educate citizens that farming activities are valued in Stow. Our few remaining commercial farms provide essential components to maintain the character of the Town. The notification provisions of the Bylaw will enhance awareness relative to the value of agriculture in Stow. There are no new benefits or protections provided in this Bylaw beyond those contained in state laws.

APPENDIX 6

Recreation Commission's March 2009 Report to Land Use Task Force

March 19, 2009
Stow Recreation Commission
Land Use Task Force Report

The following information is what the Stow Recreation Commission forecasts for future needs for recreational land.

Lacrosse- Currently we have around 112 participants from Stow in the Nashoba lacrosse program. We have no fields right now reserved for lacrosse. With the projected growth of the program doubling in the next couple of years and the addition of another 1000 families to Stow there would be no way Bolton could continue to provide all of the fields for Nashoba Lacrosse. So there would be a need for us to either contribute at least 2 fields dedicated to lacrosse in Stow. The lacrosse field dimensions are 330x246 feet and would require 1.6 acres of land.

Field Hockey- Currently we do not have a designated field for Field Hockey. This is a growing sport and Stow Recreation foresees the need for at least one field to accommodate this growing program. A field hockey field dimensions are 300x180 and would require 1.2 acres of land.

Youth football- Currently our football program is run fully in Bolton. If we build out to 10,000 people in Stow there maybe a need to split the current football program and have the Stow participants play in Stow. We would need at least one game field and a large enough area to hold multiple practices. A football field dimensions are 360x160 feet and would require 1.3 acres of land.

AVLL- Currently we have roughly 300 participants from Stow in AVLL. We currently have three 60ft baseball fields dedicated to AVLL plus two additional fields to be built at the Old Bolton Road property. If we build out to 10,000 there will be a need for an additional field to sustain the program. If we loose the two Center School fields we will need at least two additional fields. A 60ft base ball field would be 300 x 300 feet in dimensions and would require 2 acres of land.

Babe Ruth Baseball- Currently we do not have a 90ft baseball field in Stow. So that means we can not accommodate Babe Ruth or Senior league baseball. There is a need now to add at least one 90ft baseball diamond. A 90ft baseball field would be 450 x 450 feet in dimensions. With the increase of population we would need to add a total of two 90ft diamonds to run a Senior league or Babe Ruth Program. Currently our kids have to go to Maynard and use their fields.

Soccer- Currently we have roughly 624 participants from Stow playing soccer in town. With the addition of the Snow fields we will have a total of 7 fields. If the build out happened and we loose the Center School fields we will need at least 4 additional fields to have enough space to accommodate the program in town. An 11v11 soccer field dimensions are 330x240 feet and would require 1.8 acres of land. An 8v8 field would be 70x50 in dimension and a 6v6 would be 50x40 feet in dimension.

Men's Softball- We currently have 160 participants in the men's softball program. This number could double if we build out to 10,000 people so we would need 1 additional softball field to accommodate that program and possibly add a women's softball league in town, which we currently do not have.

Recreation Center/Community Center-With the anticipated growth there would be a great need for a community center. Stow Recreation would like the center to include such things as a pool, fitness center, basketball court, teen center, and community-gathering place.

Indoor basketball court-We currently only have two indoor basketball courts in Stow. We have over 160 participants in the youth basketball program. We currently don't have enough space and time at the gyms to run the program. With the addition of 1000 families we would need at least two more indoor courts to run the youth basketball program during the winter.

Boat Landing- canoe/kayak access to Lake Boone and Assabet River

Bike Trails - support of Assabet River Rail Trail links.
Walking/Skiing Trails - support of Stow Conservation Commission and other protected spaces for walking.

Tennis Courts - If we lost the two Center School tennis courts there would be a need for at least four additional tennis courts in Stow. A tennis court dimensions are 78x36 feet.

Skate board park- There are many communities that have added Skate Board parks. With the increase in population it would be great to have a place for teens to come and do something constructive and physical.

In addition a field or a complex of fields would need parking and storage areas as well. And there is always the requirement of flat dry land.

APPENDIX 7

Open Space and Recreation Plan - "Stow Forever Green"

June 2008

Stow: Forever Green

Preserving the Stow we Know

Stow Open Space and Recreation Plan

June 2008

TOWN OF STOW, MASSACHUSETTS · INCORPORATED MAY 16, 1683 · 1892

IMPORTANT NOTES FOR READERS

Purpose of Plan: This plan is an update of the 1997 Open Space and Recreation Plan prepared by the town of Stow. The plan summarizes the progress that the town has made in providing for its open space and recreation needs and sets forth goals and specific action items for the next five years. The plan is designed to provide a framework for the efforts of various town boards and committees involved in the protection Stow's open lands and to guide municipal partnership efforts with both state and federal agencies and nonprofit organizations. It will also help guide work by the town's Community Preservation Committee and will serve as the Natural Resources and Open Space component of the town's Master Plan, currently under revision. The Open Space and Recreation Plan must be updated every five years to maintain eligibility for the Commonwealth's Self Help and Urban Self Help Grant programs.

A Word About Maps: For the first time, Stow has been able to take advantage of GIS mapping technology in preparing the Open Space and Recreation Plan. While this has allowed the production of much higher quality maps than had been in previous versions of the plan, along with information on landownership, it also means that it is easy to find errors. Every day in Stow this information changes -- parcels are divided and ownership changes, properties are enrolled or removed from Chapter 61 preferential taxation programs, and lands are protected. The Open Space and Recreation Plan was prepared over several years, and we have used the best available information at the time the plan was prepared. In some cases there are minor acreage discrepancies that do not materially affect the recommendations in this plan. In addition, the maps are illustrative and are certainly not intended to be used for regulatory purposes. As an example, this includes wetlands, rare species, floodplain and zoning maps, where the original source should always be consulted.

Content & Executive Summary: The contents and order of the items in this Open Space and Recreation Plan are set forth in state guidelines for community open space and recreation plans. It is anticipated that a more "user-friendly" executive summary of this plan will be prepared for public distribution and made available on Stow's web site.

Updates: We anticipate continuing to update this plan on a regular basis and encourage residents to bring to our attention any revisions or corrections that should be made in the next update. If you are interested in assisting with implementation of the action items in this Open Space and Recreation Plan, please contact the Stow Conservation Commission.

Thank you.

Stow Open Space and Recreation Plan Committee

Stow Open Space Committee

Stow Conservation Commission

Table of Contents

Section 1

Open Space Plan Summary

Stow is a very special place. Despite increasing development pressures, Stow has managed to maintain a rural flavor that has been lost in most, if not all, surrounding communities along the Route 495 corridor. A wide range of agricultural products including fruit and vegetables, lamb, Christmas trees, and greenhouse and cut flowers continue to be produced in Stow and are a major element of our community's heritage and economy. Economically viable farms preserve open space and contribute in many other ways to Stow's quality of life. Many roads are lined with stone walls and there are numerous highly valued scenic vistas such as Pilot Grove Farm, Carver Hill, Lake Boon, the Assabet River, and the town's many beautiful golf courses. With just over 6000 residents, Stow still has a "small town" feel – it is a town where you know the people you see in the post office and in the grocery store. And where annual events such as Springfest, the Harvest Ball, Run for the Woods, and washing the fire truck are important aspects of the community's character. Other less tangible aspects of small town character prevail – the skies are still dark at night, affording excellent stargazing opportunities, and on a summer afternoon, the rustling of leaves and the songs of birds are more noticeable that sirens or traffic noise.

The recent Master Plan Survey indicates that most people chose to move to Stow for what it still is, more than for what it could become. Sixty two percent of residents said that rural character (open space, farms and orchards, Lake Boon) was the main reason that they decided to live in Stow. Almost half cited "small town community" as the main reason.

At the same time, these aspects of Stow that are prized by residents also draw newcomers, making the continued growth of Stow inevitable. This reality jeopardizes the very qualities that make Stow a desirable community. One traffic light becomes two. The intersection of Rt. 62 and 117 becomes increasingly congested. It is harder to take a left turn out of your driveway. A patch of woods is subdivided for large new homes. Class sizes increase. Little by little, the sense of "elbow room" is diminished. Our demographics are also changing – with homeownership increasingly out of reach for many and those on fixed incomes struggling to keep up with rising property taxes. At the same time, there is a strong desire to maintain the existing small town character in Stow for its many benefits. Growth will continue to affect our tax base, requiring costly services such as increased police and fire protection and additional classroom space. Protection of our important remaining open lands can maintain or enhance our quality of life and be beneficial to the town's budget in the long run.

We are used to looking at the landscape and imaging that what we are used to seeing and experiencing will always be there. Yet, build out studies that have been developed for Stow depict a future – where all of the existing unprotected open land has been developed – that seems unimaginable. Many Stow residents do not fully appreciate the magnitude of the changes that will occur with buildout or the speed with which it is likely to occur. Most communities in eastern Massachusetts are looking at a "buildout" time horizon of 5 to 15 years. The reality is that the decisions that are made within the next five to ten years will play a major role in shaping the future of Stow. To the extent that the existing build-out projections are undesirable, the town must act now to change this blueprint and to create the "green infrastructure" that will sustain this community over the long term.

This plan identifies nine specific objectives for protecting land in Stow. They are:

- Protect agricultural lands to preserve and enhance Stow's agricultural base, and maintaining its viability for the long term
- Protect lands that provide areas for active and passive recreation including ball fields and trails.
- Protect lands that link existing conservation holdings in Stow and surrounding communities
- Protect lands in areas of town currently underserved by protected open space
- Protect land with significant surface and groundwater resources.
- Protect land that will preserve Stow's small town nature
- Protect important natural habitats and wildlife corridors.
- Protect important scenic vistas.
- Protect land with significant historical or cultural resources.

This plan calls for specific actions on several fronts – ranging from active efforts to acquire or otherwise protect priority lands that are important for the nine objectives identified in this plan, to adoption of creative zoning changes to reduce and/or concentrate future development and preserve areas not suitable for development. It is clear that given the short amount of time remaining, the town needs a strong, ongoing and well-prioritized land protection effort that makes use of all of the "tools" in the toolbox – encouraging donation of land and conservation restrictions, purchasing key properties, and making use of limited development, zoning incentives and creative land protection partnerships with private organizations that can assist with raising funds. In addition, more attention needs to be given to coordinated marketing of Stow's assets – its farms, orchards, golf courses, bed and breakfasts, recreational lands, and small businesses. We should be able to purchase Stow apples in the supermarket and should encourage more visitors to consider Stow as a weekend or vacation destination. In addition, the town needs to ensure that land use and open space decisions are coordinated, so that infrastructure and capital facilities decisions support efforts to preserve important lands and do not conflict with open space priorities and so that the various staff, boards and organizations involved in open space protection maximize their effectiveness. Finally, the plan looks across Stow's borders to identify key linkages with open space and greenway efforts in surrounding towns and within the region.

Moseley Farm, Maple Street, Protected by Agricultural Preservation Restriction

Section 2

Introduction

2A. Statement of purpose

This plan is an update of the 1997 Open Space and Recreation Plan prepared by the town of Stow. The plan summarizes the progress that the town has made in providing for its open space and recreation needs and sets forth goals and specific action items for the next five years. The plan is designed to provide a framework for the efforts of various town boards and committees involved in the protection of Stow's open lands and to guide municipal partnership efforts with both state and federal agencies and nonprofit organizations. It will also help guide work by the town's Community Preservation Committee and will serve as the Natural Resources and Open Space component of the town's Master Plan, currently under revision. The Open Space and Recreation Plan must be updated every five years to maintain eligibility for the Commonwealth's Selp Help Grant program. This is the fifth Open Space and Recreation plan developed by the town of Stow.

2B. Planning process and public participation

This plan has been prepared by the Open Space and Recreation Plan Committee, which was appointed by the Stow Conservation Commission in 2003 specifically for the purpose of updating this plan, in conjunction with the Stow Open Space Committee. The Plan Committee consists of Bob Wilber, Kathy Sferra, Dwight Sipler, Doug Moffett, and Bill Maxfield. They were assisted by volunteer Pam Weathers. The Open Space Committee includes Bob Wilber, Kathy Sferra, Eve Donahue, Chris Rodstrom, Vin Antill, Jean Lynch, and Bill Maxfield. Members of both committees are involved in planning and open space issues in the town of Stow. Members of the committee serve on the Stow Open Space Committee, Stow Community Preservation Committee, Stow Conservation Commission, and the Board of Directors of the Stow Conservation Trust. In addition, both Pam Weathers and Dwight Sipler have been involved in writing prior versions of the Stow Open Space and Recreation Plan.

The 1997 Open Space and Recreation Plan was used as the starting point for the plan but has been extensively revised, updated and formatted to comply with the Commonwealth's new Open Space and Recreation Plan Requirements. In addition, for the first time, Geographic Information System (GIS) data and maps were available to assist in updating the Open Space and Recreation Plan and allowed the committee to conduct an extensive analysis of Stow's remaining open lands at the parcel level. This information was invaluable and enabled the preparation of the high-quality maps that accompany this plan.

Concurrent with the Open Space Plan, the Master Plan of Stow is being updated. The Open Space and Recreation Plan will serve as the Natural Resources and Open Space component of the Stow's Master Plan. The town's 2003 Master Plan survey was used to provide data on residents' opinions regarding community character, development and open space. In addition, information from several planning charettes conducted jointly by the town and the Metropolitan Area Planning Commission (MAPC), including one on natural resources and open space, was incorporated into the plan as appropriate.

All of the meetings of the Open Space and Recreation Plan Committee were advertised public meetings open to interested citizens and members of other boards. In addition, copies of the draft document were circulated to all of the relevant Town boards and community groups for their comments and made available in the Stow Public Library. The specific distribution list

included the following: Town Administrator, Selectmen, Conservation Commission, Board of Health, Planning Board, Board of Assessors, Recreation Commission, Lake Boon Commission, Historical Commission, Finance Committee, Randall Library, Master Plan Committee, Agricultural Commission, Municipal Land Use Committee, and Community Preservation Committee.

The Open Space and Recreation Plan Committee conducted a public forum on October 5, 2006 to present the final draft of the plan and to accept additional public comment on the plan. The forum was advertised in local papers and on the community bulletin board outside the Randall Library. Comments received at the forum were incorporated into the final plan.

Section 3

Community Setting

3A. Regional context

Stow is only one of a handful of communities within Rt. 495 that has managed to retain a largely rural character with many prominent open lands, farm and orchards which contribute to the town's character and economy. Surrounding towns in all four directions are significantly more developed. Stow's population, originally agrarian, has changed over the recent decades to include workers in the high technology industries of electronics and biotechnology as well as many people who work from home in home-based businesses. Its socioeconomic level is generally middle to upper middle class.

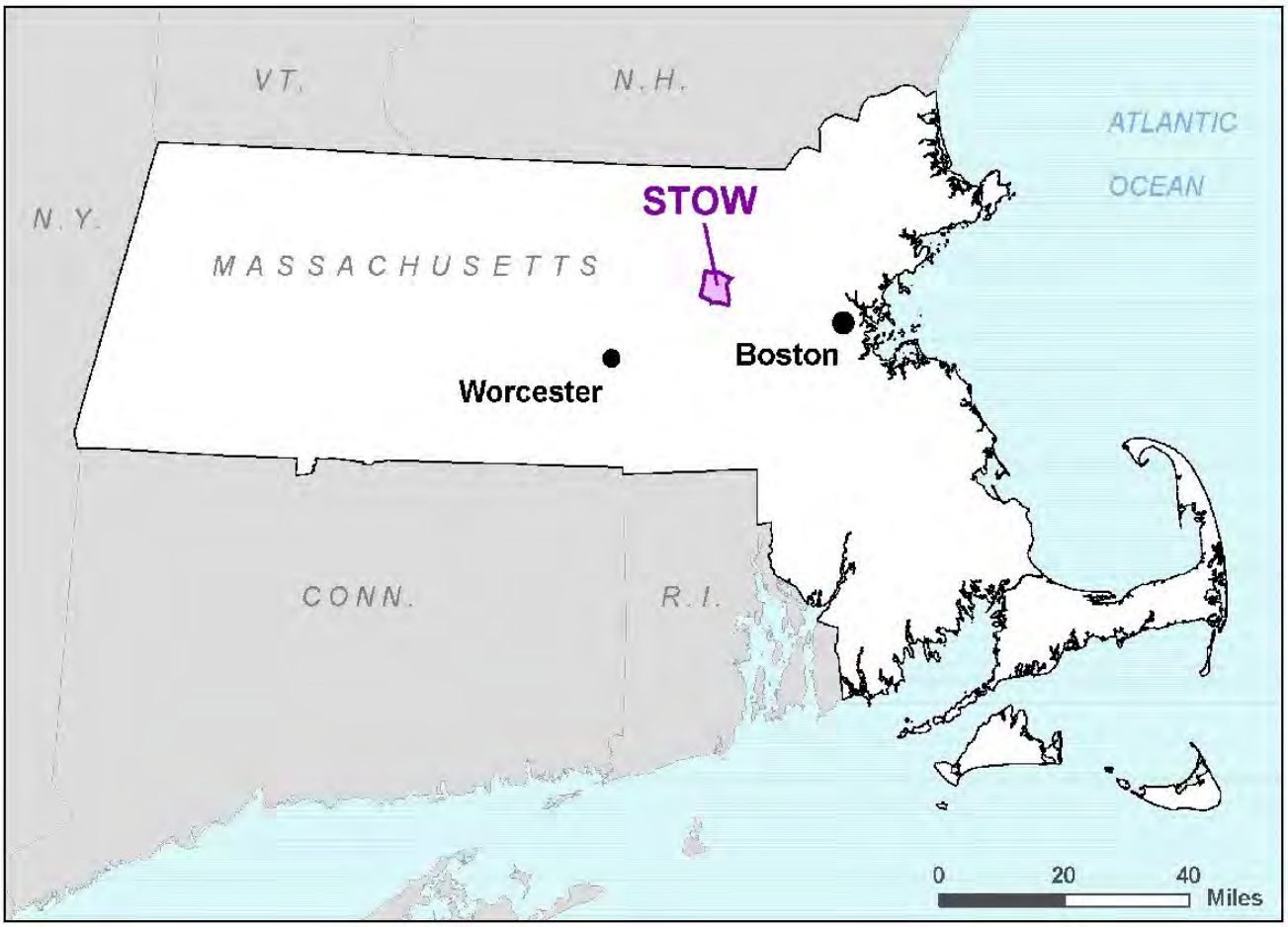
Stow is within the Sudbury-Assabet-Concord (SuAsCo) Watershed. The Assabet River forms the main drainage area for most of the Town of Stow. The areas of highest elevation in Town are the bedrock and glacial till areas in the northwest corner of Town. Other major topographical heights include drumlins such as Spindle Hill, Birch Hill, Pilot Grove Hill, Spring Hill, and Orchard Hill.

No major highways pass through Stow. However, Routes 117 and 62 are heavily used by commuter and commercial traffic. These two roads carve the Town roughly into thirds. These main roads, as well as back roads which connect to adjacent towns of Acton, Sudbury, Maynard, Boxborough, Harvard, Bolton and Hudson, form the primary local road network. There are no public transportation systems in Stow. North on Boxborough Road is Minute Man Air Field, which has grown over the years but still accommodates only small aircraft.

Stow has several light industries; the major ones include Bose and Radant Corporation. Small businesses are clustered around the Lower Village Common (the eastern end of Route 117), scattered along Route 117, and in Gleasondale in the old mill complex.

The southeastern corner of the Town contains the former US Army Fort Devens Sudbury Annex, consisting of 1036 acres within Stow. This area was taken by the Army during World War II and contains considerable open space including Puffer Pond. With the closing of Fort Devens, this land has been transferred to the U.S. Fish and Wildlife Service and now forms Assabet River National Wildlife Refuge, a significant open space and recreational resource. Just across the Assabet River which forms the northwestern boundary of the Assabet Refuge is the Gardner Hill Conservation Land (the Town Forest) which encompasses 326 acres. This area is traversed by Elizabeth Brook which stems from Delaney Pond in the northwest corner of Stow. Elizabeth Brook passes down from Delaney Pond into Wheeler Pond near the center of Stow and then on to the Gardner Hill land emptying into the Assabet River just opposite the Assabet Refuge. In the center of Town is Minister's Pond which is flanked by Route 117 and a portion of Crescent St.

In the southern section of Stow is Lake Boon (Boon's Pond). Although originally surrounded by summer cottages, it now has mostly year-round residents. The Town Beach (31 acres) is located on the eastern side of the lake. Due to the increase in population around the lake, some pollution has occurred due to failing septic systems or cesspools. Over the last few years most of these systems have been upgraded and residents around the lake have worked diligently to decrease the pollutant load to the Lake. Nearby is White Pond, which is controlled by the Town of Maynard which prohibits recreational activity to protect water quality for the nearby municipal wells. Sudbury State Forest is nestled among the Wildlife Refuge, White Pond and the Lake Boon area.



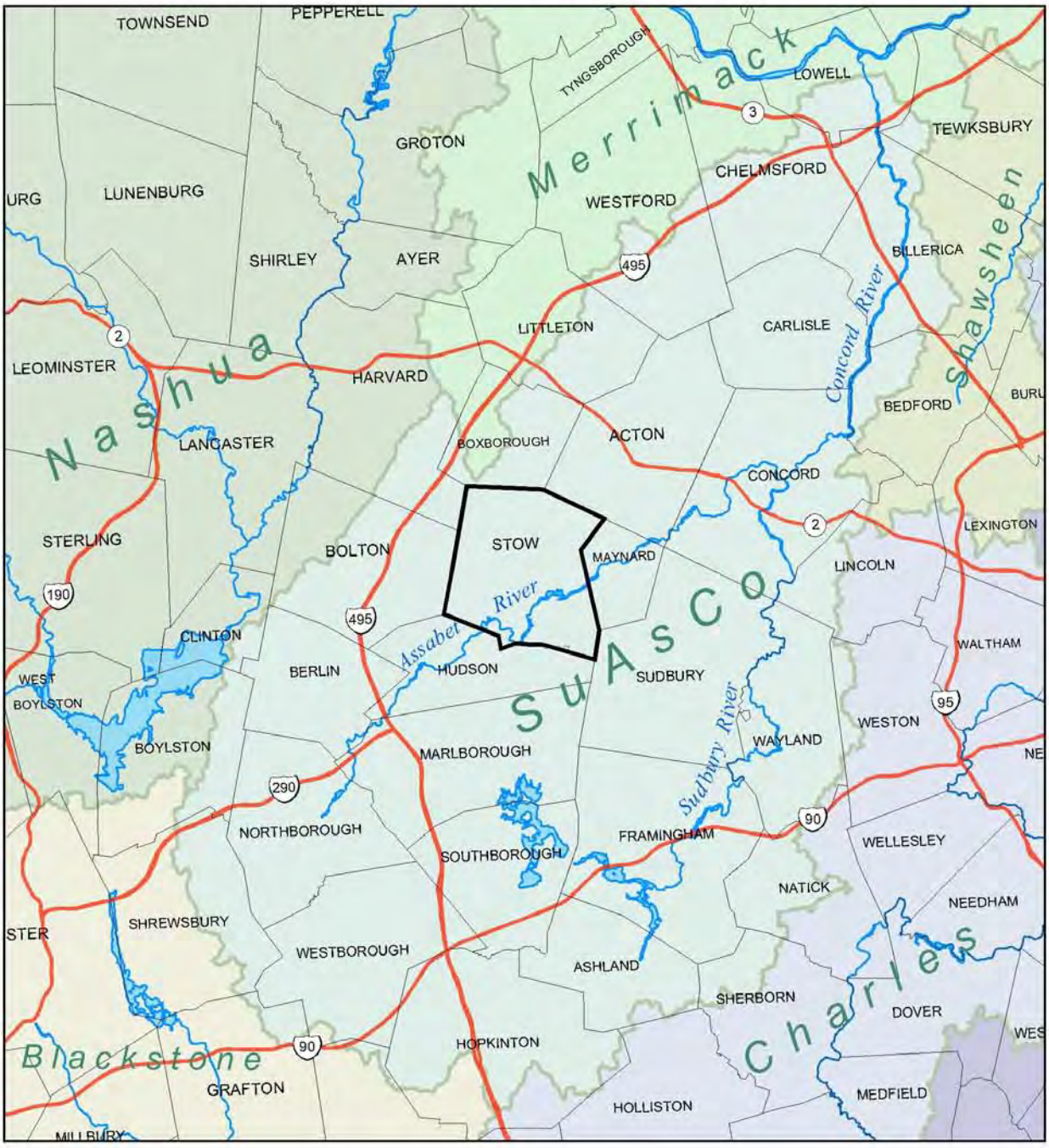
In the southwestern corner of Stow is a former private landfill which contracted its services to Stow and Hudson. This landfill was closed in 1996 and has been capped. This sector of Town also has a great deal of undeveloped land, only a small amount of which is permanently protected and some industry, e.g. Radant Corp and the new Bose facility. There are two new large developments in this area, the Villages at Stow 40B and the Arbor Glen Active Adult Neighborhood, but a large amount of undeveloped land still lies west of Hudson Road. Off more to the west is the Annie Moore land (27 acres) which connects to conservation land in Bolton.

The northwestern section of Stow is dominated by two main features, the Delaney Flood Control project and the Harvard Acres residential development. The Delaney Project encompasses 170 acres consisting of open water, seasonal shore marshes, and a perimeter of wooded or open conservation land. The north central region contains the Marble Hill Conservation Area (249 acres) which is close to but not immediately adjacent to the Delaney land.

The northeastern sector of Stow is dominated by a major marsh system, Heath Hen Meadow, through which Heath Hen Meadow Brook meanders. Near this brook is the Captain Sargent Farm conservation area comprising 153 acres and the Flagg Hill Conservation Area (243 acres), both of which were acquired with assistance from the Self-Help Grant Program.

Many of these conservation areas are close to being linked in a green belt throughout the Town. Numerous trails exist throughout Stow; however, they have not yet been linked. One of the goals of this Plan is to create a green belt and trail system throughout Stow, perhaps linking with adjacent towns.

Stow - Regional Context and Watersheds



SuAsCo - Sudbury / Assabet / Concord River Watershed

Watershed Divides

Highways

N

0 1 2 3 4 5 Mile

Hydrography, Town Boundaries, and Roads data provided by MassGIS.

Map produced June 2006.

Stow is a member of MAGIC, one of 8 subregions of the Metropolitan Area Planning Commission. MAGIC is a group of communities that meet regularly to discuss issues of common interest. The Sudbury Valley Trustees is a regional nonprofit organization that works on open space protection issues in the town of Stow, as does the Stow Conservation Trust, a local nonprofit land trust founded in 1978. The Assabet River Rail Trail is a regional greenway project which is located within the town of Stow.

3B. History of the Community

The history of Stow has been compiled by several authors over the years. The first history available in book form is the Crowell history, published in 1933 for the 250th anniversary of the town. The most recent history of Stow was compiled by Ellie Childs and published by the Stow Historical Society Publishing Company as part of the Tercentenary in 1983. A brief summary of the histories is excerpted below.

An area of forest, wooded hills, streams and river, swamps and rock-strewn meadows ("meane land") comprised Pompositticut Plantation in the 1600s. We know this area as Stow today. The town in the eastern part of the Massachusetts Bay Colony, 25 miles west of Boston, was centered in the cluster of communities of Concord, Sudbury, Marlborough, Lancaster, Groaton (Groton) and Nashoby (Littleton).

Matthew Boon of Charlestown explored Stow about 1660 and settled on Boon Hill which is adjacent to what is now known as Lake Boon. John Kettle settled in Stow about 1663. Both fled in the 1670s when hostile Indians were on the rampage.

The first action in establishing the settlement called Stow occurred in 1669 through the General Court of the Massachusetts Bay Colony. On May 16, 1683, twenty families were deemed the maximum the land could support and the town of Stow was incorporated. In the latter part of the century the Town had two main concerns: achieving self-sufficiency and finding a minister. Stow originally included portions of what are now Boxborough and Maynard. In the early 1700s some of the first bridges were built in Stow primarily to cross the Assabet River. In the late 1600s the first mill was documented on "Assibath Brook" (now Elizabeth Brook). Many other mills followed: "wherever there was sufficient flow of water one could expect to find a mill" (Childs, 1983).

One of the more notable citizens of Stow in the 1700s was Henry Gardner who in 1768 was unanimously chosen to go to Faneuil Hall in Boston to take "the state of our public affairs" into consideration. He was later appointed Receiver-General by the Provincial Congress to collect and hold the colonists' taxes in lieu of payment to the Crown. In 1775 he was unanimously elected Treasurer by the 3rd Provincial Congress.

On April 19, 1775, John Gates Diary officially recorded that "a civil war [the Revolution] began in this Province" (Childs, 1983). Dr. Samuel Prescott came galloping into Stow to warn the people and the 81 militia men that the British were coming.

After the Revolution, the Town of Boxborough was formed in 1783 with lands annexed from Stow and Littleton. The population of Stow was about 935 in that year. In the early 19th Century, the town of Maynard was formed from the area of Stow known as Assabet Village.

In 1786 there was a severe economic depression. Farmers were so desperate that in Western Massachusetts they started a revolt, Shay's Rebellion. Captain Nathaniel Sargent from Stow led a company to quell the revolt. Times were particularly hard after the Revolution so the Town built the Poor Farm still located on White Pond Road.

The 19th century was a time of growth and change. The appearance of the Town was documented on the 1830 map of Stow. The woolen mill was built on the Assabet River in 1813. In 1823, Lucy Smith bought the Gibson Farm on Pompositticut Hill and eventually deeded it to her son-in-law, Isaac Maynard. Eventually this land became a part of the town of Maynard. "Half-mile trees" - elms - were probably planted before 1850 from Rock Bottom (now Gleasondale) to Stow Center. Dutch Elm disease has now destroyed all of them. The railroad came to Rock Bottom in June of 1850. It came from South Acton through Maynard eventually to Rock Bottom and ended in Marlborough. Near the Rock Bottom Mill was a shoe factory and cabinet makers

The Civil War drew a prompt response from the Stow militia. The townspeople had long supported abolishing the slave trade. Stow sent 112 men to fight. The Rock Bottom Mill prospered by supplying woolen goods.

Some of the more notable citizens of Stow of this period included John W. Brooks, a railroad magnate, Dr. Willena Peck, a distinguished physician, Alonzo Parks, an African trader, John Witt Randall, a learned scholar and collector, Col. Elijah Hale, businessman and politician, and Edwin Whitney, a lawyer and politician.

At the beginning of the 20th century, many changes occurred. Stow's population was 1002. The electric trolley line of the Concord, Maynard and Hudson Street Railway was installed through Stow. In 1923, the trolley was replaced with buses. Hudson Light and Power brought power to Stow in 1906. A little later the Marborough-Hudson Gas Company brought gas to the community. Indoor plumbing, a telephone in the Town Hall and running water were now in place. Wireless was available at every railway station. Shortly after 1912, radios were commonplace in households. The automobile appeared in Stow in the first part of the century.

The dam on Bailey Brook on Barton road enlarged Lake Boon and a few summer cottages were built around the Lake. A steamer ran around the shore to transport men to and from the train stop at Whitman's Crossing near what is now the corner of Sudbury Road and Barton Road. The Town took title to the Lake Boon dam in the late 1950s.

World War I had 77 Stow "boys" enlisted. After the war many immigrants arrived having fled Europe. In the Depression it was hard to make money but the citizens of Stow, good farmers, did not go hungry and inspired non-farming people to garden. The hurricane of 1938 did significant damage to the trees and buildings of the Town. Several sawmills were set up and worked for more than three years to convert the damaged trees into lumber. Then came World War II and many young men in Stow were drafted. Much of the stockpiled lumber cut from the trees felled during the 1938 hurricane was used to construct the barracks at Fort Devens in Ayer. After the war there was a great pressure to produce more food and Stow orchards constructed cold storage barns to handle the demand for increased quantities of fruit.

In 1952 the Planning Board was established. In 1961 the Conservation Commission, concerned with land acquisition and preservation of open space, was established. Since that time the Town, largely through the efforts of the Conservation Commission, has purchased or acquired many significant parcels of land in Town for conservation and agricultural preservation and actively manages much of this land for public use. Furthermore, the Town has obtained a number of conservation restrictions on privately owned property through donations, purchases and negotiation with developers.

The town’s open space preservation efforts have been augmented by the Stow Conservation Trust, a private, nonprofit land trust in existence for more than 25 years. The Trust has been encouraging many of the larger land holders in the Town to protect their land especially through agricultural and conservation restrictions (CRs). The Trust has also made efforts to educate and provide non-

monetary assistance to private land holders so that they might realize the variety of different protection mechanisms that are available. This effort was instrumental in a number of recent efforts to preserve properties including Shelburne Farm, a local apple orchard preserved through the Agricultural Preservation Restriction program of the Division of Food and Agriculture. As part of the preservation package the Town purchased an adjacent woodlot for conservation/recreation land. An abutter donated a parcel of land to the Town to grant access to the conservation land and in addition, placed a permanent conservation restriction on an adjacent parcel. Subsequently, the Town has put together several other purchase/CR parcels linked to the Shelburne Farm area. Recent partnerships between the Town and the Stow Conservation Trust include the protection of the Red Acre Woodlands off Red Acre Rd. and South Acton Road and the Hale Woodlands parcel in southwest Stow. The Trust has also recently secured protection of the 32 acre Leggett Property along Rt. 62.

The Town of Stow has active recreation facilities and assets managed by the Recreation Department and a paid Recreation Director. Actively used by residents and especially youth groups the facilities have grown over time. However, the addition of required facilities has not kept up with the usage and demand resulting in an active recreation facilities deficit in the town. This issue is discussed in more detail later in this Plan. The Stow Recreation Commission is an appointed body of 5 members, chartered to oversee the Recreation Department and Director. The Recreation Department mission is to provide recreation opportunities for residents of Stow as well as to maintain the Town's recreational assets. Under leadership of the Recreation Director, a mix of programs are run and overseen. Some programs, such as the active school age soccer program and baseball program are run by independent groups, such as Stow Soccer Club, and Assabet Little League. Other programs are run by the Department. Two examples are the youth basketball program and the management of the town beach personnel and swimming programs. Other varied programs are independently run, with groups and businesses paying for use of fields and facilities. There is a very diverse list of programs year round promoted through a mailing to every resident for each season.

In 2001 the Town voted acceptance of the Community Preservation Act (CPA) and completed a Community Preservation Plan in 2002. The plan identifies the need to provide affordable housing as the community's most pressing priority. Because Stow currently only has about 7.5% of its affordable housing certified by the MA Department of Housing and Community Development (DHCD), the Town has been under threat of proposed Chapter 40B "affordable housing" development projects. With the approval of the Villages at Stow, a large 40B project along Rt. 117 at the intersection of Hudson Rd. and the completion of a DHCD-approved "planned production" plan, the town achieved protection from 40Bs for one year. The continuation of this "protection" is dependent on the construction timetable for this project and the town's ability to continue developing locally-sponsored affordable units. The town has adopted an inclusionary housing bylaw and CPA funds have recently been voted at Town Meeting for an innovative program to purchase deed restrictions on existing modest homes to keep them affordable. The overall aim of this approach is to provide additional permanent affordable units while also maintaining the rural character that is so highly valued by the majority of Stow residents. It is anticipated that additional projects using CPA funds to protect important open space parcels will be brought forward to town meeting in coming years. The Town has also recently created an Affordable Housing Trust, which will be able to expend revenues contributed by developers pursuant to the Town's Inclusionary Zoning Bylaw. This Open Space and Recreational Plan, and the ranking criteria developed by the Stow Open Space Committee should help guide those efforts toward protection of the most important parcels.

3C. Population characteristics

The population of Stow has increased from 5,144 in 1980 to 5,902 in 2000 and 6,385 in 2006. Although the ratio of adults to children was constant from 1980-1992, recently it has increased considerably (Table 1). This statistic, combined with documented crowded conditions at the town's existing ballfields, points to the need to provide additional playing fields. In contrast the elderly have declined in number, as has the remaining adult population. The racial mix in Stow is primarily Caucasian, however, there is a small representation of diverse minorities including Native Americans (Table 2); the racial mix has not changed much since 1992. The population is well educated with more than half of the adults having a college education (Table 3). This is also reflected in the distribution of occupations which indicates that more than half of the Town constitutes professionals and managers (Table 4). Notable is the declining number of individuals who list "agriculture" as their primary occupation.

Table 1. Population distribution in Stow, 1992-2000.

	1992[1]	2000[2]
Children:	1451	1700
pre school	433	510
K-8	646	866
9-12	372	324
College age	318	270
Elderly	578	485[3]
Adults other than above	3264	3447
Median age (years)	35.6	38.8
Ratio of children to adults	0.35	0.43
Total	**5611**	**5902**

[1] 1992 Stow Town Census

[2] 2000 US Census

[3] 65 years and older

n.a. Data not available

Table 2. Racial Make-up of Stow [a]

White	5635
Black	21
Native American	11
Asian/Pacific Islander	120
Hispanic	84
Other	21

[a] 2000 US Census data.

Table 3. Educational Attainment of Stow Citizens[a]

0-8 years of school	52
9-12 yr. no diploma	88
high school graduate	746
Some college	625
college graduates and beyond	2451

[a] 2000 US Census data.

Table 4. Occupation distribution of adults in Stow as of :

	2000[1]		1990[2]	
	Number	%	Number	%
a. Management/professional & related	1952	56	1520	46
b. Sales and office occupations	633	18	See clerical	
c. Clerical[3]	n.a.		829[3]	25
d. Craftsmen/foremen/artists[3]	n.a.		199	6
e. Agriculture	1	<1	50	2
f. Service	277	8	261	8
g.Construction/extraction/maintenance	133	4	162	5
h. Production/transportation/material moving	151	1	n.a.	
i. Self-employed[4]	349		267	8
Totals	3496		3288	

[1] 2000 US Census data.

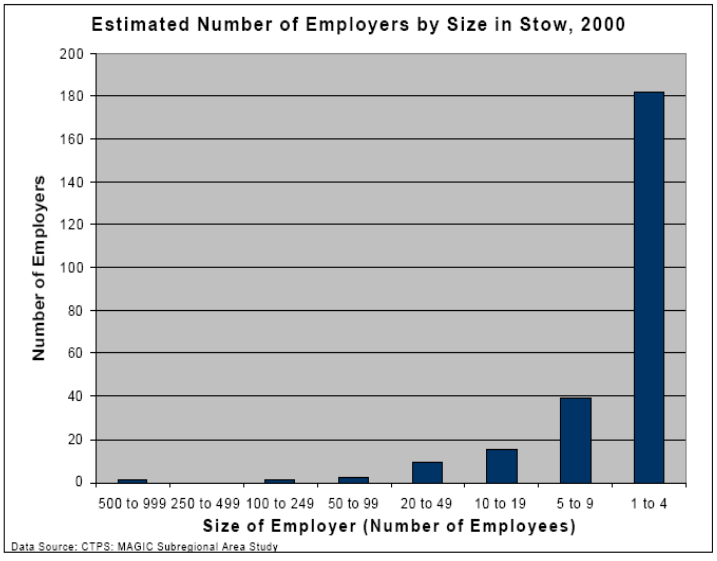
[2] 1990 US Census data.

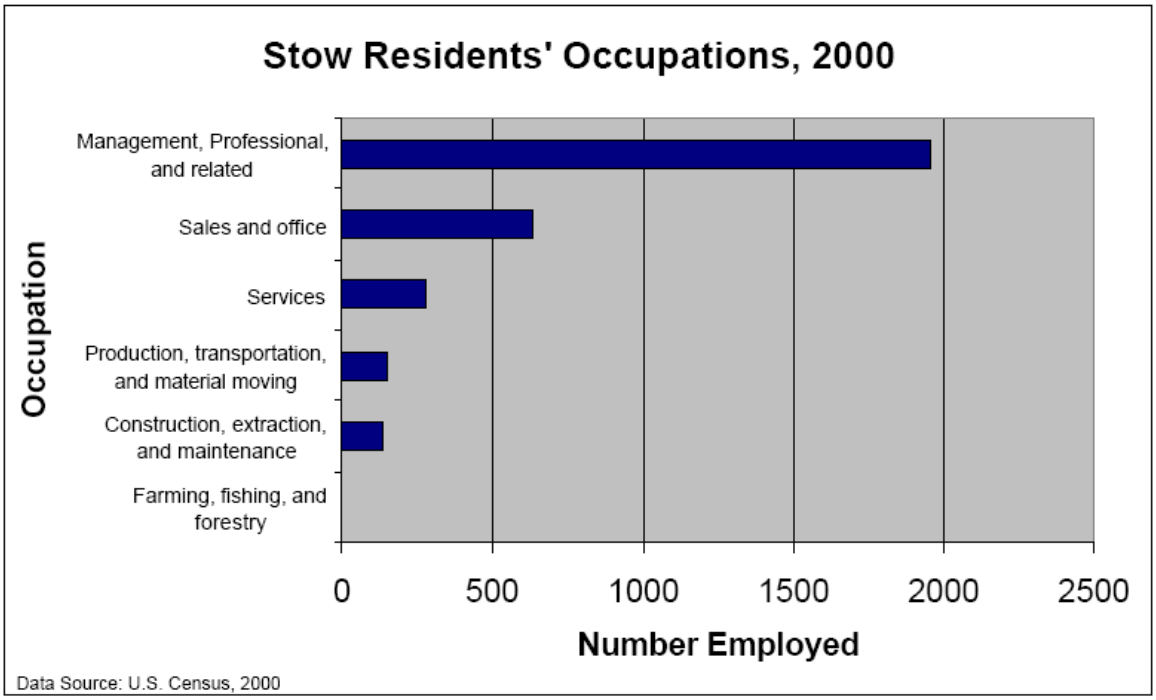
[3] Now merged into another category in the 2000 US Census data.

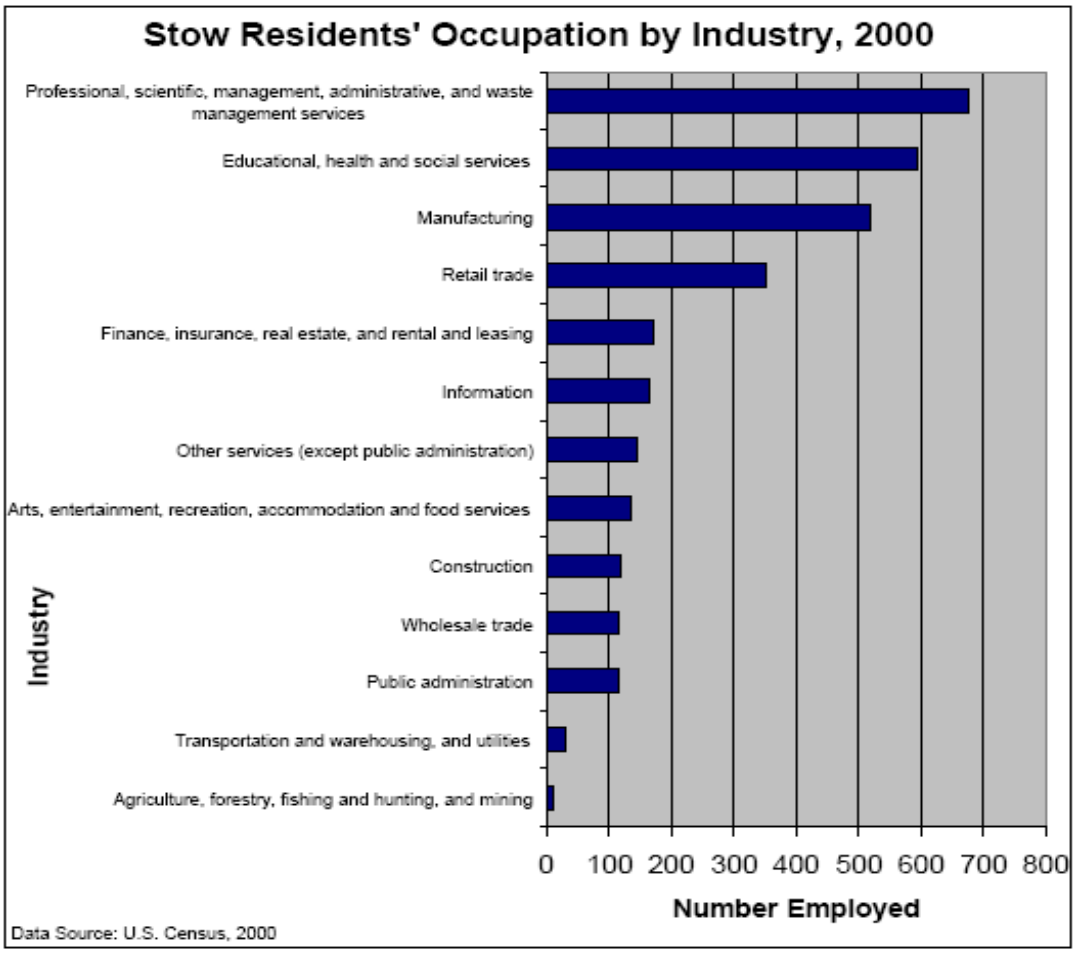
[4] May overlap into some of the other categories; was not clear in 2000 US Census data.

n.a., data not available.

Size of Employers in Stow




Stow Residents' Occupations, 2000
Occupation
Management, Professional, and related
Sales and office
Services
Production, transportation, and material moving
Construction, extraction, and maintenance
Farming, fishing, and forestry
0
500
1000
1500
2000
2500
Number Employed
Data Source: U.S. Census, 2000


Stow Residents' Occupation by Industry, 2000
Industry
Professional, scientific, management, administrative, and waste management services
Educational, health and social services
Manufacturing
Retail trade
Finance, insurance, real estate, and rental and leasing
Information
Other services (except public administration)
Arts, entertainment, recreation, accommodation and food services
Construction
Wholesale trade
Public administration
Transportation and warehousing, and utilities
Agriculture, forestry, fishing and hunting, and mining
0
100
200
300
400
500
600
700
800
Number Employed
Data Source: U.S. Census, 2000

3D. Growth and development

Patterns and trends

The current population is about what was projected in the 1997 Open Space Plan. The earlier, rapid growth of the eighties slowed, but during the mid nineties increased again until the recent recession (Table 5 & 6). Slowing of the 1980s rapid growth was reflected in the drop in new housing starts and housing sales as well as in the drop in median sale price in the nineties, but this has now changed. Although the median house price dropped $50,000 in the early nineties from its peak in 1987-88 (Table 7), it has now skyrocketed, in part due to the construction of ever-larger homes. During the late 1980s and early 1990s the number of school age children dropped but has now increased considerably putting more pressure on the school system. Housing starts have increased in the last couple of years as the economic recession has eased but are still low compared with other towns in the region. Although the median age of the town has increased, the elderly population has decreased. This may be due to increasing property taxes pushing people on a fixed income out of town.

The Town of Stow contains 11,311.4 acres of land and 167 acres of water. The population density of Stow is 326.79 persons per square mile, compared with a density of 1946.9 in Maynard, 428.27 in Boxborough, 207.77 in Bolton, 222.14 in Harvard, 1532.28 in Hudson, and 1004.10 in Acton.

Income Characteristics:

In 2000, the median income for a household in the town was $96,290, and the median income for a family was $102,530. Males had a median income of $75,758 versus $40,911 for females. The per capita income for the town was $38,260. About 1.5% of families and 2.7% of the population were below the poverty line, including 1.6% of those under age 18 and 1.7% of those aged 65 or over.

Table 5. Population of Stow: 1930-2003.[a]

1930	1142
1940	1243[b]
1950	1700[b]
1960	2573[b]
1965	3191[b]
1970	3984
1975	4678[b]
1980	5144
1985	5308
1990	5328
1995	5626[c]
2000	5902
2001	6110[c]
2002	6050[c]
2003	6079[c]

[a] US Census data unless otherwise indicated.

[b] MISER, University of Massachusetts Amherst.

[c] Stow Town Clerk; more recent numbers are suspect because some respondents are unwilling to list their children for security reasons.

[d] MAGIC projection, Stow 2000 Master Plan

Table 7. Housing and Construction in Stow.[a]

Year	New construction[b]	Number of sales	Median sale price
1986	116	118	$199,000
1990	65	50	$178,500
1995	7	109	$288,601
1998	25	126	$383,592
2000	27	123	$479,818
2002	21	155[c]	$573,793

[a] Banker and Tradesman & local realtors.

[b] 1990 US Census data.

[c] Includes Meeting House sales.

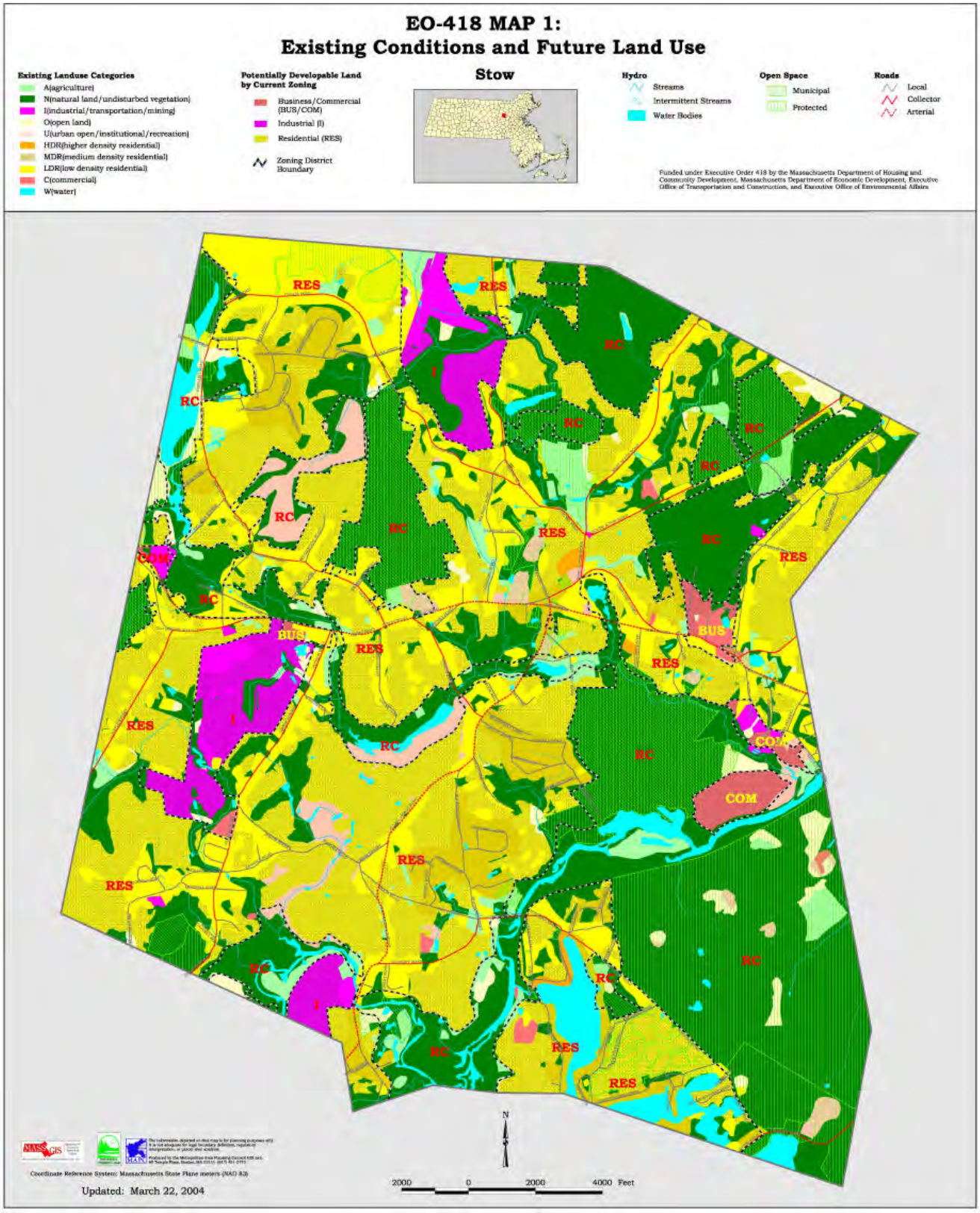
n.a. not available

Single Family New House Construction Building Permits in Stow

(from www.citydata.com)

Year	# of Permits	Average Cost
1996	19	$118,200
1997	30	$130,000
1998	29	$141,900
1999	23	$113,600
2000	41	$173,000
2001	28	$161,700
2002	36	$167,500
2003	16	$238,700
2004	34	$228,100
2005	29	$270,800

Stow Build Out Map – Our Future as Programmed by Existing Zoning



Infrastructure - Transportation systems

The principal transportation network which serves Stow has not changed significantly from that described in the 1997 Open Space Plan. Route 62, heading south into Hudson, previously had a low underpass. The underpass was removed and trucks now readily maneuver this route. The regional transportation accessibility has not changed.

Public transportation is still provided only by the South Acton train station, part of the MBTA's Fitchburg to Boston line. There are still not many designated pedestrian, bicycle or horseback ways, although in progress is the establishment of a bicycle/walking trail, the Assabet River Rail Trail (ARRT), along the old Boston & Maine railroad right of way, running from Hudson, northerly from the Lake Boon area, parallel to the Assabet River and toward Maynard. The ARRT is partially complete except for Stow where a few private landowners have raised concerns; several alternative proposals are being examined that would provide for continuation of the trail. (ARRT Feasibility Study, 1997).

Infrastructure - Water supply systems

The water supply system in Stow has not changed significantly from that described in the 1997 Open Space Plan. It is still primarily based on individual on-site systems except for a number of privately owned "public" systems which either serve small developments, recreation areas or businesses and the town-owned system described in the 1980 Plan. The "public" systems include those of Harvard Acres, Juniper Hills, Plantation Apartments, Meetinghouse at Stow, Pilot Grove Apartments and the Town Common water system, which serves the town buildings, one home and a church. Additional multiple-user water supply systems are proposed for the Villages at Stow 40B and the Arbor Glen "active adult neighborhood" development off Hudson Road. The groundwater pollution problems noted in Section 4.7.7. of the 1997 Open Space Plan have mainly been resolved. Currently under consideration is a small-scale public or private water supply system to serve the "Lower Village" area, in order to alleviate regulatory constraints on businesses in this area. .

Protection of groundwater resources is a high priority according to Stow residents. It received a high priority ranking in the town-wide survey for the Master Plan in addition to being identified by participants in the Master Plan public forums. In the late 1980s Town Meeting approved a Water Resource Protection overlay zoning district in order to protect the groundwater resources of Stow. The overlay zones are based on an evaluation of the groundwater potential throughout the Town. The protected areas are those with the highest potential and generally coincide with the major aquifers in Stow. The Water Resource Protection district is shown in Map 4.

Infrastructure – Wastewater Disposal systems

Sewage disposal systems in Stow, still mostly individual on-site septic systems, have not significantly changed from that described in the 1997 Open Space Plan. New systems are all required to meet the local Board of Health regulations which are more stringent than the State's Title 5. Several new high density residential developments have constructed or plan to construct on-site private sewage treatment facilities including Meetinghouse at Stow on Rt. 117, the Villages at Stow 40B on Rt. 117, the Arbor Glen Active Adult Neighborhood (AAN) development on Hudson Road, and the Ridgewood AAN on Boxboro Road.

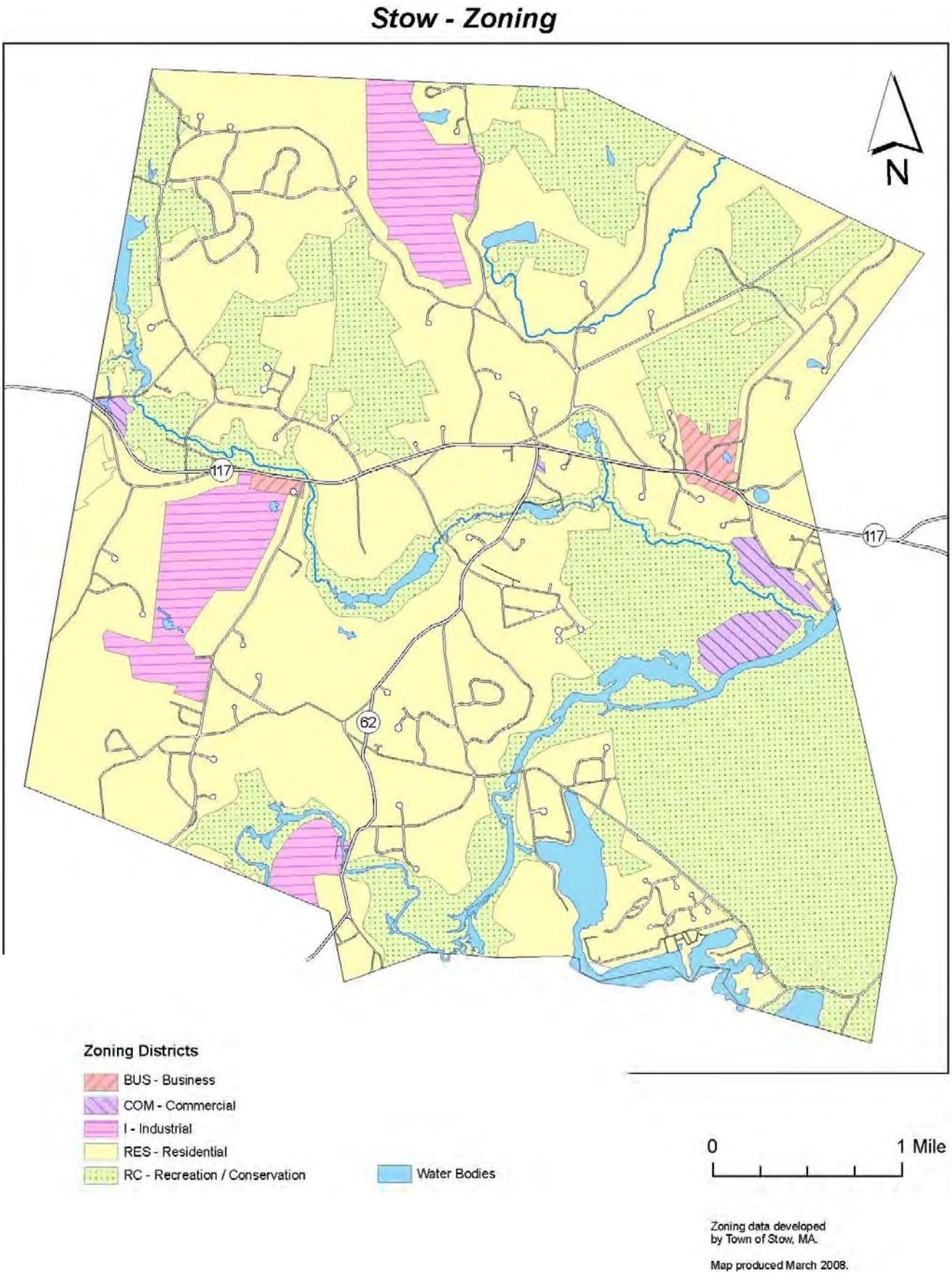
Long-term Development Patterns

Stow has always prided itself on maintaining its rural character. Various town surveys over the years have consistently shown that the rural nature of the Town is crucial to the citizens. The most recent survey taken by the Master Plan Committee in 2003 reconfirms this desire. The perception of rural character is strongly dependent on the large amount of existing open land along the main roads of

Stow. Thus preservation of these highly visible undeveloped parcels is necessary to maintaining the character of the Town.

The traditional development pattern in Town has encompassed 2 primary types of development: residential and business/light industry. During the 1980s, land values soared and some tracts of agricultural and forest land were sold for development. With the recession of the late 1980s and early 1990s and the drop in land values, growth slowed to its pre-boom pace. In the mid-1990s, however, housing growth increased and is likely to continue for the coming decade. Recently approved development projects include the 96 unit Villages at Stow 40B being developed by Habitech, and the 66-unit "Arbor Glen" Active Adult Neighborhood development by Pulte Homes. Both of these developments are near the intersection of Hudson Rd. and Rt. 117. In addition, Landwest Development (Habitech) has begun construction of 33 homes at Derby Woods off Harvard Road. Additional large developments are likely to continue to be submitted to the town and will accelerate the pace of new home construction. Particularly vulnerable is the land in the southwest corner of town where there are a large number of undeveloped parcels and little protected land. This area is identified for special attention in the Action section of this plan. Also vulnerable are all of the town's privately owned golf courses, which remain undeveloped due to the positive economic climate for golf, but are otherwise highly developable.

The 2000 Build Out Study completed by the Executive Office of Environmenal Affairs (EOEA) for Stow identified the potential for the construction of more than 1300 additional homes *under current zoning*, which would increase the population from 5902 at the time of the study to 9582. See Required Map 1-Zoning. Not taken into consideration are increases in population resulting from "density bonuses" in 40Bs or AAN developments, which could put this total higher. The study estimated that new development permitted by current zoning would add 699 new schoolchildren to the town, generate a demand for 515,915 additional gallons of water/day, add 30 miles of new roads, and generate an additional 1888 tons of solid waste/year. The study also identified the potential for an additional 3.1 million square feet of commercial/industrial development on land currently zoned for this use. A map of what Stow would look like if built out – produced as part of this study – is contained in the previous section.


Stow - Zoning
N
117
117
62
Zoning Districts
BUS - Business
COM - Commercial
I - Industrial
RES - Residential
RC - Recreation / Conservation
Water Bodies
0
1 Mile
Zoning data developed by Town of Stow, MA.
Map produced March 2008.

This study provided helpful insight for the community and depicts a completely suburbanized landscape that will require significant investment in capital projects (such as new schools) to meet the demand generated by this development. While it is difficult to imagine a future Stow in which the only "open" land is that which is currently under permanent protection, that is the future reality that is depicted in the build out analysis. In addition to the impacts on the school population, such development would fragment habitat, threaten surface and ground water quality, reduce recreational opportunities, add substantially to traffic issues on major arteries, and fundamentally change the character and quality of life of Stow. The town is currently in the process of revising and updating its master plan. In addition current efforts are underway to consider modifications to zoning bylaws that would shift the pattern of development using tools like transfer of development rights and village-oriented development. In addition, one of the recommendations of this Open Space and Recreation Plan is that the town actively work to reduce the total buildout that is possible using a variety of tools including zoning, land acquisition, and other land protection techniques such as conservation restrictions, protecting one additional acre of land for every acre that is developed.

New Flagg Hill Entrance and Open Space Parcel off Trefry Lane.

Protected through collaborative effort by Stow's Planning Board and Conservation Commission

Section 4

Environmental Inventory and Analysis

4A. Geology, soils, and topography

The topography in Stow varies from the low elevations along the Assabet River (180 feet above Mean Sea Level) to the high elevation of 457 feet on Marble Hill. The Assabet River is the main drainage area for most of Stow. The areas of highest elevations in Stow are the bedrock and glacial till areas in the northwest quarter of the Town. Other major topographic highs include drumlins such as Spindle Hill, Birch Hill, Pilot Grove Hill, Spring Hill and Orchard Hill.

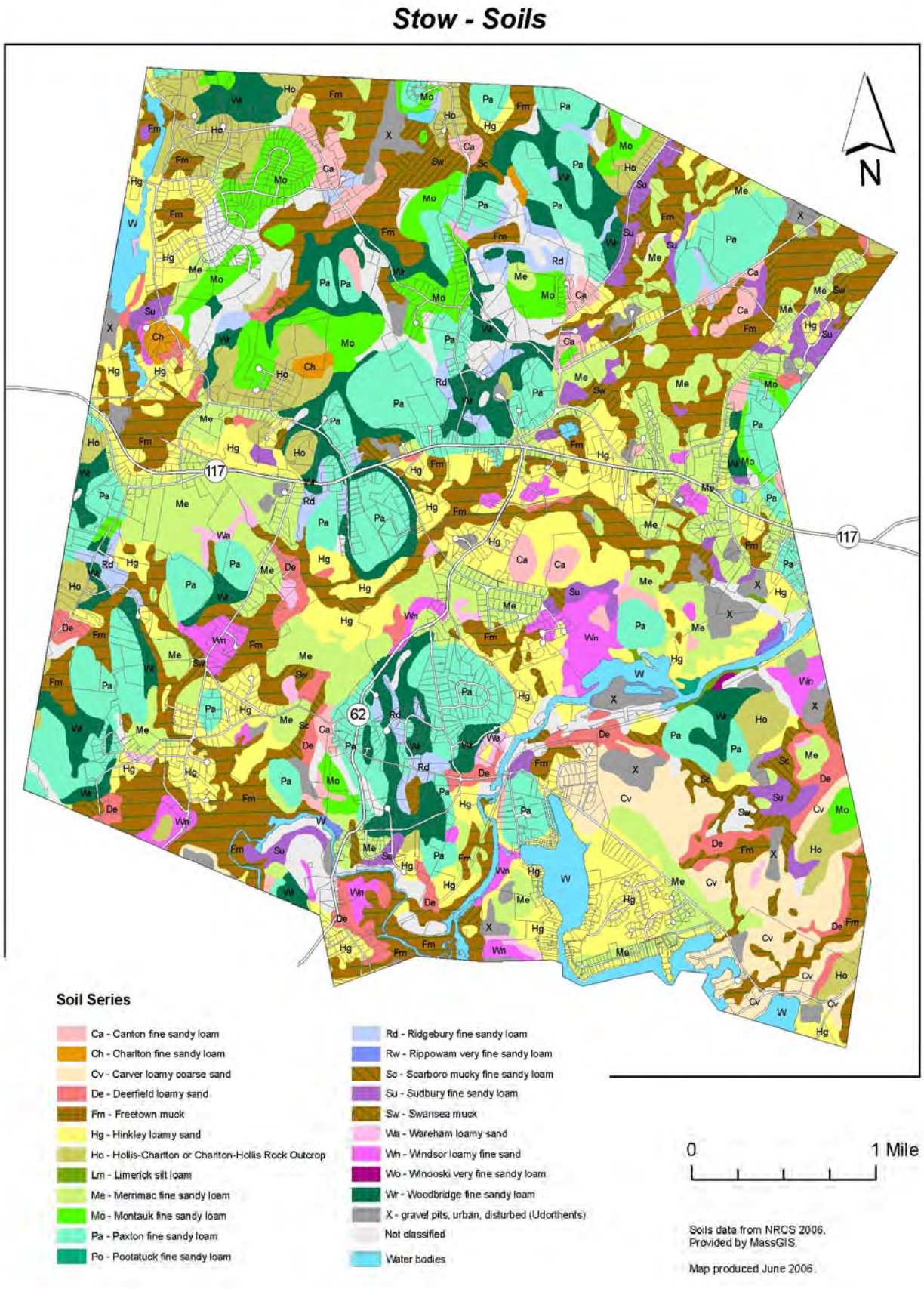
Stow's geology was studied extensively in 1977 by IEP, an environmental consulting firm. Relevant highlights from this report are contained in the sidebar, and the report and accompanying maps are available in the office of the Stow Conservation Commission.

Soils and topography place constraints on development in Stow and affect land use patterns. In steep areas, access often requires significant cuts or fills, creating drainage problems, and erosion and sedimentation. An example of this can be seen in the lots that have been developed along the southwest side of Wheeler Road on the side of Spindle Hill or the access road to Pilot Grove Apartments on Pilot Grove Hill. The Town has not adopted a steep slopes bylaw to address these issues but has recently adopted a common driveway bylaw which may serve to reduce the problem of multiple driveways serving individual single family houses. Similar changes could be made in the subdivision rules and regulations to require that additional scrutiny be given to lots with severe topographic constraints. For example, some towns limit the amount of cut and fill or clearing that is permissible in these situations.

Stow's Geology

The present topography in Stow is a product of previous glacial activity. During the past glaciations, bedrock areas in Stow were cleared of loose rock and smoothed over. In some cases small bedrock knobs were plastered with unconsolidated material thereby increasing the height of these features (drumlins). Channels which existed in the bedrock were widened and deepened through glacial scouring action. And finally, as the glaciers were retreating, meltwater streams flowing out from under the glaciers dropped sands, gravels and silts either in large glacial lakes or along those drainage areas that existed in Stow. These meltwater deposits created the flat plains and irregularly shaped hills and ridges found throughout the Town.

*The bedrock units in Stow include a wide variety of rock types that are classified as **igneous** and **metamorphic**. These types of rocks were altered from their original form through tremendous heat and pressure that was generated during the process of Appalachian mountain building. Igneous rocks are rocks that have been completely re-melted and have lost all original appearances. These rocks are composed of minerals (such as quartz, feldspar, mica, and amphibole) that are usually large enough to be seen by the naked eye. Metamorphic rocks are rocks that have been modified in composition or appearance by mountain building forces. They contain the same types of minerals common in igneous rocks and which are usually visible to the naked eye. The common igneous rock type in the Stow area is **granite** (a coarse grained rock dominated by light-colored minerals). The common metamorphic rock types are **gneiss** (a coarse grained rock with alternating bands of dark and light colored minerals), **schist** (a rock with fine grained, flat minerals arranged in sheets or laminae), and **amphibolite** (a schist which is dominated by the minerals amphibole and plagioclase). Also found are **marble** (a light colored, crystalline rock, the metamorphic equivalent of limestone) and **quartzite** (a fine to medium grained rock, the metamorphic equivalent of sandstone.)*


Stow - Soils
N
117
62
Soil Series
Ca - Canton fine sandy loam
Ch - Charlton fine sandy loam
Cv - Carver loamy coarse sand
De - Deerfield loamy sand
Fm - Freetown muck
Hg - Hinkley loamy sand
Ho - Hollis-Charlton or Charlton-Hollis Rock Outcrop
Lm - Limerick silt loam
Me - Merrimac fine sandy loam
Mo - Montauk fine sandy loam
Pa - Paxton fine sandy loam
Po - Pootatuck fine sandy loam
Rd - Ridgebury fine sandy loam
Rw - Rippowam very fine sandy loam
Sc - Scarboro mucky fine sandy loam
Su - Sudbury fine sandy loam
Sw - Swansea muck
Wa - Wareham loamy sand
Wn - Windsor loamy fine sand
Wo - Winooski very fine sandy loam
Wr - Woodbridge fine sandy loam
X - gravel pits, urban, disturbed (Udorthents)
Not classified
Water bodies
0
1 Mile
Soils data from NRCS 2006.
Provided by MassGIS.
Map produced June 2006.

The rock types described above can be divided into four units. This division is based upon similarities in mineralogy and age of the bedrock. The units are (from youngest to oldest): the Andover Granite, Nashoba Formation, Shawsheen Gneiss, and Marlboro Formation. Each of these units consists primarily of gneiss, schist, and granite. These units are quite similar in composition and physical properties. The subdivision of the Nashoba Formation into "member" units is largely based upon the differences in the location, distribution, and quantity of magnetic minerals found in the various units. Faults and contacts between major units have also been inferred largely based upon differences in magnetic properties. This type of division is the result of recent advances by the U. S. Geological Survey which permitted bedrock geologic interpretations to be made in areas where the bedrock was hidden under thick surficial deposits.

From a land use perspective, the bedrock in Stow has not been a major impediment to human uses of land. In most of Stow, bedrock is found only at considerable depths. Where bedrock occurs at the surface, the exposures are small and rather scattered. Most of the exposures are limited to either the northwest quarter of Stow or the southeast corner within the Assabet Refuge. In most places where bedrock is exposed, there are other constraints on land use such as high slope and/or perched water tables.

The bedrock elevations determine the subsurface drainage pattern for groundwater flow. Although subsequent erosion and deposition has significantly reduced the relief and filled in the valleys, subsurface water in Stow is directed essentially toward two southward flowing aquifers which connect with a larger aquifer which flows east-southeastward along the Hudson-Stow town boundary.

Glacial processes occurring in Stow have had two major effects: (1) pre-existing bedrock topography was scoured and eroded and (2) most areas of Stow were covered with a veneer of unconsolidated deposits of varying thickness. The material eroded from the land surface by glacial erosion became incorporated into the ice and was transported southward. Although recent glacial erosion slightly modified the bedrock topography, it does not appear to have had any major effect on the overall pre-glacial bedrock topography. Deposition of material from the ice did create many new land forms which have caused major modifications of the pre-glacial drainage patterns. Glacial deposition consists of two types: deposition of material directly by the ice, and deposition of material melted from the ice and then transported and deposited by melt-water streams.

Stow has many low-lying wet areas that place constraints on the development on septic systems. A good example is the 124- acre Kane property on Rt. 117, which was examined by the School Building Committee in 2005 as a potential site for a new school. Despite its large size and access to Rt. 117, large areas of wetlands and streams, combined with steep slopes on a portion of the property, will make any development on this parcel challenging.

As the town approaches buildout the remaining parcels will be more and more constrained by wetlands and steep slopes. This will necessitate increased scrutiny of proposed projects, including professional review of applications, particularly roadway designs and stormwater management plans.

4B. Landscape Character

Stow is frequently considered a rural community by its residents. This impression is reinforced by the areas of open space and scenic vistas visible along the Town's roadways. In particular, the many active orchards and farms lend a distinctively rural element to the Town of Stow that is not found in many nearby communities. In addition to the agricultural and conservation aspect of the community, Stow has five active golf courses – Stow Acres North and South, Butternut, Wedgewood, and Stowaway. These open spaces contribute to the rural visual impression and sense of "elbow room" in Stow.

In addition, to the visible farms and golf courses, there is a large amount of undeveloped land that is "hidden" behind the many lots which front along public ways. One has only to look at the assessors' maps to discern the large parcels behind these lots; areas left in their natural state because of difficult access, wetlands, rocky soils, or poor drainage.

Where the forested hills rise behind these homes, or one is able to see between the buildings, then one is able to sense the extensive undeveloped landscape of Stow.

Also contributing to the town's open character are "odd" lots, which occur at forks in the road, or on the outside of curves, or at wetland crossings, and bring a welcome relief to the developed roadside landscape, contributing a positive landscape attribution far beyond their size. Some of these lots have been identified in this plan, however, there has been no comprehensive inventory of Stow's scenic assets. The "Scenic Resources" map accompanying this Plan identifies important unprotected scenic parcels in Stow.

One of Stow's more noticeable landscape aspects is the health of the roadside trees. These trees are endangered by road salt, by extensive cut-backs for telephone, TV cable and electric wires, and by disease - Dutch Elm has killed most of the majestic Elm trees, and Ash Decline is quickly eliminating the White Ash, which is currently the predominant roadside tree. About 10 years ago, Stow purchased 100 of the newly developed Elms which are resistant to the Dutch Elm disease. These trees are being grown on Town conservation land and when they reach a reasonable size they will be placed throughout the Town to enhance the scenic roadways. A similar effort is underway using the newly developed resistant variety of the American Chestnut.

In an attempt to preserve the existing character of Stow, the Town has adopted a zoning bylaw that provides for "planned cluster development" of larger parcels. This bylaw encourages a developer to build houses on reduced size lots, leaving large areas open for recreation and conservation purposes instead of using the traditional "cookie cutter" approach to subdivision. The landowner can realize the value of the property and the Town gains by retaining some of the open space. Several developments are now underway or planned that make use of this bylaw.

In addition, the town has a Lower Village Committee that is working to improve the visual character of the streetscape in Stow's commercial center by promoting design standards that will achieve a consistent "look and feel" to this area.

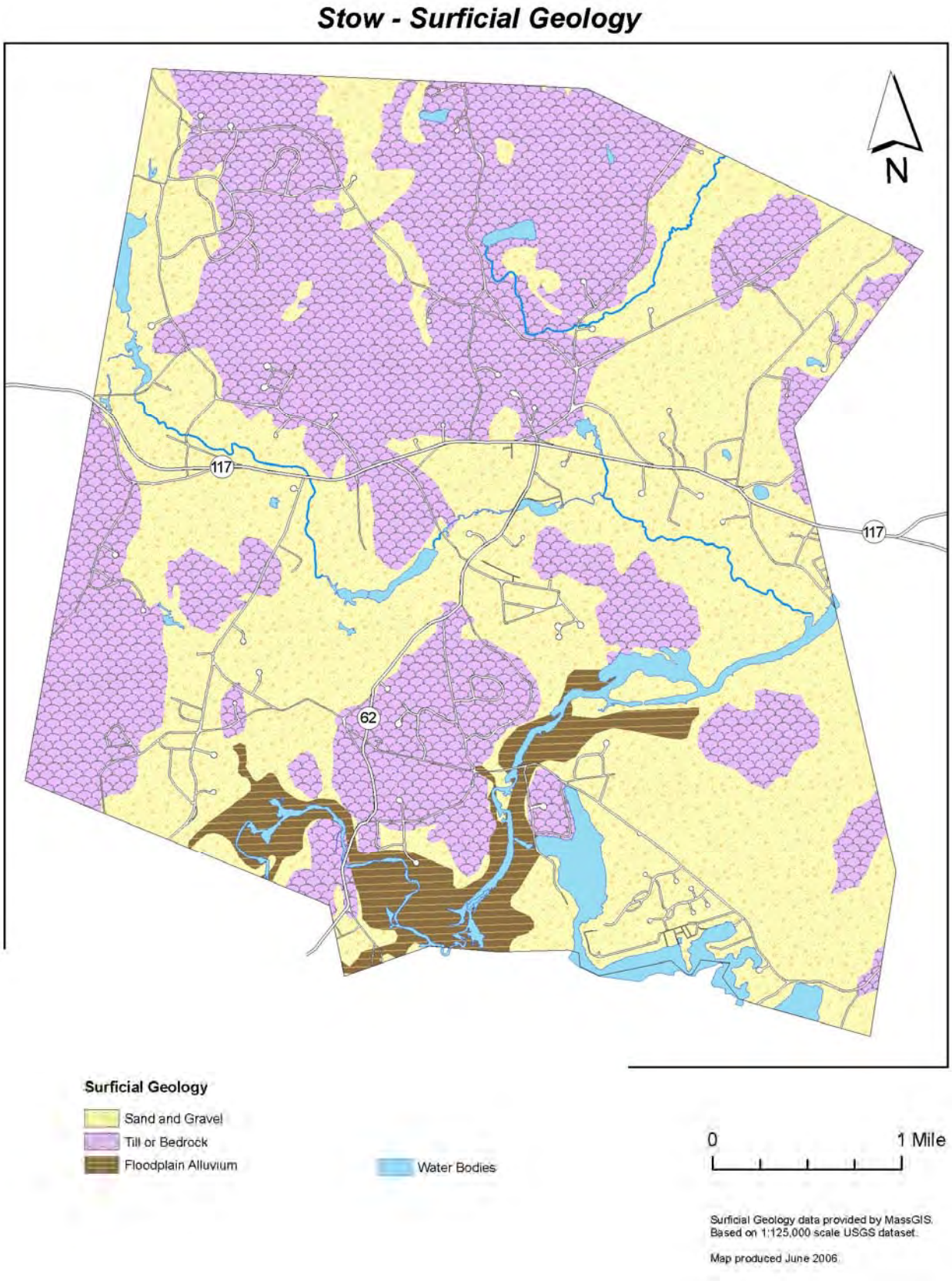
A final element of landscape character is the town's "dark skies." Stow has an active Lighting Subcommittee that is working with local businesses and others to reduce light pollution in the night sky.

4C. Water Resources

Watersheds and Surface Waters

Stow is located within the Concord River basin and the Assabet River sub-basin of the SuAsCo river basin (Sudbury, Assabet, Concord rivers). Nearly all the surface runoff in Stow enters one of three drainage areas: Heath Hen Meadow Brook which flows northward into Acton and joins Fort Pond Brook; Elizabeth Brook which drains the middle of Stow and empties into the Assabet River near the Maynard town line; and Assabet River, which with its smaller tributaries directly drains the lower third of Stow as it continues eastward to meet the Sudbury River and form the Concord River. The Elizabeth Brook is the largest tributary of the Assabet River.

The Delaney Flood Control Project in the northwest corner of Stow also uses land in Bolton and Harvard; it is essentially the headwaters of Elizabeth Brook. Although the Delaney Control Project was constructed for flood control, upland development in Stow, Harvard and Bolton has increased the peak and volume of flow entering this flood storage area, decreasing its effectiveness.


Stow - Surficial Geology
N
117
117
62
Surficial Geology
Sand and Gravel
Till or Bedrock
Floodplain Alluvium
Water Bodies
0
1 Mile
Surficial Geology data provided by MassGIS.
Based on 1:125,000 scale USGS dataset.
Map produced June 2006.

Lake Boon is another major surface water body in Stow (and Hudson); the pond itself is made up of three major basins, which were formed by the construction of a dam in order to provide water storage to drive the Assabet Mills in Maynard. The Town of Stow purchased the water rights and subsurface land area of Boon pond (in Stow) from the heirs of Assabet Mills.

As Stow has grown and developed, the summer cottages which ring the basins of Lake Boon have been converted to year-round homes; many of the sewage disposal systems for these residences do not meet the Board of Health's Regulations, and failures have to be treated as emergencies, resulting in limited upgrading to the extent practical, given the small lots, short distance to the water body, and proximity of adjacent lots' wells and sewage disposal systems. The recent changes to Title 5 are resulting in improvement to many of these systems, which is likely to improve water quality.

A recognized problem associated with Lake Boon is the eutrophication that is occurring due to increased growth of aquatic weeds (notably Milfoil and Fanwort) caused by runoff from lawn fertilizers and septic leachates from the densely developed shores. Despite regular pump outs and improvements to septic systems, installation of 25 leaching catch basins within the watershed, and broad community education on practices to minimal runoff,excessive growth of several species of invasive aquatic weeds are still adversely affecting recreational use of Lake Boon. The Lake was treated for weeds in the summer of 2007 as part of three-year Community Preservation project to restore the lake for swimming and boating. The Town of Hudson also contributed funds to this effort.

The Assabet River is a major regional surface water feature that flows from the southwestern part of Stow to the east-central part of Stow. Nearly all surface drainage in Stow flows either directly to the Assabet or to tributaries of the Assabet - Heath Hen Meadow Brook in northern Stow and Elizabeth Brook in central Stow. A small area in the southeastern corner of Stow drains into the Sudbury River.

Assabet River from Boon Road

Stream discharge normally varies in an annual cycle, declining from peak flows in the early spring, reaching minimums in the later summer and early fall, and then rising and remaining at moderate heights during the winter. The US Geological Survey has maintained measuring stations on the Assabet River (150 feet upstream from the bridge on Route 27 in Maynard) and on Heath Hen Meadow Brook.

The Assabet River has serious water quality problems that are related to both water quality (excessive nutrients) and water quantity. A local nonprofit watershed association, Organization for the Assabet River, is regularly monitoring both issues at various monitoring stations and is working with EPA and DEP to address discharges from sewage treatments plants upstream of Stow in Hudson, Marlborough, Northboro and Westboro that are affecting the river. While these are significant sources of nutrient flow, “background” impacts from septic systems, surface runoff, and water supply wells from development within the watershed are also contributing to the river’s poor water quality.

Aquifer Recharge Areas

Abundant and clean ground water supply is one of Stow's most valuable resources. The subsurface hydrology of Stow is directly related to its subsurface geology, the ability of the rainfall to infiltrate into the ground, thereby becoming groundwater. Once there, it is constantly moving from areas of higher

elevation to areas of lower elevation. Therefore, it has to be constantly replenished; removal occurs as withdrawal for use, or through seasonal discharge into streams, ponds, and wetlands.

There are four general hydrogeologic requirements that must be met for an area to be a high yield aquifer:

1) surficial geologic deposits of proper size and sorting to produce high rates of water movement

2) sufficient saturated thickness of surficial deposits

3) sufficient area-wide recharge, and

4) acceptable water quality.

The 1977 IEP study mapped aquifer areas in the town of Stow that are likely to meet these requirements. Prudent protection of these aquifers and their recharge areas is vital to not only Stow but to other communities as well.

The quality of groundwater in the aquifers will depend to a large extent on the quality of water which recharges the aquifer – which is affected by the land uses at the surface. Land uses which discharge polluted or toxic wastes, or result in pollutants leaching into the ground water, must be carefully regulated if Stow is to preserve and protect its groundwater supply. In general, the quality of water from the surficial aquifer is naturally of high quality. However, high concentrations of iron and manganese have been widely reported in Stow, especially where wells have been located near wetlands. The high iron and manganese levels are highly variable in terms of site locality. Thus, in the event that testing of a well is occurring it is necessary to analyze well samples at different depths and within short distances in order to determine where groundwater quality is best. Alternatively, filtration methods or other technological means can be used to treat the water.

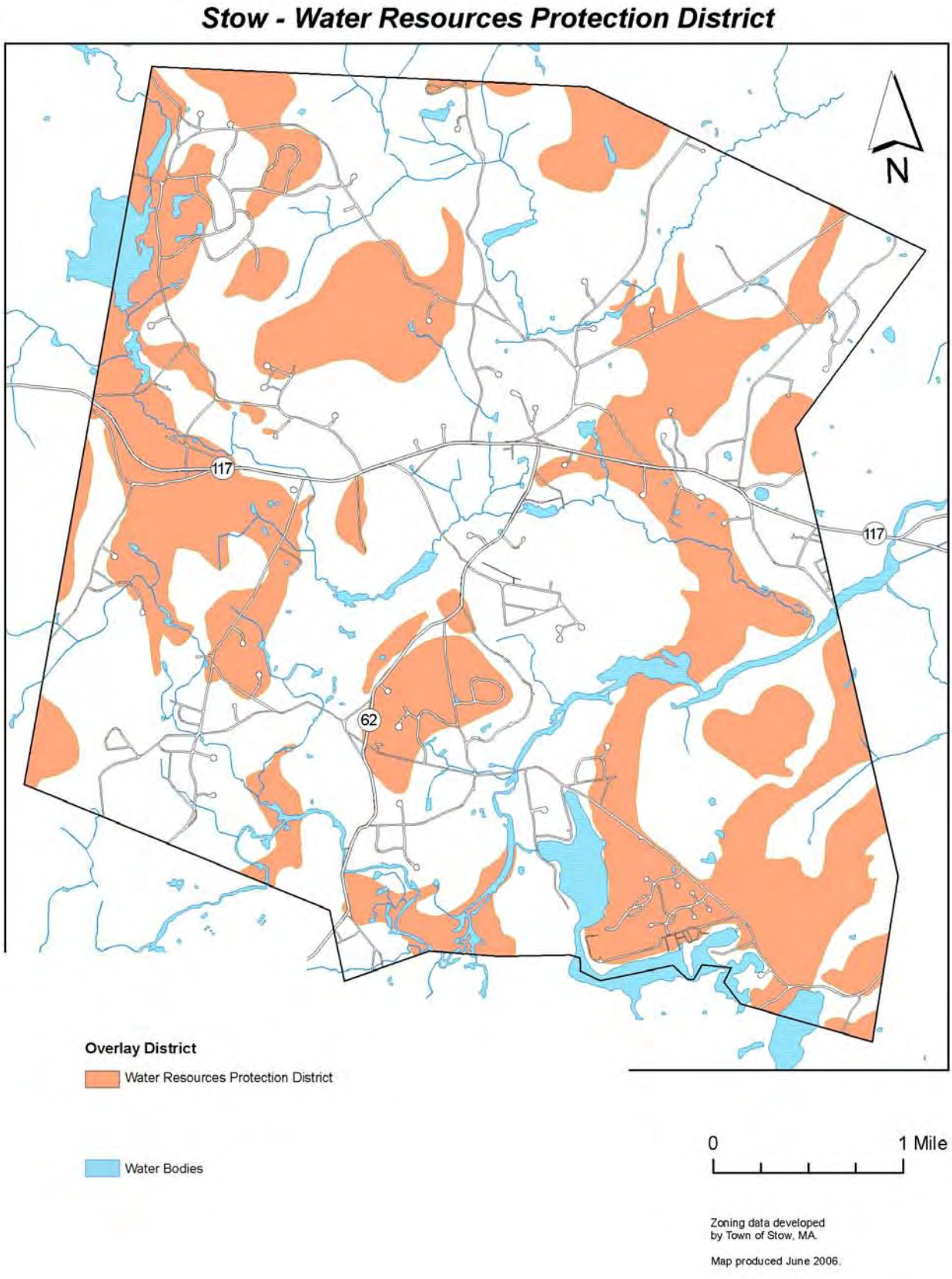
Water Resources Protection District

The surface hydrology or flow of surface waters is directly related to the groundwater systems in Stow and must be thought of as one complex hydrologic system. The streams, ponds and wetlands of Stow reflect the location of the water table that continues below the ground surface. Fluctuations in the surface water levels coincide directly with fluctuations in the water table and vice versa. During most of the year surface waters are fed and maintained predominantly by groundwater flow.

To aid in the protection of its water resources, Stow has established a zoning overlay district, the Water Resource Protection District, and the town has adopted protections within the Stow Zoning Bylaw that regulate the types and intensity of land uses within the overlay district. The Map on the next page shows the location of the Water Resource Protection District.

Flood hazard areas

Flooding may be defined as the occurrence of flow in a stream or river that exceeds the capacity of the banks formed by normal flows. All waterways have floodplains, those areas that flood during significant storms. An increasingly important factor related to flooding in Stow is the creation of impervious surfaces that limit infiltration and increase surface flow. Flood hazard areas in Stow are shown on the "Floodway - Flood Boundary and Floodway Map", done for the Town of Stow by the Federal Emergency Management Agency, Community-Panel Number 250216-0005 B, Effective Date: August 1, 1979, as modified November 1989. Stow has, through its Zoning Bylaw


Stow - Water Resources Protection District
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117
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Overlay District
Water Resources Protection District
Water Bodies
0
1 Mile
Zoning data developed
by Town of Stow, MA.
Map produced June 2006.

(adopted October 23, 1968, recodified May, 1993) created a "Flood Plain/Wetland District" (Section 5.1), an overlay district to:"protect the public health and safety, persons, and property against the hazards of flood water inundation; to preserve and maintain the ground water table; to protect the community from the costs which may be incurred when unsuitable development occurs in swamps, marshes, along water courses, or in areas subject to flood; and to conserve natural conditions, wildlife and open spaces for the education, recreation and general welfare of the public."

The boundaries of the flood plain are given by Sect. 2.3.8 of the Zoning Bylaw:

> "Boundary lines outlining the flood plain of the Assabet River shall be the limits of the standard Project Flood Modified delineated on the plan entitled "Flood Plains and Profiles", Sheets 2,3 and 4 of the Assabet River Technical Report, Dept. of the Army, Corps of Engineers, dated June 1966 and on file with the Town Clerk. Boundary lines outlining the flood plain of Heath Hen Meadow Brook, Stow, Mass. by BSC Engineering, Inc. dated Feb. 21, 1975 and revised May 2, 1975, and on file with the Town Clerk. The Flood Plain/Wetland District shall also include all lands designated as Zone A, AO, AH or Zone A1-30 and A99 on the Town of Stow Flood Insurance Rate Map (FIRM), panel 250216-0005B dated Aug. 1, 1979 as amended November 1989."

Wetlands

The wetlands in Stow have generally been mapped, inventoried and evaluated by IEP in a study completed in 1977 and available at the Conservation Commission. The map on the next page depicts wetlands in Stow as mapped by the Fish and Wildlife Service's National Wetlands Inventory and the Massachusetts Department of Environmental Protection at the time of the study. Because many small wetlands are not shown, this map should not be viewed as a substitute for actual on-the-ground wetland delineation.

Stow has a local wetlands bylaw that is more stringent that the Massachusetts Wetlands Protection Act. The Conservation Commission administers the bylaw and is currently in process of updating its regulations to assist in administration with the bylaw.

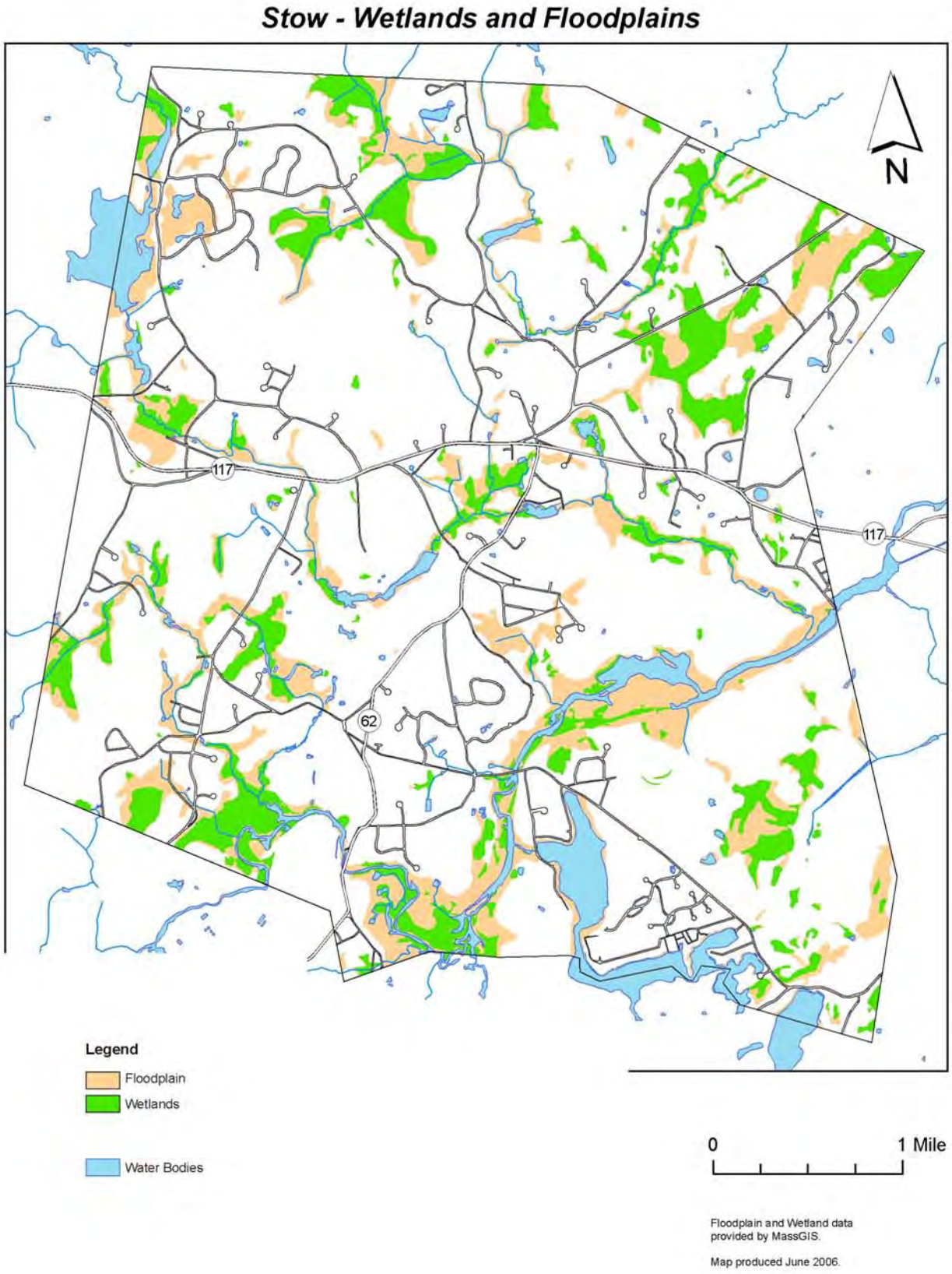
4D. Vegetation

General inventory

There is a wide range of natural vegetative communities in Stow, including hardwood and pine forests, red maple swamps, cattail marshes, wet meadows and quaking (Sphagnum) bog-like wetlands know as fens. The Stow Acres Country Club golf course includes a cranberry bog in which pitcher plants and Jack-in-the-pulpits can be found. The Town Forest has two fens. In addition, topographic maps show cranberry bogs on the Assabet Refuge land in the southeast corner of Stow. Woodland wildflowers are common in some pine and oak forest areas. The Town contains several orchards, nurseries, greenhouses and farms. These non-residential, non-industrial land areas provide a wide variety of habitat for wildlife species as well as adding to the Town's aesthetic and economic resources.

Forest Land

The principal native forest trees in Stow are white pine, red oak, and mixed hardwoods in the upland areas along with hemlock groves and hickories; most wetlands are dominated by red maples. Birches are interspersed in the edge areas where more light is available and as an understory tree in some


Stow - Wetlands and Floodplains
N
117
117
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Legend
Floodplain
Wetlands
Water Bodies
0
1 Mile
Floodplain and Wetland data provided by MassGIS.
Map produced June 2006.

younger forests. Understory vegetation consists of a variety of small trees and shrubs including, for example, evergreen shrubs, native dogwoods, viburnums, witch hazel and highbush blueberries.

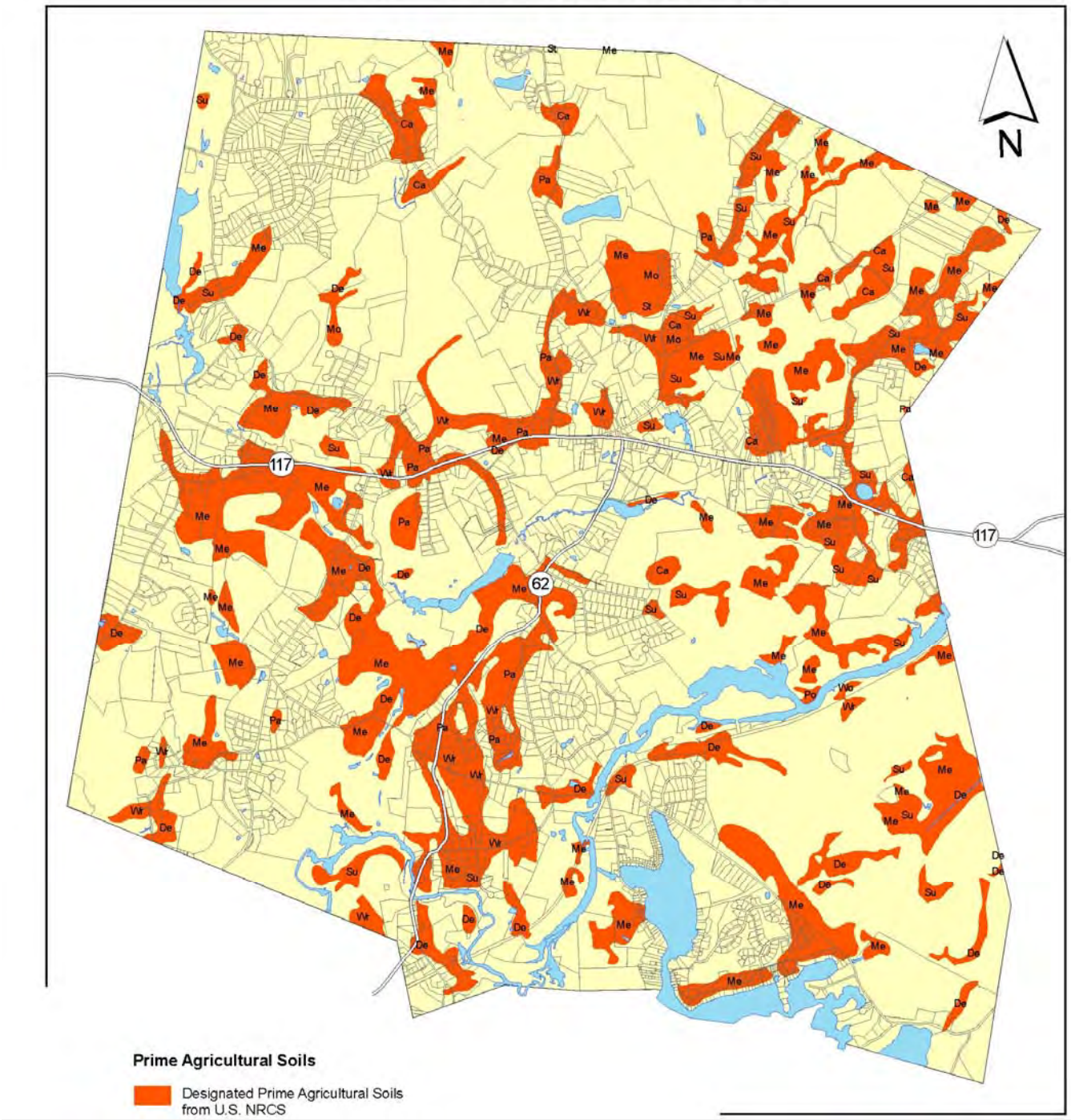
A number of mature groves of white pines are found especially in the conservation lands: Marble Hill, Gardner Hill, Capt. Sargent Farm, and the Town Beach area. Especially conspicuous is the grove of pines atop Pilot Grove Hill. In 1930 Clifford Martin set out a large number of red pine and European larch (off of Sudbury Road) that are now mature.

Since 1900 a variety of causes have served to limit the diversity of our woodlands. Chestnut blight eliminated the American Chestnut; American Elms have succumbed to Dutch Elm Disease; White Ash trees are now dying of Ash Decline. This lack of diversity could prove disastrous if new diseases appear; a good example was the massive damage done to oaks during the Gypsy Moth infestation of the early 1980s and in 1990-1991. Indeed we now face loss of hemlocks by the wooly adelgid. To address this problem the Town started a tree planting program with the acquisition of 100 seedling elm trees developed from resistant stock, and soon hopes to also include resistant American chestnuts.

Agricultural Land

Stow has a large number of parcels that are in agricultural use – ranging from large and highly visible agricultural properties including Pilot Grove Farm, Carver Hill, Shelburne Farm, Honey Pot Hill Orchards, Applefield Farm, and Small Farm, to smaller and less visible properties. These farms are important elements of the town's community character and play a key contributing role as scenic vistas both from public roads as well as the Assabet River, parcels linking existing conservation lands, and important lands for wildlife habitat. Taking direct action to preserve Stow's agricultural base is a priority of the Stow Conservation Trust which recently developed a brochure highlighting the many and varied farms and farm products available in Stow in an effort to encourage residents to support local agriculture. Protection of agriculture and agricultural lands is also a high priority in this Plan. The Appendix to this Plan contains a copy of an Executive Order designed to minimize development on prime farmland and to require mitigation for state funded or permitted projects on prime farmland. A map of prime farmland in Stow appears below.

Stow - Prime Agricultural Soils



Rare species and Unique Natural Resources

The following is a list of rare plant and animal species – endangered (E), threatened (T), and special concern (SC) – that have been documented in Stow as reported by the Massachusetts Natural Heritage and Endangered Species Program. The date in the final column represents the most recent observation of a particular species. An asterisk (*) indicates that the species was most recently observed within the past 25 years. However, many rare species are difficult to detect even though they are present, and Natural Heritage does not conduct methodical species surveys in each town on a consistent basis. Therefore, the fact that the most recent observation of a species may be several years old should not lead to the interpretation that the species no longer occurs in a town.

STOW	*	Amphibian	Ambystoma laterale	Blue-Spotted Salamander	SC		1992
STOW	*	Reptile	Clemmys guttata	Spotted Turtle	SC		1999
STOW	*	Reptile	Terrapene carolina	Eastern Box Turtle	SC		1995
STOW		Bird	Accipiter striatus	Sharp-Shinned Hawk	SC	(PS)	1891
STOW	*	Bird	Ammodramus savannarum	Grasshopper Sparrow	T	(PS)	1994
STOW	*	Bird	Botaurus lentiginosus	American Bittern	E		1992
STOW	*	Bird	Gallinula chloropus	Common Moorhen	SC	(PS)	1992
STOW	*	Bird	Ixobrychus exilis	Least Bittern	E		1992
STOW	*	Vascular Plant	Carex oligosperma	Few-Fruited Sedge	E		1992
STOW	*	Vascular Plant	Liatris borealis	New England Blazing Star	SC		1992
STOW	*	Vascular Plant	Panicum philadelphicum	Philadelphia Panic-Grass	SC		1992
STOW	*	Vascular Plant	Spiranthes vernalis	Grass-LeavedLadies'-Tresses	T		1991

The locations of habitats of rare species have not been publicized in order to protect the species.

In addition to tracking rare species occurrences, the Massachusetts Natural Heritage and Endangered Species Program recently completed studies of both terrestrial and aquatic systems designed to identify those are most critical to the protection of biodiversity in Massachusetts – including rare species and priority habitats. These studies are called BioMap and Living Waters. While only small areas of Stow are identified in these reports, these are important areas to protect wherever possible.

There are three areas of BioMap Core Habitat, the more important terrestrial areas, in Stow. These are located 1) in the extreme northeast corner of town in a wetland system to the east of Red Acre Road at the confluence of the Acton, Maynard at Stow town lines; 2) in another wetland system just west of Harvard Rd along the Stow/Harvard line and 3) just south of Delaney Reservoir at the Stow/Harvard/Bolton line. These three areas include important marsh habitats that support one of the most diverse assemblages of freshwater wetland birds in Massachusetts including two different species of bittern, unprotected habitat for the Elderberry Longhorned Beetle, a species of special concern, and dry, sandy fields that are important for the threatened Grasshopper Sparrow. Areas of Supporting Natural Landscape – buffers and connections between these Core Habitat areas – have also been identified in Stow. These include 1) a large area in the vicinity of the Delaney Project connecting Core Areas #2 and #3 identified above, and extending across Harvard Road to include several large undeveloped parcels south of Harvard Acres and 2) a large area including portions of Maynard, Stow and Sudbury that incorporates portions of the Assabet Refuge, Sudbury State Forest and extends toward Lake Boon, including much of the area currently being developed as part of the Wildlife Woods subdivision.

While there are no Living Waters Core Habitat areas within the Town of Stow, there is a Core Habitat area located along the Assabet River in the town of Concord. The Supporting Watershed for this Core Habitat area extends upriver and includes a large area in Maynard and Stow. The Stow portion includes lands along the Assabet River within the Assabet Wildlife Refuge and extending to an area just south of Sudbury Road where it crosses the Assabet and also includes lands along Elizabeth Brook near the Town Forest.

In addition to these statewide mapping projects, the Sudbury Valley Trustees recently contracted with a botanist to analyze maps and conduct field work to identify areas of likely high wildlife habitat significance. These are shown on the Wildlife Habitat Map in this Plan.

4E. Fisheries and wildlife

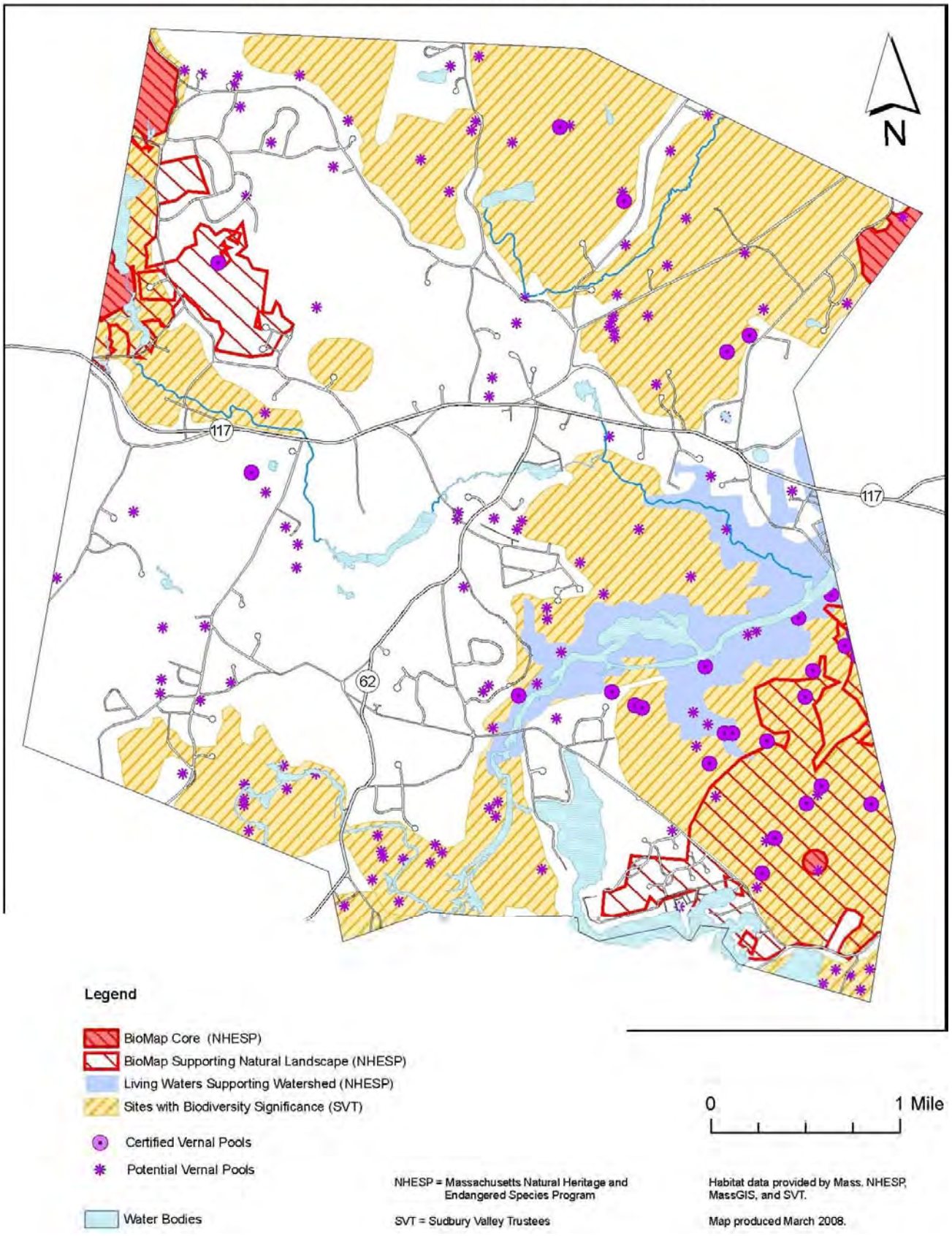
Inventory

Stow's diverse vegetative communities provide habitat for a wide variety of wildlife species. The transition zones between developed and undeveloped acreage or between wetland and upland provide particularly valuable 'edge' habitat suitable for many species because they combine the characteristics of both types of land.

There are now 4 major properties in Stow that are managed specifically to encourage wildlife: the Delaney Project (SUASCO Watershed flood control), the Assabet Wildlife Refuge (US Fish and Wildlife Service), and the Town-controlled Gardner Hill land and Flagg Hill lands. Many other properties in Stow, although not managed specifically to encourage wildlife, serve as links between many of these 4 main areas.

Stow is within the range of about 50 mammal species, 220 bird species, 20 reptile species, and 20 amphibian species. A list of these species is contained in the 1987 Stow Open Space and Recreation Plan. According to one local trapper, mink and otter have been trapped along the Assabet River at the Stow Acres Country Club golf course. He has also noted large snapping turtles, black ducks and wood ducks. Foxes, pheasant, and grouse are not uncommon in undeveloped areas. Beavers have been active since the mid 1980s at Fletcher's Pond, in Elizabeth Brook, also more recently in Hiley Brook and Heath Hen Meadow Brook. The Eastern Coyote are now common, and Moose have made regular appearances in Stow in the past few years. A moose (cow) has been seen at Lake Boon and along the Assabet River and is believed to over-winter in Stow.

Stow - Areas of Habitat Significance



Vernal Pools

There are a number of certified vernal pools in Stow and a large number of uncertified vernal pools. The Stow Wetlands Bylaw provides additional protection for vernal pools beyond what is contained in the Massachusetts Wetlands Protection Act. When development is proposed near a potential vernal pools, the Conservation Commission requires the applicant to research the area to determine whether it actually functions as a vernal pool. This process recently resulted in the certification of several vernal pools near the Villages at Stow site. The map on the next page depicts certified and potential vernal pools (as identified by aerial photography). Efforts should be undertaken to ensure that unprotected areas that function as vernal pools are certified to increase their protection. In particular, it is important to document, certify and protect clusters of vernal pools located within proximity to each other and large vernal pools as these provide the most viable habitat for species that depend on vernal pools for the breeding portion of their life cycle.

Wildlife Migration Corridors

Stow has extensive protected lands, totaling more than 2000 acres, that serve as important waterfowl migration corridors including, the US Fish and Wildlife Service's Assabet Wildlife Refuge, the Delaney Project, and the Assabet River. These areas provide large, rich relatively undisturbed locations for wildlife migration, feeding and breeding. The existence of other extensive wetland areas in Stow also provides feeding areas for migrating waterfowl.

4F. Scenic resources and Unique Environments

Scenic landscapes

Although there are many scenic spots in Stow the most dramatic include the following: Pilot Grove Hill and Farm, the McCassey/Perkins drumlin in Gleasondale, Honey Pot Hill Orchard, Shelburne Farm Orchard, and the Delaney Flood Control Project. The Assabet River and the Elizabeth Brook (sometimes known as Assabet Brook) are among the most scenic rivers and streams in the area.

Pilot Grove Hill and Farm is centrally located in Town, and thereby is a major contributor to the rural character of Stow. The farm is an active sheep farm with rolling hay fields and forested borders and fence rows, all of which are highly visible from public roadways. The farm is important in the history of the Town, and has been run by the same family for over 200 years. Pilot Grove Hill, despite the development of its slopes still offers a commanding view for passers-by.

Pilot Grove Farm from Pilot Grove Hill

The McCassey/Perkins drumlin offers a windswept open hill that juts out into the Assabet River forcing the river to bend sharply as it wends its way through Gleasondale. Although the view is partially obstructed by the homes along Route 62, it peeks out from behind the houses. If one stops to walk down to the river's edge or explores this area of the river by canoe, the drumlin makes a distinctive impression with its grazing livestock roaming its treeless but grassy slopes. This drumlin/esker feature is so significant that it is highlighted in the popular book “Roadside Geology of Massachusetts.”

Honey Pot Hill Farm, an orchard located in the southern portion of Stow, is divided by Sudbury Road and Boon Road. The drive down either road is very scenic. During spring the fragrance of apple blossoms is quite noticeable. In fall, the sweet odor of ripe apples assaults the senses – and also attracts large numbers of visitors from Boston and surrounding areas for apple picking.

Shelburne Farm is adjacent to the Pilot Grove Farm near the center of town and has been permanently protected. This is a thriving orchard with rolling hills covered with apple trees that are prominently displayed to the public roadways. This orchard also attracts a clientele from a wide area.

Spindle Hill, a drumlin near the center of Stow, has been used for recreational purposes for many years. At one time there was a small ski tow on the hill. It presents an attractive view towards the north from Wheeler pond on the Elizabeth Brook. This unspoiled view, considered a valuable scenic resource, supports a cell tower located atop the hill – although efforts were made to minimize the visual impact of this structure through its design as a monopole.

One of the town’s many scenic golf course views

The McDonald Farm is located on Route 62 near the Stow Acres golf course. The farm is operated part time and is under a 25-year conservation restriction. The pastures represent a significant portion of the visible open space along Route 62 in Stow.

The Delaney Project is a flood control area in the northwestern sector of Town. Because of its large area of water bordered by tall pines, some grassy ridges and fields, a large number of wildlife frequent the area. The open expanse of the area makes it a very attractive site for hiking, horseback riding, fishing and cycling. It is also widely used for dog walking as well as dog training classes. Portions of this area are also located in the adjacent towns of Bolton and Harvard.

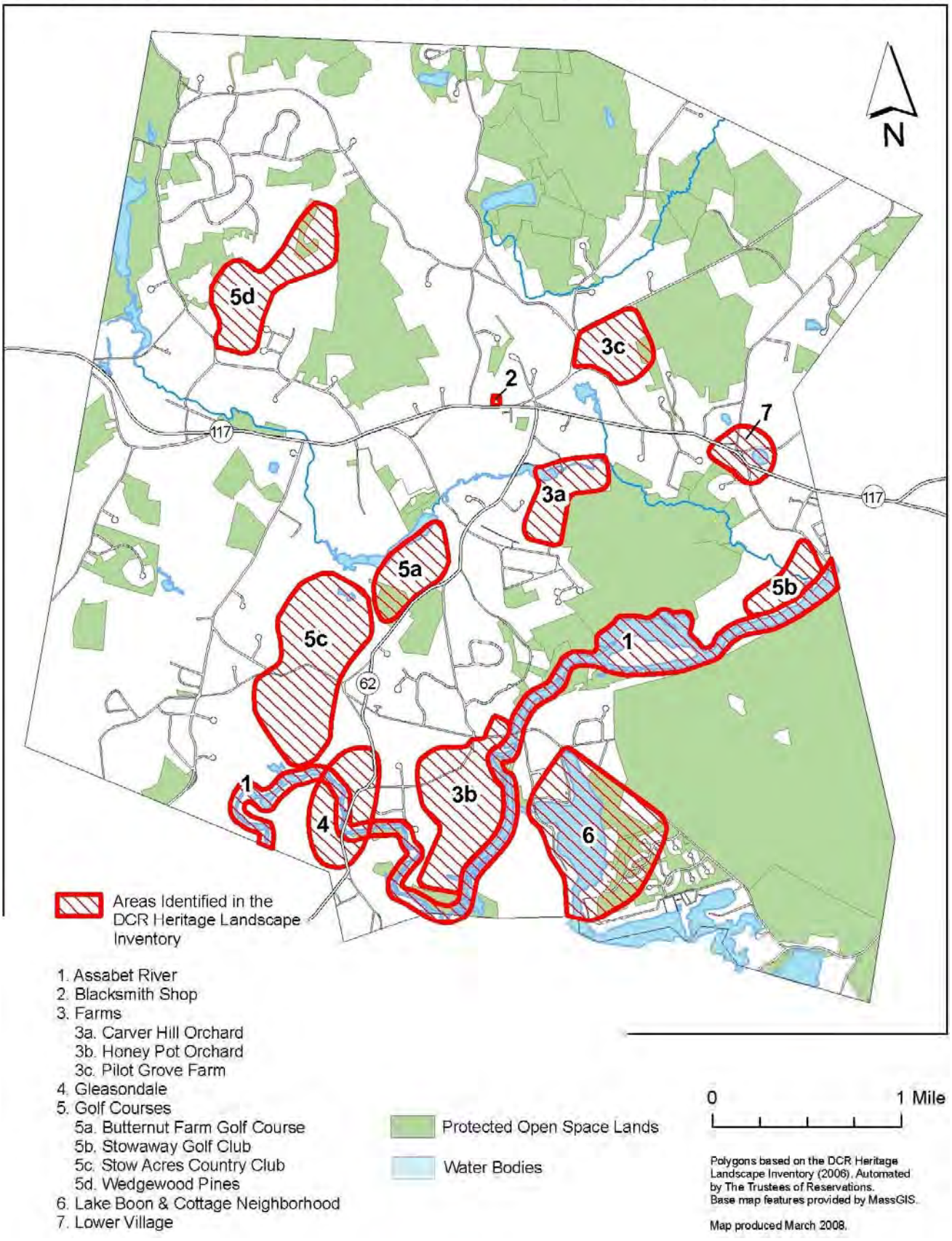
The Assabet River and Elizabeth Brook were working streams in the early history of the town, with mills located along both. Since the mills generally owned the banks of the rivers well upstream in order to be able to control the level of the water, the banks were not developed and so these two streams still retain large undeveloped stretches which enhance the attractiveness for river activities. Significant stretches of the river have almost no development visible from the banks and are extremely beautiful especially in fall. In winter the river has been known to freeze enough to allow

cross country skiers to pass from one sector of Town to the other. The Elizabeth Brook Association is a group that was formed initially to enjoy the brook's charms, but has developed into a group which also maintains the stream by annual spring cleanup expeditions. In an effort to enhance environmental awareness, a local teacher and the third grade have "adopted" the Elizabeth Brook as a project. The Organization for the Assabet River (OAR) is active in trying to clean up the river and enhance the natural beauty while also encouraging responsible recreational use.

Although the inventory section of this Plan identifies parcels that contribute to the scenic character of the Town, there is no formal scenic inventory that identifies those parcels – both large and small – that contribute to the rural character of Stow, as well as key cultural and historical landscape attributes such as stone walls, granite hitching posts and historic structures. Completion of such an inventory is identified as a priority in this plan so that important aspects of the town's character are not inadvertently lost to development. The Stow Historical Commission and others have worked with the Massachusetts Heritage Landscape Inventory to develop the "Stow Reconnaissance Report" for the Freedom's Way Landscape Inventory that identifies many of these important scenic attributes. A map of the areas identified can be found on the following page, with the full list in the Appendix.

Another initiative which should be considered by the town is the designation of scenic roads to prevent the loss of large trees and stone walls that contribute so significantly to the town's rural character. At this time, the town has no designated scenic roads, although many roadways are considered scenic by the community such as Whitman Road, Sudbury Road, Red Acre Road, and Walcott Street. This is also identified as a need in the action section of the Plan.

Stow - Unique Areas as Identified in the Heritage Landscape Inventory



Cultural, Archeological and Historic Areas

Although there are a large number of historic sites and homes in Stow, only the most prominent are mentioned here. A more complete listing of historical sites and places has been complied by the Stow Historical Commission and is available to the public at Stow's Randall library. Pilot Grove Farm and Hill are again of central historic significance. The Stow West School is a restored one room school house on Harvard Road which is opened to the public during the summer. The Town recently funded a project to create a small parking area and other access enhancements at the West School site using Community Preservation funds. The Gleasondale Mill area has a number of structures dating back to its operation as a woolen mill. The Town Center has a number of old homes and structures (e.g. old Town Hall, blacksmith shop, First Parish Church etc.) which make the area both culturally and historically important to preserve.

Unique Environments

Stow currently has no designated Areas of Critical Environmental Concern (ACECs). Other areas with significant or unique resources include the Assabet River and Lake Boon, and the rare species and BioMap Core habitat areas described above. At present, there are no plans to seek ACEC designation for any of these areas.

4G. Environmental Challenges

Hazardous waste sites

Many of the hazardous waste sites in Stow as well as some broader hazardous waste problems noted in the 1997 Open Space Plan have been rectified. The specific sites included the Fort Devens Sudbury Annex, the Stow Shopping Plaza, and a contamination plume moving from GenRad in Bolton into a northwestern portion of Stow. The Fort Devens site has two classification areas:

- A1-A12 areas include demolition grounds, old waste dumps (general refuse, solvents etc.), buried contaminated test clothing (from Army Natick Labs), and a PCB spill area.

- P1-P56 areas include clothing burial sites, chemical, waste and drum storage, burn sites, rocket and pyrotechnic test sites; a number of the P areas are NOT contaminated but are listed as tested.

The Stow Shopping Plaza is designated as a cleanup site as is the old Gleasondale Mill area. Center School has been using bottled water for a few years because due to elevated levels of lead in the water. Studies have not been able to pinpoint the source. All of these specific sites are in the process of being analyzed and addressed in terms of clean-up. Recently, test wells have indicated that there is a plume of contamination moving from GenRad in Bolton into Stow. This site is presently under investigation.

More generalized hazardous waste problems include underground fuel tanks many of which have been replaced in the Town although it is not a requirement to do so. The Board of Health strongly recommends that such tanks be tested after 20 years. The fuel tank at the Pompositticut Elementary School was found to be leaking. Replacement of the tank has been completed, but the clean up process is continuing. Bioremediation has been chosen as the method to remove the oil on the site and adjacent properties.

There are three landfills in Stow: the old site on Harvard Road which was closed a couple of decades ago, Fletcher's dump on South Acton Road on the Acton line (closed and sealed in the early 1980s)

and the more recent site mostly located in Hudson off of Hudson Road at the Stow-Hudson line. Recent analysis of the test wells at the current site have indicated that there may be some leachate escaping the landfill. Several illegal dumps have been identified in some of the wooded areas in Stow that have vehicle access.

A complete list of the reported sites available from DEP as of the end of 2004 follows:

Release Tracking Number(RTN)	Release Address	Site Name/Location Aid	Notification Date	Chemical Type
0013899	11 ASSABET ST	JANE MACCLELLAN	07/11/2001	Oil
2-0000722	FT DEVENS	FORT DEVENS TRAINING ANNEX	01/15/1990	Oil
2-0000427	501 GLEASONDALE	FAHEY EXHIBITS BUILDING	01/15/1989	Oil and Hazardous Material
2-0000280	124 GREAT RD	MOBIL SERVICE STATION 01 JEJ	04/15/1988	Oil
2-0000364	147 GREAT RD	STOW SHOPPING CTR	02/17/1988	Hazardous Material
2-0000316	155 GREAT RD	DATACHECKER DTS	01/15/1988	
2-0010438	511 GREAT RD	POMPOSITTICUT ELEMENTARY SCHOOL	08/07/1994	Oil
2-0012504	626 GREAT RD	SERVICE STATION	11/18/1998	Oil
2-0014651	626 GREAT RD	COMMUNITY CONVENIENCE TRUST	01/31/2003	Hazardous Material
2-0012413	875 GREAT RD	ET AND L CONSTRUCTION	09/22/1998	
2-0010789	GREAT RD	AT INTERSECTION OF HUDSON RD	05/23/1995	Oil
2-0014665	26 HERITAGE LN	WASTE MGT INC ROADWAY RELEASE	02/10/2003	Oil
2-0013499	47 MARLBOROUGH	RESIDENCE	09/27/2000	Oil
2-0010012	150 NORTH SHORE DR	RESIDENCE	10/06/1993	Oil

2-0012639	PNE STOW	SMITH PROPERTY	02/02/1999	Oil
2-0013979	58 RANDALL RD	STOW ACRES CC	09/06/2001	Oil
2-0012145	STATE RD	NEAR SUDBURY RD	03/16/1998	Oil
2-0014565	10 WHEELER RD	WASTE MANAGEMENT INC	11/25/2002	Oil
2-0013854	45 WHITE POND RD	NEXTEL COMMUNICATIONS	05/17/2001	Oil
2-0014741	45 WHITE POND RD	ASTRO CRANE SERVICES INC	04/23/2003	Oil
2-0015271	45 WHITE POND RD	ASTRO CRANE SERVICES, INC	05/19/2004	Hazardous Material
2-0010279	77 WHITE POND RD	J MELONE & SONS INC	04/21/1994	Oil
2-0010347	77 WHITE POND RD	J MELONE & SONS INC	06/21/1994	Oil
2-0013851	15 WOODMAN PL	WETLAND BEHIND PROPERTY	05/14/2001	Oil
3-0014656	ACCESS RD	BOSTON SAND & GRAVEL	12/23/1996	Oil

Erosion, Sedimentation and Flooding

Lake Boon has several areas where steep banks are susceptible to erosion in heavy storm and from ice, and as a result of wash from power boats and inappropriate recreational use of the shoreline. Agricultural fields which are plowed regularly can be vulnerable to erosion, but there are few of these fields that are on significant slopes so this problem is minimal. The only other erosion which occurs in Stow is transient as a result of disturbance of the soils during development. Within 100 feet of wetlands, the Conservation Commission has been conscientious in requiring erosion mitigation and control measures.

Agricultural run-off from Stow's farms and orchards and from the golf courses in Stow is considered by some to be a possible source of ground and surface water pollution. However, a more likely source is the unregulated and uncontrolled application of fertilizer and pesticides to lawns and the incremental impact of nutrients from septic systems. A plume of organic chemical pollutants was identified at the Stow Shopping Center on Route 117, and another plume has been identified arising from GenRad in Bolton on Route 117. Groundwater problems have been identified at the closed dump on Hudson Road on the Stow/Hudson line.

Areas subject to chronic flooding include Heath Hen Meadow Brook, Elizabeth Brook (mostly due to the beaver dams), the Hiley Brook area, and portions of the Assabet River in Gleasondale just below the dam and at the Sudbury road crossing. Flooding also occurs regularly in a low wetlands area on Maple St. near the Hudson/Bolton Town line.

New Development

More recent development has caused minimal pollution in Stow because the Town has been relatively vigilant in upholding its health and conservation regulations and its zoning by-laws. However this development is gradually fragmenting Stow's forest lands and wildlife habitat, reducing opportunities to provide trail linkages between protected lands and affecting the town's rural and historic character. Particularly noticeable is the fact that new residential developments tends to consist of large homes that are intrusive on the landscape and out of character with much of the existing development in Stow, particularly when they require extensive grading and clearcutting. The Planning Board has worked diligently to revise and modify zoning bylaws and regulations to encourage low impact development and retention of a roadside buffer, and has succeeded in convincing applicants to revise plans to reduce required clearing and grading.

New Development on Harvard Road

Section 5

Inventory of Lands of Conservation and Recreation Interest

This section of the Open Space and Recreation Plan contains an inventory of existing open space and recreation land in the Town of Stow – both publicly and privately owned – as well as land that has been identified as being of interest for future conservation and recreation purposes.

Why Conserve Land?

Land conservation is an increasingly important municipal activity to advance a wide array of priorities and objectives. The acquisition of land or rights can, particularly when done strategically, accomplish all of the following:

- protect important surface and ground water resources to promote public health and provide future economic expansion opportunities,
- keep productive agricultural soils in production to ensure continued local food production (with a small carbon footprint),
- provide passive or active recreation opportunities to encourage exercise and physical fitness,
- preserve open space in densely developed areas to provide a place where citizens can experience solitude and reduced congestion and stress,
- provide habitat for native species of animals and plants, and for humans to experience the wonders of nature first hand,
- maintaining the often overlooked green infrastructure - preserving natural system functions and ecosystem services such as providing clean air and water.

These are some of the many community priorities that can be accomplished through ongoing municipal land conservation efforts. Unfortunately, many communities fully appreciate what land conservation could do for their community until it is to late, and opportunities disappear forever. The challenge is to see the tremendous potential of this tool, and to use it wisely while you still can. *Stow Forever Green* is a roadmap to do just that.

5A. Inventory of Protected Land in Stow

Town Land managed by Conservation Commission

All land acquired by the Town and placed under the control of the Conservation Commission is protected by Article 97 of the Amendments to the State Constitution or simply "Article 97". This provision protects lands acquired for natural resource purposes, meaning "conservation, development and utilization of the agricultural, mineral, forest, water, air or other natural resources." Lands acquired for these uses cannot be converted to any other use without the following actions: 1) the local conservation commission must vote that the land is surplus to its needs… 3) the matter must be taken up at Town Meeting and pass by a 2/3 vote, 4) the town must file an Environmental Notification Form with EOEA's MEPA Unit, and 5) the matter must pass by a 2/3 vote of the Massachusetts Legislature. If the property was either acquired or developed with grant assistance from EOEA's

Division of Conservation Services (i.e. Self Help, Urban Self Help, Land and Water Conservation Fund) the converted land must be replaced with land of equal monetary value and conservation utility. Lands protected by Article 97 are often owned by the municipal conservation commission, recreation commission, water department, or state and federal agencies. Lands acquired for general municipal purposes and under the control of the Board of Selectmen are generally not protected by Article 97. Additional information about Article 97 is contained in the Appendices to this Plan.

The table on the following pages contains information about land under the control of the Conservation Commission and Recreation Commission. In some cases, additional research is needed to determine the level of protection of specific parcels. However, where that information is known it is included in the table.

Inventory of Lands Under the Care, Custody and Control of the Stow Conservation Commission and Stow Recreation Commission

Area/Parcel Name	Location	Map/ Parcel	Area	Owner/ Manager	Date	Book/ Page	How?	Funding	Protection	Uses	Zoning	SCORP/Notes
							P=Purchase; B=Bargain Sale; T=Transfer G=Gift;	To the extent known at publication; 1=State/Federal Funds; 2=Stow Cons Fund; 3=CPA; 4=Other Municipal; 5=Gifts	(to the extent known at publication) 1=Article 97; 2=SH Agreement; 3=3rd Party CR; 4=Permit Conditions; 5=Deed Restrictions ; 6=Reverter	1=Conservation & Passive Recreation; 2=Trails; 3=Agriculture & Community Gardens; 4=Playing Fields; 5=Fitness Course; 6=Parking		
Northeastern Stow												
Flagg Hill Conservation Area/SVT	Boxboro/ W. Acton Rd.	R20#6A	95.0	SCC	Feb-99	29793/396	P	1	1,2	1,2,6	RC & R	Plan at 29793-371; SH Agreement for 242 ac 31117/30
Flagg Hill/Woodhead	Boxboro Rd.		42.0	SCC	Jun-99	30240/371	B		1	1,2	RC	
Flagg Hill/Boyer	W. Acton		74.3	SCC	May-99	30139/504	P		1,5	1	RC	restricted to conservation, forestry, rec., agriculture
Flagg Hill/Trefry Lane Open Space	Trefry Lane	R19#5A-A;5A-B	32.3	SCC	Aug-06	48059/102	G	N/A	1, 4, 5	1,2,6	R	
Flagg Hill/Waluck	Windemere Dr.	R-19#2A	4.7	SCC	Apr-03	38866/379	P		1	1	RC	small parcel at town line
Flagg Hill/Boxboro Land	W. Acton	R19#3	17.5	Boxboro CC	Jun-98				1	1	RC	

Captain Sargent Conservation Area	S.Acton/ Tuttle	R31#15+R21#43	153.0	SCC	Aug-80	14475/581	B	1…	1,2,	1,2,3,6	RC	286014; 286023
Heath Hen/Shelburne Woodland	W. Acton	R18#29-1	48.8	SCC	Dec-96	26917/164	P	1,2,4	1,2	1,5,6	RC	
Heath Hen/Frescha Land	Boxboro Rd.	R18#31-2	3.5	SCC	May-96	26354/192	G	1	1,2,5,6	1	RC	
Red Acre Estates Parcel A	Off Militia Circle	R30#82	8.1	SCC	Feb-03		G	N/A	1, 4	1	R	
LSN Tax Title Land	Off West Acton Road	R20#31	17+/-	SCC	May-07		T	N/A	1	1	R	
Carriage Lane Land	Off Packard	R17#14-14	7.5	SCC		COT95763; Plan 27221A	G	N/A	1,4	1	R	286022
Crescent Farms Open Space	Deerfield La.	U11-39C-10	13.5	SCC			T (Temp)	N/A	3,4	1,2	RC	Town also holds CR
Northwestern Stow												
Marble Hill Conservation Area	Great Rd.	R9#80	249.2	SCC	Jan-75		P	1	1,2	1,2,5,6	RC	286006; DCS-SH2
Nyhan Land	Off Taylor Rd	R7#30-8	26.7	SCC	Apr-84	15383/341	G	N/A	1,4,5	1,2	R & I	286027; has access easement, condition in OOC
Derby Woods Open Space	Off Harvard Rd.	R4#35A	41.1	SCC	Pending	Pending	G	N/A	1,3,4	1,2	R & RC	
Pacy Land (Delaney)	Off Delaney St.	R4#32A	3.6	SCC	Aug-06	48059/134	B	2	1	1	RC	Plan 19345/237

Southeastern Stow												
Gardner Hill Conservation Area/Town Forest	Bradley Lane	R29#105	326.5	SCC	Nov-68			1	1,2	6	RC	286005; DCS-SH1
Gardner Hill/Caswell Land	Off White Pond	R29#74-2	18.8	SCC	Dec-93	24113/277	P		1	1	C & RC	Deed not indexed
Gardner Hill/off White Pond road (Taylor)	Off White Pond	R29#74A	2.5	SCC	4/72	12215/518	P		1		RC	286021, plan recorded with
Gardner Hill/Heritage Lane OS	Off White Pond	R29#85B	17.5	SCC	May-98	28554/427	G	N/A	1,4	1,2	R & RC	
Memorial Field	Bradley Lane	R29#104	5.0	SRC	?					4	R	
Apple Blossom Land	Birch Hill	R14#6A-G1	6.8	SCC	Aug-92	22325/412	G	N/A	1,4,5	1	R & RC	
Dawes Lot	Sudbury Rd.	U6#9A	0.1	SCC	Jan-83				1		R & RC	286026
Kingland road A (SCT)	Kingland Rd.	U4#63	0.4	SCC	5/81	#611515	G	N/A	1		R	286024; Plan Book 407/253, water easement
Kingland road B	Kingland Rd.	U4#74	1.2	SCC	Jan-81				1		R	286025
Pine Bluff Recreation Area	Sudbury Rd.	U3-#12	31.0	SRC	Jan-75				1	4	RC	
Southwestern Stow												
Susan Lawrence Park	Great Rd.	U10#(68)	1.3	SCC	1963				1		R	286012

Annie Moore Land	Maple St.	R3#35 +R2#2 4	27.5	SCC	Jun-89	COT 801007 179550	P	1,2,4	1,2	1	R	2860043; DCS-SH4
Hudson Road	Walcott St.	R1#66	1.2	SCC	?				1	1	R	
Spindle Hill/SVT	Wheeler Rd.	R10#1-4B,	8.9	SCC	Jun-99	30240 /391	P		1,3,5,6	1,2	RC	
Spindle Hill/Hyde Land	Gates Lane	R10#1 7B	5.7	SCC	Dec-95	25912 /318	G	N/A	1,5	1	R	
Gates Lane Lot	Gates Lane	R10#3 3	0.9	SCC	Apr-97		T	N/A	1	1	R	Taken: Order at 20857/419; Judgement at 23261/456: need to find transfer vote
Access Strip to Elizabeth Brook	Off Hudson Rd.	R10#5 30-80	0.1	SCC	Apr-07	49247 /575	G	N/A	1,4,5	1	R & RC	
Kane	Off Edson Rd.	R11#1 1B	13.7	SCC	Pending	Pending	G	N/A	1,4	1	R	
Arbor Glen Open Space	Hudson Rd/BOS E Rd.	R10-560-001B	20.2	SCC	Pending	Pending	G	N/A	1,4,5	1,2,3	I	
**NOTE: This table contains incomplete information and in some cases additional research is required on specific parcels. It should not be relied upon for legal research purposes. Please consult the Conservation Commission where information is required about the legal status specific parcels.												

State Protected Land

Parcel Name	Map/Parcel	Area	
Delaney Flood Control Land	R5#2	170.5	SCORP 286009
Sudbury State Forest	R26#5	142.7	
DEM Shade Tree Management Land	R26#2		

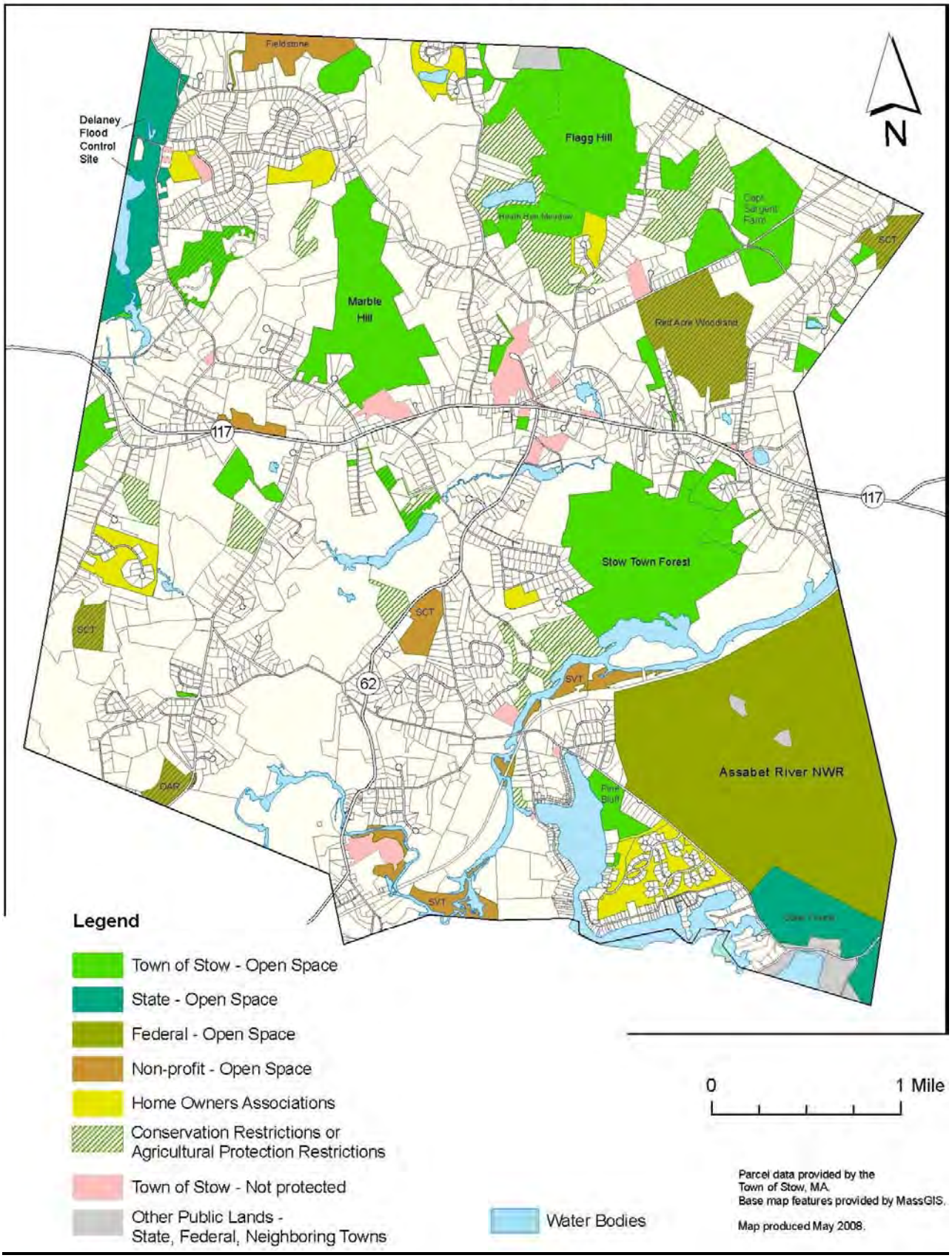
Federal Land (U.S. Fish and Wildlife Service)

Parcel Name/Owner	Map/Parcel	Area
Assabet NWR	R26#001A	990.39

Land Protected by Nonprofit Conservation Organizations

Parcel Name/Owner	Map/Parcel	Area
Stow Conservation Trust (SCT)	R6#118	53
Hale Woodlands (SCT)	R2#02	24.28
Red Acre Woodlands (SCT)	R30#02	170.7
Leggatt Property (SCT)	R15#064A	32.75
Kalosdian (OAR)	R1#2	20.2
Assabet River Lowlands (SVT)	R13#01-30	~73.8
Elizabeth Brook (SVT)	R9#1	13.0

Stow - Open Space Lands



Land Protected by Conservation Restrictions and Agricultural Preservation Restrictions

Grantor	Grantee	Date	Map/Lot	Acres	Notes
Rising & Cohen	Town CC	12/31/1975	R15/47D	29.5	
SCT	Town CC	12/30/1983	R6/118	53.0	Lot 5 Taylor Rd
Page	Town CC	6/13/1991		18.1	30 YR CR/Butternut
Page	Town CC	6/13/1991		6.1	Butternut Golf
Mass Audubon	Town CC	8/7/1991	R1/2	21.0	Kalousdian
Bolton	Town CC	10/28/1992		24.4	Springbrook Farm Subdivision, Parcels A-E
Peters Pond R.T., Peter Conant TR	Town CC	10/24/1996	U11/39C/10	13.0	Parcel C Crescent Farms; Incl. Trail Esmnt
Frescha	SVT/SCT	12/23/1996	R18/028A	37.8	Heath Hen Meadow Brook & Pond
Kennedy & Bowers	SVT/SCT	12/29/1997	R20/47; R21/1	35.1	
Lynch	MA & Town CC	6/22/1998	R21/004C	48.5	Shelburne Farm APR
SVT	SCT	10/9/1998	R10/10/4A	5.8	Spindle Hill Lot 5
SVT	SCT	6/1/1999	R10/10/4B	9.9	Wheeler Pond (adj to Lot 5 CR)
Sureau	SVT/SCT	12/23/1999	R19/0100	31.5	269 Boxboro Rd.
Bolton	Town CC	12/19/2000		2.2	Parcel G Apple Blossom Way
Kennedy & Bowers	SCT/SVT	12/27/2000	R20/042C	22.7	Incl. Trail Easement; Whitney Field
Fletcher & McCord	SCT/SVT	12/27/2000	R20/042B (part)	18.5	W. Acton Rd.; Incl. Trail Esmnt;
Smith	SCT	12/27/2001	R21/025	1.9	109 W. Acton Rd.
Stow Cons. Trust	Town CC	6/5/2002	R30/20;R31/43,44;	199.0	Red Acre Woodlands, SH
Wedgewood Properties, Inc.	Town CC	3/12/2004	R8/6,7,8	15.6	Required by Special Permit

Lawson	SCT	5/27/2004	U1/53	3.5	57 Barton Rd.; 475' on Assabet River with upland, bank and marsh
Kettell Farm RT	MA DAR	5/18/2005	R3/023	18.0	Moseley APR
Hale Property (SCT)	Town CC	2006	R2/20	23	Owned by SCT
Pulte Homes	Town CC	2007	R10/56/1a (part)	20	Drumlin at Arbor Glen
Tyler APR	MADAR andTown CC	June 2008	R3/12	8	Tyler Prop. And Applefield Farms APR

Pending Conservation Restrictions

Derby Woods	SCT	Pending
Taylor Road	Town CC	Pending

5B. Quasi-Protected Land

Private Land with Term Conservation Restrictions

Parcel Name/Owner	Map/Parcel	Area	Term
Bob McDonald	R12#5	20.5	25 years ending ~2015

Land owned by Public or Private Water companies

Parcel Name/Owner	Map/Parcel	Area
Assabet Water Co.	R7#4	27.4
Juniper Hill Water Co.	R15#119	10.6
Pilot Grove Apts. Well	R17#3-3	2.2
Town of Maynard	R26#4	7.5 (White Pond)

5C. Unprotected Municipal Land

Parcel Name	Map/Parcel	Area
Kettle Monument	R3#26	0.01
West School	R4#40	0.3
West School Parking	R4#17	2
Conant Drive flood plain	R5#18, 19, 20, 21, 23	~5

Pompo School & Soccer Field	R9#92	18
School Field	R9#92A	11
Brookside Cemetery	R16#1	4.5
	U10#62	1.2
Box Mill Road	R22#2-4, 1-1	5.1
Hale School	R17#19	16.6
Town Garage	R21#42A	10.6
Lower Village Cemetery	R29#2	3.5
Lower Common	R30#1	0.7
Pine Point Land	U1#41	1.2
Lake Boon Dam	U1#51	1.0
Boon Monument	U1#55	0.1
Town Beach	U3#12	31
Kane Well Land	U7#34-2	28.8
Gleasondale School Lot	U8#12	0.3
Center School	U9#44	14.9
Town Hall	U10#4	~0.2
Fire Station	U10#9	~5
Town Building	U10#68	1.3
Town Barn	U10#14	0.8
Hillside Cemetery	U10#15	~1.5
Randall Library	U10#33	~0.5
Center Common	U10#69	0.4
Eliot Drive	R6#15,16	2.47
Harvard Road	R6#69,71	1.8
Police Station, Great Road	U10#39	1.14
Town of Maynard	R26#4	7.5
Memorial Field	U29#104	5
Off Militia Circle	R30#79	2.36
Great Road	R30#15A	.01
Samuel Prescott La	R30#16A	.064
Off Farm Rd/Militia Circ.	R31#47,48C	6.16
Great Road	U10#40	.74
Sudbury Rd. & Assabet River		.39 & .42 acres

5D. Inventory of Town Recreational Facilities

Sport	**Item**	**Location**	**Owner**	**Maintenance**
Basketball	Basketball Court	Hartley Road / Hale	Hale School	Nashoba School District
Baseball	Little League Field (Note 1)	Center School Campus	Center?	Nashoba School District
" "	Hale School Field	Hale School	Hale School	Nashoba School District

Boating	Lake Boon Water Access	Sudbury Road Boat Ramp	?	?
Exercise Course	Head Lifecourse	Marble Hill Natural Area	Conservation Commission	Conservation Commission
Tennis	Tennis Courts (2)	Center School Campus	Recreation Commission	Recreation Commission
Playground	Children's Playground	Pompo School	Pompo	Nashoba School District
" "	Children's Playground	Center School	Center	Nashoba School District
" "	SAPN Children's Playground	Pine Bluff Area	Recreation Commission	Recreation Commission
Softball	Softball Field (Note 2)	Memorial Field	Recreation Commission	Recreation Commission
"Soccer 11v11 or 8v8"	Full Soccer Field (Note 3)	Pine Bluff Area	Recreation Commission	Recreation Commission
" "	Full Soccer Field	Pompo	Pompo School	Recreation Commission
Soccer 6x6	Small Soccer Field (Note 3)	Pine Bluff	Recreation Commission	Recreation Commission
" "	Small Soccer Field (Note 2)	Memorial Field	Recreation Commission	Recreation Commission
" "	Small Soccer Field (Note 4)	Hale School	Hale School	Nashoba School District?
" "	Small Soccer Field (Note 1)	Center School	Center School	Nashoba School District
Swimming	Beach/swimming	Pine Bluff Area	Recreation Commission	Recreation Commission
Volleyball	Court w/net	Pine Bluff Area	Recreation Commission	Recreation Commission

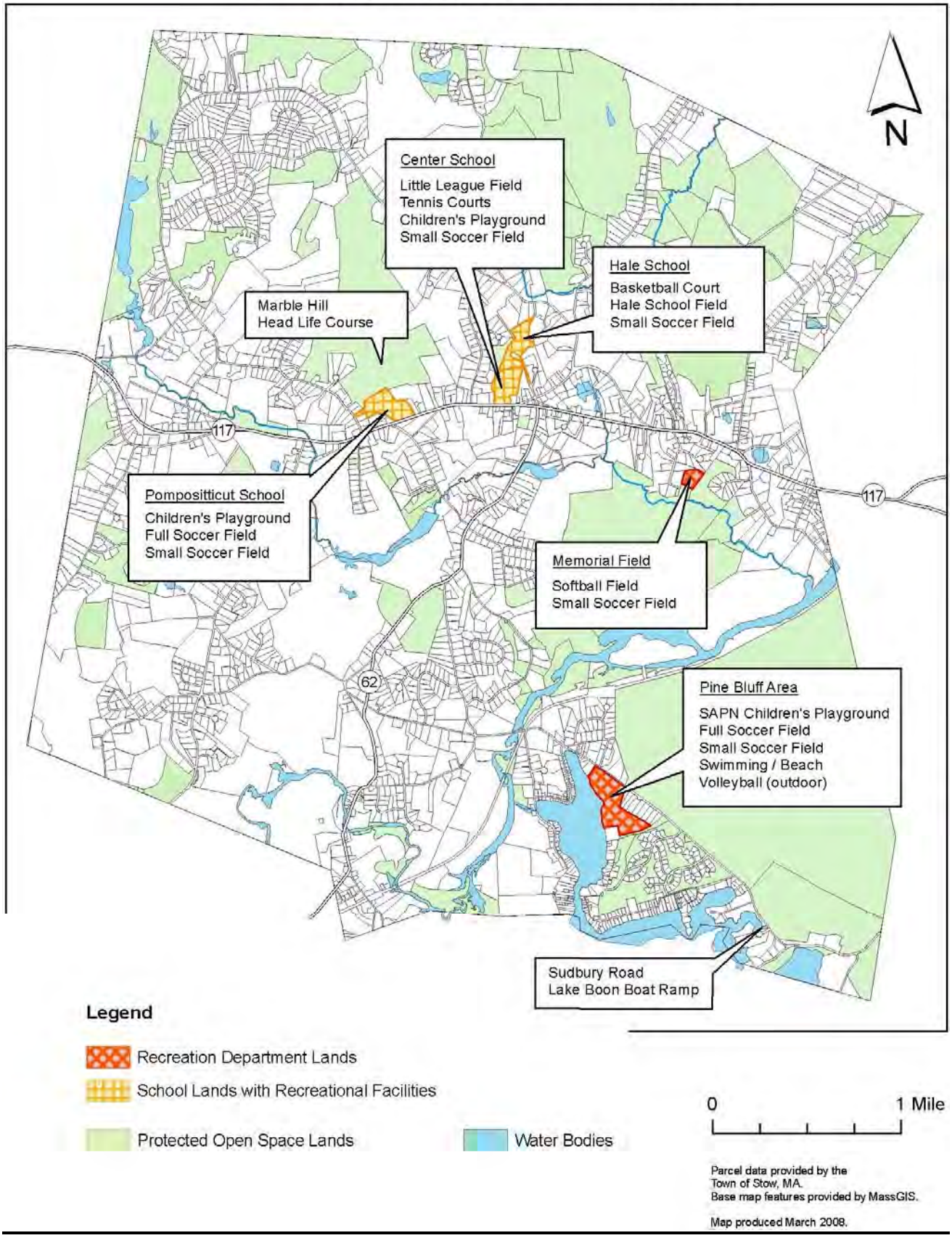
Note 1: Baseball field at Center School Campus is a shared field - baseball, soccer, school play area

Note 2: Softball field at Memorial Field is a shared field - Softball / Soccer

Note 3: Soccer fields are shared at Pine Bluff - large field also lined for two smaller fields

Note 4: Soccer field at Hale School only available in the fall - School has priority for use/scheduling

Stow - Recreation Department Interests



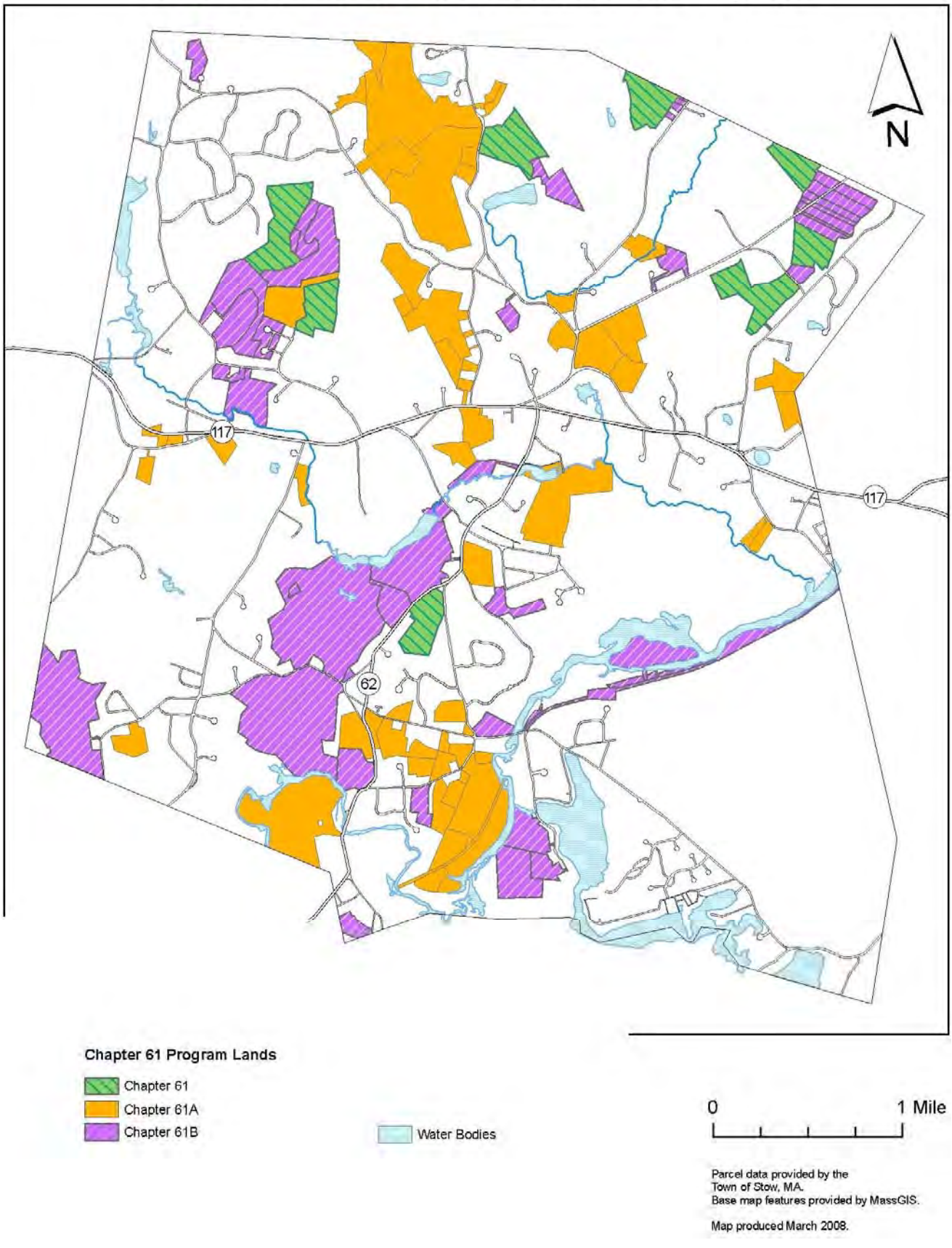
Major Unprotected Institutional Holdings

Parcel Name	Map/Parcel
Catholic Church	U9#39, 40, 41
Former Hindu Temple	U7#36
Union Evangelical Church	U10#36, 38
Unitarian Universalist Church	U10#34, 35

5C. Lands in Preferential Tax Programs

A large number of properties in Stow are enrolled in preferential tax programs under Chapter 61 (forestry), 61A (agriculture) and 61B (open space/recreation). These allow the owner of the property the opportunity to pay reduced property taxes in exchange for a promise to keep the land in the specified use (agriculture, forestry, recreation) for a specified term of years. These owners have taken the initiative to actively manage their property for various open space and recreational purposes and should be commended. However, it is important to remember that landowners can withdraw their properties from these programs at any time. If the owner converts the property while it is enrolled to another use (for example by selling it for development), rollback taxes are due and the town has a right of first refusal to match the terms of a sales contract. This right can also be assigned to a nonprofit conservation organization. Several parcels in Stow have been proposed for conversion in recent years. Several years ago, the Selectmen passed on the right to purchase land owned formerly owned by Margaret O'Grady on Hudson Road that is being developed as 66 units of Active Adult Neighborhood condominiums. The Town voted to purchase land off Walcott Street owned by Alice Cushing for open space, recreation and affordable housing using Community Preservation Funds, however ultimately lost a court challenge brought by the landowner and the developer. The town is currently in litigation regarding an assignment of Chapter 61 rights for a parcel on Red Acre Road. The town evaluated land owned by Minute Man Airfield, Inc. for mixed use and construction of a new elementary school, however the purchase of the land was not approved by Town Meeting and this land is now permitted for AAN development. As a result of these and other recent notices of conversion, the Selectmen are currently discussing a formal policy on review of such notices – as recommended in this plan – that is designed to ensure public input and consideration of suitability for a variety of land uses before any decision is made on whether or not to exercise or pass on a right of first refusal. Such a plan will be developed by the existing Municipal Land Use Task Force.

Stow - Land Enrolled in Preferential Tax Programs



Chapter	Map/Parcel	Owner1	Location	Total Acreage	Acreage under Chapter	Acreage not under Chapter
61	000R-8 00006A	AVERY WILLIAM L	50 DUNSTER DR	54.9	50.4	4.5
61	000U-6 00013A	DAWES ROBERT T TRUST	50 HALLOCK POINT RD	3.54	2.04	1.5
61	000U-6 00009B	DAWES ROBERT T TRUST	SUDBURY RD	9.02	9.02	0
61	00R-21 042-9A	FLETCHER BRUCE	WETHERBEE LN	11.35	11.35	0
61	00R-31 000003	FLETCHER REALTY TRUST	SOUTH ACTON RD	5	3.97	1.03
61	00R-31 000006	FLETCHER REALTY TRUST	SOUTH ACTON RD	20	20	0
61	00R-31 000057	KUNELIUS MARILYN E (pending purchase)	144 RED ACRE RD	49.74	42.1	7.64
61	000R-8 00005A	MERRILL CHRISTOPHER B TR	WEDGEWOOD RD	30.94	25.19	5.75
61	00R-31 000008	MOREY GEORGE	SOUTH ACTON RD	8	5.25	2.75
61	00R-31 000009	MOREY GEORGE	SOUTH ACTON RD	14	14	0
61	00R-31 000010	MOREY GEORGE	SOUTH ACTON RD	8	8	0
61	00R-31 000011	MOREY GEORGE	SOUTH ACTON RD	5	5	0
61	00R-31 000012	MOREY GEORGE	SOUTH ACTON RD	9	9	0
61	00R-31 000013	MOREY GEORGE	SOUTH ACTON RD	2.5	2.5	0
61	00R-31 000014	MOREY GEORGE	SOUTH ACTON RD	8	8	0
61	00R-31 000016	MOREY GEORGE	TUTTLE LN	5.5	5.5	0
61	00R-31 000017	MOREY GEORGE	OFF SOUTH ACTON RD	26.75	26.75	0
61	00R-15 064A-4	STOW CONS. TRUST INC	GLEASONDALE RD	34.54	34.54	0
61	00R-19 000010	SUREAU JEAN-CLAUDE	269 BOXBORO RD	41	27.5	13.5
61	00R-18 0027-1	SUREAU JEAN-CLAUDE	OFF BOXBORO RD	17.53	17.53	0
61	00R-20 000017	SWEENEYCHARITABLE UNITRUST	WEST ACTON RD	0.92	0.92	0
61	00R-20 000021	SWEENEY P TR COLONIAL REALTY	WEST ACTON RD	0.92	0.92	0
61	00R-20 000019	SWEENEY PAUL	WEST ACTON RD	32.65	32.65	0
61	00R-20 000020	SWEENEY PAUL	WEST ACTON RD	1.16	1.16	0
61	00R-20 000022	SWEENEY PAUL	WEST ACTON RD	0.46	0.46	0
61A	000R-8 000005	BARNES HILL TRUST	58 WEDGEWOOD RD	30.81	28	2.81
61A	00R-21 000020	BOTTINO ROBERT J	171 WEST ACTON RD	13.25	11.75	1.5
61A	00R-17 000026	CACCIATORE RAYMOND J	PACKARD RD	0.97	0.97	0
61A	00R-17 000029	CACCIATORE RAYMOND J	PACKARD RD	47	47	0

61A	000U-9 000031	FIELD FAITH B	GREAT RD	11.92	11.92	0
61A	00R-17 000020	FIELD PEDER O	PACKARD RD	2.77	2.77	0
61A	000U-9 000033	FIELD PEDER O	PACKARD RD	2.73	2.73	0
61A	00R-14 000005	FROST RAY S	149 WHITMAN ST	10.8	9.3	1.5
61A	000R-1 0024-2	GREEN FREDERICK J	84 WALCOTT ST	14.31	12.81	1.5
61A	00R-14 000021	HANGEN DONALD	102 BOON RD	7	5.5	1.5
61A	00R-29 000073	HANSON HAROLD	65 WHITE POND RD	4.8	4.8	0
61A	00R-29 000072	HANSON HAROLD J	63 WHITE POND RD	6	4.5	1.5
61A	00R-14 00016A	HONEY POT HILL ORCHARDS	SUDBURY RD	80.55	79.05	1.5
61A	00R-13 000002	HONEY POT HILL ORCHARDS	SUDBURY RD	22	22	0
61A	00R-13 000004	HONEY POT HILL ORCHARDS	SUDBURY RD	7.3	7.3	0
61A	00R-13 00004A	HONEY POT HILL ORCHARDS	SUDBURY RD	1.9	1.9	0
61A	00R-13 000006	HONEY POT HILL ORCHARDS	SUDBURY RD	13.9	13.9	0
61A	00R-14 000014	HONEY POT HILL ORCHARDS	SUDBURY RD	8.12	8.12	0
61A	00R-14 000018	HONEY POT HILL ORCHARDS	BOON RD	3.28	3.28	0
61A	00R-14 0012-2	HONEY POT HILL ORCHARDS	SUDBURY RD	7.66	7.66	0
61A	00R-13 000001	HONEY POT HILL ORCHARDS	SUDBURY RD	7.35	7.35	0
61A	00R-14 00016B	HONEY POT HILL ORCHARDS	SUDBURY RD	3.46	3.46	0
61A	00R-14 019A-2	HONEY POT HILL ORCHARDS, INC	BOON RD	4.19	4.19	0
61A	00R-31 000001	KENNEDY RUTH H	137 TUTTLE LN	5.5	4	1.5
61A	00R-20 00042C	KENNEDY RUTH H	OFF WEST ACTON RD	22.74	22.74	0
61A	00R-20 000047	KENNEDY RUTH H	OFF TUTTLE LN	32	32	0
61A	00R-22 00002B	LORD CHARLES H	66 -69 BROOKSIDE AV	78.8	74.3	4.5
61A	00R-21 00001D	LYNCH JEAN H.	74 WEST ACTON RD	8.34	5.33	3.01
61A	00R-14 000004	MARTIN ANDREW S	BOON RD	5.21	5.21	0
61A	00R-14 00003A	MARTIN RICHARD S	91 BOON RD	4.62	4.62	0
61A	00R-14 00020B	MARTIN RICHARD S	BOON RD	19.65	19.65	0
61A	00R-12 000005	MCDONALD ROBERT C	387 GLEASONDALE RD	20.5	18.5	2
61A	000R-7 0030-7	MINUTE MAN AIR FIELD INC	TAYLOR RD	7.84	7.84	0
61A	000R-7 000038	MINUTE MAN AIR FIELD INC	BOXBORO RD	10	10	0
61A	000R-7 035B-4	MINUTE MAN REALTY CORP	BOXBORO RD	11.05	11.05	0
61A	00R-18 022B-3	MINUTE MAN REALTY CORP (release pending)	BOXBORO RD	114.3	114.3	0
61A	000R-3 0023-1	MONG STEVEN R	70 OLD BOLTON RD	7.01	5.51	1.5

61A	000R-3 000023	MOSELEY PHILIP B TR	32 MAPLE ST	21.58	18.58	3
61A	00R-12 000001	PERKINS EDWARD H	25 ROCKBOTTOM RD	90	87	3
61A	00R-17 00001A	PILOT GROVE FARM INC	CRESCENT ST	15	15	0
61A	00R-21 000044	PILOT GROVE FARM INC	SOUTH ACTON RD	30	30	0
61A	000U-9 000018	PORCELLA ANNE D	438 GREAT RD	16.6	14.6	2
61A	00R-16 000046	PORCELLA ANNE D	WHEELER RD	12	12	0
61A	00R-30 000049	PORCELLA ANNE D	OFF RED ACRE RD	16	16	0
61A	00R-30 000077	PORCELLA ANNE D	OFFPOMPOSITTICUT ST	12.33	12.33	0
61A	000U-9 00017A	PORCELLA ANNE D	GREAT RD	0.4	0.4	0
61A	000R-3 000048	SCANSAROLI ALBERT R	49 OLD BOLTON RD	2.45	0.95	1.5
61A	000R-3 000052	SCANSAROLI ALBERT R	GREAT RD	0.94	0.94	0
61A	000R-3 00048A	SCANSAROLI ALBERT R	OLD BOLTON RD	3.45	3.45	0
61A	000R-4 000003	SHEPHERD T NATHANAEL	154 HARVARD RD	29.47	27.97	1.5
61A	00R-15 000075	SIPLER DWIGHT P.	184 GLEASONDALE RD	24	24	0
61A	00R-10 0042-3	TARANTO RICHARD S/BETTY	32 HUDSON RD	7.75	5.75	2
61A	000R-3 000012	TYLER ALLAN A	722 GREAT RD	9.1	7.1	2
61A	000R-9 000099	WARD DANIEL E/VICKI A DROMEY	OFF TAYLOR RD	4.75	4.75	0
61A	000R-8 000010	WARD DANIEL E/VICKI A DROMEY	TAYLOR RD	25	25	0
61A	00R-17 000001	WARREN FRANCIS JR	76 CRESCENT ST	29.2	26.2	3
61A	00R-17 000003	WARREN FRANCIS JR	WEST ACTON RD	12.3	12.3	0
61A	00R-19 00008A	WOODHEAD WM&DANIEL/M KATRANIDE	297 BOXBORO RD	4.13	4.13	0
61A	00R-19 00008B	WOODHEAD WM&DANIEL/M KATRANIDE	BOXBORO RD	4.13	4.13	0
61A61B	000R7-000035	MINUTE MAN AIR FIELD INC	302 BOXBORO RD	116.13	111.13	5
61A61B	000R-7 000034	MINUTE MAN AIR FIELD INC.	TAYLOR RD	24.5	24.5	0
61B	00R-23 000001	ALBRIGHT ANNETTE	WHITE POND RD	32.08	32.08	0
61B	00R-23 000004	ALBRIGHT ANNETTE	SUDBURY RD	5	5	0
61B	00R-24 000001	ALBRIGHT ANNETTE	OFF SUDBURY RD	2	2	0
61B	00R-17 000009	ALBRIGHT ROBERT T	84 BOXBORO RD	7.25	5	2.25
61B	00R-23 000003	ALBRIGHT ROBERT T/ANNETTE L	CROW IS	29.83	28.33	1.5
61B	00R-25 000016	COLLINGS ROBERT F	OFF BARTON RD	31.1	29.6	1.5

61B	00R-25 000017	COLLINGS ROBERT F	137 BARTON RD	24.9	22.4	2.5
61B	000U-2 000054	COLLINGS ROBERT F	BARTON RD	11.55	11.55	0
61B	000R-4 00039A	F & S REALTY TRUST	215 HARVARD RD	28.76	23.76	5
61B	000U-7 0006-4	GUTKNECHT D RUTH	45 C MARLBORO RD	8.92	7.42	1.5
61B	00R-13 000009	JONES GREGORY D	61 SUDBURY RD	10.6	9.1	1.5
61B	000R-6 113-1A	LARSON ARTHUR G	435 TAYLOR RD	9.7	8.2	1.5
61B	00R-16 0030-2	MARSHALL BARBARA A.	67 GLEASONDALE RD	10.25	8.75	1.5
61B	00R-15 000066	PAGE FAMILY LIMITED PARTNERSHP	WHEELER RD	81.15	81.15	0
61B	00R-16 0021-2	PAGE FAMILY LIMITED PRTNSHP	127 WHEELER RD	4.58	4.08	0.5
61B	00R-16 000047	PAGE FAMILY LIMITED PTNSHP.	115 WHEELER RD	5.61	2	3.61
61B	000R-4 000043	PITT CONSTRUCTION CORPORATION	OFF HARVARD RD	42.12	42.12	0
61B	00R-15 000034	RISING DONALD B	TREATY ELM LN	14	14	0
61B	00R-15 00047D	RISING DONALD B	TREATY ELM LN	29.5	29.5	0
61B	00R-12 000002	ROCKBOTTOM LIMITED PTNSHP.	449 GLEASONDALE RD	22.64	20.94	1.7
61B	00R-11 025B-3	SCC ASSOCIATES INC	RANDALL RD	177.06	177.06	0
61B	00R-11 00037A	SCC ASSOCIATES INC	58 RANDALL RD	151	146	5
61B	00R-11 00011A	SCC ASSOCIATES INC	OFF HUDSON RD	1.77	1.77	0
61B	00R-11 025B-8	SCC ASSOCIATES INC	CROSS ST	1.54	1.54	0
61B	000R-4 00002A	SHEPHERD, NANCY H.	HARVARD RD	6.45	6.45	0
61B	00R-14 000008	TALPEY THOMAS M	170 WHITMAN ST	10.98	9.48	1.5
61B	000R-8 00007A	WEDGEWOOD PROPERTIES INC	OFF DUNSTER DR	62.23	62.23	0
61B	000R-9 000100	WEDGEWOOD PROPERTIES INC	WEDGEWOOD RD	12.55	12.55	0

5D. Privately-Owned Lands of Conservation and Recreation Interest

A list of properties which were identified as being appropriate for consideration for acquisition or other form of permanent protection was included in the original 1972 Open Space Plan. That list was carried over into the 1980 Open Space Plan and has been updated in subsequent plans. This priority list was updated significantly for the current plan, enhanced greatly by employing the town's Geographic Information System (GIS) and significant additional resource information that has been made available by the state and other organizations including Natural Heritage, Mass Audubon, Mass GIS, and the Sudbury Valley Trustees. The Open Space and Recreation Plan Committee examined all parcels in town greater than 5 acres in size as well as selected smaller parcels. This information was helpful in identifying priority parcels and will serve to further guide the town's open space protection efforts in the coming years.

The Committee identified nine broad open space and recreation objectives that form the town's open space protection priorities. In order of priority, these are:

- **Protection of agricultural lands to preserve and enhance Stow's agricultural base and maintain its viability for the long term**
  This category includes unprotected parcels currently under cultivation and parcels with high quality agricultural soils. The farms of Stow are one of the primary contributors to the town's rural character and are an integral part of Stow's heritage. These parcels need particular attention for protection because they generally have excellent development potential and are under heavy pressure for conversion to other uses. Much of the farmland is in orchards, which are one of the most threatened types of agriculture in the state.

- **Protection of areas for active and passive recreation including ball fields and trails**

  This category includes unprotected parcels with significant recreation potential for a variety of existing and/or potential recreational uses such as trail corridors, recreational fields, golf courses, and potential access points to navigable waters.

- **Protection of lands that link existing conservation holdings in Stow and surrounding communities**

  This category includes parcels of strategic importance for connecting existing protected lands in Stow and beyond. Such connections are important for the creation of town-wide trails and maintaining wildlife habitat corridors, as well as enhancing the value and function of existing protected lands.

- **Protection of land in areas of town currently underserved by protected open space**

  Review of the town's existing protected lands indicates that the southwest quadrant of Stow contains very little protected land (see Map on next page). Given the large amount of developable land remaining in this area (much of which is currently on the market or "in play"), the Open Space and Recreation Plan identifies this area as a priority for the protection and the creation of recreational trails.

- **Protection of significant surface and groundwater resources**

  This category includes unprotected parcels with significant surface and/or groundwater resources or with potential to affect these water resources. This includes parcels containing lakes and streams and parcels overlying major aquifers and recharge areas.

- **Protection of lands that will preserve Stow's small town nature**

  This category includes large and/or highly developable parcels or groups of parcels whose development would add a significant number of homes to Stow. Protecting these lands will help to manage Stow's residential development, thereby minimizing demands for increased municipal services.

- **Protection of important natural habitats and wildlife corridors**

  This category includes unprotected parcels that have been identified as significant for habitat by the Massachusetts Natural Heritage and Endangered Species Program as well as parcels that were identified in a regional study of areas with habitat significance, based on site visits and aerial photography.

- **Protection of important scenic vistas**

  This category includes unprotected parcels with significant scenic qualities. This category contains parcels with scenic features that contribute to the character of Stow including parcels that are visible from a public way and from navigable streams and rivers.

- **Protection of land with significant cultural and historic resources**

  This category includes important cultural landscapes and unprotected parcels that have historical significance. Unless there are other historic resources present, the fact that a parcel contains a historic home will not qualify it for inclusion on this list.

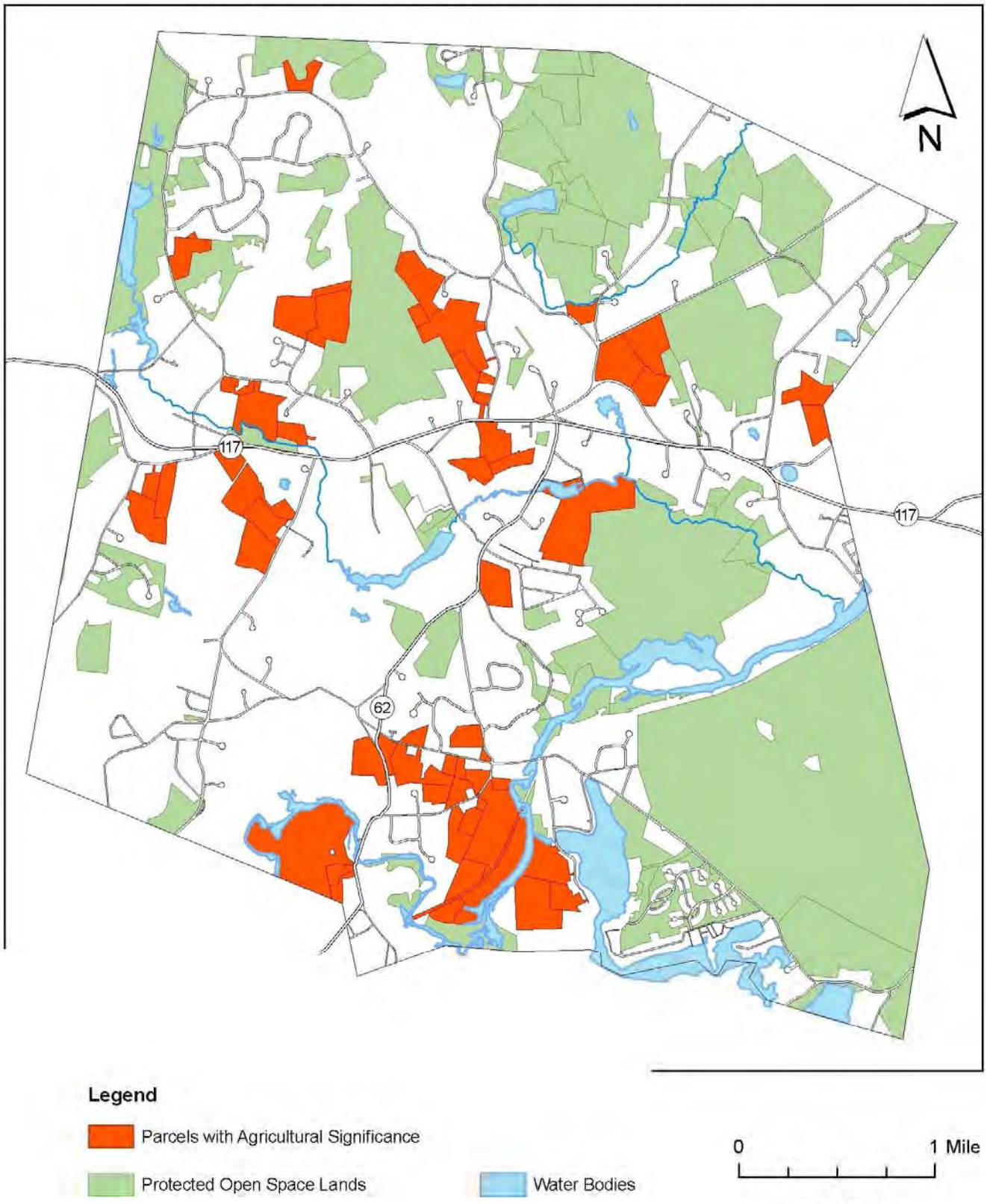
These objectives are not mutually exclusive, and many of the parcels meet more than one need. The following pages include lists and maps of the parcels that the Plan identified as significant for each of these objectives. These lists were developed in 2004, so in some cases ownership may have changed since that time.

Open Space and Recreation Plan
Unprotected Parcels with Agricultural Significance

Owner	PARCEL_ID	Acres	Chapter
BARNES HILL TRUST	R08-0050	30.3	Y
CACCIATORE RAYMOND J	R17-0290	44.3	Y
COLLINGS ROBERT F	R25-0170	23.9	Y
COLLINGS ROBERT F	R25-0160	33.5	Y
COLLINGS ROBERT F	U02-0540	11.6	Y
FIELD FAITH B	U09-0310	12.1	Y
FIELD PEDER O	R17-0200	2.7	Y
FIELD PEDER O	U09-0330	2.7	Y
FROST RAY S	R14-0050	10.8	Y
HANGEN DONALD	R14-0210	6.9	Y
HONEY POT HILL ORCHARDS INC	R14-016A	84.4	Y
HONEY POT HILL ORCHARDS INC	R14-0140	8.2	Y
HONEY POT HILL ORCHARDS INC	R13-0060	14.3	Y
HONEY POT HILL ORCHARDS INC	R13-0040	7.4	Y
HONEY POT HILL ORCHARDS INC	R13-0020	14.8	Y
HONEY POT HILL ORCHARDS INC	R13-0020	8.2	Y
HONEY POT HILL ORCHARDS INC	R14-0180	3.2	Y
HONEY POT HILL ORCHARDS INC	R13-004A	1.6	Y
HONEY POT HILL ORCHARDS INC	R14-0120-0020	7.8	Y
HONEY POT HILL ORCHARDS INC	R14-016B	3.5	Y
HONEY POT HILL ORCHARDS INC	R13-0010	6.8	Y
HONEY POT HILL ORCHARDS, INC	R14-019A-0020	4.2	
LORD CHARLES H	R22-002B	77.8	Y
LYNCH JEAN H.	R21-001D	8.1	Y
MARTIN RICHARD S	R14-0030	6.0	Y
MARTIN RICHARD S	R14-020B	22.8	Y
MCDONALD ROBERT C	R12-0050	18.6	Y
MERRILL CHRISTOPHER B TR	R08-005A	29.3	Y
MONG STEVEN R	R03-0230-0010	6.8	Y
MOSELEY PHILIP B TR	R03-0230	21.1	Y

PERKINS EDWARD H	R12-0010	93.7 Y
PERKINS EDWARD H	U08-0030	6.3
PERKINS EDWARD H	U08-0030-0020	4.7
PILOT GROVE FARM INC	R21-0440	26.4 Y
PILOT GROVE FARM INC	R17-001A	15.1 Y
PORCELLA ANNE D	U09-0180	17.8 Y
PORCELLA ANNE D	R16-030A	9.6
PORCELLA ANNE D	R30-0490	16.1 Y
PORCELLA ANNE D	R30-0770	12.4 Y
PORCELLA ANNE D	R16-0460	11.7 Y
SCHWARZKOPF DANIEL B	R06-1240	10.9
SCHWARZKOPF DANIEL B	R05-0790	16.1
SCHWARZKOPF DANIEL S.	R05-067A	0.7
SHEPHERD T NATHANAEL	R04-0030	29.1 Y
SHEPHERD THOMAS R.	R09-014A	9.0
SHEPHERD, NANCY H.	R04-002A	6.6 Y
SIPLER DWIGHT P.	R15-0750	20.6 Y
SNOW WILLIAM J. JR	R03-0180	13.2
TYLER ALLAN A	R03-0120	9.6 Y
WARD DANIEL E/VICKI A DROMEY	R09-0990	4.9 Y
WARD DANIEL E/VICKI A DROMEY	R08-0100	27.3 Y
WARREN FRANCIS JR	R17-0010	29.2 Y

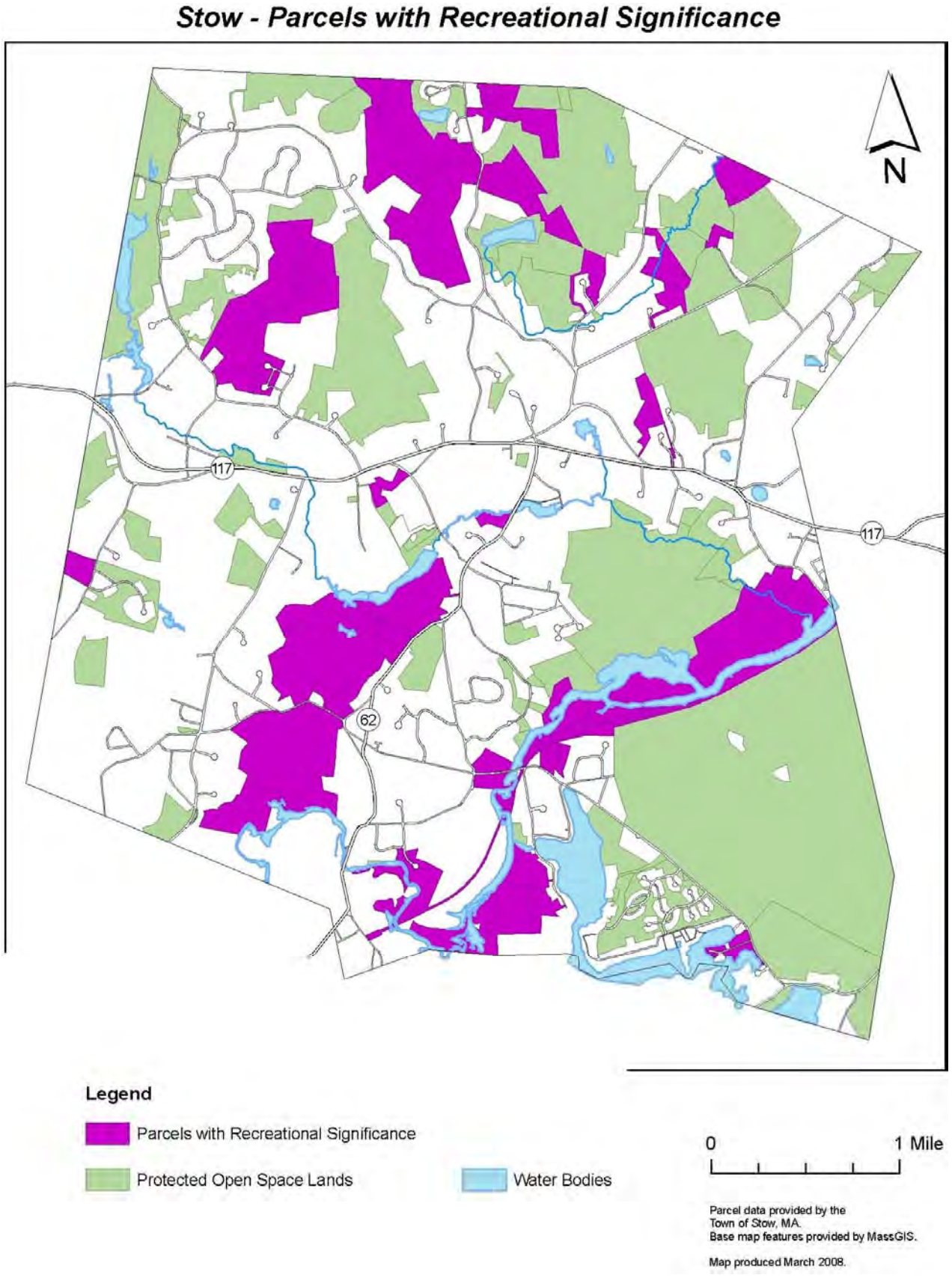
Stow - Parcels with Agricultural Significance



Open Space and Recreation Plan
Unprotected Parcels with Recreational Significance

ALBRIGHT ANNETTE	R23-0010	28.1	Y
ALBRIGHT ANNETTE	R24-0010	1.7	Y
ALBRIGHT ANNETTE	R23-0040	7.0	Y
ALBRIGHT ROBERT T/ANNETTE L	R23-0030	31.3	Y
ANDING KENNETH L	U11-0330-0020	8.3	
AVERY WILLIAM L	R08-006A	54.1	Y
BAWN DENNIS C	R14-0090	9.3	
BOLTON RICHARD E.	R15-048C	10.1	
CANNELLA SOPHIE P	R02-023A	12.9	
COLLINGS ROBERT F	R25-0170	23.9	Y
COLLINGS ROBERT F	R25-0160	33.5	Y
COLLINGS ROBERT F	U02-0540	11.6	Y
CONANT PETER M/ROBERTA D	U11-039C-0010	13.2	
CORNELL LINDA S	R13-0150	13.4	
COUGHLIN JR THOMAS J	R16-0290-0110	7.1	
DAWES ROBERT T TRUST	U06-013A	3.2	Y
DAWES ROBERT T TRUST	U06-009B	9.3	Y
DUNN JUDITH V ESTATE OF	R20-0480	28.6	
F & S REALTY TRUST	R04-039A	28.8	Y
FLANNERY EDWARD W	R24-0120	5.5	
FLETCHER BRUCE	R21-0420-009A	11.5	Y
HICKS ROBERT M	R21-005B-002B	18.1	
HONEY POT HILL ORCHARDS INC	R13-0010	6.8	Y
HONEY POT HILL ORCHARDS	R14-16A	81.0	Y
HYDE DONALD B JR	R10-0090-0020	10.2	
J MELONE & SONS INC	R29-0700	27.9	
KENNEDY RUTH H	R31-0010	5.7	
LANKAU WALTER E	R12-0230	43.7	
LUNDY MAILMAN INC	R13-0110-0080	1.0	
LUNDY MAILMAN INC	R13-0110-0070	1.1	
LUNDY MAILMAN INC	R13-0110-0060	19.7	
LUNDY MAILMAN INC	R13-0110-0090	1.0	
LUNDY MAILMAN INC	R13-0110-0020	0.9	

LUNDY MAILMAN INC	R13-0110-0030	0.9	
LUNDY MAILMAN INC	R13-0110-0040	0.9	
LUNDY MAILMAN INC	R13-0110-0050	1.3	
MELONE ANTHONY	R29-0670	109.4	Y
MINUTE MAN AIR FIELD INC	R07-0350	115.9	Y
MINUTE MAN AIR FIELD INC	R07-0380	11.0	Y
MINUTE MAN REALTY CORP	R18-0220	113.4	Y
MOREY GEORGE	R24-0240	2.1	
MOREY GEORGE	U07-0440	2.5	
MOREY GEORGE	R23-0050	2.6	
MOURA, MARY	R13-14	0.50	
OWNER UNKNOWN	R24-0040	3.2	
PAGE FAMILY LIMITED PARTNERSHP	R15-0660	77.0	Y
PITT CONSTRUCTION CORPORATION	R04-0430	42.7	Y
RAISANEN UOLEVI M	R29-0660	9.0	
SCC ASSOCIATES INC	R11-037A	149.9	Y
SCC ASSOCIATES INC	R11-025B-0030	177.1	Y
SCC ASSOCIATES INC	R11-011A	1.8	Y
SCC ASSOCIATES INC	R11-025B-0080	1.5	Y
SUREAU JEAN-CLAUDE	R19-0100	41.9	Y
SUREAU JEAN-CLAUDE	R18-0270-0010	17.5	Y
TALPEY THOMAS M	R14-0080	11.5	Y
TESKA LORA E	R24-0030	11.3	
WEDGEWOOD PROPERTIES INC	R08-007A	63.0	Y
WEDGEWOOD PROPERTIES INC	R09-1000	13.0	Y


Stow - Parcels with Recreational Significance
N
117
117
62
Legend
Parcels with Recreational Significance
Protected Open Space Lands
Water Bodies
0
1 Mile
Parcel data provided by the
Town of Stow, MA.
Base map features provided by MassGIS.
Map produced March 2008.

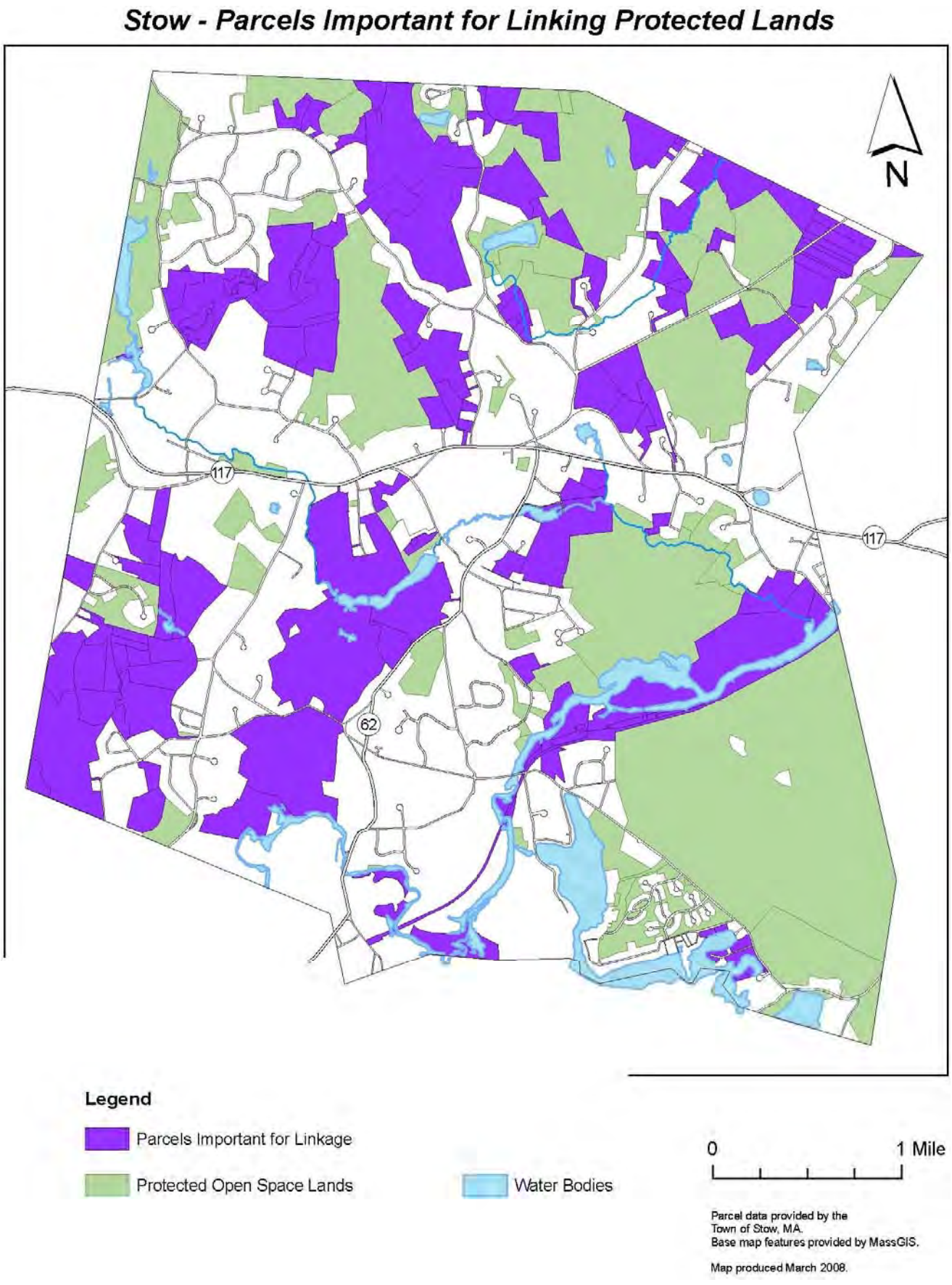
Open Space and Recreation Plan
Unprotected Parcels Important for Linking Protected Lands

Owner	PARCEL_ID	Acres	Chapter
ALBRIGHT ANNETTE	R23-0010	28.1	Y
ALBRIGHT ANNETTE	R24-0010	1.7	Y
ALBRIGHT ANNETTE	R23-0040	7.0	Y
ALBRIGHT ROBERT T/ANNETTE L	R23-0030	31.3	Y
ALLAIRE TIMOTHY F	R18-0350	3.6	
ALPHA TRUST	R02-0200-0070	7.6	
ANDING KENNETH L	U11-0330-0020	8.3	
AVERY WILLIAM L	R08-006A	54.1	Y
BAILIN SARAH W	U05-002A	1.7	
BAILIN SARAH W	U05-001A	2.0	
BANKS FAMILY TRUST	R01-064A	46.5	
BARNES HILL TRUST	R08-0050	30.3	Y
BEDFORD BUILDERS INC	R01-0290	9.2	
BOLTON RICHARD E.	R15-048C	10.1	
BOYE DONALD J JR	R20-0260	17.3	
BURRELL MARK	R22-002A	4.8	
CACCIATORE RAYMOND J	R17-0290	44.3	Y
CACCIATORE RAYMOND J	R17-0260	1.0	Y
CANNELLA SOPHIE P	R02-023A	12.9	
COGSWELL GEORGE R	R01-0510	6.5	
CONANT PETER M/ROBERTA D	U11-039C-0010	13.2	
CORZINE RICHARD/GWENYTH	R02-019A	9.4	
CORZINE RICHARD/GWENYTH	R02-001B	22.2	
CUSHING II JOSIAH S	R01-0270	107.4	
DAWES ROBERT T TRUST	U06-013A	3.2	Y
DAWES ROBERT T TRUST	U06-009B	9.3	Y
DELMONICO PETER A JR	R07-0190	10.8	
DERBY ROBERT F	R22-001A	10.4	
DERBY ROBERT F	U10-0440	8.4	
DUNN JUDITH V ESTATE OF	R20-0480	28.6	
EFMC ASSOCIATES LIMITED PARTNERSHIP	R02-0030	19.1	
EFMC ASSOCIATES LIMITED PARTNERSHIP	R02-0190	6.5	

EFMC ASSOCIATES LIMITED PARTNERSHIP	R02-001A	6.6	
EFMC ASSOCIATES LIMITED PARTNERSHIP	R02-0180	4.8	
FIELD FAITH B	U09-0310	12.1	Y
FIELD PEDER O	R17-0200	2.7	Y
FIELD PEDER O	U09-0330	2.7	Y
FLANNERY EDWARD W	R24-0120	5.5	
FLETCHER BRUCE	R21-0420-009A	11.5	Y
FLETCHER REALTY TRUST	R31-0030	4.3	Y
FLETCHER REALTY TRUST	R31-0060	20.7	Y
HICKS ROBERT M	R21-005B-002B	18.1	
HONEY POT HILL ORCHARDS INC	R13-0010	6.8	Y
HYDE DONALD B JR	R10-0090-0020	10.2	
J MELONE & SONS INC	R29-0700	27.9	
KENNEDY RUTH H	R31-0010	5.7	
KILLEEN ALLEN J	R18-0350-0010	2.4	
KNAPP CHRISTIAN	R07-0030-0040	12.5	
KUNELIUS MARILYN E	R31-0570	46.2	Y
LANKAU WALTER E	R12-0230	43.7	
LORD CHARLES H	R22-002B	77.8	Y
MACFARLANE DONALD J	R18-0330	5.1	
MARSHALL RICHARD E	R03-027A	11.0	
MELONE ANTHONY	R29-0670	109.4	Y
MERRILL CHRISTOPHER B TR	R08-005A	29.3	Y
MINUTE MAN AIR FIELD INC	R07-0350	115.9	Y
MINUTE MAN AIR FIELD INC	R07-0380	11.0	Y
MINUTE MAN AIR FIELD INC	R07-0300-0070	8.2	Y
MINUTE MAN AIR FIELD INC.	R07-0340	26.7	Y
MINUTE MAN REALTY CORP	R18-0220	113.4	Y
MOREY GEORGE	R31-0080	7.8	Y
MOREY GEORGE	R24-0240	2.1	
MOREY GEORGE	R31-0170	24.7	Y
MOREY GEORGE	R31-0160	5.8	Y
MOREY GEORGE	R31-0090	13.2	Y
MOREY GEORGE	R31-0140	9.3	Y
MOREY GEORGE	R31-0130	2.8	Y
MOREY GEORGE	R31-0120	9.5	Y

MOREY GEORGE	R31-0110	4.5	Y
MOREY GEORGE	R31-0100	7.5	Y
MOREY GEORGE	U07-0440	2.5	
MOSELEY PHILIP B TR	R03-0230	21.1	Y
PAGE FAMILY LIMITED PARTNERSHP	R15-0660	77.0	Y
PERKINS RICHARD F	R31-0380	4.6	
PILOT GROVE FARM INC	R21-0440	26.4	Y
PILOT GROVE FARM INC	R17-001A	15.1	Y
POULSON SETH K TR	U06-0160	3.1	
QUIRK ROBERT D	R02-0040	48.0	Y
QUIRK ROBERT D	R02-0050	22.1	
RAISANEN UOLEVI M	R29-0660	9.0	
REVERDY EDWARD E	R02-0200-0090	8.4	
RISING DONALD B	R15-0470	9.8	
RT REAL ESTATE LLC	R02-0010-0020	26.6	
RUGO MICHAEL	R10-0010-004A	5.5	
SCC ASSOCIATES INC	R11-037A	149.9	Y
SCC ASSOCIATES INC	R11-025B-0030	177.1	Y
SCHWARZKOPF DANIEL B	R06-1240	10.9	
SCHWARZKOPF DANIEL B	R05-0790	16.1	
SCHWARZKOPF DANIEL S.	R05-067A	0.7	
SMITH JEFFREY D	U09-0250	12.8	
SNOW WILLIAM J. JR	R03-0180	13.2	
SPARKS HOWARD F	R01-0230	7.0	
SPARKS HOWARD F	R01-0010	21.2	
STIDHAM JAMES B	R18-0350-0020	2.9	
STOW WOODLANDS LLC	R11-025B-0010	124.3	
STRANEY KENNETH M	R18-0340	8.0	
SUREAU JEAN-CLAUDE	R19-0100	41.9	Y
SUREAU JEAN-CLAUDE	R18-0270-0010	17.5	Y
SWEENEY CHARITABLE UNITRUST	R20-0170	0.9	Y
SWEENEY P TR COLONIAL REALTY	R20-0210	0.9	Y
SWEENEY PAUL	R20-0190	32.5	
SWEENEY PAUL	R20-0220	0.5	Y
SWEENEY PAUL	R20-0200	1.2	Y
TERVO ALBERT A	R16-0190	9.8	

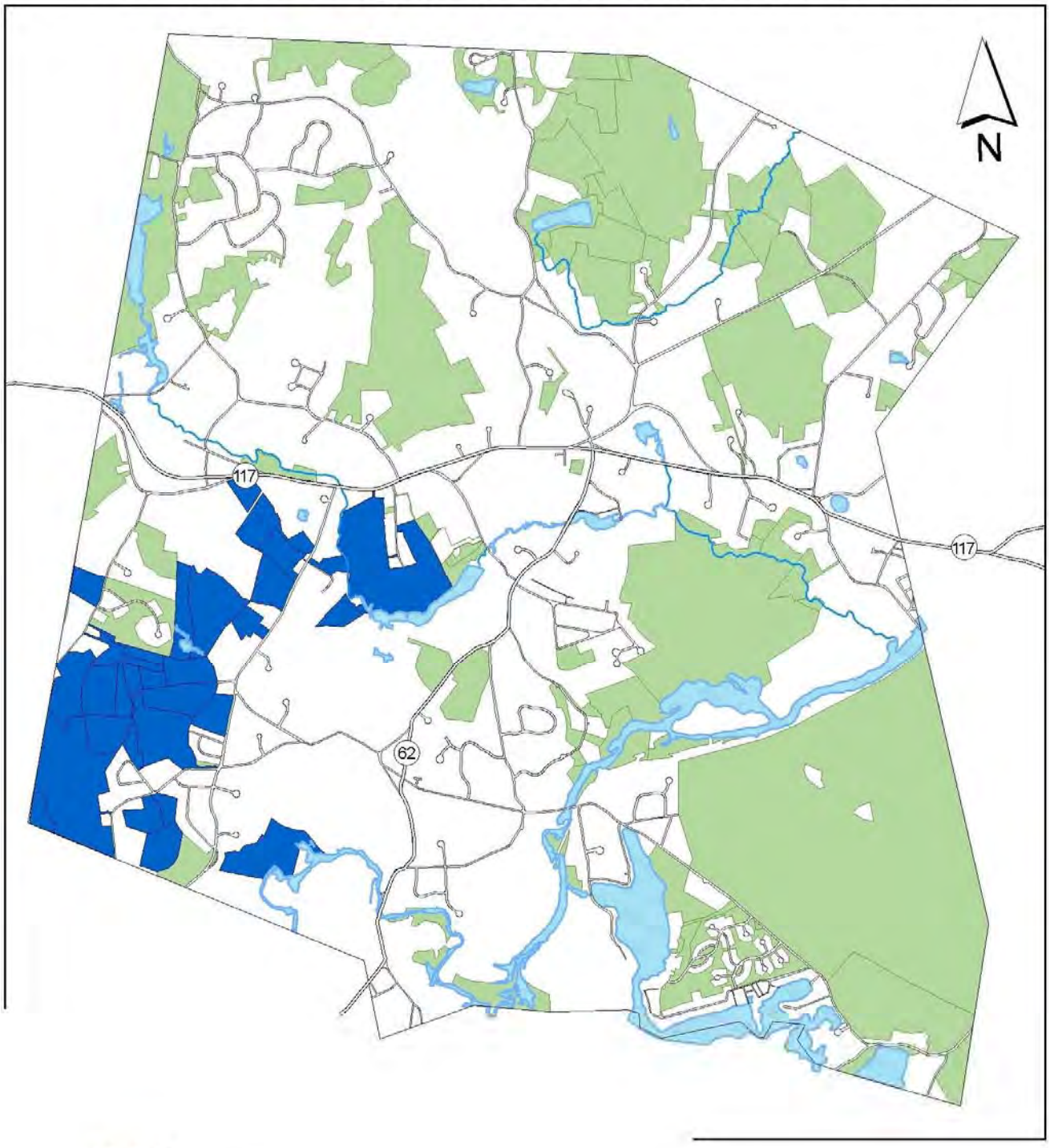
TESKA LORA E	R24-0030	11.3	
VERACKA JOANNE M TRUSTEE	R29-1110	5.5	
VONSTETTEN ERIC C	R02-0200-0130	30.9	
WARD DANIEL E/VICKI A DROMEY	R09-0990	4.9	Y
WARD DANIEL E/VICKI A DROMEY	R08-0100	27.3	Y
WARREN FRANCIS JR	R17-0010	29.2	Y
WEDGEWOOD PROPERTIES INC	R08-007A	63.0	Y


Stow - Parcels Important for Linking Protected Lands
N
117
117
62
Legend
Parcels Important for Linkage
Protected Open Space Lands
Water Bodies
0
1 Mile
Parcel data provided by the
Town of Stow, MA.
Base map features provided by MassGIS.
Map produced March 2008.

Open Space and Recreation Plan
Unprotected Parcels of Significance in the Underserved Quadrant

Owner	PARCEL_ID	Acres	Chapter
ALPHA TRUST	R02-0200-0070	7.6	
BANKS FAMILY TRUST	R01-064A	46.5	
BEDFORD BUILDERS INC	R01-0290	9.2	
CANNELLA SOPHIE P	R02-023A	12.9	
COGSWELL GEORGE R	R01-0510	6.5	
CORZINE RICHARD/GWENYTH	R02-019A	9.4	
CORZINE RICHARD/GWENYTH	R02-001B	22.2	
CUSHING II JOSIAH S	R01-0270	107.4	
EFMC ASSOCIATES LIMITED PARTNERSHIP	R02-0030	19.1	
EFMC ASSOCIATES LIMITED PARTNERSHIP	R02-0190	6.5	
EFMC ASSOCIATES LIMITED PARTNERSHIP	R02-001A	6.6	
EFMC ASSOCIATES LIMITED PARTNERSHIP	R02-0180	4.8	
GREEN FREDERICK J	R01-0240-0020	14.5	Y
LANKAU WALTER E	R12-0230	43.7	
QUIRK ROBERT D	R02-0040	48.0	Y
QUIRK ROBERT D	R02-0050	22.1	
REVERDY EDWARD E	R02-0200-0090	8.4	
RT REAL ESTATE LLC	R02-0010-0020	26.6	
RT REAL ESTATE, L.L.C.	R02-0010-0010	16.4	
SPARKS HOWARD F	R01-0230	7.0	
SPARKS HOWARD F	R01-0010	21.2	
STOW WOODLANDS LLC	R11-025B-0010	124.3	
STOW WOODLANDS LLC	R11-025B-0020	11.0	
SULLIVAN BRIAN J TR	R02-010A-0030	10.7	
TARANTO DONALD	R10-0530-0070	7.0	
TYLER ALLAN A	R03-0120	9.6	Y
VONSTETTEN ERIC C	R02-0200-0130	30.9	

Stow - Parcels of Significance in the Underserved Quadrant



Open Space and Recreation Plan
Unprotected Parcels of Surface Water and Groundwater Significance

Owner	PARCEL_ID	Acres	Chapter
ALBRIGHT ANNETTE	R23-0010	28.1	Y
ALBRIGHT ANNETTE	R24-0010	1.7	Y
ALBRIGHT ANNETTE	R23-0040	7.0	Y
ALBRIGHT ROBERT T/ANNETTE L	R23-0030	31.3	Y
ALLAIRE TIMOTHY F	R18-0350	3.6	
ALPHA TRUST	R02-0200-0070	7.6	
ANDING KENNETH L	U11-0330-0020	8.3	
ASSABET WATER COMPANY INC	R07-0040	27.3	
AVERY WILLIAM L	R08-006A	54.1	Y
BANKS FAMILY TRUST	R01-064A	46.5	
BARNES HILL TRUST	R08-0050	30.3	Y
BAWN DENNIS C	R14-0090	9.3	
BOLTON RICHARD E.	R15-048C	10.1	
BOYE DONALD J JR	R20-0260	17.3	
BURRELL MARK	R22-002A	4.8	
CACCIATORE RAYMOND J	R17-0290	44.3	Y
COLLINGS ROBERT F	R25-0170	23.9	Y
COLLINGS ROBERT F	R25-0160	33.5	Y
COLLINGS ROBERT F	U02-0540	11.6	Y
COLOSI ANTHONY L	R04-028A-0010	13.9	
COLOSI ANTHONY L	R04-0280-0020	20.5	
CORNELL LINDA S	R13-0150	13.4	
COUGHLIN JR THOMAS J	R16-0290-0110	7.1	
CUSHING II JOSIAH S	R01-0270	107.4	
DERBY ROBERT F	R22-001A	10.4	
DERBY ROBERT F	U10-0440	8.4	
DIMASI SR. DAVID A.	R12-0170-0110	18.4	
DOHERTY MICHAEL C	U07-0340	15.2	
DOW JAMES A	R04-0070	10.3	
DUNN JUDITH V ESTATE OF	R20-0480	28.6	
E T & L CONSTRUCTION	R04-0220	10.1	

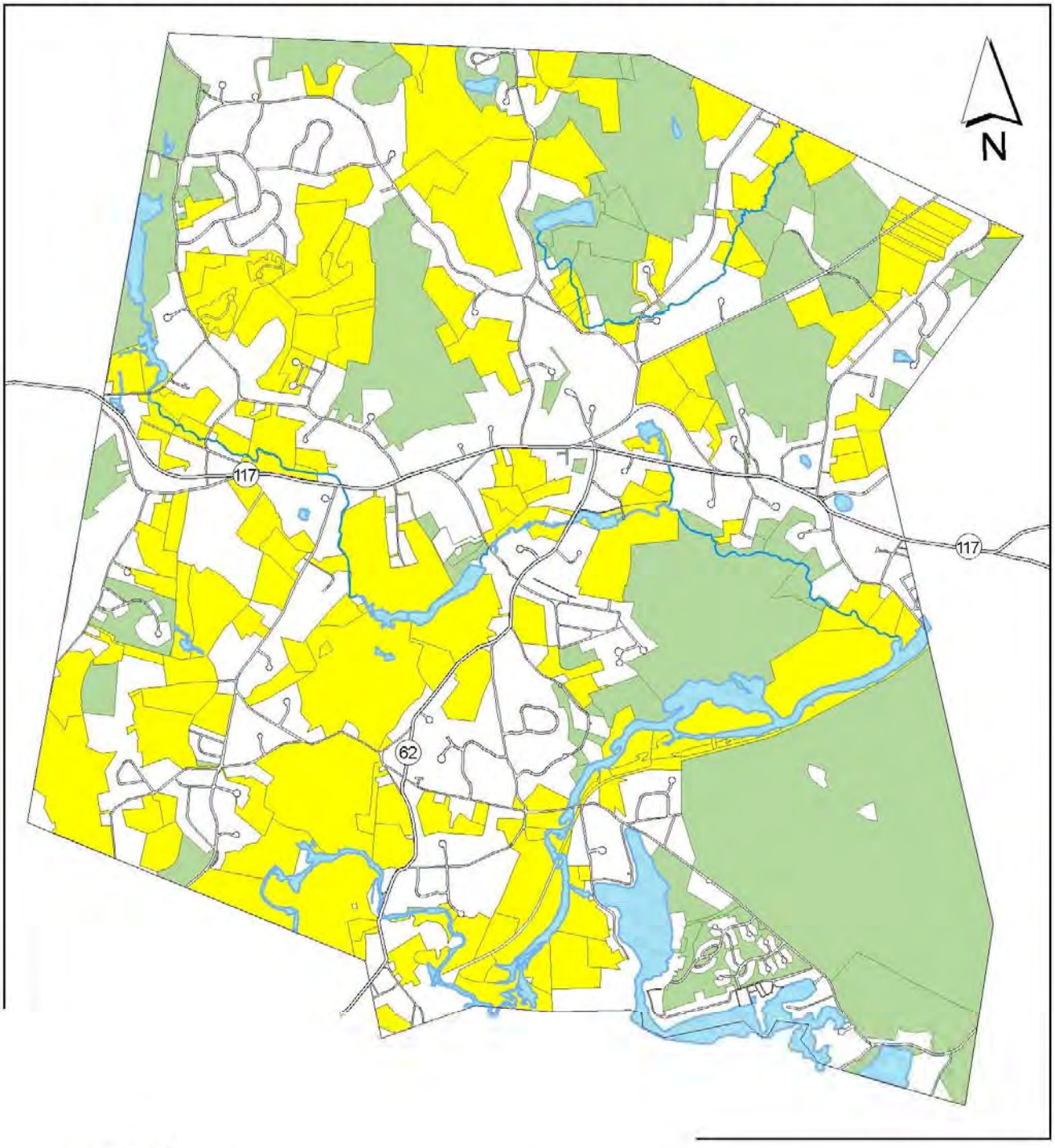
E T & L CONSTRUCTION CORP	R03-0510	11.3	
EFMC ASSOCIATES LIMITED PARTNERSHIP	R02-0030	19.1	
FITZPATRICK MALCOLM	U10-0410	2.8	
FITZPATRICK MALCOLM S R	U10-0260	8.6	
FLANNERY EDWARD W	R24-0120	5.5	
GARRITY KENNETH J	R04-0130	4.2	
GENRAD INC.	R04-0280-0010	19.7	
GREEN FREDERICK J	R01-0240-0020	14.5	Y
HAMMAR NORA T	R04-0140	6.3	
HERENE ANN J	R09-0010	13.7	
HICKS ROBERT M	R21-005B-002B	18.1	
HIGGINS A CHRISTINE	R05-0040	10.4	
HONEY POT HILL ORCHARDS INC	R14-016A	84.4	Y
HONEY POT HILL ORCHARDS INC	R13-0020	14.8	Y
HONEY POT HILL ORCHARDS INC	R13-0020	8.2	Y
HONEY POT HILL ORCHARDS INC	R14-016B	3.5	Y
HONEY POT HILL ORCHARDS, INC	R14-019A-0020	4.2	
J MELONE & SONS INC	R29-0700	27.9	
JENKINS FRANCIS J	R16-0450	11.1	
KILLEEN ALLEN J	R18-0350-0010	2.4	
KUNELIUS MARILYN E	R31-0570	46.2	Y
LANKAU WALTER E	R12-0230	43.7	
LAWRYNOWICZ WILLIAM J	R30-0670	12.9	
LAWSON TIMOTHY E	U01-0530	7.0	
LORD CHARLES H	R22-002B	77.8	Y
LSN CONSTRUCTION	R20-0310	18.7	
LUNDY MAILMAN INC	R13-0110-0080	1.0	
LUNDY MAILMAN INC	R13-0110-0070	1.1	
LUNDY MAILMAN INC	R13-0110-0060	19.7	
LYNCH JEAN H.	R21-001D	8.1	Y
MACFARLANE DONALD J	R18-0330	5.1	
MARSHALL BARBARA A.	R16-0300-0020	10.2	Y
MARSHALL RICHARD E	R03-027A	11.0	
MARTIN RICHARD S	R14-020B	22.8	Y
MCDONALD ROBERT C	R12-0050	18.6	Y
MELONE ANTHONY	R29-0670	109.4	Y

MERRILL CHRISTOPHER B TR	R08-005A	29.3	Y
MINEAR MARK M	U09-021A	7.7	
MINUTE MAN AIR FIELD INC	R07-0350	115.9	Y
MINUTE MAN AIR FIELD INC	R07-0380	11.0	Y
MINUTE MAN AIR FIELD INC.	R07-0340	26.7	Y
MINUTE MAN REALTY CORP	R18-0220	113.4	Y
MONG STEVEN R	R03-0230-0010	6.8	Y
MOREY GEORGE	R23-0050	2.6	
MOREY GEORGE	R31-0080	7.8	Y
MOREY GEORGE	R24-0240	2.1	
MOREY GEORGE	R31-0170	24.7	Y
MOREY GEORGE	R31-0160	5.8	Y
MOREY GEORGE	R31-0090	13.2	Y
MOREY GEORGE	R31-0140	9.3	Y
MOREY GEORGE	R31-0130	2.8	Y
MOREY GEORGE	R31-0120	9.5	Y
MOREY GEORGE	R31-0110	4.5	Y
MOREY GEORGE	R31-0100	7.5	Y
MOSELEY PHILIP B TR	R03-0230	21.1	Y
PAGE FAMILY LIMITED PARTNERSHP	R15-0660	77.0	Y
PERKINS EDWARD H	R12-0010	93.7	Y
PERKINS EDWARD H	U08-0030	6.3	
PERKINS EDWARD H	U08-0030-0020	4.7	
PERKINS RICHARD F	R31-0380	4.6	
PILOT GROVE FARM INC	R21-0440	26.4	Y
PILOT GROVE FARM INC	R17-001A	15.1	Y
PITT CONSTRUCTION CORPORATION	R04-0430	42.7	Y
PORCELLA ANNE D	R30-0490	16.1	Y
PORCELLA ANNE D	R30-0770	12.4	Y
PORCELLA ANNE D	U09-0180	17.8	Y
PORCELLA ANNE D	R16-030A	9.6	
PORCELLA ANNE D	R16-0460	11.7	Y
QUIRK ROBERT D	R02-0040	48.0	Y
QUIRK ROBERT D	R02-0050	22.1	
RAISANEN UOLEVI M	R29-0660	9.0	
RCI HUDSON INC	R12-0250	39.5	

REVERDY EDWARD E	R02-0200-0090	8.4	
RISING DONALD B	R15-0470	9.8	
RISING DONALD B	R15-0340	14.0	Y
ROCKBOTTOM LIMITED PTNSHP.	R12-0020	22.4	Y
RT REAL ESTATE LLC	R02-0010-0020	26.6	
RT REAL ESTATE, L.L.C.	R02-0010-0010	16.4	
SCC ASSOCIATES INC	R11-037A	149.9	Y
SCC ASSOCIATES INC	R11-025B-0030	177.1	Y
SCC ASSOCIATES INC	R11-011A	1.8	Y
SCC ASSOCIATES INC	R11-025B-0080	1.5	Y
SCHWARZKOPF DANIEL B	R06-1240	10.9	
SCHWARZKOPF DANIEL B	R05-0790	16.1	
SCHWARZKOPF DANIEL S.	R05-067A	0.7	
SHEPHERD T NATHANAEL	R04-0030	29.1	Y
SHEPHERD THOMAS R.	R09-014A	9.0	
SHEPHERD, NANCY H.	R04-002A	6.6	Y
SIPLER DWIGHT P.	R15-0750	20.6	Y
SMITH CLARK R & KAREN	R30-0590	6.7	
SNOW WILLIAM J. JR	R03-0180	13.2	
SPARKS HOWARD F	R01-0230	7.0	
SPARKS HOWARD F	R01-0010	21.2	
STIDHAM JAMES B	R18-0350-0020	2.9	
STOW WOODLANDS LLC	R11-025B-0010	124.3	
STOW WOODLANDS LLC	R11-037B	9.9	
STOW WOODLANDS LLC	R11-025B-0020	11.0	
STOW WOODLANDS LLC	R11-025B-0040	11.3	
STOW WOODLANDS LLC	R11-011B	13.6	
STRANEY KENNETH M	R18-0340	8.0	
SULLIVAN BRIAN J TR	R02-010A-0030	10.7	
SUREAU JEAN-CLAUDE	R19-0100	41.9	Y
SWEENEY PAUL	R20-0190	32.5	
TALPEY THOMAS M	R14-0080	11.5	Y
TARANTO DONALD	R10-0530-0070	7.0	
TESKA LORA E	R24-0030	11.3	
TYLER ALLAN A	R03-0120	9.6	Y
VERACKA JOANNE M TRUSTEE	R29-1110	5.5	

VONSTETTEN ERIC C	R02-0200-0130	30.9	
WARD DANIEL E/VICKI A DROMEY	R09-0990	4.9	Y
WARD DANIEL E/VICKI A DROMEY	R08-0100	27.3	Y
WARREN FRANCIS JR	R17-0010	29.2	Y
WEDGEWOOD PROPERTIES INC	R08-007A	63.0	Y
WEDGEWOOD PROPERTIES INC	R09-1000	13.0	Y
ZWIT DOUGLAS E	U07-0060-0040	8.9	Y

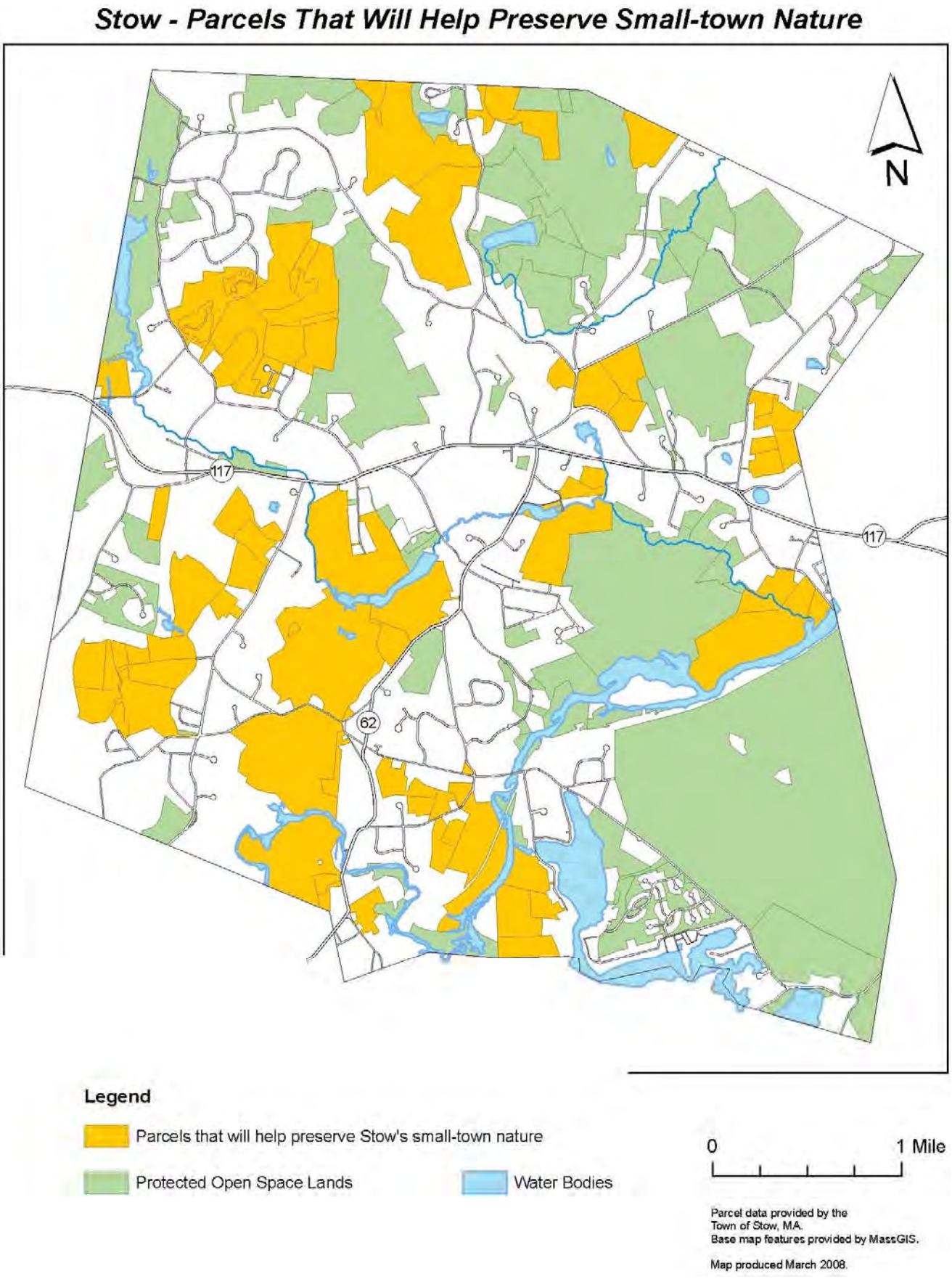
Stow - Parcels of Surface Water and Groundwater Significance



Open Space and Recreation Plan
Unprotected Parcels That Will Help Preserve Small-town Nature

Owner	PARCEL_ID	Acres	Chapter
AVERY WILLIAM L	R08-006A	54.1	Y
BANKS FAMILY TRUST	R01-064A	46.5	
BARNES HILL TRUST	R08-0050	30.3	Y
COGSWELL GEORGE R	R01-0510	6.5	
COLLINGS ROBERT F	R25-0170	23.9	Y
COLLINGS ROBERT F	R25-0160	33.5	Y
COLLINGS ROBERT F	U02-0540	11.6	Y
CORZINE RICHARD/GWENYTH	R02-019A	9.4	
CORZINE RICHARD/GWENYTH	R02-001B	22.2	
DEIGNAN L L C (Kids a Lot)	R30-046A	8.8	
DERBY ROBERT F	R22-001A	10.4	
DERBY ROBERT F	U10-0440	8.4	
DOHERTY MICHAEL C	U07-0340	15.2	
EFMC ASSOCIATES LIMITED PARTNERSHIP	R02-0030	19.1	
EFMC ASSOCIATES LIMITED PARTNERSHIP	R02-0190	6.5	
EFMC ASSOCIATES LIMITED PARTNERSHIP	R02-001A	6.6	
F & S REALTY TRUST	R04-039A	28.8	Y
GENRAD INC.	R04-0280-0010	19.7	
HONEY POT HILL ORCHARDS INC	R14-016A	84.4	Y
HONEY POT HILL ORCHARDS INC	R14-0140	8.2	Y
HONEY POT HILL ORCHARDS INC	R13-0060	14.3	Y
HONEY POT HILL ORCHARDS INC	R13-0040	7.4	Y
HONEY POT HILL ORCHARDS INC	R14-0120-0020	7.8	Y
J MELONE & SONS INC	R29-0700	27.9	
LAWRYNOWICZ WILLIAM J	R30-0670	12.9	
LORD CHARLES H	R22-002B	77.8	Y
MARTIN RICHARD S	R14-020B	22.8	Y
MAYNARD SAND & GRAVEL	R25-0130	22.0	
MELONE ANTHONY	R29-0670	109.4	Y
MERRILL CHRISTOPHER B TR	R08-005A	29.3	Y
MINUTE MAN AIR FIELD INC	R07-0350	115.9	Y
MINUTE MAN AIR FIELD INC	R07-0380	11.0	Y

MINUTE MAN REALTY CORP	R18-0220	113.4	Y
PAGE FAMILY LIMITED PARTNERSHP	R15-0660	77.0	Y
PERKINS EDWARD H	R12-0010	93.7	Y
PERKINS EDWARD H	U08-0030	6.3	
PERKINS EDWARD H	U08-0030-0020	4.7	
PILOT GROVE FARM INC	R21-0440	26.4	Y
PILOT GROVE FARM INC	R17-001A	15.1	Y
PITT CONSTRUCTION CORPORATION	R04-0430	42.7	Y
PORCELLA ANNE D	R30-0490	16.1	Y
PORCELLA ANNE D	R30-0770	12.4	Y
QUIRK ROBERT D	R02-0040	48.0	Y
RAISANEN UOLEVI M	R29-0660	9.0	
RT REAL ESTATE LLC	R02-0010-0020	26.6	
SCC ASSOCIATES INC	R11-037A	149.9	Y
SCC ASSOCIATES INC	R11-025B-0030	177.1	Y
SCC ASSOCIATES INC	R11-011A	1.8	Y
SCC ASSOCIATES INC	R11-025B-0080	1.5	Y
SMITH CLARK R & KAREN	R30-0590	6.7	
SNOW WILLIAM J. JR	R03-0180	13.2	
STOW WOODLANDS LLC	R11-025B-0010	124.3	
STOW WOODLANDS LLC	R11-037B	9.9	
SULLIVAN BRIAN J TR	R02-010A-0030	10.7	
SWEENEY PAUL	R20-0190	32.5	
WARREN FRANCIS JR	R17-0010	29.2	Y
WARREN FRANCIS JR	R17-0030	11.2	Y
WEDGEWOOD PROPERTIES INC	R08-007A	63.0	Y
WEDGEWOOD PROPERTIES INC	R09-1000	13.0	Y


Stow - Parcels That Will Help Preserve Small-town Nature
N
117
117
62
Legend
Parcels that will help preserve Stow's small-town nature
Protected Open Space Lands
Water Bodies
0
1 Mile
Parcel data provided by the
Town of Stow, MA.
Base map features provided by MassGIS.
Map produced March 2008.

Open Space and Recreation Plan
Unprotected Parcels with Wildlife Habitat Significance

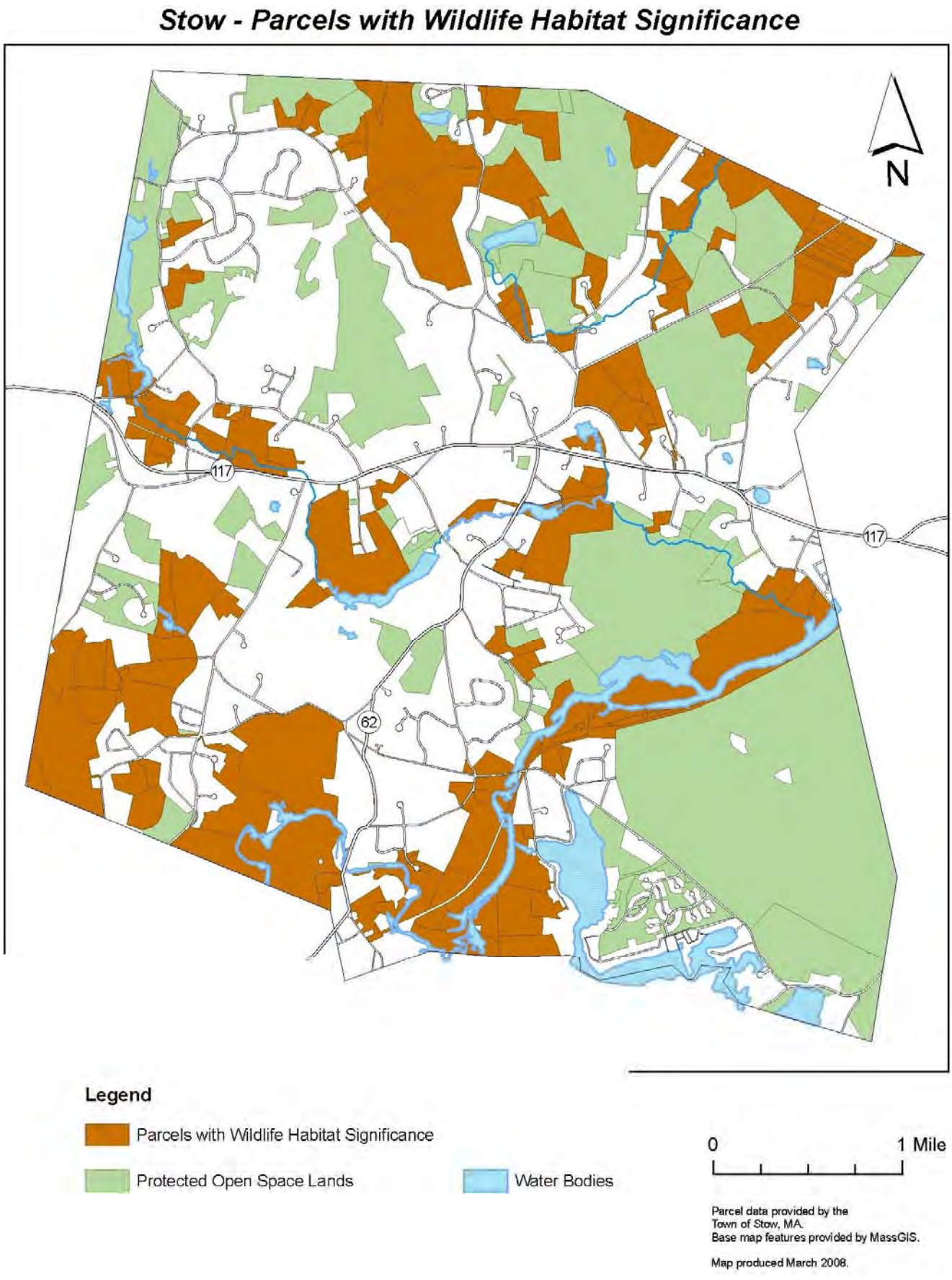
Owner	PARCEL_ID	Acres	Chapter
ALBRIGHT ANNETTE	R23-0010	28.1	Y
ALBRIGHT ANNETTE	R24-0010	1.7	Y
ALBRIGHT ANNETTE	R23-0040	7.0	Y
ALBRIGHT ROBERT T/ANNETTE L	R23-0030	31.3	Y
ALLAIRE TIMOTHY F	R18-0350	3.6	
ANDING KENNETH L	U11-0330-0020	8.3	
BANKS FAMILY TRUST	R01-064A	46.5	
BAWN DENNIS C	R14-0090	9.3	
BEDFORD BUILDERS INC	R01-0290	9.2	
BOLTON RICHARD E.	R15-048C	10.1	
BOYE DONALD J JR	R20-0260	17.3	
BURRELL MARK	R22-002A	4.8	
COLLINGS ROBERT F	R25-0170	23.9	Y
COLLINGS ROBERT F	R25-0160	33.5	Y
COLLINGS ROBERT F	U02-0540	11.6	Y
COLOSI ANTHONY L	R04-028A-0010	13.9	
COLOSI ANTHONY L	R04-0280-0020	20.5	
CONANT PETER M/ROBERTA D	U11-039C-0010	13.2	
CORNELL LINDA S	R13-0150	13.4	
CORZINE RICHARD/GWENYTH	R02-019A	9.4	
CORZINE RICHARD/GWENYTH	R02-001B	22.2	
CUSHING II JOSIAH S	R01-0270	107.4	
DELMONICO PETER A JR	R07-0190	10.8	
DERBY ROBERT F	R22-001A	10.4	
DERBY ROBERT F	U10-0440	8.4	
DIMASI SR. DAVID A.	R12-0170-0110	18.4	
DOHERTY MICHAEL C	U07-0340	15.2	
DOW JAMES A	R04-0070	10.3	
DUNN JUDITH V ESTATE OF	R20-0480	28.6	
E T & L CONSTRUCTION	R04-0220	10.1	
E T & L CONSTRUCTION CORP	R03-0510	11.3	
EFMC ASSOCIATES LIMITED PARTNERSHIP	R02-0030	19.1	

FITZPATRICK MALCOLM	U10-0410	2.8	
FITZPATRICK MALCOLM S R	U10-0260	8.6	
FLANNERY EDWARD W	R24-0120	5.5	
FLETCHER BRUCE	R21-0420-009A	11.5	Y
FLETCHER REALTY TRUST	R31-0030	4.3	Y
FLETCHER REALTY TRUST	R31-0060	20.7	Y
GARRITY KENNETH J	R04-0130	4.2	
GENRAD INC.	R04-0280-0010	19.7	
GREEN FREDERICK J	R01-0240-0020	14.5	Y
HAMMAR NORA T	R04-0140	6.3	
HERENE ANN J	R09-0010	13.7	
HICKS ROBERT M	R21-005B-002B	18.1	
HIGGINS A CHRISTINE	R05-0040	10.4	
HONEY POT HILL ORCHARDS INC	R14-016A	84.4	Y
HONEY POT HILL ORCHARDS INC	R13-0020	14.8	Y
HONEY POT HILL ORCHARDS INC	R13-0020	8.2	Y
HONEY POT HILL ORCHARDS INC	R14-016B	3.5	Y
HYDE DONALD B JR	R10-0090-0020	10.2	
J MELONE & SONS INC	R29-0700	27.9	
KENNEDY RUTH H	R31-0010	5.7	
KILLEEN ALLEN J	R18-0350-0010	2.4	
KUNELIUS MARILYN E	R31-0570	46.2	Y
LANKAU WALTER E	R12-0230	43.7	
LAWSON TIMOTHY E	U01-0530	7.0	
LORD CHARLES H	R22-002B	77.8	Y
LUNDY MAILMAN INC	R13-0110-0080	1.0	
LUNDY MAILMAN INC	R13-0110-0070	1.1	
LUNDY MAILMAN INC	R13-0110-0060	19.7	
LUNDY MAILMAN INC	R13-0110-0090	1.0	
LUNDY MAILMAN INC	R13-0110-0020	0.9	
LUNDY MAILMAN INC	R13-0110-0030	0.9	
LUNDY MAILMAN INC	R13-0110-0040	0.9	
LUNDY MAILMAN INC	R13-0110-0050	1.3	
LYNCH JEAN H.	R21-001D	8.1	Y
MACFARLANE DONALD J	R18-0330	5.1	
MARSHALL BARBARA A.	R16-0300-0020	10.2	Y

MARTIN NORMAN W	R03-0610	7.0	
MAYNARD SAND & GRAVEL	R25-0130	22.0	
MELONE ANTHONY	R29-0670	109.4	Y
MINUTE MAN AIR FIELD INC	R07-0350	115.9	Y
MINUTE MAN AIR FIELD INC	R07-0380	11.0	Y
MINUTE MAN AIR FIELD INC	R07-0300-0070	8.2	Y
MINUTE MAN AIR FIELD INC.	R07-0340	26.7	Y
MINUTE MAN REALTY CORP	R18-0220	113.4	Y
MOREY GEORGE	R23-0050	2.6	
MOREY GEORGE	R31-0080	7.8	Y
MOREY GEORGE	R24-0240	2.1	
MOREY GEORGE	R31-0170	24.7	Y
MOREY GEORGE	R31-0160	5.8	Y
MOREY GEORGE	R31-0090	13.2	Y
MOREY GEORGE	R31-0140	9.3	Y
MOREY GEORGE	R31-0130	2.8	Y
MOREY GEORGE	R31-0120	9.5	Y
MOREY GEORGE	R31-0110	4.5	Y
MOREY GEORGE	R31-0100	7.5	Y
MOURA, MARY	R13-14	0.5	
MOREY GEORGE	U07-0440	2.5	
NYHAN NANCY L	R07-0300-0060	6.5	
OWNER UNKNOWN	R24-0040	3.2	
PERKINS EDWARD H	R12-0010	93.7	Y
PERKINS EDWARD H	U08-0030	6.3	
PERKINS EDWARD H	U08-0030-0020	4.7	
PERKINS RICHARD F	R31-0380	4.6	
PILOT GROVE FARM INC	R21-0440	26.4	Y
PILOT GROVE FARM INC	R17-001A	15.1	Y
QUIRK ROBERT D	R02-0040	48.0	Y
QUIRK ROBERT D	R02-0050	22.1	
RAISANEN UOLEVI M	R29-0660	9.0	
RCI HUDSON INC	R12-0250	39.5	
RISING DONALD B	R15-0470	9.8	
RISING DONALD B	R15-0340	14.0	Y
RT REAL ESTATE LLC	R02-0010-0020	26.6	

SCC ASSOCIATES INC	R11-037A	149.9	Y
SCHWARZKOPF DANIEL B	R06-1240	10.9	
SCHWARZKOPF DANIEL B	R05-0790	16.1	
SCHWARZKOPF DANIEL S.	R05-067A	0.7	
SHEPHERD T NATHANAEL	R04-0030	29.1	Y
SHEPHERD THOMAS R.	R09-014A	9.0	
SHEPHERD, NANCY H.	R04-002A	6.6	Y
SPARKS HOWARD F	R01-0230	7.0	
SPARKS HOWARD F	R01-0010	21.2	
STIDHAM JAMES B	R18-0350-0020	2.9	
STOW WOODLANDS LLC	R11-025B-0010	124.3	
STOW WOODLANDS LLC	R11-025B-0020	11.0	
STRANEY KENNETH M	R18-0340	8.0	
SULLIVAN BRIAN J TR	R02-010A-0030	10.7	
SUREAU JEAN-CLAUDE	R19-0100	41.9	Y
SUREAU JEAN-CLAUDE	R18-0270-0010	17.5	Y
SWEENEY PAUL	R20-0190	32.5	
TALPEY THOMAS M	R14-0080	11.5	Y
TERVO ALBERT A	R16-0190	9.8	
TESKA LORA E	R24-0030	11.3	
VERACKA JOANNE M TRUSTEE	R29-1110	5.5	
VONSTETTEN ERIC C	R02-0200-0130	30.9	
WARREN FRANCIS JR	R17-0010	29.2	Y

Eastern Box Turtle


Stow - Parcels with Wildlife Habitat Significance
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Parcels with Wildlife Habitat Significance
Protected Open Space Lands
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Parcel data provided by the
Town of Stow, MA.
Base map features provided by MassGIS.
Map produced March 2008.

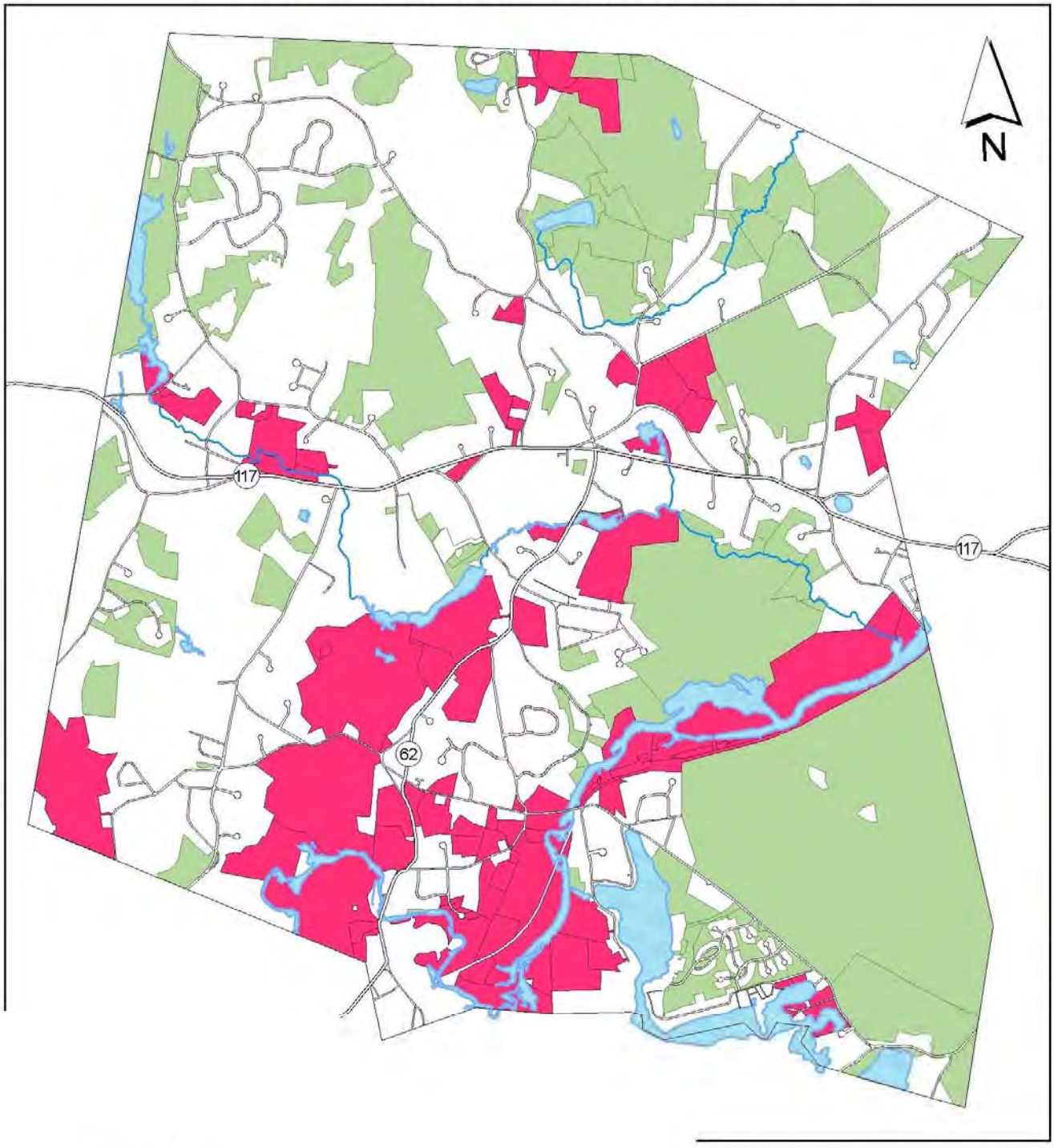
Open Space and Recreation Plan
Unprotected Parcels with Scenic Significance

Owner	PARCEL_ID	Acres	Chapter
ALBRIGHT ANNETTE	R23-0010	28.1	Y
ALBRIGHT ANNETTE	R24-0010	1.7	Y
ALBRIGHT ANNETTE	R23-0040	7.0	Y
ALBRIGHT ROBERT T/ANNETTE L	R23-0030	31.3	Y
BAILIN SARAH W	U05-002A	1.7	
BAILIN SARAH W	U05-001A	2.0	
BAWN DENNIS C	R14-0090	9.3	
BOLTON RICHARD E.	R15-048C	10.1	
COLLINGS ROBERT F	R25-0170	23.9	Y
COLLINGS ROBERT F	R25-0160	33.5	Y
COLLINGS ROBERT F	U02-0540	11.6	Y
COLOSI ANTHONY L	R04-028A-0010	13.9	
COLOSI ANTHONY L	R04-0280-0020	20.5	
CORNELL LINDA S	R13-0150	13.4	
COUGHLIN JR THOMAS J	R16-0290-0110	7.1	
CUSHING II JOSIAH S	R01-0270	107.4	
DAWES ROBERT T TRUST	U06-013A	3.2	Y
DAWES ROBERT T TRUST	U06-009B	9.3	Y
FIELD FAITH B	U09-0310	12.1	Y
FIELD PEDER O	R17-0200	2.7	Y
FIELD PEDER O	U09-0330	2.7	Y
FITZPATRICK MALCOLM	U10-0410	2.8	
FITZPATRICK MALCOLM S R	U10-0260	8.6	
FLANNERY EDWARD W	R24-0120	5.5	
FROST DERWOOD R	R15-0620	0.7	
HANGEN DONALD	R14-0210	6.9	Y
HERENE ANN J	R09-0010	13.7	
HONEY POT HILL ORCHARDS INC	R14-016A	84.4	Y
HONEY POT HILL ORCHARDS INC	R14-0140	8.2	Y
HONEY POT HILL ORCHARDS INC	R13-0060	14.3	Y

HONEY POT HILL ORCHARDS INC	R13-0040	7.4	Y
HONEY POT HILL ORCHARDS INC	R13-0020	14.8	Y
HONEY POT HILL ORCHARDS INC	R13-0020	8.2	Y
HONEY POT HILL ORCHARDS INC	R14-0180	3.2	Y
HONEY POT HILL ORCHARDS INC	R13-004A	1.6	Y
HONEY POT HILL ORCHARDS INC	R14-0120-0020	7.8	Y
HONEY POT HILL ORCHARDS INC	R14-016B	3.5	Y
LANKAU WALTER E	R12-0230	43.7	
LORD CHARLES H	R22-002B	77.8	Y
LUNDY MAILMAN INC	R13-0110-0080	1.0	
LUNDY MAILMAN INC	R13-0110-0070	1.1	
LUNDY MAILMAN INC	R13-0110-0060	19.7	
LUNDY MAILMAN INC	R13-0110-0090	1.0	
LUNDY MAILMAN INC	R13-0110-0020	0.9	
LUNDY MAILMAN INC	R13-0110-0030	0.9	
LUNDY MAILMAN INC	R13-0110-0040	0.9	
LUNDY MAILMAN INC	R13-0110-0050	1.3	
MARTIN RICHARD S	R14-0030	6.0	Y
MARTIN RICHARD S	R14-020B	22.8	Y
MCDONALD ROBERT C	R12-0050	18.6	Y
MELONE ANTHONY	R29-0670	109.4	Y
MOREY GEORGE	R23-0050	2.6	
MOURA, MARY	R13-14	0.5	
NEWMAN EDWARD E	R16-036C	5.4	
PAGE FAMILY LIMITED PARTNERSHP	R15-0660	77.0	Y
PERKINS EDWARD H	R12-0010	93.7	Y
PERKINS EDWARD H	U08-0030	6.3	
PERKINS EDWARD H	U08-0030-0020	4.7	
PILOT GROVE FARM INC	R21-0440	26.4	Y
PILOT GROVE FARM INC	R17-001A	15.1	Y
PORCELLA ANNE D	R30-0490	16.1	Y
PORCELLA ANNE D	R30-0770	12.4	Y
POULSON SETH K TR	U06-0160	3.1	
RAISANEN UOLEVI M	R29-0660	9.0	
ROCKBOTTOM LIMITED PTNSHP.	R12-0020	22.4	Y
SCC ASSOCIATES INC	R11-037A	149.9	Y

SCC ASSOCIATES INC	R11-025B-0030	177.1	Y
SCC ASSOCIATES INC	R11-011A	1.8	Y
SCC ASSOCIATES INC	R11-025B-0080	1.5	Y
SHEPHERD T NATHANAEL	R04-0030	29.1	Y
SHEPHERD THOMAS R.	R09-014A	9.0	
SHEPHERD, NANCY H.	R04-002A	6.6	Y
SIPLER DWIGHT P.	R15-0750	20.6	Y
TALPEY THOMAS M	R14-0080	11.5	Y
TESKA LORA E	R24-0030	11.3	
WARREN FRANCIS JR	R17-0010	29.2	Y
WARREN FRANCIS JR	R17-0030	11.2	Y
WEILER JUDITH	R17-0330	8.5	

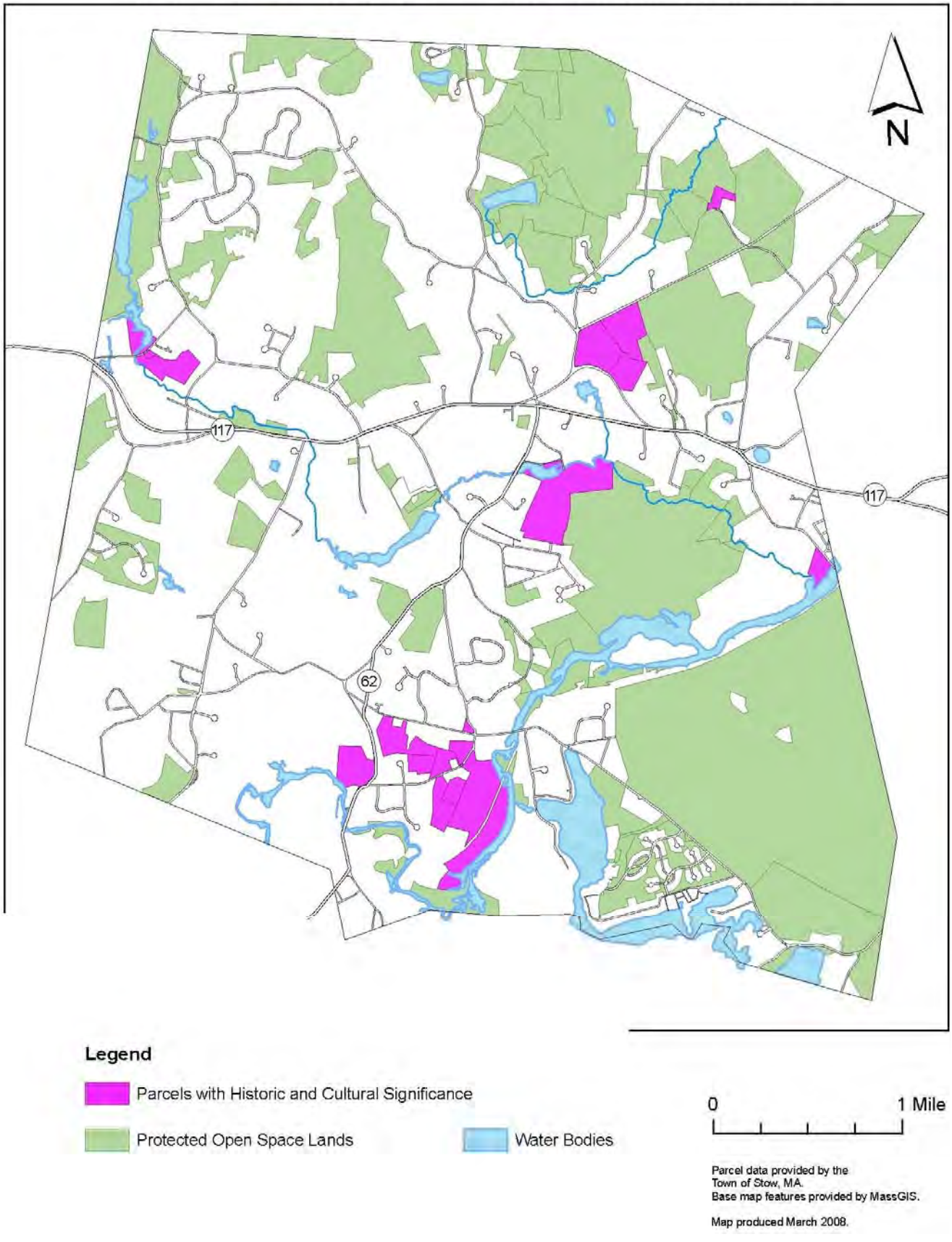
Stow - Parcels with Scenic Significance



Open Space and Recreation Plan
Unprotected Parcels with Historic and Cultural Resource Significance

Owner	PARCEL_ID	Acres	Chapter
COLOSI ANTHONY L	R04-028A-0010	13.9	
COLOSI ANTHONY L	R04-0280-0020	20.5	
HONEY POT HILL ORCHARDS INC	R14-016A	84.4	Y
HONEY POT HILL ORCHARDS INC	R14-0140	8.2	Y
HONEY POT HILL ORCHARDS INC	R13-0060	14.3	Y
HONEY POT HILL ORCHARDS INC	R13-0040	7.4	Y
HONEY POT HILL ORCHARDS INC	R14-0120-0020	7.8	Y
KENNEDY RUTH H	R31-0010	5.7	
LORD CHARLES H	R22-002B	77.8	Y
MARTIN RICHARD S	R14-020B	22.8	Y
PILOT GROVE FARM INC	R21-0440	26.4	Y
PILOT GROVE FARM INC	R17-001A	15.1	Y
RAISANEN UOLEVI M	R29-0660	9.0	
ROCKBOTTOM LIMITED PTNSHP.	R12-0020	22.4	Y
WARREN FRANCIS JR	R17-0010	29.2	Y

Stow - Parcels with Historic and Cultural Significance



Section 6

Community Vision

6A. Description of Process

The Open Space and Recreation Plan Committee was formed to update the Town's 1997 Open Space and Recreation Plan. The Committee is composed of representatives of the Conservation Commission, Open Space Committee, and private citizens. Much of the background information from the 1997 Open Space and Recreation Plan was retained and updated as needed. The needs and goals have been developed anew in response to current and projected conditions.

The Open Space Committee met in open session on numerous occasions beginning in 2003 to develop this updated plan. The findings of the Master Plan Committee's town survey and public meetings were reviewed and incorporated as appropriate. Drafts were discussed by the committee and a final draft version was prepared. Representatives of the Committee met with a wide variety of town boards to present the plan and solicit feedback. The report was circulated to numerous town boards and committees for their comments and a public forum was held in which citizen input was obtained. These comments were used to prepare the final plan.

6B. Statement of Open Space and Recreation Goals

Stow is a very special place. Despite increasing development pressures, Stow has managed to maintain a rural flavor that has been lost in most, if not all, surrounding communities along the Route 495 corridor. A wide range of agricultural products including fruit and vegetables, lamb, Christmas trees, and greenhouse and cut flowers continue to be produced in Stow and are a major element of our community's heritage and economy. Economically viable farms preserve open space and contribute in many other ways to Stow's quality of life. Many roads are lined with stone walls and there are numerous highly valued scenic vistas such as Pilot Grove Farm, Carver Hill, Lake Boon, the Assabet River, and the town's many beautiful golf courses. With only 6000 residents, Stow still has a "small town" feel – it is town where you know the people you see in the post office and in the grocery store. And where annual events such as Springfest, the Harvest Ball, Run for the Woods, and washing the fire truck are important aspects of the community's character. Other less tangible aspects of small town character prevail – the skies are still dark at night, affording excellent stargazing opportunities, and on summer afternoon, the rustling of leaves and the songs of birds are more noticeable that sirens or traffic noise.

The recent Master Plan Survey indicates that most people chose to move to Stow for what it still is, more than for what it could become. Sixty two percent of residents said that rural character (open space, farms and orchards, Lake Boon) was the main reason that they decided to live in Stow. Almost half cited "small town community" as the main reason.

At the same time, these aspects of Stow that are prized by residents also draw newcomers, making the continued growth of Stow inevitable. This reality jeopardizes the very qualities that make Stow a desirable community. One traffic light becomes two. The intersection of Rt. 62 and 117 becomes increasingly congested. It is harder to take a left turn out of your driveway. A patch of woods is subdivided for large new homes. Class sizes increase. Little by little, the sense of "elbow room" is diminished. Our demographics are also changing – with homeownership increasingly out of reach for many and those on fixed incomes struggling to keep up with rising property taxes. At the same time, there is a strong desire to maintain the existing small town character in Stow for its many benefits. Growth will continue to affect our tax base, requiring costly services such as increased police and fire

protection and additional classroom space. Protection of our important remaining open lands can maintain or enhance our quality of life and be beneficial to the town's budget in the long run.

We are used to looking at the landscape and imaging that what we are used to seeing and experiencing will always be there. Yet, build out studies that have been developed for Stow depict a future – where all of the existing unprotected open land has been developed – that seems unimaginable. Many Stow residents do not fully appreciate the magnitude of the changes that will occur with buildout or the speed with which it is likely to occur. Most communities in eastern Massachusetts are looking at a "buildout" time horizon of 5 to 15 years. The reality is that the decisions that are made within the next five to ten years will play a major role in shaping the future of Stow. To the extent that the existing build-out projections are undesirable, the town must act now to change this blueprint and to create the "green infrastructure" that will sustain this community over the long term.

This plan calls for specific actions on several fronts – ranging from active efforts to acquire or otherwise protect priority lands that are important for the nine objectives identified in this plan, to adoption of creative zoning changes to reduce and/or concentrate future development and preserve areas not suitable for development. It is clear that given the short amount of time remaining, the town needs a strong, ongoing and well-prioritized land protection effort that makes use of all of the "tools" in the toolbox – encouraging donation of land and conservation restrictions, purchasing key properties, and making use of limited development, zoning incentives and creative land protection partnerships with private organizations that can assist with raising funds. In addition, more attention needs to be given to coordinated marketing of Stow's assets – its farms, orchards, golf courses, bed and breakfasts, recreational lands, and small businesses. We should be able to purchase Stow apples in the supermarket and should encourage more visitors to consider Stow as a weekend or vacation destination. In addition, the town needs to ensure that land use and open space decisions are coordinated, so that infrastructure and capital facilities decisions support efforts to preserve important lands and do not conflict with open space priorities and so the various staff, boards and organizations involved in open space protection maximize their effectiveness. Finally, the plan looks across Stow's borders to identify key linkages with open space and greenway efforts in surrounding towns and within the region.

Section 7

Analysis of Needs

This Open Space and Recreation Plan identifies several clear open space and recreational needs for the Town of Stow for the coming five years and as it grows toward build out. The highest priority needs are discussed below, however there are additional needs that are addressed in the Action Section of this plan in Section 8.

A. Highest Priority Resource Protection Needs

1. Protection of Priority Parcels identified in this Plan

As part of the process of preparing this Open Space and Recreation Plan, GIS mapping was used to estimate the percentage of land in Stow that has been developed and protected, as well as the amount of land whose fate remains to be determined. This data indicates that approximately 30% of the land in Stow has been developed and approximately 30% of the land has been protected. This leaves the largest percentage of land in town – 40% – as potentially available for development. This high percentage of "remaining" land means both that Stow still has the potential to grow and change significantly. **Stow residents perceive that there is a lot more "open space" in town than has actually been protected. A full 70% of the land in town appears green and open, but less than half of that "perceived open space" has legal protections that ensure that it will remain that way.** Notably this includes many of the orchards, golf courses, and scenic vistas that many town residents know and take for granted. This plan identifies high priority parcels to meet a variety of community needs – maintaining our agricultural land base, water resource protection, wildlife habitat, and scenic views, among others. It also identifies those parcels where development could have the great impact on the build out of Stow. In order to maintain the balance between protected and developed land in town, the Plan calls for protection of one acre for every acre that is developed in the future. This may happen in many ways – through donations of land and conservation restrictions, purchases of land and conservation restrictions, or open space set-asides in development projects. This is as easily determined "metric" to ensure that the town stays on course with the goals of the Plan.

TYPE OF LAND	ACRES	PERCENT OF TOTAL
Protected Lands	3611	32%
Developed Lands	3247	29%
Not Developed and Not Protected	4299	39%
Total Land Area	11157	100%

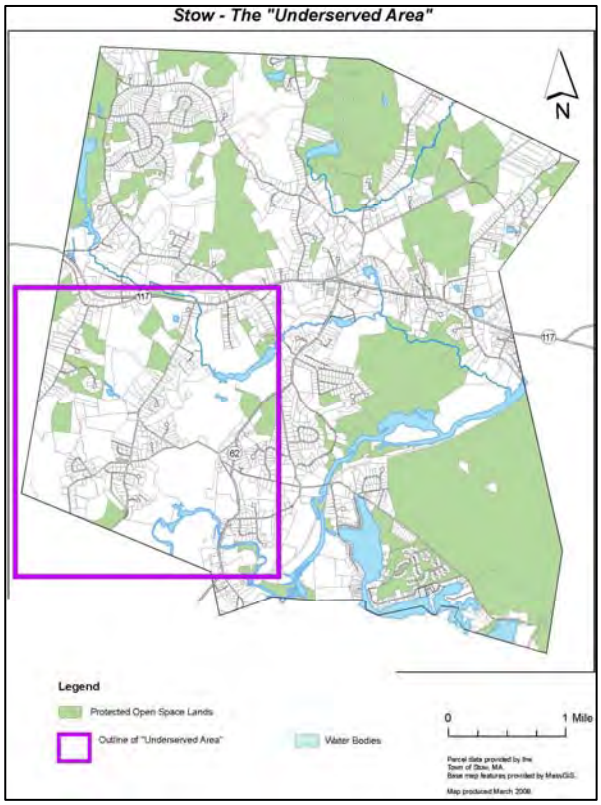
2. Protection of Stow's Agricultural Base

The farms of Stow are one of the primary components of the town's rural character and are an integral part of Stow's heritage and economy. Agricultural parcels need particular attention for protection because they generally have excellent development potential and are under heavy pressure for conversion to other uses. Much of the farmland is in orchards, which is one of the most threatened types of agriculture in the Commonwealth. The Appendix to the Plan includes a copy of the Commonwealth's Executive Order designed to protect agricultural lands from conversion to other uses, including a requirement for mitigation whenever a state permit or funding is required for a

development project on land that contains prime agricultural soils. A map of prime farmland in Stow is also contained in Section 4D of this Open Space and Recreation Plan.

3. Protection of Land in the "Underserved Area"

One area of Stow where there is very little land and a high priority for land use change is the Southwest Quadrant of town. In the area west of Hudson Road, there are approximately 600 acres of undeveloped land alone. In addition, several of the town's large golf courses are located in this area. There is also very little protected land in this area, and there have been several recent large developments. For this reason, the Plan identifies this as an important area for future open space protection – which will hopefully create at least one large open space area as well as connections between protected parcels – enabling this area to connect into Stow's "Emerald Necklace."



B. Highest Priority Community Needs

1. Active Recreational Playing Fields

As Stow has continued to grow, it has not added active recreational facilities in more than 10 years, and as a result is experiencing overuse and overcrowding in its active recreational facilities. In particular, the town is in need of additional playing fields for both formally organized soccer, baseball and other sports leagues, as well as for more informal play and pick up games. It is anticipated that this need will continue to become worse as time goes on and the population of the town expands. In 2006-2007 various user groups in town joined together to form Recreation for Stow, and worked collaboratively with the Town's Recreation Commission and Community Preservation Committee to complete a Recreation Master Plan, that examined the availability and need for recreational fields in Stow. The findings of that report included the following:

- There are virtually no fields in town for use by lacrosse, despite the rapid growth in that sport over the past two years;
- There is no adult baseball field (90 foot diamond) in Town;
- Stow accounts nearly 50% of the players on 50 teams in the Assabet Valley Little League while providing only 12% of the field useage;
- Stow Soccer has 620 participants in 45 teams and is projecting 5% growth in the next five years, forcing them to seek field space in Sudbury and Boxboro;

- Lack of resting has resulted in poor field conditions and deferred maintenance, including potential safety problems.

The Town is currently moving forward to identify and develop suitable sites for recreational fields and has recently just acquired the "Snow" property off of Old Bolton Road, which is expected to be developed to help alleviate the need for recreational fields (a portion of the land will also be maintained in active agricultural use). However, the Town will need to continue to identify and acquire suitable sites to meet the town's active recreational needs, and to secure sufficient funds for field development. The following specific needs have been identified in the Recreation Master Plan to meet current needs:

1. Additional three or four multi-purpose Fields.

   With an immediate need to remedy a deficit for soccer fields.

   - Need: 1 full size soccer field, 1-2 small size, 1 multi-purpose.

   New sports such as lacrosse may become popular. A multi-purpose field would allow this use. An extra field could also be used to spell an existing field for a 'rest' to allow for necessary short and long term maintenance.

   Sites for these fields are currently being explored and include the Snow Property off Old Bolton Road, an expansion of the current facilities at Pine Bluffs, and Crow Island, along the Assabet River.

2. Additional Baseball Field

   - Need – 1 Baseball field.

   Baseball teams are limited to the field at Center School and the Hale School adjacent to the Middle School. During anticipated school facility renovation and construction at the Center Campus, this access will be reduced. Baseball practice and play is being restricted by the lack of fields.

3. Upgrade of Tennis Facilities

   Dependent on Center-Hale School expansion/update, the Tennis Courts could be either relocated or upgraded. If the current 2 courts are maintained at their present location, the fencing will require replacement.

2. Water Access

A second recreational need that has been identified is enhanced access to both the Assabet River and Lake Boon.

- Need – Improved canoe landing and access to the Assabet River at Sudbury Road

  Currently there is informal canoe/kayak access at this site. But the site is degraded – including visible erosion to the river front, there is no formal signage or bounds marks, no usage rules, and private land is being used without formal permission as a landing and for parking. This usage should be formalized and improved.

- Need – update to existing boat ramp at Lake Boon on Sudbury Road.

Suggest formalized ownership/control, improvements to signage/parking, and possibly a invasive species inspection program.

The town's short term recreational needs are summarized below:

Need	**Detail**	**Notes**
11v11 Soccer Field	Full Size Soccer Field	Current deficit in fields
6v6 or 8v8 Soccer Fields (**2**)	Soccer Fields	Current deficit in fields
Multi-Use Athletic Field	Use by softball, lacrosse, soccer as required	An additional field.
Baseball Field	Dedicated Baseball field	Needed for current teams/use.
Tennis Courts	Update or replacement of current courts	Dependent on Center-Hale school plans.
Water Access	Add Assabet Canoe landing.	Opportunity to utilize an asset to the town.

3. Completion of Assabet River Rail Trail

The Assabet River Rail Trail is an effort to complete a 12.5 mile multi-use recreational trail that will pas through the communities of Marlborough, Hudson, Stow, Maynard and Acton, primarily using an abandoned rail bed of the former Marlborough Branch RR, which was active between 1853 and 1980. While sections of the trail are now open and receiving significant use, a large gap remains between Route 62 on the Stow/Hudson line, heading east through Stow to Maynard. A clear priority is to identify potential routes to bridge this gap, allowing the trail to pass through Stow. Additional information about the status of the Assabet River Rail Trail can be found on their web site at http://www.arrtinc.org/.

4. Completion of Stow's "Emerald Necklace"

The Stow Conservation Trust is actively working with the Town and private landowners to complete the first phase of Stow's "Emerald Necklace" – a walking path network that will connect both private and public conservation areas. Several hikes have been done in recent years to demonstrate the feasibility of this network, with just a few missing links identified that are in need of protection. Once the Necklace is complete, the Trust should consider identifying a loop that could connect the Southwest Quadrant of Stow; however this will be a long-term endeavor.

5. Creation of Accessible Conservation and Recreation Facilities

This Open Space and Recreation Plan includes an Americans with Disabilities Act (ADA) Self-Evaluation in the Appendix. The Committee evaluated each of Stow's major conservation and recreation facilities to determine the level of accessibility that exists at present for individuals with disabilities. Many of the town's facility have steep grades – for example, Marble Hill, Spindle Hill, or Flagg Hill, but several areas were identified and prioritized for follow up to explore the feasibility of improving access. It should be noted that such improvements would also help those pushing carriages or strollers. The areas with the greatest promise for improvement include:

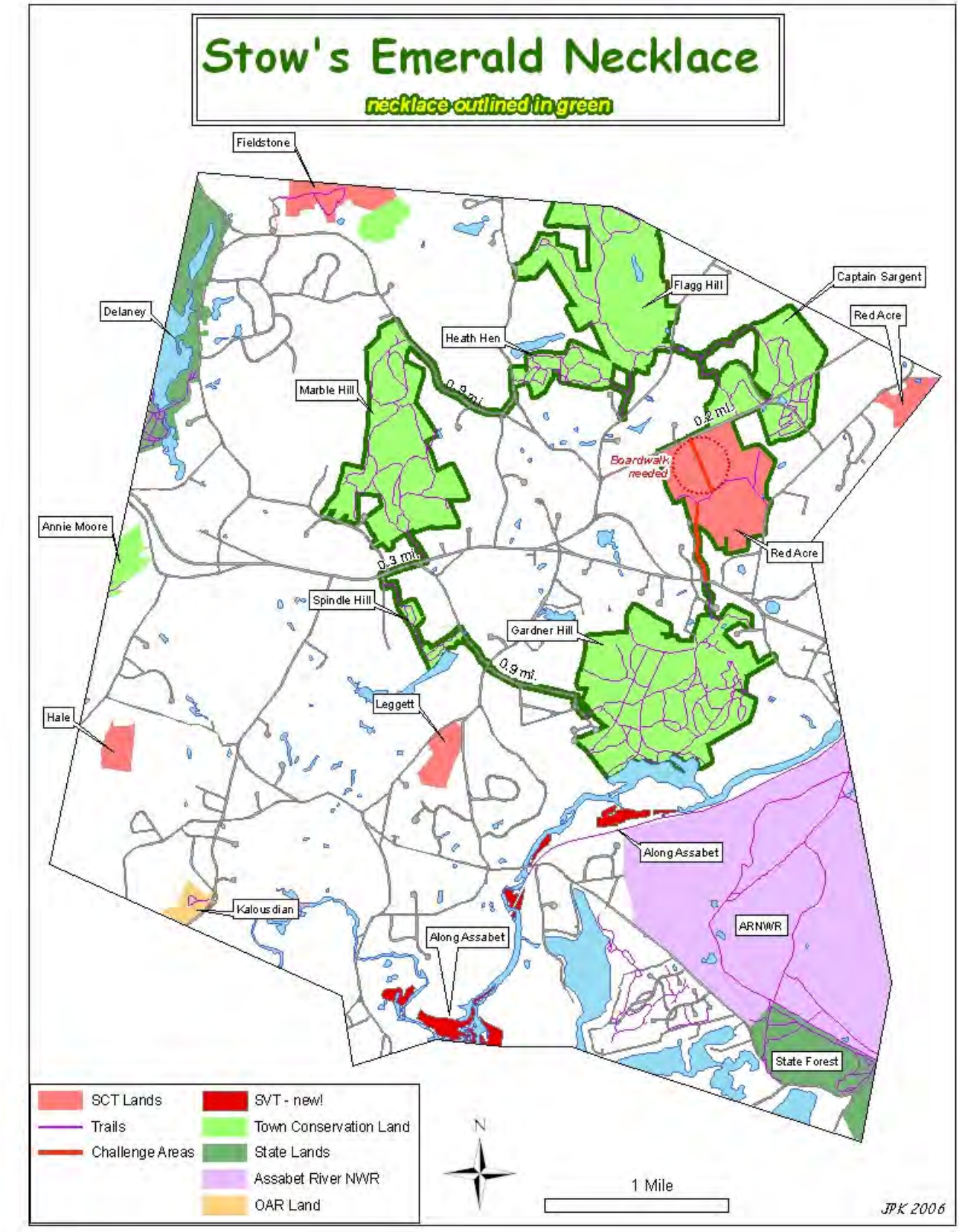
A. Pine Bluffs Recreation Area – where minor improvements would provide access to the picnic area overlooking the lake and the bathrooms.

B. Town Forest – where a one-way trail might be able to be created from the parking lot over, and then alongside the river.

C. Captain Sargent Conservation Area – where a short Loop Trail might be created from Tuttle Lane; although it will need to be designed so as to avoid conflict with ongoing agricultural use of this land.

The Plan recommends that the Conservation Commission and Recreation Commission work together to evaluate these opportunities further and design a plan for improvements, and that any new recreational field complex be designed to be accessible to people with disabilities.

Playground at Pine Bluffs/Town Beach


Stow's Emerald Necklace
necklace outlined in green
Fieldstone
Delaney
Flagg Hill
Captain Sargent
Red Acre
Heath Hen
Marble Hill
0.2 mi.
0.2 mi.
Boardwalk needed
Annie Moore
Red Acre
0.3 mi.
Spindle Hill
Gardner Hill
0.9 mi.
Leggett
Hale
Along Assabet
Kalousdian
ARNWR
Along Assabet
State Forest
SCT Lands
Trails
Challenge Areas
SVT - new!
Town Conservation Land
State Lands
Assabet River NWR
OAR Land
N
1 Mile
JPK 2006

C. Highest Priority Management Needs

1. Education Regarding the Community and Fiscal Importance of Open Space

Stow has done a good job protecting open space over the years. The community is now facing increased needs for land to meet other municipal needs that are the result of growth and development, including schools, playing fields, a senior center, affordable housing and other uses. Inevitability there are some who look to conservation land as a "free" solution to meet these needs. In addition, there remains a misperception that conservation land "costs" the town money since it does not generate tax revenue. It is hoped that this Plan will be a good first step in highlighting the continuing need to protect open space in Stow. However, the plan also recommends that there be additional community education and outreach led by the Stow Conservation Trust and Conservation Commission on these issues.

2. Improved Coordination among the various Agencies and Organizations involved in Open Space Protection

Stow is fortunate to have many organizations and agencies involved in open space protection. These include the Conservation Commission, Open Space Committee, Community Preservation Committee, Planning Board, Stow Conservation Trust, Sudbury Valley Trustees and state and federal agencies. The Plan recommends increased coordination and communication among these entities to ensure that the Town is making the most of the next ten to fifteen years – by which time most important land use decisions will have been made in Stow. The Plan recommends a variety of actions to improve coordination among various organizations and agencies involved in open space protection in Stow.

Section 8
Actions for Meeting These Needs

As a result of analysis of the information contained in this plan, the following Needs and Actions have been identified. The timetable for the completion of these actions is contained in the next section.

A. Preserve, protect and enhance Stow's open space and important natural resources using both traditional and creative open space protection tools.

Goals:

1. Protect agricultural lands to preserve and enhance Stow's agricultural base, and maintaining its viability for the long term.
2. Protect lands that provide areas for active and passive recreation including ball fields and trails.
3. Protect lands that link existing conservation holdings in Stow and surrounding communities.
4. Protect lands in areas of town currently underserved by protected open space.
5. Protect land with significant surface and groundwater resources.
6. Protect land that will preserve Stow's Small town nature.
7. Protect important natural habitats and wildlife corridors.
8. Protect important scenic vistas.
9. Protect land with significant historical or cultural resources.

Actions:

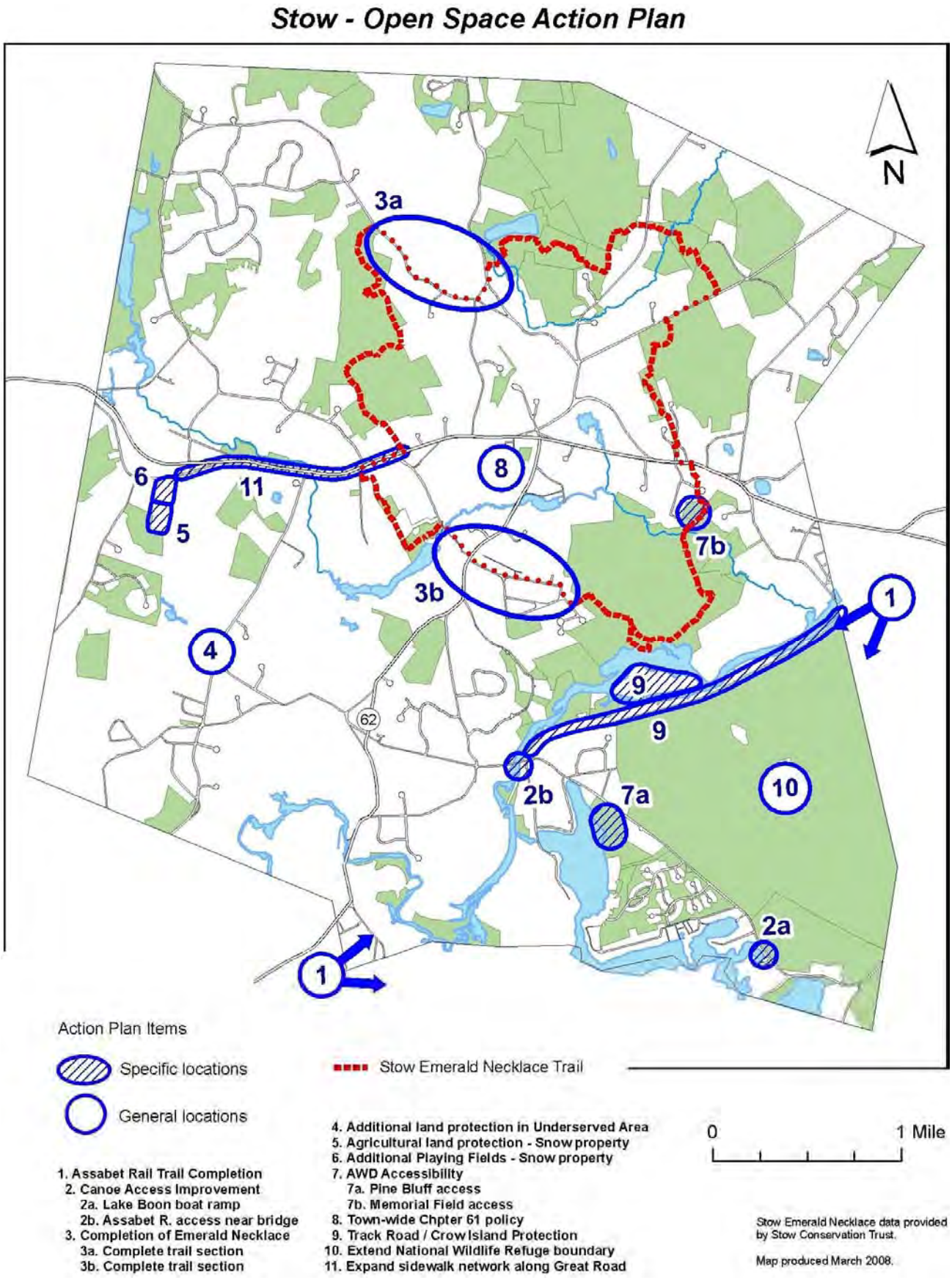
1. The Open Space Committee should continue to evaluate parcels of open land and assist the town in working proactively to protect the most important areas and in making decisions about priorities as parcels become available to the town. Consideration should be given to the factors above, as well as other elements of the existing parcel ranking methodology which is included as Appendix 1 of this report and which should be updated by the Open Space Committee. Parcel ranking should include lands in preferential tax programs as well as other priority parcels identified in this Plan.

   Responsibility: Open Space Committee *Priority: High*

2. Encourage the creation of a town committee, perhaps the Agricultural Commission, or a new nonprofit organization, possibly working in cooperation with the Stow Conservation Trust, that will focus on promoting Stow's "green" tourism potential including the promotion of local products. Consider the potential for marketing "Stow Apples" as a recognized "brand" in Massachusetts and New England markets.

   Responsibility: Board of Selectmen; Open Space Committee, Agricultural Commission, Stow Conservation Trust *Priority: High*

3. The town should complete a Scenic Resource Inventory, which highlights important landscapes and prioritizes them for protection. This Inventory should build on the scenic priorities identified in this plan and in the Freedom's Way Landscape Inventory. Special attention should be given to



Stow Open Space and Recreation Plan June 2008

small, yet visually prominent parcels along roadsides, at intersections, and along navigable waterways.

Responsibility: Historical Commission, Open Space Committee *Priority: Medium*

4. When high priority parcels are proposed for development, the Planning Board should take advantage of the provision of Section 81U of the Subdivision Control Law which allows the temporary set aside of park and open space that the town may be interested in purchasing in the future. The town should also consider adopting a bylaw which provides greater incentives for – or mandates – open space residential development on lands that have been identified as priorities in this Plan.
   Responsibility: Planning Board *Priority: Medium*

5. The Planning Board should work with the Conservation Commission to develop standard procedures for the provision of open space and conservation restrictions in conjunction with development projects and should develop a list of cases where applicants have not met their requirements to transfer land to dedicated open space and work with the landowners to complete these conveyances. A "model" conservation restriction and deed should be developed and provided to applicants.
   Responsibility: Planning Board, Conservation Commission *Priority: High*

6. The Conservation Commission should continue to seek opportunities to lease existing appropriate parcels of conservation land for agricultural purposes.
   Responsibility: Conservation Commission *Priority: Medium*

7. The town should maintain its existing Recreation-Conservation zoning, and assess the feasibility of expanding it to include important surface water resources.
   Responsibility: Planning Board *Priority: Medium*

8. The town should map important wildlife corridors and connections between protected areas and adopt a Wildlife Habitat Corridor overlay zoning district.
   Responsibility: Planning Board (bylaw), Conservation Commission (mapping) *Priority: Medium*

9. The Conservation Commission should update its wetlands regulations to create standards for bylaw provisions relative to wildlife habitat, wetland buffers and vernal pools.
   Responsibility: Conservation Commission *Priority: Medium*

10. The town should actively seek to protect land in the southwest quadrant of Stow and create a network of trail linkages in this part of town. The Planning Board should consider an overlay zone in this area that encourages or requires planned conservation development with a land conservation "master plan" for the open space designed to foster such linkages. The Open Space Committee should develop a land conservation master plan for this area.
    Responsibility: Open Space Comm., Community Preservation Comm., Planning Board, SCT *Priority: High*

11. The town should continue to encourage the use of Green Building Design and "Low Impact Development" techniques to minimize the impact of new development on natural resources, maximize groundwater recharge, and foster connectivity of wildlife habitat.

Responsibility: Planning Board, Conservation Commission *Priority: Medium*

B. Increase public use and awareness of the value and importance of Stow's open space and recreational lands through increased public access and educational forums in order to increase funding available for protection of open space and recreational lands in Stow.

Goals:

1. Educate Stow residents about the importance and fiscal benefits of open space protection.
2. Help Stow residents understand the implications of build out and the anticipated timeframe for change.
3. Maintain strong partnerships between town boards, and among boards and the Stow Conservation Trust
4. Maintain support for continued town funding (through CPA and general appropriations as needed) for protection of important parcels and continued protection and stewardship of existing conservation holdings.

Actions:

1. Advocate for continued enrollment in the Community Preservation Act and continue to demonstrate a good track record of identifying and recommending projects that address Stow's needs for open space, affordable housing, historic preservation and recreation.
   Responsibility: Community Preservation Committee *Priority: High*

2. Provide high quality, credible information to municipal leaders, civic organizations and residents about the property tax implications of various growth scenarios. Enlist the assistance of the Stow Conservation Trust in such an outreach effort where appropriate.
   Responsibility: Open Space Committee, Stow Conservation Trust *Priority: High*

3. Encourage joint affordable housing-open space projects where appropriate to the site in order to foster support for both of these important municipal needs.

   Responsibility: Community Preservation Committee, Open Space Committee, Stow Conservation Trust, Housing Partnership and/or Trust *Priority: High*

4. The town should continue to make an annual appropriation of funds to the town's conservation fund to provide seed money for land acquisitions and assist with land management and maintenance.

   Responsibility: Conservation Commission, Board of Selectmen *Priority: High*

5. The town should seek EOEA Self Help funds and other outside funds for open space projects where they are consistent with the goals of this plan.
   Responsibility: Conservation Commission, Board of Selectmen *Priority: Medium/As Needed*

6. Priority for the open space portion of CPA funds should be given to acquisition of land and rights in land and to projects that are consistent with the Open Space and Recreation Plan. Projects that leverage funds from other sources should be given additional priority.
   Responsibility: Community Preservation Committee, Board of Selectmen *Priority: High/Ongoing*

C. Better coordinate public and private efforts in order to effectively accomplish open space protection goals given the limited window of opportunity for land conservation in Stow.

Goals:

1. Improved inter-board communication on issues important to open space protection
2. Incorporation of open space values in capital project planning and siting.
3. Continue to emphasize small scale solutions to the affordable housing issue (e.g. deed restrictions on existing units, small town-sponsored projects) as an alternative to large 40B developments.

Actions:

1. The Open Space Committee, Conservation Commission, Community Preservation Committee and Stow Conservation Trust should work to build stronger and more effective working relationships and seek to employ the strengths of each body in a coordinated fashion. An Open Space Coordinating Council should be formed that is comprised of representatives from each body that will work to ensure coordination and meet as needed – perhaps twice a year.
Responsibility: Open Space Committee, Conservation Commission, Community Preservation Committee, Stow Conservation Trust *Priority: High/Year 1*

2. The Board of Selectmen and Capital Planning Committee should be proactive in working with the Open Space Committee, Planning Board, Conservation Commission and others to identify and secure sites to meet future (long-term) municipal needs.

Responsibility: Board of Selectmen; Capital Planning Committee; Planning Board, Conservation Commission *Priority: High*

3. In contemplating taking and disposition of tax title lands, the Board of Selectmen and Treasurer should consult with the Open Space Committee, Conservation Commission, Planning Board and other key municipal boards. Lands that are important for conservation should be transferred to the control of Conservation Commission; other lands important for other uses should be transferred to the control of the appropriate Town Board.

Responsibility: Board of Selectmen, Conservation Commission, Open Space Committee, Planning Board, Board of Assessors *Priority: Medium/As Needed*

4. The Planning Board and Conservation Commission should develop clear procedures for the conveyance of land to be set aside as open space as part of the development approval process. Where necessary bylaws and/or rules and regulations should be amended to make clear that the

preference for the set aside of open space should be (in order): the Town, under the custody and control of the Conservation Commission; the Stow Conservation Trust (or other private conservation organization); and only if neither are interested, a private homeowners/condominium association, provided that the land is subject to a permanent Conservation Restriction held by the Town or the Trust. Locally-adopted regulations should address timing of these conveyances and payment of due diligence costs (survey, title, etc.) should be the responsibility of the applicant.
Responsibility: Planning Board and Conservation Commission *Priority: High/Year 1 or 2*

5. The Open Space Committee should work with the Board of Selectmen to develop a formal policy for processing notices of withdrawal or sale of lands enrolled in Chapter 61, 61A and 61B that ensures that such parcels are given due consideration for municipal needs.
Responsibility: Open Space Committee/Board of Selectmen *Priority: High/Year 1*

6. Stow should consider adding additional staffing capacity in both the planning and conservation departments to focus on implementation of the actions in this plan as well as in the master plan. We have many great volunteers and staff, but given the urgency, we need additional professional planning and conservation capacity to guide us through this important period in Stow's growth.

Responsibility: Board of Selectmen; Planning Board, Conservation Comm. *Priority: Medium*

D. Provide additional opportunities for active and passive recreation

Goals

1. Provide additional playing fields to meet municipal needs
2. Encourage completion of Assabet River Rail Trail to link with Maynard and Hudson
3. Encourage completion of "Emerald Necklace trail" linking conservation areas with walking trails.
4. Provide additional public access points to Lake Boon and improve Sudbury Rd. Assabet River access.
5. Ensure that existing protected land is adequately maintained/managed
6. Enhance handicapped accessibility at selected conservation and recreation lands

Actions:

1. Complete protection of the remainder of Crow Island/Track Road for conservation and recreational purposes.
Responsibility: Board of Selectmen; Stow Conservation Trust *Priority: High*

2. Identify and secure sites for the provision of additional active recreational fields as identified in Section 7. In addition, make provision for recreational fields to accommodate future town needs within any future school site.
Responsibility: Board of Selectmen, School Building Comm, Recreation Comm *Priority: High*

3. Seek opportunities to protect additional open land around Lake Boon and to improve the boat ramp to the lake.
Responsibility: Open Space Committee, Recreation Commission *Priority: Medium*

4. Complete a more detailed evaluation of the feasibility of improving access for persons with disabilities and the conservation and recreational areas identified in Section 7. Build accessibility into any new recreational facility development.

Responsibility: Conservation Commission; Recreation Commission *Priority: High*

5. Continue to coordinate with the U.S. Fish and Wildlife Service on the review and implementation of their management plan for the Assabet River National Wildlife Refuge. Encourage expansion of the Refuge boundary to allow for important future acquisitions.
Responsibility: Board of Selectmen; Open Space Committee *Priority: Medium*

6. Identify and work to protect or secure easements over missing links in the Emerald Necklace walking trail network.
Responsibility: Stow Conservation Trust, Open Space Committee; Conservation Comm. *Priority: High*

7. Continue to expand the network of volunteers that assist with trail maintenance and land management.
Responsibility: Conservation Commission *Priority: Medium*

8. Update and improve the recreation portion of Stow's Community Preservation Plan.
Responsibility: Community Preservation Committee, Recreation Commission *Priority: Medium*

9. Continue to expand the town's sidewalk network in appropriate locations – such as an extension of the existing sidewalk westward from Harvard Road toward the Bolton line.
Responsibility: Planning Board; Highway Supervisor *Priority: Medium*

10. Improve the current Assabet River boat ramp at Sudbury Road and secure this site permanently through acquisition by the Town or conservation restriction/easement.

Responsibility: Conservation Commission; Recreation Commission *Priority: Medium*

E. Work to maintain important elements of town's rural and historic character.

Goals:

1. Maintain and enhance roadside shade trees
2. Preserve the character and integrity of Stow's winding scenic roadways
3. Preserve stone walls

Actions:

1. Identify scenic roads and support and adopt a Scenic Roads Preservation General Bylaw that limits alteration of trees and stone walls along the town's scenic roadways.
Responsibility: Planning Board, Historic Commission *Priority:Medium*

2. The town should seek to replace any shade trees that must be removed along public ways.
Responsibility: Highway Supervisor, Tree Warden *Priority:Medium*

F. Slow the pace of buildout in order to give the town more time to respond to the need to provide municipal services, protect key lands and provide additional affordable housing, and work to reduce the town's overall projected build-out by 25-50% through changes in zoning and additional land protection.

Goals:

1. Minimize the impact of additional development on Stow's winding scenic roadways to avoid proposals to widen these roadways or increase the number of traffic lights.

2. Minimize the impact on additional development on Stow's schools in order to maintain a high quality education and reduce expenditures for increases in school capacity

3. Minimize the impact of additional development on Stow's municipal infrastructure and services.

4. Maintain the current "small-scale" pattern of residential and commercial development to maintain the town's rural character.

5. Protect one additional acre of land for every additional acre that is developed in Stow to maintain the balance between developed and protected land.

Actions:

1. Consider adoption of a bylaw that would provide for a temporary annual building permit cap as needed to provide time to plan for desired growth and development.
Responsibility: Planning Board *Priority: High*

2. Consider adoption of a bylaw that would provide for submittal of a open space development plan ('cluster' or planned conservation development (PCD) plan) for developments of greater than 5 units (including ANR), with the Planning Board given the discretion to determine whether a PCD or conventional plan should be developed, given site conditions.
Responsibility: Planning Board *Priority: High*

3. Continue to investigate the feasibility of a transfer of development rights bylaw that will concentrate development in appropriate areas with infrastructure and reduce development in areas that are a high priority for conservation, as identified in this Plan. In any TDR proposal, maintain equitable distribution of density (i.e. receiving areas) within neighborhoods or sections of the community and ensure that "sending areas" are permanently protected.

Responsibility: Planning Board *Priority: Medium*

4. Ensure that any proposals to modify zoning to promote economic development, affordable housing or compact development either will minimize net increases in build out.

Responsibility: Planning Board *Priority: High/Ongoing*

5. Report annually on progess toward the 1:1 land protection to land development goal identified above. Included in the protected category should be land permanently set aside as open space through the development review process.

Responsibility: Conservation Commission & SCT *Priority: High/Ongoing*

Marble Hill Conservation Area & Pompositticut Fields, Off Rt. 117

Section 9

Five Year Action Plan

(For the full text of each action item, see the preceding section)

The following schedule represents our current estimate of the time scale of the above projects. This schedule will be controlled largely by the availability of funding and active volunteers.

Ongoing Action Items: Years 1 through 5	
Action	**Responsibility**
Work with other municipal boards and private organizations to implement the Stow Open Space and Recreation Plan.	Open Space Committee
Evaluate large parcels of open land and assist the town in working proactively to protect the most important areas and in making decisions about priorities as parcels become available.	Open Space Committee
Identify and secure sites to meet future (long-term) municipal needs	Municipal Land Use Committee (lead), Board of Selectmen, Capital Planning Committee, Planning Board, Conservation Commission, Open Space Committee
Priority for the open space portion of CPA funds should be given to acquisition of land and rights in land and to projects that are consistent with the Open Space and Recreation Plan. Projects that leverage funds from other sources should be given additional priority.	Community Preservation Committee
Encourage joint affordable housing-open space projects where appropriate to the site in order to foster support for both of these important municipal needs (in conjunction with OSC, SCT, HP)	Community Preservation Committee (lead), Open Space Committee, Stow Conservation Trust, Housing Partnership
The town should continue to make an annual appropriation of funds to the town's conservation fund to provide seed money for land acquisitions and assist with land management and maintenance.	Conservation Commission (lead); Board of Selectmen
Seek EOEA Self Help funds and other outside funds for open space projects where they are consistent with the goals of this plan.	Conservation Commission (lead); Board of Selectmen
In contemplating taking and disposition of tax title lands, the Board of Selectmen and Treasurer should consult with the Open Space Committee, Conservation Commission, Planning Board and other key municipal boards. Lands that are important for conservation should be transferred to the control of Conservation Commission; lands important for other uses should be transferred to the appropriate board.	Board of Selectmen, Town Treasurer (lead); Open Space Committee, Conservation Commission, Planning Board, Municipal Land Use Committee
Ensure that any proposals to modify zoning to promote economic development, affordable housing or compact development either will result in a reduction of overall density or are neutral with regard to Stow's overall buildout.	Planning Board (lead); Open Space Committee

Short Term Action Items: Years 1 and 2 (FY09 & FY10)	
Action	**Responsibility**
Create Open Space Coordinating Council to meet regularly to coordinate open space protection efforts; work to strengthen relationships	Open Space Committee (lead); Conservation Commission, Community Preservation Committee; Stow Conservation Trust
Develop a formal policy for processing notices of withdrawal or sale of lands enrolled in Chapter 61, 61A and 61B that ensures that such parcels are given due consideration for municipal needs.	Open Space Committee (lead); Board of Selectmen
Review and Update Parcel Ranking Methodology	Open Space Committee
Actively seek to protect land in the southwest quadrant of Stow and create a network of trail linkages in this part of town. Develop a land conservation master plan for this area.	Open Space Committee (lead); Planning Board
Provide high quality, credible information to municipal leaders, civic organizations and residents about the property tax implications of various growth scenarios.	Open Space Committee (lead); Stow Conservation Trust
Complete protection of the remainder of Crow Island/Track Road.	Stow Conservation Trust (lead); Board of Selectmen
Identify and work to protect or secure easements over missing links in the Emerald Necklace walking trail network.	Stow Conservation Trust (lead); Conservation Commission, Open Space Committee
Encourage the creation of a town committee, perhaps the newly created Agricultural Commission, or a new nonprofit organization, possibly working in cooperation with the Stow Conservation Trust, that will focus on promoting Stow's "green" tourism potential including the promotion of local products. Consider the potential for marketing "Stow Apples" as a recognized "brand" in Massachusetts and New England markets.	Open Space Committee (lead); Agricultural Commission, Stow Conservation Trust
Improve the current Assabet River boat ramp at Sudbury Road and secure this site permanently through acquisition by the Town or conservation restriction/easement.	Recreation Commission (lead); Conservation Commission, Open Space Commitee
Advocate for continued enrollment in the Community Preservation Act.	Community Preservation Committee (lead); Stow Conservation Trust, Open Space Committee
Consider an overlay zone in the Southwest quadrant of Stow that encourages or requires planned conservation development with a land conservation "master plan" for the open space designed to foster such linkages.	Planning Board (lead); Open Space Committee

Develop standard procedures for the provision of open space in conjunction with development projects and develop a list of cases where applicants have not met their requirements to transfer land to dedicated open space and work with the landowners to complete these conveyances.	Conservation Commission (lead); Planning Board
Consider adoption of a bylaw that would provide for a temporary annual building permit cap as needed to provide time to plan for desired growth and development.	Planning Board
Consider adoption of a bylaw that would provide for submittal of a open space development plan ('cluster' or planned conservation development (PCD) plan) for developments of greater than 5 units (including ANR), with the Planning Board given the discretion to determine whether a PCD or conventional plan should be developed, given site conditions.	Planning Board
Amend zoning bylaws to make clear that the order of preference for the set aside of open space and revise regulations to address timing of these conveyances and payment of due diligence costs (survey, title, etc.) by the applicant; develop regulations as needed for Ch. 41, Section 81U set-asides of park and open space land	Planning Board, Conservation Commission
Identify and secure sites to meet the town's identified need for active recreational fields. Make provision for recreational fields to accommodate a portion of future town needs within any future school site.	School Building Committee (lead); Recreation Commission, Board of Selectmen
Report annually on progess toward the 1:1 land protection to land development goal identified above. Included in the protected category should be land permanently set aside as open space through the development review process.	Open Space Committee; Stow Conservation Trust
Complete a more detailed evaluation of the feasibility of improving access for persons with disabilities and the conservation and recreational areas identified in Section 7. Build accessibility into any new recreational facility development.	Conservation Commission; Open Space Committee; Receation Commission

Mid-Term Action Items: Year 3 and 4 (FY11 & FY12)

Action	**Responsibility**
Seek opportunities to protection additional open land around Lake Boon and to improve the Lake Boon boat ramp.	Open Space Committee (lead); Conservation Commission, Community Preservation Committee
Complete a Scenic Resource Inventory.	Open Space Committee (lead); Historical Commission
Support and adopt a Scenic Roads Bylaw that limits alteration of trees and stone walls along the town's scenic roadways.	Planning Board, Historical Commission; Open Space Committee
Update and improve the recreation portion of Stow's Community Preservation Plan.	Community Preservation Committee (lead); Recreation Commission

Consider bylaw that requires PCD development when parcels identified as a priority are proposed for development	Planning Board
Seek opportunities to lease existing appropriate parcels of conservation land for agricultural purposes.	Conservation Commission
Maintain existing Recreation-Conservation zoning, and assess the feasibility of expanding it to include important surface water resources.	Planning Board
Map important wildlife corridors and connections between protected areas and adopt a Wildlife Habitat Corridor overlay zoning district.	Conservation Commission (lead -mapping); Planning Board (lead-bylaw)
Update Stow's wetlands regulations to create standards for bylaw provisions relative to wildlife habitat, wetland buffers and vernal pools.	Conservation Commission
Consider increasing planning/conservation staff to focus on implementation of the actions in this plan as well as in the master plan.	Board of Selectmen (lead); Planning Board, Conservation Commission
Continue to investigate the feasibility of a transfer of development rights bylaw that will concentrate development in appropriate areas with infrastructure and reduce development in areas that are a high priority for conservation, as identified in this Plan.	Planning Board
Continue to expand the town's sidewalk network in appropriate locations – such as an extension of the existing sidewalk westward from Harvard Road toward the Bolton line.	Planning Board (lead); Highway Dept.
Continue to coordinate with the U.S. Fish and Wildlife Service on the review and implementation of their management plan for the Assabet River National Wildlife Refuge. Encourage expansion of the Refuge boundary to allow for important future acquisitions.	Board of Selectmen (lead); Open Space Committee
Continue to expand the network of volunteers that assist with trail maintenance and land management.	Conservation Commission
The town should seek to replace any shade trees that must be removed along public ways.	Highway Supervisor, Tree Warden
Encourage the use of Green Building Design and "Low Impact Development" techniques to minimize the impact of new development on natural resources, maximize groundwater recharge, and foster connectivity of wildlife habitat	Planning Board and Conservation Commission

Long-Term Action Items - Year 5 (FY13)

Action	**Responsibility**
Complete Any Outstanding Action Items and Continue to Implement Ongoing Action Items	Responsible Party
Update Open Space and Recreation Plan	Open Space Committee (lead); Conservation Commission, Recreation Commission

Section 10

Comments from the Public and from Town Boards

As part of the process of producing an Open Space Plan, a draft of this plan was circulated to the relevant Town Boards. Copies of the draft plan were placed in the Randall Library and a public forum was held in the fall of 2006 to obtain the opinions of the public. The forum was well-attended, with a lively discussion on topics ranging from the need for additional athletic field space, to the need for more assertive open space protection efforts in Stow. Formal written comments were received from the Planning Board and Recreation Commission, as well as from about half a dozen private citizens, and have been incorporated as appropriate into the final plan.

Section 11

Resources

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IEP Water Resources Study, Town of Stow, Massachusetts, October 28, 1977
Leopold, L.B., Hydrology for Urban Land Planning, Guidebook on the Hydrologic Effects of Urban Land Use, USGS Circular 54, Washington, DC (1968)
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Open Space Planners Workbook 1990
Stow Growth Management Plan, 1988
Stow Conservation Commission annual report 1972
Stow Master Plan Survey, 1994
Stow Open Space Plans
Stow Master Plan
Stow Historical Commission Inventory, (ongoing)
Sudbury Valley Trustees, GIS layer of areas of Habitat Significance
USGS Topographic Maps, Hudson and Maynard Quadrangles, 1979
Warren, F. W., Recollections of Stow, Stow Historical Publishing Co., 1990

Appendices

A. Town of Stow Open Space Ranking Criteria

B. Freedom's Way Landscape Inventory, Stow Reconnaisance Report: List of Areas Identified

C. Accessibility Inventory and Recommendations

D. Comments submitted on Draft Plan by Public Agencies

- Commonwealth of Massachusetts, Division of Conservation Services – September 2007
- Stow Board of Selectmen
- Stow Planning Board
- Metropolitan Area Planning Commission – January 2008

E. Commonwealth of Massachusetts, Department of Food and Agriculture - Agricultural Land Mitigation Policy and Executive Order 193 – November 2001

F. Commonwealth of Massachusetts, Executive Office of Environmental Affairs – EOEA Article 97 Land Disposition Policy – February 1998

G. Opinion of the Attorney General 1973 – Article 97 Public Land Protection, Massachusetts Constitution

APPENDIX A

Evaluation Criteria for Ranking Parcels – Stow Open Space Committee

What is the Weighted Criteria Ranking System?

About a decade ago, the Stow Board of Selectmen (BOS) appointed a Open Space Prioritization Committee to help provide greater insight as to the lands in Stow most deserving of protection. Of primary interest were those properties enrolled in the preferential tax assessment programs - Chapter 61(forestry), 61A (agriculture), and 61B (open space/recreation) - as by statute the Town was granted a Right of First Refusal when these lands were proposed to be sold for development. The Open Space Prioritization Committee was asked to develop a tool to allow the community to better assess the relative importance of a given property as a Right of First Refusal arose, to enable the Town to direct its limited resources most effectively.

To accomplish that utility, the Committee developed a weighted criteria ranking system. Under this framework, points were awarded based on attributes of a property, such as habitat significance, quality of agricultural soils, scenic qualities, historical significance, linkage with existing conserved lands, development potential, and others. The weighted criteria ranking system was then used to evaluate and rank many of the properties enrolled in the chapter programs considered to be of greatest significance to the Town. Results of that exercise matched well with the community's intuitive sense of importance - validating the function of this tool. Several other communities have since employed Stow's weighted criteria system for their own use in evaluating the relative importance of specific properties. It remains a powerful tool that can be used more extensively to expand the number of parcels in Stow that have been ranked:

	Criterion for Open Space Land Evaluation	**Points Available**
1	Water Resources	**20**
	a. Site is in an aquifer zone (1977 IEP Study)	6
	b. Site is in a recharge zone (1977 IEP Study)	6
	c. Site enhances public access to water	4
	d. Preservation would contribute to protecting quality of adjacent water bodies (lakes, rivers, streams)	4
2	Agriculture	**15**
	a. Site is currently productive or has been in production within 3 years	10
	b. Site contains prime soil types	5
3	Scenic Views	**9**
	a. There is a scenic view into the site	4
	b. There is a scenic view from inside the site	3
	c. There is a scenic view across the site	2

4	Public Open Space (Fields and Forests)	**7**
	a. Site is in current OSRP	3
	b. Site is in an area underserved by conservation land	2
	c. Site will improve passive recreation opportunities	2
5	Species habitat	**8**
	a. Site is of known wildlife corridor significance	3
	b. Diversity of vegetation	2
	c. Contains uncommon flora and fauna	3
6	Preserves Town Character	**9**
	a. Features that have historically contributed to Stow's identity: farmland, fields, stone walls, architectural qualities of residential, accessory and farm buildings on site.	4
	b. Preservation would contribute to land use diversity in the area or neighborhood in which it is located (e.g. where land use change has begun to homogenize character that was formerly diverse	2
	c. Site is located on or visible from narrow winding town road(s), whether public or private ways or is traversed by or runs alongside dirt roads, cart paths, ancient ways	1
	NOTE: A maximum of 2 points total can be earned from 6d, 6e, or 6f	
	d. Preservation would contribute to maintaining the rural open space attributes of "outlying" Stow	2
	e. Presevation would contribute to retaining natural breaks between the towns' more densely developed core and rural elements along the edge.	2
	f. Preservation would or could contribute to the town's supply of civic open space areas in or near existing village center.	2
7	Links and Corridors	**9**
	a. Contiguous or near existing protected land	5
	b. Contributes to linkage with existing trails, paths, ancient ways, railroad beds, horse trails, etc.	2
	c. Acquisition would achieve consistency with town and SCORP plan in effect at the time acquisition is considered	2
8	Natural Resources	**6**
	a. Site contains water bodies (streams, ponds) and/or vegetated wetlands	4
	b. Site contains unique geologic features	2

9	Historic Preservation	**6**
	a. Site contains locally significant historic landmarks, buildings, or other features, where locally significant is recorded by the Stow Historical Society or other nonprofit	3
	b. On or eligible for property listed on the national/state register	2
	c. Site contains significant archeological resources	1
10	Municipal use	**4**
	a. Location near town center, existing services	2
	b. Development suitability	1
	c. Access to/from major road	1
11	Active Recreation	**3**
	a. Site has capacity for one or more identified recreation facilities (ballfields, ice rink, gym, pool, tennis courts, etc)	1
	b. Site contains existing developed facilities that respond to an active recreation needs	1
	c. Site is in an are of town disproportionately underserved by parks and recreation facilities	1
12	Affordable housing	**2**
	a. Site is located in an established neighborhood near town center or is within one mile of a public school facility	1
	b. Site has few or no development constraints, making affordable housing development feasible	1
13	Elderly housing	**2**
	a. Site is located near community services	1
	b. Development suitability is strong, site can support high density development	1
14	Liability	**25**
	a. Hazardous waste contamination is known	-10
	b. Hazardous waste contamination is likely based on land use history and practices	-10
	c. Estimated cost of clean up is known	5
	d. Hazardous waste contamination is unlikely	25
	e. To the extent that they are knowns, planned or probable uses of the site will expose the town to high insurance liability	-5

15	Development Potential/Impact	**25**
	500 developable acres will get the maximum of 25 points, each developable acre gets 0.05 points	
	Total	

Appendix B – Freedom's Way Landscape Inventory

Stow Reconnaisance Report: List of Areas Identified by the Town of Stow

APPENDIX: HERITAGE LANDSCAPES IDENTIFIED BY COMMUNITY

This list was generated by local participants at the Heritage Landscape Identification Meeting held in Stow on April 12, 2006 and the follow-up fieldwork on May 11, 2006. **There are undoubtedly other heritage landscapes that were not identified at the HLI meeting noted above.** The chart has two columns, the names and locations of resources are in the first; notes about resources are in the second.

Landscapes are grouped by land use category. Abbreviations used are listed below.

APR = Agricultural Preservation Restriction

CR = Conservation Restriction

LHD = Local Historic District

NR = National Register

PR = Preservation Restriction

* = Priority Landscape

+ = Part of a Priority Landscape

Agriculture

Apple Barn

Great Rd.

Stone building at the Center School used for storing apples on the Peter Larsen property before land was acquired for the school.

Applefield Farm

727 Great Rd. - Vegetable and flowers. Farm stand selling local products.

Carver Hill Orchard

Brookside Ave.

Lord family farm since the 1850s. Orchard and vegetable farm with cider mill, farm store, hiking trails.

Derby Orchard

438 Great Rd.- Orchard and farm stand with 23 varieties of apples, cider and peaches.

Honey Pot Hill

144 Sudbury Rd. - Apple orchard as well as pears and blueberries. Farm store selling products (apples, cider, etc.) and pick-your-own fruit. Sunflower display in summer is of note. Whitman House built in 1810.

One Stack Farm

441 Great Rd.- Apple orchard with 12 varieties of apples, some peaches, cider made on-site.

Packard Farm

90 Packard Rd.- The Packard House at 90 Packard Rd. sits on this 47-acre site. More than 100 years ago apple orchards lined Packard Rd. on both sides. Now houses line the road. This farm is under 61A.

Orchard Hill Farm

Rockbottom Rd. In Gleasondale. Was a mill farm that produced food for mill workers. Located on esker above Assabet River.

Pilot Grove Farm

76 Crescent St. - Northern edge of Lower Village. The Federal farmhouse was constructed in 1808 (barn

demolished). Today it is a sheep farm today.

Red Acre Farm

253 Red Acre Rd. - Northern edge of Lower Village. The farmhouse was built after 1856 and became the summer house of Harriet Bird in 1902. Later she turned it into a haven for overworked and abused horses. More recently a medical research facility and hearing dog center were part of the operation.

Shelburne Farm

106 West Acton Rd. - Was known as the Old Elm Farm with house Federal/Greek Revival house built in ca. 1800. Apple orchards since the early 1900s. There is a conservation restriction on 48.3 acres of this orchard. Farm animals, hay rides, picnic areas, and The Apple Shop.

Small Farm

184 Gleasondale Rd. - On Route 62, farm stand and pick-your-own flowers, herbs and vegetables.

Nurseries

Two nurseries, Stow Branch Nursery and Village Nursery, serve the town.

Archaeological

Conant's Sawmill Site

Archaeological site in Town Forest. The foundation of a sawmill that operated from the mid 1660s to 1830.

Native American Sites

Various locations - 26 ancient sites have been documented in Stow.

Burial Grounds and Cemeteries

Brookside Cemetery

Gleasondale Rd. - Established in 1864 at the intersection of Gleasondale and Box Mill Roads. 5.7 acres.

Hillside Cemetery

Crescent St.- Established in 1812. Small burial ground of about 1.5 acres.

Lower Village Cemetery +Pompositticut Rd.- Oldest cemetery. Laid out in 1683. 3.5 acres.

Small Pox Cemetery

Lakewood & Sudbury Rds. - Graves of those who died in the 1840'sfrom small pox.

Civic

Gleasondale *

Stow's industrial village with Gleason houses, workers houses, boarding house, mill farm (now a horse farm), mill and dam. First mill and dam built prior to 1750. In 1813 the Rock Bottom Cotton and Woolen Mill established at Randall's Mill, hence the industrial village first known as Rock Bottom. Name change in 1898 to honor mid 19th century mill owners Benjamin Gleason and Samuel Dale.

Lower Village *

Great Road - The original town center laid out in the 1680s on Great Road (now Route 117) at Red Acre, White Pond, Samuel Prescott and Pompositticut Roads. Now the commercial center. Historic houses such as Hosmer's Folly and the Minister's Manse. The first meeting house was established here.

Upper Village

Also known as Stow Center or Town Center. Became the town center with Upper Common when the meetinghouse was relocated here in order to be more centrally located within Stow's borders. Site of the fourth First Parish Church in 1827 which burned and was replaced with current First Parish Church (1848). Also site of Town Hall (1848).

Industrial

Blacksmith Shop*

Great Rd. - Located on the former Peter Larsen property, the building was moved from Maynard in 1914 and became a blacksmith shop here. Larsen kept it open into the 1950s thus it is the last blacksmith shop that was operated in Stow.

Box Mill Dam & Pond

At Carver Hill. Dam dates to 1850.

Gleasondale Mill & Dam +

In industrial village of Gleasondale. The Greek Revival mill was constructed in 1854 and the dam and canal in 1883.

Lake Boon Dam +

Built for the Assabet Mill in Maynard about 1850. Height increased in 1870's.

Institutional / Military

Center School

403 Great Rd. - Built in 1954 on property of Peter Larsen whose stone apple barn and blacksmith shop remain on the property. The Colonial Revival style school houses Grades 3-6.

Churches

First Parish (1848), the former Gleasondale Methodist-Episcopal Church (1898, 4 Marlboro Road), St. Isidore's Catholic Church (1961, 429 Great Rd.), Union Church (1905, 317 Great Road).

Fort Devens Annex

Sudbury, State & White Pond Rds.

The Annex was taken in 1942 from lands in Stow, Sudbury and Maynard. Of 2300 acres 2,½ is in Stow. It was in active military use from World War II until 1995. Now operated by U.S. Fish and Wildlife as the Assabet River National Wildlife Refuge. Many historic farms were on the property taken, some of which still stand. Also, archeological sites.

Hale School

55 Hartley Rd. - 16.6 acres. Built in 1964. Expanded in late 1990's.

John Kettell Monument

Off Maple Street. One of two earliest recorded settlers.

Matthew Boone Monument

Off Barton Rd. Boon, one of the two earliest recorded settlers, who was killed by Indians in 1676 during King Philip's War.

Pompositticut School

511 Great Rd.- A modern school building housing Grades K-2. Built in 1968.

Randall Library

19 Crescent St. - Built in 1892 in the Richardsonian Romanesque style. It was a gift from the estate of John Witt Randall by his sister, Belinda Randall. Historical Room donated in 1926 by Whitney family. There is a 1975 addition.

Stow Town Hall

Great Rd. & Crescent St. At Stow Center near the Upper Common. Greek Revival building constructed in 1848 with addition in 1895. Now used for meeting space and several town offices. The new town building (1989) is across Great Road from this town hall.

West School

Harvard Rd. - Built in 1825 on the foundation of a ca. 1739 school which was the first at this location. The brick one-room school house now is the Stow West School Museum, administered by the Stow Historical Commission.

Miscellaneous

Cairn

74 West Acton Rd.- At Shelburne Farm. According to the Historical Commission this stone cairn dates to 1640.

Stone Walls

Along roads and in woods and fields.

Natural

Herons' Nests

Part of the Delaney Project.

Open Space /Parks

Assabet Wildlife Refuge

See Ft. Devens Annex. (Known locally as the "ammunition dump.") Refuge established in 1999.

Butternut Country Club

115 Wheeler Rd. - Public golf course operated by three generations of the Page family. It was built on an old farm that grew butternut squash.

Flagg Hill Conservation Area

West Acton Rd. - 286 acres in Stow and Boxborough protected through purchase by the two towns in 1998. Has trails, vernal pools, critical habitat and wildlife.

Lions Club Field

Great Rd. at Hudson Rd.

Lower Village Common +

First town center when laid out in 1680s.

Marble Hill Conservation Area

Taylor Rd. - Town owned property of 249 acres adjacent to the Pompositticut School with parking there or on Taylor Road (north end of property). Trails. Native American archeological sites have been identified.

Pine Bluffs Recreation Area +

Sudbury Road - Town-owned 35 acres on eastern shore of Lake Boon with town beach and recreation area established in 1971 from the Parker farm and cottage rental properties. Trails

Pilot Grove Hill

Public and private ownership of land on hill. Landmark reputed to have been used historically for sighting by ships coming into Boston Harbor.

Stowaway Golf Course

White Pond Rd. - 9-hole public golf course since 1960's. Formerly Assabet Country Club in the 1920's.

Stow Acres Country Club

58 Randall Rd. - Golf course (with two 18-hole courses) and historic Randall House built by John Randall, prominent Boston physician made his home in Boston and maintained the property with ca. 1800 Georgian style country retreat. It passed through generations of Randalls to Belinda Randall, sister of John Witt Randall who died intestate. Belinda gave money to many local causes in her family's name. Circa 1920, the Randall property was purchased by Charles M. Cox, a wealthy grain merchant from Boston, who established a golf course here open to African Americans, who were unable to play elsewhere due to segregation practices. First known as Mapledale, this course hosted the first national black men's championship in 1926. Expanded to 36-holes in 1954 by Page brothers of Waltham. The clubhouse (the old Randall house) has been extensively renovated.

Town Forest

Bradley Ln. - Also known as Gardner Hill Land (324acres) purchased by the town in 1968. Near Lower Village. Was part of the C.D. Fletcher estate. Elizabeth Brook forms the northern edge. The foundation of Conant's Mill, a sawmill, is within the Town Forest as is Little Bog Trail.

Wedgewood Pines Country Club

215 Harvard Rd.- Private country club with golf course, swimming pool, large clubhouse. 154 acres. Opened in 1996.

Residential

Boaz Brown House

172 Harvard Rd.

NR First Period Thematic Nomination. One of the oldest houses in Stow, built before 1699. Brown farmed this property and ran a tavern for some time. By the mid 18 th century it was part of a 143-acre farm. In 1764 the farm was sold to Stephen Stow.

Cottage Neighborhood +

Cottage neighborhoods around Lake Boon built from 1880's to 1930's are now being stressed by development and mansionization. See Lake Boon Priority Landscape.

Hapgood House

76 Treaty Elm Ln. - NR First Period Thematic nomination. The house was constructed of ca. 1726 for Hezekiah Hapgood.

Hosmer's Folly +

4 Red Acre Rd. - The Rufus Hosmer House was built in Lower Village in ca. 1789 in the Federal style. See Lower Village Priority Landscape

Lake Boon Neighborhood *

Located in southeast corner of Stow, Lake Boon was originally a small pond. Amory Maynard of the Assabet Mill in what was to become Maynard purchased rights in mid century to make a larger pond, which was done by building a dam at Bailey's Brook. This was later raised and the mill pond expanded. After the use of waterpower was discontinued, by 1900, the lake became a summer resort area. Transportation was provided by two train lines, a trolley and a steam boat from Maynard.

Minister's Manse +

9 Red Acre Rd. - A house was constructed for the first minister in 1686. This house, usually identified as the Minister's Manse is possibly somewhat later. See Lower Village Priority Landscape.

Randall-Hale House +

6 Sudbury Rd. - NR. This ca. 1710 house was built by Abraham Randall in Gleasondale. It displays First Period construction with Georgian detail. A large New England barn is on the opposite side of Sudbury Road at the intersection with Gleasondale Road.

Whitney Homestead

485 Great Rd. - Built in ca. 1843 in the Greek Revival style it shows signs of Victorian updating. It has served as a nursing home as well as a single family residence.

Whitney House

27 Whitney Rd. - Part of Whitney Homestead land. Built ca. 1760.

Walcott-Whitney House

137 Tuttle Lane.- NR First Period Thematic nomination. First Period construction with Georgian details built in ca. 1725.

Transportation

Assabet River Rail Trail

Planned trail along the Marlborough Branch Railroad line that was in operation from 1850 to 1980.

Maple Street

In the western part of town from Bolton northeast to Old Bolton Road. Scenic qualities.

Minuteman AirField

302 Boxboro Rd. - Airport established in 1963 with its first building housing the locally known restaurant constructed in 1968. Airport was opened to the public in 1969.

Red Acre Road +

Extends from Great Road at Lower Village north to Acton. Scenic qualities. Built in 1802.

Track Road

A road on private property that is part of the old railroad bed of the Marlborough Branch Railroad. Recreational easement negotiated and signed with Town of Stow and property owner of Track Road and Crowe Island for planned Assabet River Rail Trail.

Trolley Waiting Station

Great Rd. - Stone structure built in 1916 on the Concord, Maynard and Hudson Electric Railway route.

Tuttle Lane

Picturesque country road branching northwest off of Red Acre Road.

Walcott Street

In the southwest corner of Stow running from Hudson north to Hudson Road.

Whitman Street

Rural north-south road between Gleasondale Road on the north and Boon/Sudbury Road

on the south.

Waterbodies

Assabet River *

Flows through the southeastern part of Stow from Hudson to Maynard. View of Assabet from Sudbury Road Bridge. The Assabet River originates in Westborough and flows north and then northeast for 32 miles to its confluence with the Concord River. Crowe Island is a land form that juts into the Assabet, most is privately owned. It is reached by Track Rd. Assabet River once was known as Elizabeth River, the English version of the Nipmuc name for the river. The name, Assabet, also a version of this name became the name in ca. 1850 and means in Algonquin "the place where materials for making fishnets grow." The current flow is largely processed sewage.

Delaney Project

Includes the herons' nests. The Delaney Multiple Purpose Complex of the SuAsCo Watershed Project was established in 1968 by the U.S. Soil Conservation Service to control flooding from Elizabeth Brook, through the purchase of rights to store 4,000 acre-feet of water along the brook above Delaney Pond in northwest Stow, Bolton and Harvard. The 22-foot Campbell dam was constructed as a flood control project to hold back the waters feeding the Elizabeth brook which are reported to be able to make a 12 inch difference in the Assabet River water level in Maynard during a 100-year storm.

Elizabeth Brook

Tributary of the Assabet River entering the river from the north. At one time this brook was known as Assabet Brook. At the same time the Assabet River was known as the Elizabeth River which is the English version of the Nipmuc name for the river.

Fletcher's Pond

Fed by Elizabeth Brook. A former mill pond.

Heath Hen Meadow Brook

Heath Hen Meadow Brook runs from Boxborough to Ft. Pond Brook in Acton. The brook flows through Shelburne Woodland, purchased by the town in 1997.

Lake Boon +

A Great Pond that straddles Hudson-Stow line. Once a millpond for the mills in Maynard, it is also referred to as Boon's Pond. Primary land use around perimeter is now residential with many former summer cottages. Lake has three sections connected by the Narrows and connected to the Assabet River by Bailey's Brook. Named after Matthew Boon who explored area in 1660s and was killed in King Philip's War in 1676.

Minister's Pond

North of Great Road at Stow Center. Flows south to Elizabeth Brook by manmade drainage stream built by an enterprising minister. The change created additional pasture land.

Sandy Brook

Tributary of the Assabet River.

Appendix C - ADA - Self Assessment

Program Accessibility - Facility Inventories & Transition Plans

The Stow Parks & Recreation Department and Conservation Commission make every effort to accommodate people with disabilities, physically and programmatically. The Section 504 Self-Evaluation of Stow's park, recreation and conservation land indicate that relatively few accommodations exist to provide full access to these areas for people with disabilities. The evaluation results are shown along with a transition plan for corrective action, if any.

Four of Stow's most popular park and recreational destinations are identified as the highest priority for providing universal access. The Town Forest and Memorial Field, as well as the Town Beach and Pine Bluff, offer the best opportunities to access to a full range of outdoor activities – nature study/walking, horse and bike riding, swimming, and active recreational programs. In addition, because these sites are grouped in two locations, the Town could make efficient use of design and construction funds for parking and access to improve accessibility to four destinations. Finally, the state-owned Delaney Complex also offers a great potential to provide universal access to the popular site. Relatively modest changes to the parking area and initial access to the walking paths could open the facility to use by many disabled visitors.

Section 504: Administrative Requirements

• The Town 504 Coordinator is Craig Martin, Building Inspector.

• The Personnel By-Law and Grievance Procedure is included in the Appendix to this Plan.

• Stow Town jobs are always advertised without discrimination as to age, sex, marital status, race, color, creed, national origin, handicap, veteran status, or political affiliation.

Facility name	**Town Forest (Gardner Hill Land) and Memorial Field**		
Owner/Manager	Conservation Commission and Parks & Recreation		
Location	Bradley lane		
Acreage	326		
Activity	Hiking, horseback riding, skiing, fishing, mountain biking, dog walking, active recreation		
Site Amenities	Parking area, bulletin board, emergency call box		
Transition Plan			
Barrier to Access	**Corrective Action**	**Scheduled Change**	**Authority**
No universal access from parking lot to main trails and playing field	Construct handicapped accessible gate from parking lot to trails and playing field	Hire design consultant with CPA funds in 2009	Conservation Commission; Parks and Rec; CPC
No compliant parking	Modify public parking area to include handicap spaces	Hire design consultant with CPA funds in 2009	Conservation Commission; Parks and Rec; CPC
Trails are inaccessible due to slope/grades and surfaces	Design and construct an accessible trail system on major trunk trails	Hire design consultant with CPA funds in 2009	Conservation Commission ; CPC
Note: The parking area serves both the Town Forest and Memorial Field. New handicapped parking			

spaces could serve both locations.

Facility name	**Pine Bluff and Town Beach**		
Owner/Manager	Town of Stow, Recreation Department		
Location	Off Sudbury Road		
Acreage	31		
Activity	Swimming, picnics, recreation		
Site Amenities	Beach, playground, playning fields, bathroom, parking lot		
Transition Plan			
Barrier to Access	**Corrective Action**	**Scheduled Change**	**Authority**
No universal access to beach and water	Construct handicapped accessible trail / drive from parking lot to beach	Hire design consultant with CPA funds in 2010	Parks and Rec; CPC
No compliant parking	Modify public parking area to include handicap spaces	Hire design consultant with CPA funds in 2010	Parks and Rec; CPC
No compliant bathrooms	Renovate existing or construct new accessible bathroom facilities	Hire design consultant with CPA funds in 2010	Parks and Rec; CPC

Facility name	**Delaney Complex**		
Owner/Manager	MassWildlife		
Location	Harvard Road		
Acreage	170		
Activity	Hiking, horseback riding, skiing, fishing, mountain biking, dog walking, paddling		
Site Amenities	Parking area, bulletin board, boat launch		
Transition Plan			
Barrier to Access	**Corrective Action**	**Scheduled Change**	**Authority**
No universal access from parking lot to main trails	Construct handicapped accessible gate from parking lot to trails	Request MassWildlife to modify entrance	MassWildlife
No compliant parking	Modify public parking area to include handicap spaces	Request MassWildlife to modify parking	MassWildlife
Note: MassWildlife manages the property, but it is owned by DCR for flood control purposes. Corrective action will require coordination between the two EOEEA agencies.			

Facility name	Flagg Hill (North W. Acton Rd entrance)		
Owner/Manager	Stow Conservation Commission		
Location	West Acton Road		
Acreage	243		
Activity	Hiking		
Site Amenities	Unpaved parking area		
Transition Plan			
Barrier to Access	Corrective Action	Scheduled Change	Authority
No universal access paths	None planned		

Facility name	Flagg Hill (South W. Acton Rd entrance)		
Owner/Manager	Stow Conservation Commission		
Location	West Acton Road		
Acreage	243		
Activity	Hiking		
Site Amenities	Unpaved parking area		
Transition Plan			
Barrier to Access	Corrective Action	Scheduled Change	Authority
No universal access paths	None planned		

Facility name	Flagg Hill (Boxborough entrance)		
Owner/Manager	Boxborough Conservation Commission		
Location			
Acreage	243		
Activity	Hiking		
Site Amenities			
Transition Plan			
Barrier to Access	Corrective Action	Scheduled Change	Authority
No universal access paths	None planned		

Facility name	Marble Hill Natural Area & Pompo Fields
Owner/Manager	Stow Conservation Commission, Elementary School
Location	Great Road

Acreage	249		
Activity	Hiking, active recreation		
Site Amenities	Parking lot, exercise course, playing fields		
Transition Plan			
Barrier to Access	**Corrective Action**	**Scheduled Change**	**Authority**
No universal access paths	None planned		

Facility name	**Captain Sargent Farm (Babricki Land)**		
Owner/Manager	Stow Conservation Commission		
Location	West Acton Road		
Acreage	153		
Activity	Hiking, agriculture		
Site Amenities	Parking lot		
Transition Plan			
Barrier to Access	**Corrective Action**	**Scheduled Change**	**Authority**
No universal access paths	None planned		

Facility name	**Heath Hen Meadow Woodlands**		
Owner/Manager	Stow Conservation Commission		
Location	West Acton Road		
Acreage	38		
Activity	Hiking, cross country skiing		
Site Amenities	Parking lot		
Transition Plan			
Barrier to Access	**Corrective Action**	**Scheduled Change**	**Authority**
No universal access paths	None planned		

APPENDIX D

Comments Submitted by Public Agencies

The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

Deval Patrick
GOVERNOR

Timothy Murray
LIEUTENANT GOVERNOR

Ian Bowles
SECRETARY

Tel: (617) 626-1000
Fax: (617) 626-1181

September 25, 2007

Bob Wilber
Open Space and Recreation Plan Committee
Stow Town Building
380 Great Road
Stow, MA 01775

Re: Open Space and Recreation Plan

Dear Mr. ~~Wilber~~ Bob

Thank you for submitting the draft Open Space and Recreation Plan for Stow to this office for review and compliance with the current Open Space and Recreation Plan Requirements. This plan was particularly thorough and has been conditionally approved through September 2012. Conditional approval will allow the town to participate in DCS grant rounds through September 2012, and a grant award may be offered to the town. However, no final grant payments will be made until the plan is completed.

Once the following items are addressed, your plan will receive final approval:

1. Population Characteristics – please include information on population density, family income, and industries.
2. Section 5 – this section should start with a paragraph describing why open space protection is so important. Also, a matrix of all town-owned recreation and conservation lands with columns on ownership, management agency, current use, condition, recreation potential, the type of grant (if any) used to purchase or renovate the land, public access, zoning, and degree of protection must be included.
3. Analysis of Needs – the Community Needs should include information on the SCORP (www.mass.gov/envir/dcs/global/publications.htm).
4. Letter of Review from the Chief Municipal Officer, Regional Planning Agency, and Planning Board are needed.
5. Maps – the Unique Features and Action Plan maps are missing.
6. ADA/Section 504 – This is a three-part report on municipal property under the jurisdiction of the conservation commission or park commission, and is described in the Planner's Workbook. It includes information on administrative and employment practices for the town as well. Administrative information includes formal designation of an ADA coordinator, a grievance procedure for the general public and a review of the town's employment practices. Information on employment practices can be shortened considerably if the town's ADA coordinator will send a letter stating that the town's employment practices are consistent with the ADA.

Congratulations on a great draft plan! Please contact me at (617) 626-1171 or melissa.cryan@state.ma.us if you have any questions or concerns, and I look forward to reviewing your final plan.

Sincerely,

Melissa Cryan
Grants Manager

cc: Board of Selectmen
Conservation Commission
Recreation Department

Town of Stow
BOARD OF SELECTMEN
Stow Town Building
380 Great Road
Stow, Massachusetts 01775
(978) 897-4515 selectmen@stow-ma.gov Fax (978) 897-4631

Kathy Sferra
Chair, Open Space Committee
Stow Town Building
380 Great Road
Stow, MA 01775

Dear Kathy:

Thank you for providing copies of the new Open Space and Recreation Plan to the Selectman. We have reviewed the document. It contains a wealth of information and sound recommendations for land management in Stow. As such, the Plan will be an important resource for many boards and committees, and especially for the new Land Use Task Force.

I understand that the Executive Office of Energy and Environmental Affairs has given conditional approval of the plan. As a result, the town will be able to compete for grants through 2012.

The plan reflects a great deal of hard work. We extend our appreciation to you and the other members of the team who contributed to the project.

Sincerely,

Tom Ruggeri

Stow Board of Selectman

NOV-18-2006 03:49PM FROM-MASS AUDUBON +1 781 259 1040 T-372 P.001/003 F-958

Planning Board
380 Great Road
Stow, MA 01775
Tel: 978-897-5098
Fax: 978-897-2321

Town of Stow

Memo

To: Open Space Committee

From: Planning Board

Date: November 2, 2006

Re: Draft Open Space and Recreation Plan

At its meeting of October 17, 2006, the Planning Board reviewed the Short Term Action Items and Five Year Action Plan listed in the Draft Open Space and Recreation Plan. Please note that the Planning Board's recommendations listed below also apply to the Actions listed in Section 7.

The Stow Open Lands Map and Table titled "Land Protected by Conservation Restrictions and Agricultural Preservation Restrictions" should show the Golf Course Conservation Restriction areas, the State Forest and the trail connection from Lanes End and Great Road.

Short Term and Five Year Action Plan

Page 96 – 8th Action item: Members noted that this Action item should speak to all types of municipal uses rather than only conservation, and agreed to recommend an amendment to the last sentence of this action item to read as follows:
~~Lands that are important for conservation should be transferred to the control of Conservation Commission~~. Lands that are deemed important to the Town should be transferred to the appropriate Town Board for control.

***Page 96, 9th Acton item*:** Members are concerned about the need to offset other needs such as affordable housing and agreed to recommend an amendment to this action item to read as follows:
Ensure that any proposals to modify zoning to promote economic development, affordable housing or compact development ~~either~~ will ~~result in a reduction of overall density or are density neutral with regard to Stow's overall buildout~~ minimize density.

Page 97, 10th Action Item – Members are concerned that a planned conservation development plan is not the best option in all cases and agreed to recommend an amendment to this action item to read as follows:

~~Consider an overlay zone~~ Shape proposed developments in the southwest quadrant of Stow that ~~requires planned conservation development with~~ supports a land conservation 'master Plan' for the open space designed to foster such linkages.

Page 97, 12th Action Item – Members noted that Stow currently has a Phased Growth bylaw and is concerned that case law does not support any further restriction. Therefore, the Planning Board recommends this action item be deleted.

Page 98, 1st Action Item – Members discussed the fact that this action item is consistent with the Board's current policy. However, it is not legal to mandate a Special Permit. Therefore, the Board agreed to recommend an amendment to this action item to read as follows:

~~Consider adoption of a bylaw that would provide for~~ Continue the Planning Board's policy to encourage submittal of ~~an open space development plan ("cluster" or~~ planned conservation development (PCD) plan) for all developments ~~of greater than 5 units (including AN), with the Planning Board given the discretion to determine whether a PCD or conventional plan should be developed, given~~ provided that the site conditions are appropriate.

Page 98, 2nd Action Item – Members noted that it is current policy to require that conveyances and payment of due diligence costs are borne by the developer. Members also agreed that this action item is more appropriate for an amendment to Rules and Regulations rather than the Zoning Bylaw and agreed to recommend amendment to this action item to read as follows:

Amend ~~zoning bylaws~~ rules and regulations to make clear that the order of preference for the set aside of open space and ~~revise regulations to~~ address time of these conveyances, and that payment of due diligence costs (survey, title etc.) shall be the responsibility of ~~by~~ the applicant.

Page 98, 5th Action Item – Members agreed that the Planning Board should be removed from the list of responsible parties.

Page 98, 6th Action Item – Although the Members are concerned about monitoring and enforcement, it was agreed to recommend an amendment to this action item to read as follows:

~~Identify scenic roads~~ Support and adopt a Scenic Roads Preservation General Bylaw that limits alteration of trees and stonewalls along the Town's scenic roadways.

Members also agreed to recommend that the Planning Board be removed form the list of responsible parties and that the Board of Selectmen be designated as the lead.

Page 98, 8th Action Item – Members agreed to recommend an amendment to this action item to read as follows:

~~Consider bylaw that requires~~ Encourage PCD development when parcels identified as a priority are proposed for development.

Page 98, Insert new Action Item between the 9th and 10th action items. Members agreed to add a new action item to read as follows:

Identify important water surface resources. – Responsibility: Conservation Commission

Page 98, 11th Action Item – Members agreed to recommend that this action item be listed as two separate action items to read as follows:

Map important wildlife corridors and connections between protected areas. – Responsibility: Conservation Commission

Adopt a Wildlife Habitat Corridor Overlay Zoning District. – Responsibility: Planning Board

Page 98, 13th Action Item – Members are not sure what this means? Staffing? Consultant?

Page 98, 14th Action item – Members agreed that this action item (Transfer of Development Rights) should be a low priority at this time. Such a bylaw is not feasible unless and until the Town identifies an appropriate receiving area with infrastructure in place.

Metropolitan Area Planning Council
60 Temple Place, Boston, Massachusetts 02111 617-451-2770 fax 617-482-7185 www.mapc.org
Serving 101 cities and towns in metropolitan Boston

January 9, 2008

Kathy Sferra, Chair
Stow Open Space Committee
Stow Conservation Commission
Town Hall
Stow, MA 01775

Dear Ms. Sferra:

The Metropolitan Area Planning Council has reviewed the Stow Open Space and Recreation Plan dated July 2007- Final Draft. The plan is well-written and thorough and appears to meet the guidelines of the Division of Conservation Services. I am pleased to see that Stows' participation in MAGIC is noted and that the plan takes into consideration the many inter-community and regional open space initiatives in the subregion.

This thorough plan should serve the Town well as it continues to protect open space in the future.

Thank you for the opportunity to review this plan.

Sincerely,

Marc D. Draisen
Executive Director

Cc: Melissa Cryan, Division of Conservation Services
Donna Jacobs, MAPC Representative, Town of Stow

APPENDIX E

Executive Order 193 and Agricultural Land Mitigation Policy

General Laws of the Commonwealth of Massachusetts
Mass. Executive Order #193
By His Excellency EDWARD J. KING
Governor
PRESERVATION OF STATE OWNED AGRICULTURAL LAND

Preamble

Agricultural land In Massachusetts is a finite natural resource that is threatened by competing land use pressure.

The natural resource qualities associated with agricultural land make state owned agricultural land an irreplaceable economic and environmental asset when utilized for food production. This land is part of the "common wealth" of Massachusetts citizens, and the wise use and conservation of state-owned agricultural land is of broad public value. As the loss of private agricultural land in the Commonwealth continues, the state-owned land will play an increasingly important role for the state's remaining farmers and young people who wish to enter farming. As the state-owned agricultural land decline in productivity and efficient utilization, so does the maximum return of benefit to the citizens, of the Commonwealth.

Furthermore, the loss of agricultural land has had a detrimental affect upon environment quality. Agricultural land reduces flooding by effectively absorbing precipitation, while replenishing critical ground water supplies. The open characteristic and natural vegetation of agricultural land helps purify the air; enhances wildlife habitat; provides for recreation; and maintains the landscape's aesthetic and historic quality. Therefore, it is essential to ensure that the Commonwealth's agricultural land remains available for present and future generations.

WHEREAS, the Commonwealth seeks to preserve the productive agricultural land base on which the Massachusetts agricultural industry and the people of the Commonwealth depend; and

WHEREAS, state acquisition programs administered by the Department of Environmental Affairs, pursuant to G.L.c. 132 A, secs 11A-11E and G.L.c. 184 secs 31-33, promote the preservation of private agricultural land; and

WHEREAS, it is the policy of the Executive Department of the Commonwealth of Massachusetts to protect, through the administration of current programs and laws, the Commonwealth's agricultural land base from irreversible conversion to uses which result in its loss as an essential food production and environmental resource;

NOW THEREFORE, I, Edward J. King, Governor of the Commonwealth of Massachusetts, by virtue of the authority vested in me by the Constitution and laws of the Commonwealth, do hereby order and direct all relevant state agencies to seek to mitigate against the conversion of state-owned agricultural land and adopt
the policies herewith:

1. State funds and federal grants administered by the state shall not be used to encourage the conversion of agricultural land to other uses when feasible alternatives are available.

2. State Agency actions shall encourage the protection of state-owned agricultural land by mitigating against the conversion of state-owned land to non-agricultural uses, and by promoting soil and water conservation practices.

3. The Secretary of Environmental Affairs shall identify state-owned land suitable for agricultural use according to the following criteria:

a. the presence of soil types capable of supporting or contributing to present or potential commercial agriculture

b. current and historic use for agriculture, and

c. absence of non-farm development.

4. State Agencies controlling state-owned land suitable for agricultural use shall coordinate agricultural land management policv with the Executive Office of Environmental Affairs. In managing said land, State Agencies shall be encouraged to allow for use on a multiple year basis for forage and food crops.

5. Surplus state-owned land, identified as suitable for agriculture by the Secretary of Environmental Affairs, shall remain available for agriculture when compatible with state agency objectives.

6. For purposes of this Executive Order, "agricultural land" shall be defined as land classified Prime, Unique, or of State and Local Importance by the USDA Soil Conservation Service, as well as land characterized by active agricultural use.

7. For the purposes of this Executive Order, "state-owned land" shall be defined as:

a. all land under the custody or control of a state agency,

b. all lands purchased in whole or in part with state funds or federal funds administered by the state.

Given at the Executive Chamber in Boston this 19th day of March in the year of our Lord one thousand nine hundred and eighty one and of the Independence of the United States of American two-hundred and five

Edward J. King Governor, Commonwealth of Massachusetts

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF FOOD AND AGRICULTURE
LANCASTER FIELD OFFICE
142 OLD COMMON ROAD, LANCASTER, MA 01523 (508) 792-7711 FAX: (978) 365-2131

JANE SWIFT
Governor

BOB DURAND
Secretary

JONATHAN L. HEALY
Commissioner

AGRICULTURAL LAND MITIGATION POLICY

I. INTRODUCTION & STATEMENT OF POLICY

Article 97 of the Massachusetts Constitution guarantees the right of residents of the Commonwealth to the conservation, development and utilization of agricultural land. Protection of this right is declared to be a public purpose by Article 97. Pursuant to this mandate, therefore, it is the mission of the Executive Office of Environmental Affairs ("EOEA") and the Department of Food and Agriculture (the "Department"), as restated herein, to protect, preserve and enhance agricultural land, and its capacity to benefit and sustain the citizens of the Commonwealth, as a finite natural resource.

This mission has been accomplished, and shall continue to be accomplished, in part, by discouraging the conversion of viable units of agricultural land to non-agricultural uses. Further, by way of its Mitigation Policy, the Department requires that one acre of agricultural land of comparable or greater agricultural viability be permanently protected for future agricultural use, for every acre of agricultural land so converted, in the manner described herein or by use of an alternative mitigative tool described below.

II. POLICY BACKGROUND & IMPLEMENTATION

Agricultural land has become a ready target for non-agricultural development as a result of its adaptability and physical characteristics. Such development is subject to review and certification under the Massachusetts Environmental Policy Act ("MEPA"). In addition, EOEA has designated agricultural land as a critical natural resource. As with other critical natural resources in the Commonwealth (e.g. wetlands, floodplains), a concerted effort has been and shall continue to be made by the Commonwealth to avoid the loss of agricultural land as a result of non-agricultural development. Where avoidance is not possible, Department policy requires mitigation for the loss of agricultural land in the manner described in Section III.

The Commonwealth of Massachusetts for many years has actively promoted the preservation of agricultural land. Through the Agricultural Preservation Restriction ("APR") Program the Commonwealth invests significant funds, on a regular basis, to protect critical farmland resources by purchasing rights in agricultural land.

In addition, Executive Order 193 complements the APR Program as a protective tool through which state agencies are directed to avoid and to mitigate against the conversion of state-owned agricultural lands. In this regard, the Order states the policy that: "State Agency actions shall encourage the protection of state-owned agricultural land by mitigating against the conversion of state-owned land to non-agricultural uses…". The Order further provides, as a separate policy not restricted to state-owned agricultural land, that: "State funds and federal grants administered by the state shall not be used to encourage the conversion of agricultural land to other uses when feasible alternatives are available."

III. MITIGATION OPTIONS

Compensation for the loss of agricultural land resulting from conversion to non-agricultural uses may be accomplished in one or a combination of the following ways, upon consultation with the Department and approval by the Commissioner. A Financial Contribution shall be utilized only in circumstances when On-site and Off-site mitigation are not feasible. The following order of preference shall be followed:

"On-site Mitigation": The permanent protection, through the granting of an APR to the Commonwealth, on any contiguous agricultural land of equal or greater size, soil quality and agricultural viability to the agricultural land being lost to conversion, as determined by the Department and approved by the Commissioner.

"Off-site Mitigation": The permanent protection, through the granting of an APR to the Commonwealth, on a parcel of agricultural land of equal or greater size, soil quality and agricultural viability to the agricultural land being lost to conversion, as determined by the Department and approved by the Commissioner. Where feasible, the permanently protected piece of land shall be located either in the community within which the agricultural land being converted is located or within a contiguous city or town.

"Financial Contribution": For each acre of agricultural land being converted, a contribution of $10,000.00 per acre shall be made to the Commonwealth's APR Program, or to a qualified nonprofit farmland preservation organization or municipal farmland preservation program for the purpose of assisting the Commonwealth in permanently protecting agricultural land of equal or greater size and agricultural viability to the agricultural land being lost to conversion, as determined by the Department and approved by the Commissioner.

Agricultural Land Mitigation Policy page 3

DEFINTIONS

"Agricultural Land": Land comprised of soils which are classified as Prime, Unique, or of State and Local Importance by the USDA Natural Resources Conservation Service, including land currently in active agricultural use, or suitable for active agricultural use, or land which has been in agricultural use within the 15 year time period prior to conversion.

"Agriculture": Agriculture as defined within the Massachusetts General Laws.

"Viable Unit": A parcel of agricultural land that is 5 acres or larger in size, or if fewer than 5 acres, a parcel that significantly contributes to the agricultural character of the community.

For additional information, kindly contact the Massachusetts Department of Food & Agriculture, 142 Old Common Road, Lancaster, MA 01523 (508) 792-7712.

Dated: November 30, 2001

Jonathan L. Healy, Commissioner

APPENDIX F

EOEA Article 97 Land Disposition Policy

EOEA ARTICLE 97 LAND DISPOSITION POLICY
FEBRUARY 19, 1998

I. Statement of Policy
It is the policy of EOEA and its agencies to protect, preserve and enhance all open space areas covered by Article 97 of the Articles of Amendment to the Constitution of the Commonwealth of Massachusetts. Accordingly, as a general rule, EOEA and its agencies shall not sell, transfer, lease, relinquish, release, alienate, or change the control or use of any right or interest of the Commonwealth in and to Article 97 land. The goal of this policy is to ensure no net loss of Article 97 lands under the ownership and control of the Commonwealth and its political subdivisions. Exceptions shall be governed by the conditions included in this policy. This policy supersedes all previous EOEA Article 97 land disposition policies. An Article 97 land disposition is defined as: a) any transfer or conveyance of ownership or other interests; b) any change in physical or legal control; and c) any change in use, in and to Article 97 land or interests in Article 97 land owned or held by the Commonwealth or its political subdivisions, whether by deed, easement, lease or any other instrument effectuating such transfer, conveyance or change. A revocable permit or license is not considered a disposition as long as no interest in real property is transferred to the permittee or licensee, and no change in control or use that is in conflict with the controlling agency's mission, as determined by the controlling agency, occurs thereby.

II. Conditions for Disposition Exceptions
EOEA and its agencies shall not support an Article 97 land disposition unless EOEA and its agencies determine that exceptional circumstances exist. A determination of "exceptional circumstances" is subject to all of the following conditions being met: all other options to avoid the Article 97 disposition have been explored and no feasible and substantially equivalent alternatives exist (monetary considerations notwithstanding); Note: The purpose of evaluating alternatives is to avoid using/affecting Article 97 land to the extent feasible. To that end, the scope of alternatives under consideration shall be commensurate with the type and size of the proposed disposition of Article 97 land, and must be performed by the proponent of the disposition to the satisfaction of EOEA and its agencies. The scope of alternatives extends to any sites that were available at the time the proponent of the Article 97 disposition first notified the controlling agency of the Article 97 land, and which can be reasonably obtained: (a) within the appropriate market area for private proponents, state, and/or regional entities ; or (b) within the appropriate city/town for municipal proponents. the disposition of the subject parcel and its proposed use do not destroy or threaten a unique or significant resource (e.g., significant habitat, rare or unusual terrain, or areas of significant public recreation), as determined by EOEA and its agencies; as part of the disposition, real estate of equal or greater fair market value or value in use of proposed use, whichever is greater, and significantly greater resource value as determined by EOEA and its agencies, are granted to the disposing agency or its designee, so that the mission and legal mandate of EOEA and its agencies and the constitutional rights of the citizens of Massachusetts are protected and enhanced; the minimum acreage necessary for the proposed use is proposed for disposition and, to the maximum extent possible, the resources of the parcel proposed

for disposition continue to be protected; the disposition serves an Article 97 purpose or another public purpose without detracting from the mission, plans, policies and mandates of EOEA and its appropriate department or division; and 6. the disposition of a parcel is not contrary to the express wishes of the person(s) who donated or sold the parcel or interests therein to the Commonwealth.

III. Procedures for Disposition
Although legislation can be enacted to dispose of Article 97 land without the consent of an EOEA agency, it is the policy of EOEA to minimize such occurrences. To that end, and to ensure coordination, EOEA agencies shall: develop an internal review process for any potential Article 97 land disposition to ensure that, at a minimum, the conditions in Section II above are met; develop, through the Interagency Lands Committee, a joint listing of all requests, regardless of their status, for the disposition of Article 97 land; notify the Interagency Lands Committee of any changes to the Article 97 land disposition list; monitor all legislation that disposes of Article 97 land, and communicate with legislative sponsors regarding their intent; recommend to the Secretary that the Governor veto any legislation that disposes of Article 97 land, the purchase, improvement, or maintenance of which involved state funds, on and for which the EOEA agency has not been consulted and received documentation (including information on title, survey, appraisal, and a MEPA review, all at the proponent's expense); 6. obtain the concurrence of the Secretary of EOEA for any proposed Article 97 land disposition decision prior to finalizing said decision; if recommending an Article 97 disposition, attach to all Article 97 legislative recommendations and TR-1 forms a justification of the disposition and an explanation of how it complies with this policy, signed by the EOEA agency head; ensure that any conditions approved by EOEA and its agencies to any Article 97 land disposition are incorporated within the surplus declaration statement submitted to and published by DCPO as required by G.L. c. 7, ss. 40F and 40F½ and throughout the disposition process, and if such conditions are not incorporated in said statement throughout the disposition process, the EOEA agency head shall recommend to the Secretary that the Governor veto any resulting legislation; recommend to the Secretary that the Governor veto legislation that disposes of Article 97 land of which the agency disapproves; and ensure that any Article 97 land disposition is authorized by enacted legislation and approved by all municipal, state and federal agencies, authorities, or other governmental bodies so required and empowered by law prior to conveyance.

IV. Applicability of This Policy To Municipalities To comply with this policy, municipalities that seek to dispose of any Article 97 land must: obtain a unanimous vote of the municipal Conservation Commission that the Article 97 land is surplus to municipal, conservation, and open space needs; obtain a unanimous vote of the municipal Park Commission if the land proposed for disposition is park land; obtain a two-thirds Town Meeting or City Council vote in support of the disposition; obtain two-thirds vote of the legislature in support of the disposition, as required under the state constitution; comply with all requirements of the Self-Help, Urban Self-Help, Land and Water Conservation Fund, and any other applicable funding sources; and comply with the EOEA Article 97 Land Disposition Policy. After the effective date of this policy, any municipality that proposes, advocates, supports or completes a disposition of Article 97 land without also following the terms of this policy, regardless of whether or not state funds were used in the acquisition of the Article 97 land, shall not be eligible for grants offered by EOEA or

its agencies until the municipality has complied with this policy. Compliance with this policy by municipalities shall be determined by the EOEA Secretary, based on recommendations by the EOEA Interagency Lands Committee.

APPENDIX G

Opinion of the Attorney General 1973
Article 97 Public Land Protection, Massachusetts Constitution

ARTICLE 97 - PUBLIC LAND PROTECTION

MASSACHUSETTS CONSTITUTION

Opinion of the Attorney General 1973

The House of Representatives, by H. 6085, has addressed to me several questions regarding Article 97 of the Articles of Amendment to the Constitution of Massachusetts. Establishing the right to a clean environment for the citizens of Massachusetts, Article 97 was submitted to the voters on the November 1972 ballot and was approved. The questions of the House go to the provision in the Article requiring that acts concerning the disposition of, or certain changes in, the use of certain public lands be approved by a two-third roll-call vote of each branch of the General Court.

Specifically, your questions are as follows:

1. Do the provisions of the last paragraph of Article XCVII of the Articles of the Amendments to the Constitution requiring a two thirds vote by each branch of the general court, before a change can be made in the use or disposition of land and easements acquired for a purpose described in said Article, apply to all land and easements held for such a purpose, regardless of the date of acquisition, or in the alternative, do they apply only to land and easements acquired for such purposes after the effective date of said Article of Amendments?

2. Does the disposition or change of use of land held for park purposes require a two thirds vote, to be taken by the yeas and nays of each branch of the general court, as provided in Article XCVII of the Articles of the Amendments of the Constitution, or would a majority vote of each branch be sufficient for approval?

3. Do the words "natural resources" as used in the first paragraph of Article XCVII of the Articles of the Amendments to the Constitution include ocean, shellfish and inland fisheries; wild birds, including song and insectivorous birds; wild mammals and game; sea and fresh water fish of every description; forests and all uncultivated flora, together with public shade and ornamental trees and shrubs; land, soil and soil resources, lakes, ponds, streams, coastal underground and surface waters; minerals and natural deposits, as formerly set out in the definition of the words "natural resources" in paragraph two of section one of chapter twenty-one of the General Laws?

4. Do the provisions of the fourth paragraph of Article XCVII of the Articles of the Amendments to the Constitution apply to any or all of the following means of disposition or change in use of land held for a public purpose: conveyance of land; long-term lease for inconsistent use; short-term lease, two years or less, for an inconsistent use; the granting or giving of an easement for an inconsistent use; or any agency action with regard to land under its control if an inconsistent use?

The proposed amendment to the Constitution as agreed to by the majority of the members of the Senate and the House of Representatives, in joint session, on August 5, 1969, and again on May 12, 1971, and became part of the Constitution by approval by the voters at the state election next following, on November 7, 1972. The full text of Article 97 is as follows:

Art. XCVII. Article XLIX of the Amendments to the Constitution is hereby annulled and the following is adopted in place thereof: The people shall have the right to clean air and water, freedom from excessive and unnecessary noise, and the natural scenic, historic, and esthetic qualities of their environment; and the protection of the people in their right to the conservation, development and utilization of the agricultural, mineral, forest, water, air and other natural resources is hereby declared to be a public purpose.

The general court shall have the power to enact legislation necessary or expedient to protect such rights.

In the furtherance of the foregoing powers, the general court shall have the power to provide for the taking, upon payment of just compensation therefore, or for the acquisition by purchase or otherwise, of lands and easements or such other interests therein as may be deemed necessary to accomplish these purposes.

Land and easements taken or acquired for such purposes shall not be used for other purposes or otherwise disposed of except by laws enacted by a two thirds vote, taken by yeas and nays, of each branch of the general court. (emphasis inserted)

1. The first question of the House of Representatives asks, in effect, whether the two-thirds roll-call vote requirement is retroactive, to be applied to lands and easements acquired prior to the effective date of Article 97, November 7, 1972. For the reasons below, I answer in the affirmative.

The General Court did not purpose this Amendment nor was it approved by the voting public without a sense of history nor void of a purpose worthy of a constitutional amendment. Examination of our constitutional history firmly establishes that the two-thirds roll-call vote requirement applies to public lands wherever taken or required.

Specifically, Article 97 annuls Article 49, in effect since November 5, 1918. Under that Article the General Court was empowered to provide for the taking or acquisition of lands, easements and interests therein "for the purpose of securing and promoting the proper conservation, development, utilization and control" (of) "agricultural mineral, forest, water and other natural resources of the commonwealth". Although inclusion of the word "air" in this catalog as it appears in Article 97 may take this new article slightly broader than the supplanted Article 49 as to purposes for which the General Court may provide for the taking or acquisition of land, it is clear that land taken or acquired under the earlier Article over nearly fifty years is now to be subjected to the two-thirds vote requirement for changes in use or other dispositions. Indeed all land whenever taken or acquired is now subject to the new voting requirement. The original draftsmen of our Constitution prudently included in Article 10 of the Declaration of Rights a broad constitutional basis for the taking of private land to be applied to public uses, without limitation on what are "public uses". By way of acts of the Legislature as well as through generous gifts of many of our citizens, the Commonwealth and our cities and towns have acquired parkland and reservations of which we can be justly proud. To claim that Article 97 does not give the same care and protection to, all these existing public lands as for lands acquired by the foresight of future legislators or the generosity of future citizens would ignore public purposes deemed important in our laws since the beginning of our commonwealth.

Moreover, if this amendment were only prospective in effect, it would be virtually meaningless. In our Commonwealth, with a life commencing in the early 1600's and already cramped for land, it is most unlikely that the General Court and the voters would choose to protect only those acres hereafter added to the many thousands already held for public purposes. The comment of our Supreme Judicial Court concerning the earlier Article 49 is here applicable. It must be presumed that the convention proposed and the people approved and ratified the Forty-ninth Amendment

with reference to the practical affairs of mankind and not as a mere theoretical announcement."**Opinion of the Justices**, 237 Mass. 598,608.

2. In its second question the House asks, in effect, whether the two-thirds roll-call vote requirement applies to land held for park purposes, as the term "park" is generally understood. My answer is in the affirmative, for the reasons below.

One major purpose of Article 97 is to secure that the people shall have "the right to clean air and water, freedom from excessive and unnecessary noise, and the natural, scenic, historic, and esthetic qualities of their environment." The fulfillment of these rights is uniquely carried out by parkland acquisition. As the Supreme Judicial Court has declared.

"The healthful and civilizing influence of parks in or near congested areas of population is of more than local interest and becomes a concern of the State under modern conditions. It relates not only to the public health in its narrow sense, but to broader considerations of exercise, refreshment and enjoyment "**Higginson v. Treasurer and School House Commissioners of Boston**, 212 Mass. 583, 590; see also **Higginson v. Inhabitants of Nahant**, 11 Allen 530, 536.

A second major purpose of Article 97 is "the protection of the people in their right to the conservation, development and utilization of the agricultural, mineral, forest water, air and other natural resources". Parkland protection can afford not only the conservation of forests, water and air but also a means of utilizing these resources in harmony with their conservation. Parkland can undeniably be said to be acquired for the purposes in Article 97 and is thus subject to the two-thirds roll-call requirement.

This question as to parks raises a further practical matter in regard to implementing Article 97 which warrants further discussion. The reasons the Legislature employs to explain its actions can be of countless levels of specificity or generality and land might conceivably be acquired for general recreation purposes or for explicit uses such as the playing of baseball, the flying of kites, for evening strolls or for Sunday afternoon concerts. Undoubtedly to the average man, such land would serve as a park but at an even more legalistic level it clearly can also be observed that such land was acquired, in the language of Article 97, because it was a "resource" which could best be "utilized" and "developed" by being "conserved" within a park. But it is not surprising that most land taken or acquired for public use is acquired under the specific terms of statutes which may not match verbatim the more general terms found in Article 10 of the Declaration of Rights of the Constitution or in Articles 39, 43, 49, 51 and 97 of the Amendments. Land originally acquired for limited or specified public purposes is thus not to be excluded from the operation of the two-thirds roll-call vote requirement for lack of express invocation of the more general purposes of Article 97. Rather the scope of the Amendment is to be very broadly construed, not only because of the greater broadness in "public purpose", changed from "public uses" appearing in Article 49, but also because Article 97 establishes that the protection to be afforded by the Amendment is not only of uses but of certain express rights of the people.

3. The third question of the House asks, in effect, how the words "natural resources", as appearing in Article 97, are to be defined.

Several statutes offer assistance to the General Court, all without limiting what are "natural resources". General Laws Ch. 21, defines "natural resources", for the purposes of Department of Natural Resources jurisdiction, as including "ocean, shellfish and inland fisheries; wild birds, including song and insectivorous birds; wild mammals and game; sea and fresh water fish or every description; forests and all uncultivated flora, together with public shade and ornamental trees and shrubs; land, soil and soil resources, lakes, ponds, streams, coastal, underground and surface waters; minerals and natural deposits".

In addition, G.L. Ch. 12, 11D, establishing a Division of Environmental Protection in my Department, uses the words "natural resources" in such a way as to include air, water, rivers, streams, flood plains, lakes, ponds, or other surface or subsurface water resources and "seashores, dunes, marine resources, wetlands, open spaces, natural areas, parks or historic districts or sites". General Laws Ch. 214, 10A, the so-called citizen-suit statute, contains a recitation substantially identical. To these lists Article 97 would add only "agricultural" resources.

It is safe to say, as a consequence, that the term "natural resources" should be taken to signify at least these catalogued items as a minimum. Public lands taken or acquired to conserve, develop or utilize any of these resources are thus subject to Article 97.

It is aparent that the General Court has never sought to apply any limitation to the term "natural resources" but instead has viewed the term as an evolving one which should be expanded according to the needs of the time and the term was originally inserted in our Constitution for just that reason. See **Debate of the Constitutional Convention** 1917-1918, p. 595. The resources enumerated above should, therefore, be regarded as examples of and not delimiting what are "natural resources".

4. The fourth question of the House requires a determination of the scope of activities which is intended by the words: "shall not be used for other purposes or otherwise disposed of".

The term "disposed" has never developed a precise legal meaning. As the Supreme Court has noted, "The word is **nomen generalissimum**, and standing by itself, without qualification, has no technical signification." **Phelps vs. Harris**, 101 U.S. 370, 381 (1880). The Supreme Court has indicated, however, that "disposition" may include a lease. **U.S. v. Gratiot**, 39 U.S. 526 (1840). Other cases on unrelated subjects suggest that in Massachusetts the word "dispose" can include all forms of transfer no matter how compete or incomplete. **Rogers v. Goodwin**, 2 Mass. 475s; **Woodbridge v. Jones**, 183 Mass. 549; **Lord v. Smith**, 293 Mass. 555.

In this absence of precise legal meaning, **Webster's Third New International Dictionary** is helpful. "Dispose of" is defined as "to transfer into new hands or to the control of someone else". A change in physical or legal control would thus prove to be controlling.

I, therefore, conclude that the "dispositions" for which a two-thirds roll-call vote of each branch of the General Court is required to include: transfers of legal or physical control between agencies of government, between political subdivisions, and between levels of government, of lands easements, and interests therein originally taken or acquired for the purposes stated in Article 97, and transfers from public ownership to private. Outright conveyance, takings by eminent domain, long-term and short-term leases of whatever length, the granting or taking of easements and all means of transfer or change of legal or physical control are thereby covered, without limitation and without regard to whether the transfer be for the same or different uses or consistent or inconsistent purposes.

This interpretation affords a more objective test, and is more easily applied, than "used for other purposes". Under Article 97 that standard must be applied by the Legislature, however, in circumstances which cannot be characterized as a disposition - that is, when a transfer or change in physical or legal control does not occur. Within any agency or political subdivision any land, easement or interest therein, if originally taken or acquired for the purposes stated in Article 97, may not be "used for other purposes" without the requisite two-thirds roll-call vote of each branch of the General Court.

It may be helpful to note how Article 97 is to be read with the so-called doctrine of "prior public use", application of which also turns on changes in use. That doctrine holds that "public lands devoted to one public use cannot be diverted to another inconsistent public use without plain and

explicit legislation authorizing the diversion". **Robbins v. Department of Public Works**, 355 Mass. 328, 330 and cases there cited.

The doctrine of "prior public use" is derived from many early cases which establish its applicability to transfers between corporations granted limited powers of the Commonwealth, such as eminent domain, and authority over water and railroad easement; e.g., **Old Colony Railroad Company v. Framingham Water Company**, 154 Mass. 561; **Boston Water Power Company v. Boston and Worcester Railroad Corporation**, 23 Pick. 360; **Boston and Main Railroad v. Lowell and Lawrence Railroad Company**, 124 Mass. 368; **Eastern Railroad Company v. Boston and Main Railroad** , 111 Mass. 125, and **Housatonic Railroad Company v. Lee and Hudson Railroad Company**, 118 Mass. 391. The doctrine was also applied at an early date to transfers between such corporations and municipalities and counties; e.g., **Boston and Albany Railroad Company v. City Council of Cambridge**, 166 Mass 224 (eminent domain taking of railroad land), **Eldridge v. County Commissioners of Norfolk**, 185 Mass. 186 (eminent domain taking of railroad easement), **West Boston Bridge v. County Commissioners of Middlesex**, 10 Pick. 270 (eminent domain taking of turnpike land), and Inhabitants of **Springfield v. Connecticut River Railroad Co.**, Cush. 63 (eminent domain taking of a public way).

The doctrine of "prior public use" has in more modern times been applied to the following transfers between governmental agencies or political subdivisions; a) a transfer between state agencies, **Robbins v. Department of Public Works**, 355 Mass. 328 (eminent domain taking of Metropolitan District Commission wetlands), b) transfers between a state agency and a special state authority, **Commonwealth v. Massaachusetts Turnpike Authority**, 346 Mass. 250 (eminent domain taking of M DC land) and see **Loschi v. Massachusetts Port Authority**, 354 Mass. 53 (eminent domain taking of parkland), c) a transfer between a special state commission and special state authority, **Gould v. Greylock Reservation Commission**, 350 Mass. 410 (lease of portions of Mount Greylock), d) transfers between municipalities, **City of Boston v. Inhabitants of Brookline**, 156 Mass. 172 (eminent domain taking of a water easement) and **Inhabitants of Quincy v. City of Boston**, 148 Mass. 389 (eminent domain taking of a public way), e) transfers between state agencies and municipalities, **Town of Brookline v. Metropolitan District Commission**, 357 Mass. 435 (eminent domain taking of parkland) and **City of Boston v. Massachusetts Port Authority**, 356 Mass. 741 (eminent domain taking of a park), f) a transfer between a special state authority and a municipality, **Appleton v. Massachusetts Parking Authority**, 340 Mass. 303 (1960) (eminent domain, Boston Common), g) a transfer between a state agency and a county, **Abbot v. Commissioners of the County of Dukes County**, 357 Mass. 784 (Department of Natural Resources grant of navigation easement), and h) transfers between counties and municipalities, **Town of Neddham v. County Commissioners of Norfolk**, 324 Mass. 293 (eminent domain taking of common and park lands) and Inhabitants of **Easthampton v. County Commissioners of Hampshire**, 154 Mass. 424 (eminent domain taking of school lot).

The doctrine has also been applied to the following changes of use of public lands within governmental agencies or within political subdivisions: a) intra agency uses, **Sacco v. Department of Public Works**, 352 Mass. 670 (filling a portion of Great Pond), b) intra municipality uses, **Higginson v. Treasurer and School House Commissioners of Boston,** 212 Mass. 583 (erecting a building on a public park), and see **Kean v. Stetson,** 5 Pick. 492 (road built adjoining river), and c) intra country uses, **Bauer v. Mitchell**, 247 Mass. 522 (discharging sewage upon school land). The doctrine may also possibly reach de facto changes in use : e.g., **Pilgrim Real Estate Inc. v. Superintendent of Police of Boston**, 330 Mass. 250 (parking of cars on park area) and may be available to protect reservation land held by charitable corporations; e.g., **Trustees of Reservations v. Town of Stockbridge**, 348 Mass. 511 (eminent domain).

In addition to these extensions of the doctrine, special statutory protections, codifying the doctrine of "prior public use", are afforded local parkland and commons by G.L. c. 45 and public

cemeteries by G.L. c. 114 / 1,7, 41. As to changes in use of public lands held by municipalities or counties, generally, see G.L. c. 40,/15A and G.L. c. 214/ 3(11).

This is the background against which Article 97 was approved. The doctrine of "prior public use" requires legislative action, by majority vote, to divert land from one public use to another inconsistent public use. As the cases discussed above indicate, the doctrine requires an act of Legislature regardless whether the land in question is held by the Commonwealth, its agencies, special authorities and commissions, political subdivisions or certain corporations granted powers of the sovereign. And the doctrine applies regardless whether the public use for which the land in question is held in a conservation purpose.

As to all such changes in use previously covered by the doctrine of "prior public use" the new Article 97 will only change the requisite vote of the Legislature from majority to two thirds. Article 97 is designed to supplement, not supplant, the doctrine of "prior public use".

Article 97 will be of special significance, though, where the doctrine of "prior public use" has not yet been applied. For instance, legislation and two thirds roll-call vote of the Legislature will now for the first time be required even when a transfer of land or easement between government agencies, between political subdivisions, or between levels of government is made with no change in the use of the land, and even where a transfer is from public control to private.

Whether legislation pending before the General Court is subject to Article 97, or the doctrine of "prior public use", or both, it is recommended that the legislation meet the high standard of specificity set by the Supreme Judicial Court in a case involving the doctrine of "prior public use".

"We think it is essential to the expression of plain and explicit authority to divert (public lands) to a new and inconsistent public use that the Legislature identify the land and that there appear in the legislation not only a statement of the new use but a statement or recital showing in some way legislative awareness of the existing public use. In short, the legislation should express not merely the public will for the new use but its willingness to surrender or forego the existing use". (Footnote omitted). **Robbins v. Department of Public Works**, 355 Mass. 328,331.

Each piece of legislation which may be subject to Article 97 should, in addition, be drawn so as to identify the parties to any planned disposition of the land.

Conclusions

Article 97 of the Amendments to the Massachusetts Constitution establishes the right of the people to clean air and water, freedom from excessive and unnecessary noise, and the natural, scenic, historic and esthetic qualities of their environment. The protection of the people in their right to the conservation, development and utilization of the agricultural, mineral, forest, water, air and other natural resources is declared to be a public purpose. Lands, easements and interests therein taken or acquired for such public purposes are not to be disposed of or used for other purposes except by two-thirds roll-call vote of both the Massachusetts Senate and House of Representatives.

Answering the questions of the House of Representatives I advise that the two-thirds roll-call vote requirement of Article 97 applies to all lands, easements and interests therein **whenever** taken or acquired for Article 97 conservation, development or utilization purposes, even prior to the effective date of Article 97, November 7, 1972. The Amendment applies to land, easements and interests therein held by the Commonwealth, or any of its agencies or political subdivisions, such as cities, towns and counties.

I advise that "natural resources" given protection under Article 97 would include at the very least, without limitation: air, water, wetlands, rivers, streams, lakes, ponds, coastal, underground and surface waters, flood plains, seashores, dunes, marine resources, ocean, shellfish and inland

fisheries, wild birds including song and insectivorous birds, wild mammals and game, sea and fresh water fish of every description, forests and all uncultivated flora, together with public shade and ornamental trees and shrubs, land, soil and soil resources, minerals and natural deposits, agricultural resources, open spaces, natural areas and parks and historic districts or sites.

I advise that Article 97 requires two-thirds roll-call vote of the Massachusetts Senate and House of Representatives for all transfers between agencies of government and between political subdivisions of lands, easements or interests therein originally taken or acquired for Article 97 purposes, and transfers of such land, easements or interests therein from one level of government to another, or from public ownership to private. This is so without regard to whether the transfer be for the same or different uses or consistent or inconsistent purposes. I so advise because such transfers are "dispositions" under the terms of the new Amendment, and because "disposition" includes any change of legal or physical control, including but not limited to outright conveyance, eminent domain takings, long and short-term leases of whatever length and the granting or taking of easements.

I also advise that intra-agency changes in uses of land from Article 97 purposes, although they are not "dispositions", are similarly subject to the two-thirds roll-call vote requirement.

Read against the background of the existing doctrine of "prior public use", Article 97 will thus for the first time require legislation and a special vote of the legislature even where a transfer of land between governmental agencies, between political subdivisions or between levels of government results in no change in the use of land, and even where a transfer is made from public control to private. I suggest that whether legislation pending before the General Court is subject to Article 97, or the doctrine of "prior public use", or both, the very highest standard of specificity should be required of the draftsman to assure that legislation clearly identifies the locus, the present public uses of the land, the new uses contemplated, if any, and the parties to any contemplated "disposition" of the land.

In short, Article 97 seeks to prevent government from ill-considered misuse or other disposition of public lands and interests held for conservation, development or utilization of natural resources. If land is misused, a portion of the public's natural resources may be forever lost, and no less than by outright transfer. Article 97 thus provides a new range of protection for public lands far beyond existing law and much to the benefit of our natural resources and to the credit of our citizens.

APPENDIX 8

Elementary School Master Plan –

“Stow Public Schools”

May 2007

Stow Public Schools

Stow, Massachusetts

MASTER PLAN

SUBMITTED BY

SMMA
SYMMES MAINI & MCKEE ASSOCIATES

15 MAY 2007

SMMA PROJECT NO. 06127.00

CONTENTS

INTRODUCTION PROJECT TEAM

In October 2006, Symmes Maini & McKee Associates (SMMA) was retained by the Stow School Building Task Force (SBTF) to evaluate the educational needs, space requirements, code requirements and existing condition of the Towns' schools. Over the past eight months, SMMA has: reviewed the existing drawings of the schools; reviewed previous studies; conducted a due diligence of the buildings and their respective systems; met with school administration and school principals in the process of understanding and defining the educational needs and met with the committee to review all work and discuss options for the future of the Stow Schools.

Our evaluation has focused (1) on the existing conditions of the two elementary schools and the middle school (2) on how well they fulfill program needs, (3) what are the space needs based on projected enrollments, and (4) what are the capital improvements needed for each of the two elementary schools and the middle school.

PROJECT TEAM

School Building Task Force

Gary Bernklow, Finance Committee [also member of previous SBC]

Bill Byron

Lynn Colletti

Lisa D'Alessio

Norm Farris

Sarah Kilkenny, previous School Building Committee

George Nisotel, Former Member of Finance Committee

Stephen Quinn

Pete Rhoads

Tom Ryan, Former Member of Finance Committee

Ellen Sturgis, Chair; member, Nashoba Regional School Committee

Rob Kaufman, Facilitator (non-voting)

Rick Lent, Associate Facilitator (non-voting)

Michael Wood, Ex-officio, NRSD Superintendent

Liaisons

Ernie Dodd, Planning Board Chairman

Jim Sauta, Chair, Council of Aging

Carole Makary, Stow Selectman

Architect – Symmes, Maini & McKee Associates

Philip J. Poinelli, Project Director & Project Architect

Lorraine B. Finnegan, Project Manager

Sara Halica, Architect

Brian Postlewaite, Civil Engineer

Peter S. Glick, Civil Engineer

Paul Livernois, Structural Engineer

William Houde, Plumbing Engineer

Mark O'Brien, HVAC Engineer

Daniel Kane, Electrical Engineer

SECTION 1.1 EXECUTIVE SUMMARY

INTRODUCTION

The following final report summarizes the work of Symmes Maini & McKee Associates (SMMA), and the School Building task Force (SBTF) on the Facilities Master Plan for the Town of Stow, Nashoba Regional School District.

The report documents both the process and the resulting recommendations arrived at by the task force. Numerous meetings of the committee were held to discuss the issues and options. In most cases through the process, unanimous or near unanimous agreement was reached on issues and direction. The task force also conducted four community meetings to discuss goals and objectives, priorities and site and building options for achieving the communities' educational needs.

Based on the educational, enrollment and infrastructure needs, conceptual planning options for renovation only, renovation and addition, and new construction were developed. Each conceptual option was assessed against the project goals and the needs, leading to the selection by the task force of the recommended option.

PROJECT GOALS

The Town of Stow has been looking for a solution to the problems at the Pompositticut and Center Schools since 1995.

The charge of the 2006 Town Meeting was to bring two options to the 2007 Town Meeting. The SBTF reviewed seven options, referred to in this report as Scenarios, selected two for presentation, though recommended one. The recommended Scenario #3, consolidates the PreK through grade 5 on the Center School site with the renovation of the existing Center building with a large addition to provide classrooms, public and core spaces for the entire elementary population. This scenario identifies that the Pompositticut School would be decommissioned as a school and turned over to the town for other community uses.

The Charge of the Committee was defined as:

1. Agree on the needs.
2. Prioritize those needs and determine their costs.
3. Understand and use the information and data already compiled by the School Building Committee; i.e., don't "reinvent the wheel".

4. Provide sufficient space for the ten-year projected enrollment
5. Provide space for the preK - 5 students that are acceptable by today's educational standards.
6. Minimize cost and tax impact.
7. Maximize state reimbursement.
8. Prepare two to three proposals reflecting various costs and the associated priority needs that are included.

SCOPE OF MASTER PLAN

Review student enrollment projections and apply those projections to the curriculum space needs.

Develop educational specifications and correlate with the MSBA space standards

Review existing building drawings, previous reports and studies and note changes to the physical conditions

Develop multiple conceptual design alternatives to meet the projected population and resulting educational program requirements.

Develop preliminary project schedules accounting for both design and construction time

Develop conceptual cost estimates accounting for construction costs and turn key project costs.

Assist the SBTF and Superintendent of Schools with the preparation and submission of the Statement of Interest (SOI) form to the Massachusetts School Building Authority

ENROLLMENT PROJECTIONS

Stows' enrollment concerns combine both population increases already experienced as well as anticipated future growth.

Enrollment projections were a subject of a good deal of discussions by the SBTF and the community. Over the various studies conducted by Stow, the projections have varied. The projections undertaken as part of this Master Plan were no exception. The most recent projections in December 2006 reduced projections largely because of the current housing slow down.

Following the analysis and discussions, the SBTF decided to base the Master Plan on a PreK – 5 population of 660 students but set the program of spaces for "core facilities" at 700 students to better accommodate the possible high end of the projections if the housing market were to improve.

Class Sizes

In accordance with the school department policy, we used the following target class size in the evaluation of the buildings and educational program:

Kindergarten	18 to 20 students per class
Grades 1 through Grades 2	18 to 22 students per class
Grades 3 through 5	20 to 24 students per class

EDUCATIONAL PROGRAM

This Master Plan explored retaining the Town's two elementary schools (Center and Pompositticut) and combining the schools into a single building. Since each building requires certain spaces such as gym, cafeteria, library, administrative spaces etc., the space programs vary depending on the number of buildings. A combined building does afford certain economies of space.

Included in Section 3.1 are spread sheets that summarize all of the necessary spaces that make up a school to meet Stows' elementary grades needs. These tables include the classroom spaces as well as the many spaces that are not classrooms such as: teachers work spaces, student support areas, storage room's conference rooms as well as spaces that serve the entire school community such as: school administration, gymnasium, library and cafeteria.

The summary of spaces are expressed in Net Educational Area. This is the usable space within the rooms. A 1.45 net to gross multiplier is applied to account for other areas of the building including: corridors, mechanical rooms, wall thicknesses, toilet rooms etc. This resulting figure is referred to as the gross building area.

For a single school solution, Scenario 3, this process has determined that Stow Elementary Schools needs approximately 70,740 square feet of net educational area compared to the current 50,605 net educational area. This results in the need for approximately 102,573 square feet of gross area compared to the current 72,775 gross area.

The two school solution, Scenario 1, for the reasons explained above would require approximately 86,160 square feet of net educational space and approximately 124,961 gross square feet.

MASTER PLAN OPTIONS

The Options development, first took the form of what possibilities existed at each of the three school sites: Pompositticut, Center and Hale. These were classified as “Component Options”. Component options could have sub options that reflect different grade configurations or building sizes.

The combination of Component Options that work to form a possible solution for the PreK- 8 system are then referred to as “Scenarios”.

Developing and exploring Options for the schools included varying combinations of the following variables: Existing Sites; Grade Configurations; Renovations of building(s); Additions and Renovations of building(s); New Construction; Needs vs. Wants

Component Options were discussed in detail with the SBTF before moving forward to develop Scenarios.

Seven scenarios were developed in both spread sheet form and graphically to demonstrate the building areas needed; the approximate site coverage and a possible design parti for each.

These scenarios combined component options from above to address the Pre-K -8 grades and populations

Through a series of SBTF meetings as well as community meetings, the pros and cons were discussed along with the possible site and building configurations. The process reduced the Scenarios to #1 Heavy and #3

The SBTF recommended proceeding with Scenario 3 that renovates the existing Center School building to accommodate Grades 4 – 5, and constructs an addition behind the school to accommodate Grades PreK – 3 and the core spaces of cafeteria, gymnasium, library and administration.

A detailed list of all 26 Component Options and 7 Scenarios can be found in Section 4.1 of this report.

HALE MIDDLE SCHOOL

This Master Plan explored the educational needs for the Hale Middle School. The largest limiter on expansion of this building is the capacity of the core spaces. During the last renovation and addition, the cafeteria was made smaller, turning some space over to offices. Any expansion of the school will require the reversing of that space.

Similar to the elementary school populations, the projections vary depending on when they were done. The most recent in December of 2006, reflect the housing slow down as discussed for the elementary grades.

The current population for grades 6 through 8 is 252 students. This is expected to rise to 300 to 378 students in approximately five years. The ten year projections show an enrollment of 300 - 350 students. An increase from the current enrollment but a decline from the peak enrollment.

The most logical location for a classroom addition, if required, would be at the north end of the current classroom wing. This would require extending the corridor through the science room and recreating the proper sized science room. The addition would be 2 stories and could be 2 or 4 classrooms per floor, based on the classroom need. This could result in an additional 4 or 8 classrooms.

The short term solution would be to relocate the 4 temporary classrooms from the Pompositticut School to the Middle School once the Center School project is completed. Following the completion of the Center School project, the Hale school population project should be revisited to determine the long term educational needs.

COST ANALYSIS

In the course of the study, SMMA explored various Options for satisfying the educational school building needs of the school system, all options were estimated on a unit rate basis. The preferred options we further developed to include more detail.

The total Project Costs are comprised of “hard” and “soft” costs. Hard costs include all direct construction costs, general contractor’s overhead and profit and contingencies. Soft costs include non direct construction costs such as furnishings and equipment; computers and other technology; design fees, Owners Project Manager fees; Clerk of Works, site survey & borings; hazardous material and geotechnical testing and monitoring; and other construction phase testing, etc. Project Budgets for Scenarios 1 and 3 are included in Section 4.2.1 of this report.

All costs identified are based upon unit rates per square foot based upon current prevailing rates for construction in this market and represents a reasonable opinion of cost. Costs vary due to fluctuating markets conditions; lack of surplus bidders; perception of risk and material availability. Preliminary Construction Estimates for Scenarios 1 and 3 are included in Section 4.2.2 of this report.

Escalation costs were factored into the two preferred options only based upon the timeline noted in section 4.3. This escalation assumed 8% per annum from Stow Town Meeting in May to the midpoint of construction since all estimated construction costs were based upon a January 2007 publicly bid project

TIMELINES

We developed several schedules to address the estimated durations of each scenario and the overall impact on project costs due to escalation.

The schedules included in Section 4.3 of this report are a result of numerous discussions which reviewed in detail the possibility of commencing multiple projects at the same time, using rented facilities for swing space and reducing the impact on students and staff. Ultimately the committee decided that the best option for the Town was to leap frog the construction process to reduce the number of modular classrooms required and minimize the disruption for the occupant of the buildings

ALTERNATIVE CONSTRUCTION

The SBTF expressed an interest in exploring alternative construction methods to accomplish the project. These could include pre-engineered steel structures or pre-fabricated modular construction.

Pre-engineered steel structures are most often used for large span open areas. The gym and cafeteria may be places where this method can be further explored.

The committee did have a representative of Kullman Buildings present pre-fabricated modular construction techniques and methods. The methodology does appear to be realistic with respect to achieving the type of classroom spaces desired (not long span spaces).

The cost of this type of modular construction does appear to be similar to that of conventional construction. Since the erection time is shorter, there may be some financial savings.

The representative noted that they construct buildings only, still requiring a General Contractor for foundations, site work and other related activities.

What needs to be explored further (primarily by the vendor) is how this construction type can work within the Massachusetts bid laws.

The SBTF felt that further exploration of alternative construction methodology should be left up to the School Building Committee, yet to be formed.

EXISTING CONDITIONS REPORTS

The Town of Stow had previously commissioned a feasibility study of their elementary schools in 2002 which included existing condition reports for Center and Pompositticut Schools. Furthermore, some repairs and capital maintenance as a result of those studies was undertaken in 2004 under the direction of previous school building committees.

The SBTF determined that a repeat of this existing condition analysis could be a redundant task and an unnecessary cost to the Town. Therefore it was decided that SMMA would review the previous reports and incorporate into the SMMA report format. If any information was missing SMMA could work with the School and Town departments to obtain this information. The 2002 study did not include the Hale Middle school and therefore a full on-site evaluation was requested and performed for that facility.

Section 5 of this report includes our reformatting and updating of the Center and Pompositticut Schools existing conditions reports as well as the new existing conditions report for the Hale Middle School.

MASSACHUSETTS SCHOOL BUILDING AUTHORITY (MSBA)

In May of 2006, the MSBA published Draft Regulations and in early September final regulations were promulgated. The work of this study was developed adhering to the new regulations, where regulations exist. The MSBA has not yet developed space standards for renovation projects. Prior to moving forward with proposed projects, it will be necessary to work with the MSBA to determine that the space requirements are acceptable.

Statement of Interest

The MSBA has established the Statement of Interest Form as the first step in the Application Process. The purpose of the SOI is to ascertain from communities whether they believe they have any deficiencies in their school facility that meets one or more of the statutory priorities.

The SBTF voted to submit an SOIs' for both the Pompositticut and Center Schools. The SBTF, the School Administration and SMMA worked together to evaluate the school issues with respect to the SOI Priorities.

Priorities 1, 2, 5 and 7 were determined to have direct applicability for the Pompositticut School and priorities 1, 2, 5 and 7 were determined to have direct applicability for the Center School.

The Committee presented the Statement of Interest Form to the Nashoba Regional School Committee on April 5, 2007 and the Stow Board of Selectmen

on April 10, 2007. At each meeting, the respective boards approved the SOI. It has since been submitted to the MSBA. A copy of the SOI can be found in, Appendix D of this report.

SECTION 1.2 PROJECT GOALS

BACKGROUND

The Town of Stow has been looking for a solution to the problems at the Pompositticut and Center schools since 2001. A School Building Committee was formed in 2001 and commissioned the architectural firm of The Design Partnership of Cambridge (TDPC) to perform a Feasibility Study. Over a four year period, the Building Committee explored numerous options including renovations of the existing buildings and new construction. In 2005, the Building Committee brought a proposal for a new Pre-K through 5 school on a new site to Town Meeting. The proposal was unsuccessful. The School Building Committee was disbanded in 2006 and the School Building Task Force (SBTF) was created to re-examine the issue with a mandate to bring at least two options to Town Meeting in May of 2007.

In July 2006, the SBTF developed a Request for Qualifications including a scope for the Master Plan and began the process of designer selection. The firm of Symmes Maini & McKee Associates (SMMA) was selected in October 2006.

COMMITTEE

The committee was charged to develop a School System Master Plan, grades K – 8 (herein referred to as "Master Plan") to address the long term needs of the schools' curriculum and growing enrollment. The original charge from the Scope of Designer Services was to address grades Pre–K through 6. As the study developed, the SBFT recognized that grades 6 through 8 should also be reviewed for space needs and the ability to expand the middle school if necessary. Also considered were possible grade reconfigurations as part of the master planning process.

The Charge of the Committee was defined as:

1. Agree on the needs.
2. Prioritize those needs and determine their costs.
3. Understand and use the information and data already compiled by the School Building Committee; i.e., don't "reinvent the wheel".
4. Provide sufficient space for the ten-year projected enrollment
5. Provide space for the PreK-5 students that is acceptable by today's educational standards.
6. Minimize cost and tax impact.
7. Maximize state reimbursement.
8. Prepare two to three proposals reflecting various costs and the associated priority needs that are included.

The SBTF developed “Pre-Screen” and “Evaluative criteria” as a basis for reviewing potential options for the master plan.

Pre-screen sets minimum criteria for inclusion in either one or two buildings, and whether the facilities could be shared between the schools.

Evaluative Criteria is areas that the Task Force wanted to consider as part of the project but which would be considered optional given other needs.

SCOPE OF STUDY

Review student enrollment projections and apply those projections to the curriculum space needs.

Develop educational specifications and correlate with the MSBA space standards

Review existing building drawings, previous reports and studies and note changes to the physical conditions

Develop multiple conceptual design alternatives to meet the projected population and resulting educational program requirements.

Develop preliminary project schedules accounting for both design and construction time

Develop conceptual cost estimates accounting for construction costs and turn key project costs.

Assist the SBTF and Superintendent of Schools with the preparation and submission of the Statement of Interest (SOI) form the Massachusetts School Building Authority

	CRITERION	PRESCREEN OR EVALUATIVE	DEFINITION FOR ONE BLDG	DEFINITION FOR TWO BUILDINGS	SHARED	IF SO, HOW?	Comments/ Reservations
DONE	Cafeteria	Pre-Screen	2 preferable, 3 maximum	2 preferable, 3 maximum	Yes	stage meetings	**prefer to have cafeteria shared, not gym, due to #hours used**
done	Gymnasium	Pre-Screen	single purpose	two gyms; higher grades need more	Not if single building;	share with OT/PT	**voted 8-2 (Lynn absent) to support single purpose; prefer to have cafeteria shared, not gym, due to #hours used**
done	Kitchen: Efficient Design Consistent w/MSBA	Pre-Screen	Need full size to service entire pop	Minimum 1 full size for larger bldg;smaller may only need warming	No		**Hale kitchen outdated; can't necessarily support elem schools**
done	Media Center/Library	Pre-Screen	Better economy of scale; one space	could be split proportionally	Yes		
done	Art: Efficient Design Consistent w/MSBA	Pre-Screen	2 classrooms	one each	No		
done	Music: Efficient Design Consistent w/MSBA	Pre-Screen	2 classrooms	one each	no		
done	OT/PT Efficient Design Consistent w/MSBA	Pre-Screen	small group/resource room	same	Yes	with gym?	
done	Nursing: Efficient Design Consistent w/MSBA	Pre-Screen		same	no		**need to be able to have at least 2 distinct areas within nursing space**
done	Guidance: Efficient Design Consistent w/MSBA	Pre-Screen	2 rooms	one room each	no		**space for records/storage?**
done	Planning/Meeting space	Pre-Screen	one for guidance/admin/health; one for teacher dining/wkrm/conf; one more conference space	similar	Yes		**fewer team spaces in elem school;perhaps space off library to access other resources**
done	Science Storage:	Pre-screen	sufficient space to store science materials, particularly if no science lab	same	possibly	with other storage space	
done	Administrative Offices: Efficient Design Consistent w/MSBA	Pre-screen	Two offices required	one office each	No		**doesn't include reception area; could be looking at three administrators for 700+ students**
done	Consistency with MSBA Guidelines	Pre-Screen	Where there is a specific SF #, we u	ditto	n/a		
done	Septic & Water Capability	Pre-screen	Meet all bldg, health codes for max school population	ditto	n/a		**Need to know MAX school population**
done	Stage	Pre-screen			Yes	With cafeteria or other space	**4 definitions of stage in bldg code: platform 18" high**
done	Traffic Safety						**should include both school based traffic as well as town impact; safety has to be pre-screen;**
	HOLD ITEMS						
16	**Number of classrooms and students**	**Pre-Screen**	**722-750 enrollment**	**same as one**	**n/a**		**Introduce security into pre-screen**
			# of classrooms TBD				**Consider adding sinks for K-2**
			Determine absolute minimum				
17	Computers: Efficient Design Consistent w/MSBA	Pre-Screen	To be incorporated with library	same	Yes	Media/Library	
tbd	SPED: Efficient Design Consistent w/MSBA	Pre-Screen	classroom; resource room		No		**would like to talk direct to SPED teachers administrators**

SECTION 2.1 ENROLLMENT PROJECTIONS

Enrollment projections were a subject of a good deal of discussions by the SBTF and the community. Over the various studies conducted by Stow, the projections have varied. The projections undertaken as part of this Master Plan were no exception.

Following the analysis and discussions, the SBTF decided to base the Master Plan on a PreK – 5 population of 660 students but set the program of spaces for "core facilities" at 700 students to better accommodate the possible high end of the projections if the housing market were to improve.

It must be noted that the Massachusetts School Building Authority (MSBA) will conduct population projections as part of Phase 2, Verify the Problem, of the MSBA Application process.

PROCESS

"Demography and K – 8 Enrollment Projection" studies were conducted in both 2005 and 2006 by Donald Kennedy, Ed.D. / New England School Development Council, (NESDEC).

The NESDEC Enrollment studies included the traditional projections using the "survival cohort method" as well as projections with the "Impact of Additional Development". The survival cohort method does include normal housing growth as well as five other factors.

The issue of "Additional Development" is a window on Stow's capacity for additional growth. This includes the projections for the community's' maximum build out from the Massachusetts Executive Office of Environmental Affairs (EOEA) and local housing sales and starts statistics. This later data is a very changeable economic factor. The 2005 study identified the potential for as many as 20 students per year to be added to the K – 8 populations, up to 180 additional students over the next ten year period.

NESDEC conducted enrollment projections in November of 2006 and revised them in December of 2006.

The December 2006 projections went down slightly from the 2005 and November 2006 study projections and made no reference to the potential additional development. Our understanding from a conversation with Don Kennedy justifies the current projections incorporating the following thoughts:

- The historical birth rates for the community have remained relatively flat for a number of years. Don Kennedy did note that there is a slight increase in births reflected in the 2013 – 2017 school years that could affect the numbers beyond the years of the projections
- The 2006 figures include population statistics for two additional years of actual births. This improves the accuracy of the projections and potentially informs "trends". (Apparently the birth information was not available at the time of the report.)
- In Stow, there has been a slow down in house sales during the first 10 months of 2006, versus the average over the past three years. This reflects the general slow down in home sales in the region. (How long will this slow down or flat spot continue - will it revert back to a growth pattern?)
- When developing population projections, demographers use a "range" of figures. Because of the economic slow down, NESDEC used the lower range of figures which contributed to the lower projections.

This housing factor discussion appears to be heavily economically driven, a factor that can change relatively quickly. What is the sales projection for the 96 units that make up the 40B development (25% affordable) currently under construction on Route 117 for example? Is the slow down in housing sales, both new and turnover, a temporary condition or a new trend? The Route 495 communities in the area of Stow have historically experienced strong housing growth. (see table 1B) Are the factors that make Stow the community that it is, going to allow for or promote "additional growth"?

The December 2006 projections suggest the K – 5 populations will average about 600 students and the grades 6 – 8, about 300+, with a few peak years with higher numbers. The SBTF decided that the current house sales slow down may be too short term to base the school program on.

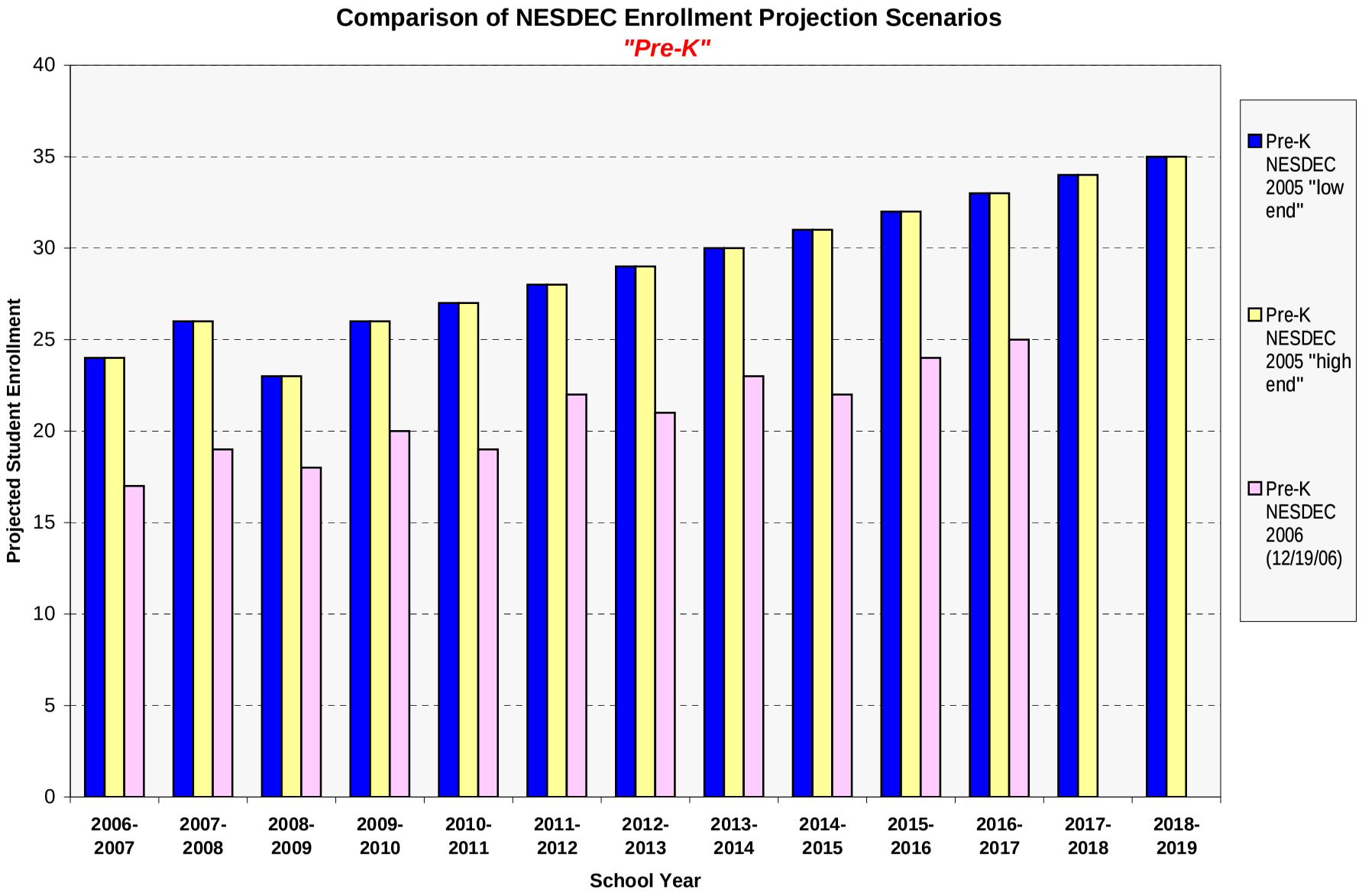
Stow's enrollment concerns combine both population increases already experienced as well as anticipated future growth.

K – 5 student populations have increased between the years of 1996 and 2006 by 88 students, 17%.

The following pages include the December 2006 NESDEC study. Within that report are the November numbers that reflect the changes.

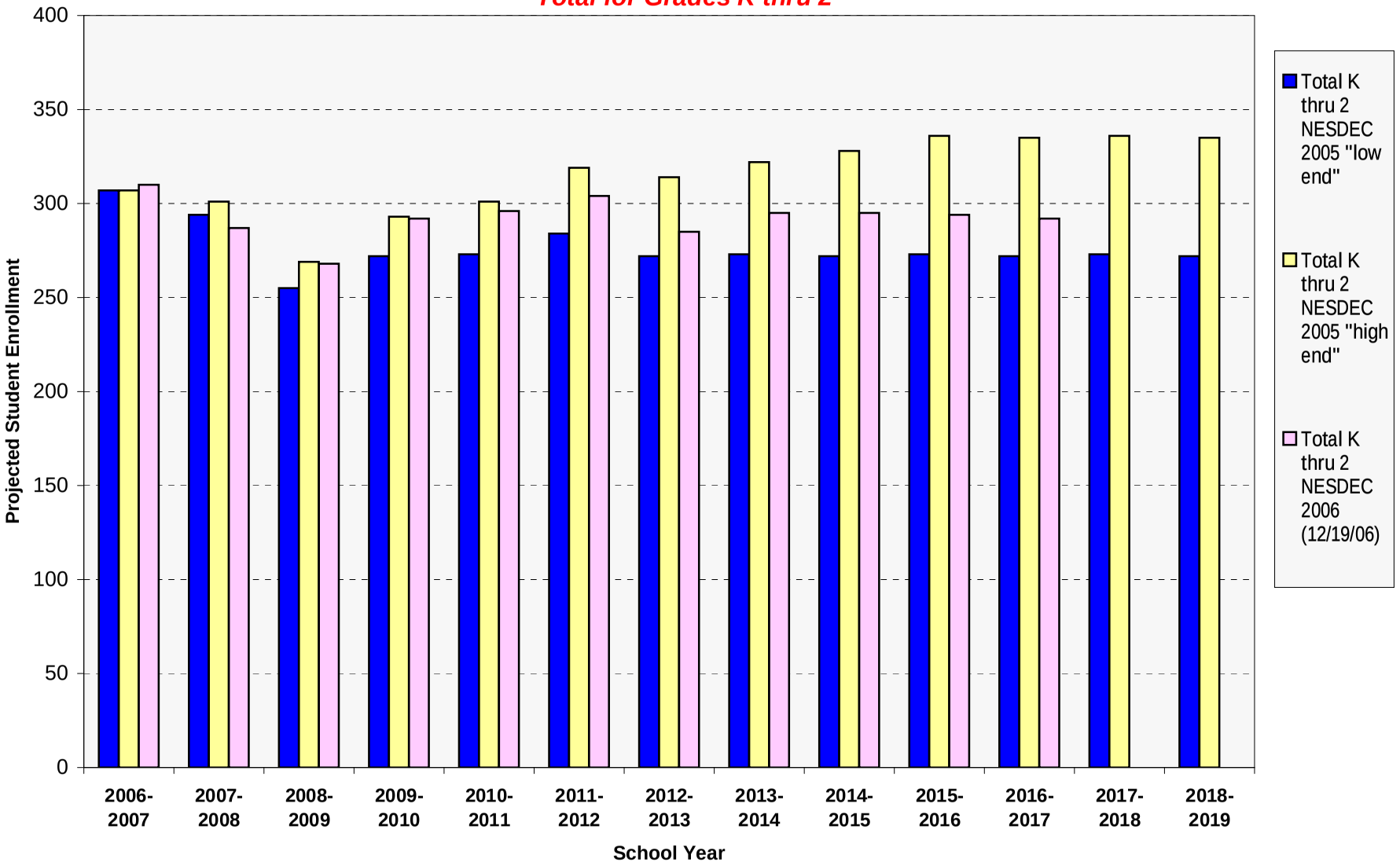
Also included is a chart by committee member George Nisotel who compared the NESDEC 2005 low end, 2005 high end and December 2006 numbers. This chart shows the variations that were discussed above.

													Totals EXCLUDING Pre-K						**Totals INCLUDING Pre-K**					
	Pre-K	Pre-K	Pre-K	Total K thru 2	Total K thru 2	Total K thru 2	Total 3 thru 5	Total 3 thru 5	Total 3 thru 5	Total 6 thru 8	Total 6 thru 8	Total 6 thru 8	***Total K thru 5***			***Total K thru 8***			***Total Pre-K thru 5***			***Total Pre-K thru 8***		
School Year	NESDEC 2005 *"low end"*	NESDEC 2005 *"high end"*	NESDEC 2006 (12/19/06)	NESDEC 2005 *"low end"*	NESDEC 2005 *"high end"*	NESDEC 2006 (12/19/06)	NESDEC 2005 *"low end"*	NESDEC 2005 *"high end"*	NESDEC 2006 (12/19/06)	NESDEC 2005 *"low end"*	NESDEC 2005 *"high end"*	NESDEC 2006 (12/19/06)	NESDEC 2005 *"low end"*	NESDEC 2005 *"high end"*	NESDEC 2006 (12/19/06)	NESDEC 2005 *"low end"*	NESDEC 2005 *"high end"*	NESDEC 2006 (12/19/06)	NESDEC 2005 *"low end"*	NESDEC 2005 *"high end"*	NESDEC 2006 (12/19/06)	NESDEC 2005 *"low end"*	NESDEC 2005 *"high end"*	NESDEC 2006 (12/19/06)
2006-2007	24	24	17	**307**	**307**	**310**	**280**	**280**	**285**	**280**	**280**	**252**	**587**	**587**	**595**	**867**	**867**	**847**	**611**	**611**	**612**	**891**	**891**	**864**
2007-2008	26	26	19	**294**	**301**	**287**	**297**	**305**	**308**	**285**	**290**	**254**	**591**	**606**	**595**	**876**	**896**	**849**	**617**	**632**	**614**	**902**	**922**	**868**
2008-2009	23	23	18	**255**	**269**	**268**	**327**	**343**	**327**	**293**	**303**	**259**	**582**	**612**	**595**	**875**	**915**	**854**	**605**	**635**	**613**	**898**	**938**	**872**
2009-2010	26	26	20	**272**	**293**	**292**	**316**	**340**	**321**	**305**	**320**	**278**	**588**	**633**	**613**	**893**	**953**	**891**	**614**	**659**	**633**	**919**	**979**	**911**
2010-2011	27	27	19	**273**	**301**	**296**	**302**	**334**	**299**	**322**	**342**	**301**	**575**	**635**	**595**	**897**	**977**	**896**	**602**	**662**	**614**	**924**	**1004**	**915**
2011-2012	28	28	22	**284**	**319**	**304**	**262**	**302**	**280**	**353**	**378**	**319**	**546**	**621**	**584**	**899**	**999**	**903**	**574**	**649**	**606**	**927**	**1027**	**925**
2012-2013	29	29	21	**272**	**314**	**285**	**279**	**327**	**303**	**342**	**372**	**312**	**551**	**641**	**588**	**893**	**1013**	**900**	**580**	**670**	**609**	**922**	**1042**	**921**
2013-2014	30	30	23	**273**	**322**	**295**	**279**	**335**	**307**	**330**	**365**	**291**	**552**	**657**	**602**	**882**	**1022**	**893**	**582**	**687**	**625**	**912**	**1052**	**916**
2014-2015	31	31	22	**272**	**328**	**295**	**292**	**356**	**316**	**285**	**325**	**273**	**564**	**684**	**611**	**849**	**1009**	**884**	**595**	**715**	**633**	**880**	**1040**	**906**
2015-2016	32	32	24	**273**	**336**	**294**	**279**	**351**	**297**	**302**	**347**	**296**	**552**	**687**	**591**	**854**	**1034**	**887**	**584**	**719**	**615**	**886**	**1066**	**911**
2016-2017	33	33	25	**272**	**335**	**292**	**280**	**352**	**306**	**302**	**347**	**299**	**552**	**687**	**598**	**854**	**1034**	**897**	**585**	**720**	**623**	**887**	**1067**	**922**
2017-2018	34	34	#N/A	**273**	**336**	**#N/A**	**279**	**351**	**#N/A**	**317**	**362**	**#N/A**	**552**	**687**	**#N/A**	**869**	**1049**	**#N/A**	**586**	**721**	**#N/A**	**903**	**1083**	**#N/A**
2018-2019	35	35	#N/A	**272**	**335**	**#N/A**	**280**	**352**	**#N/A**	**304**	**349**	**#N/A**	**552**	**687**	**#N/A**	**856**	**1036**	**#N/A**	**587**	**722**	**#N/A**	**891**	**1071**	**#N/A**


Comparison of NESDEC Enrollment Projection Scenarios
"Pre-K"
Projected Student Enrollment
0
5
10
15
20
25
30
35
40
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
2017-2018
2018-2019
School Year
Pre-K NESDEC 2005 "low end"
Pre-K NESDEC 2005 "high end"
Pre-K NESDEC 2006 (12/19/06)

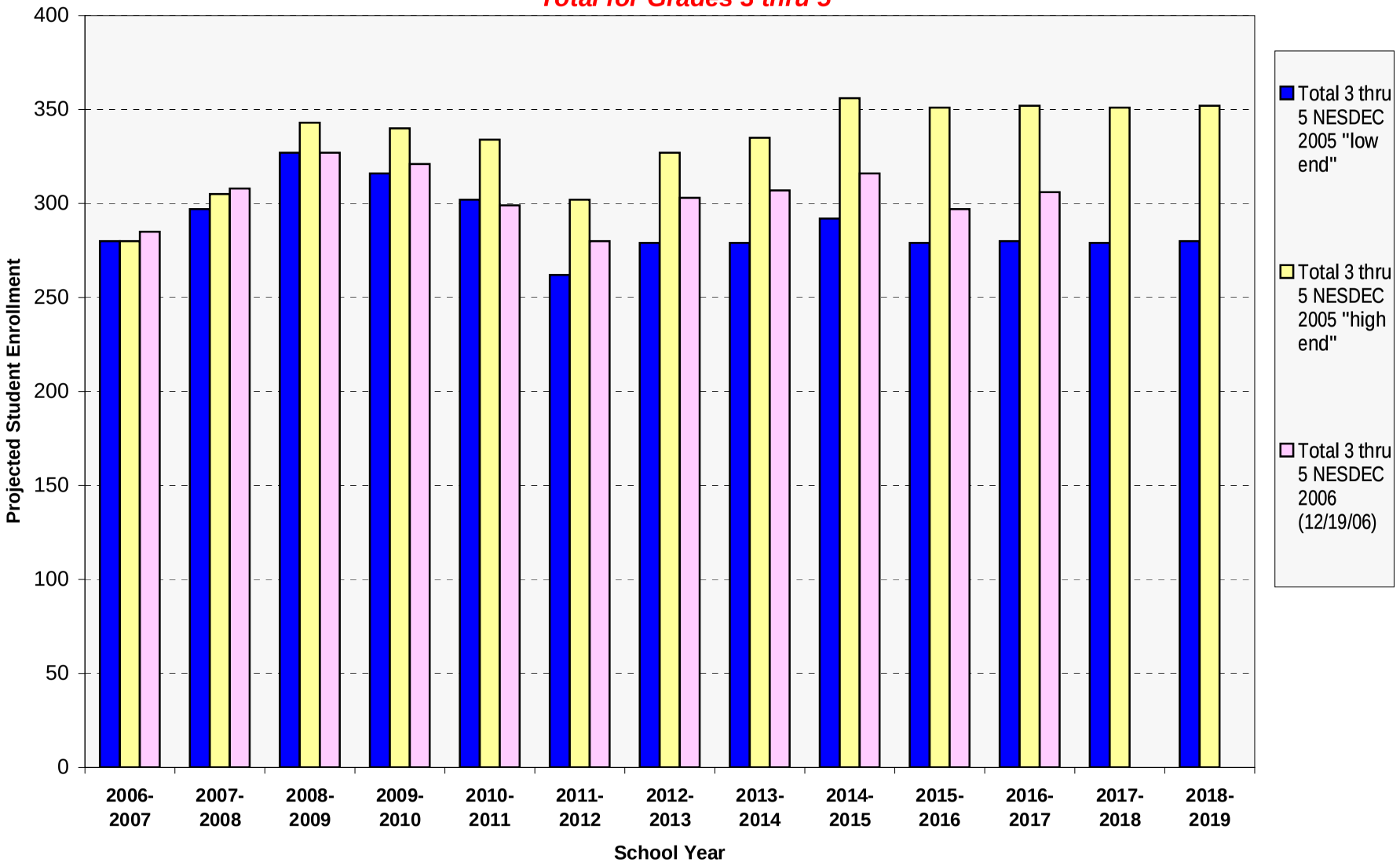
Comparison of NESDEC Enrollment Projection Scenarios

Total for Grades K thru 2



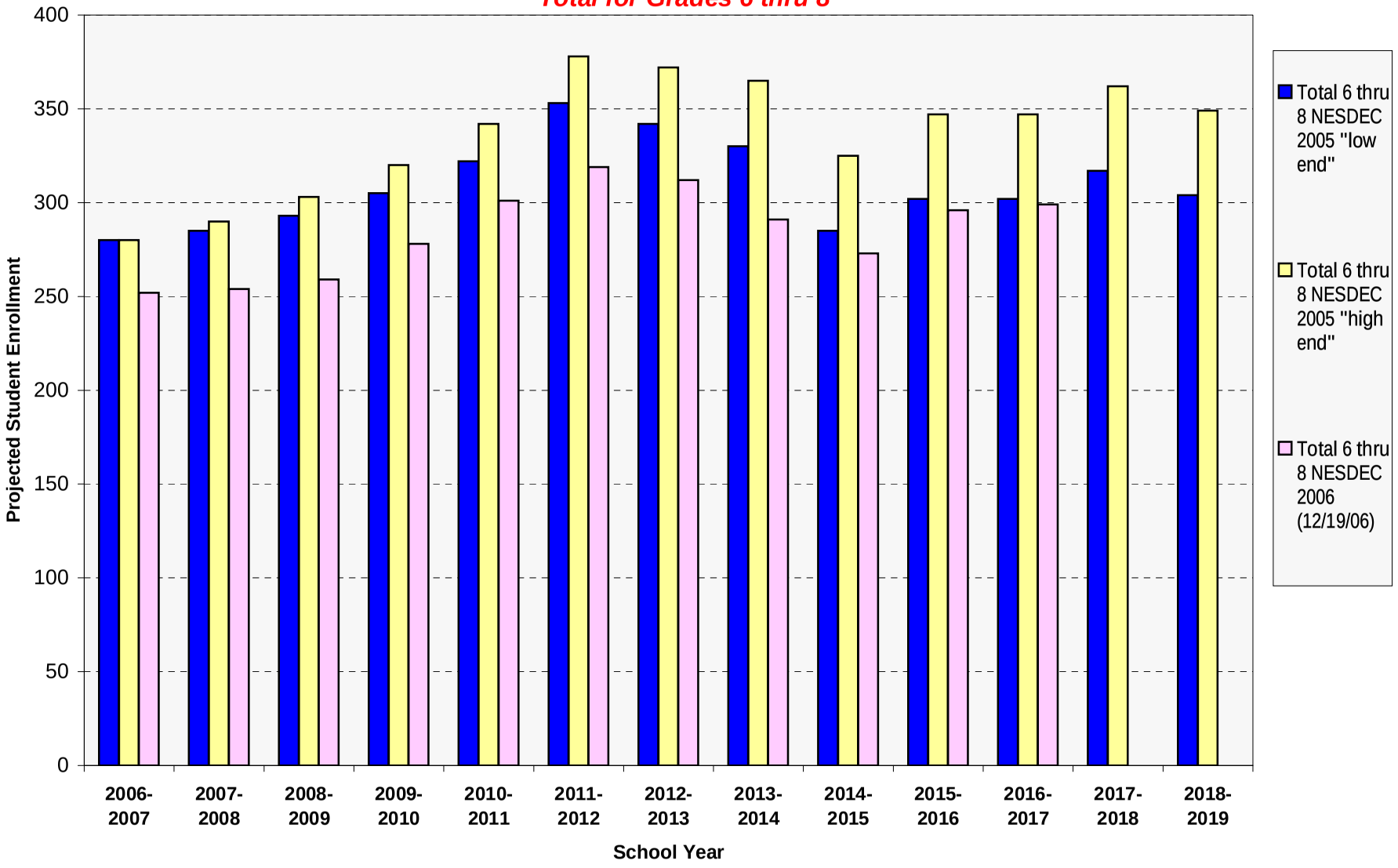
Comparison of NESDEC Enrollment Projection Scenarios

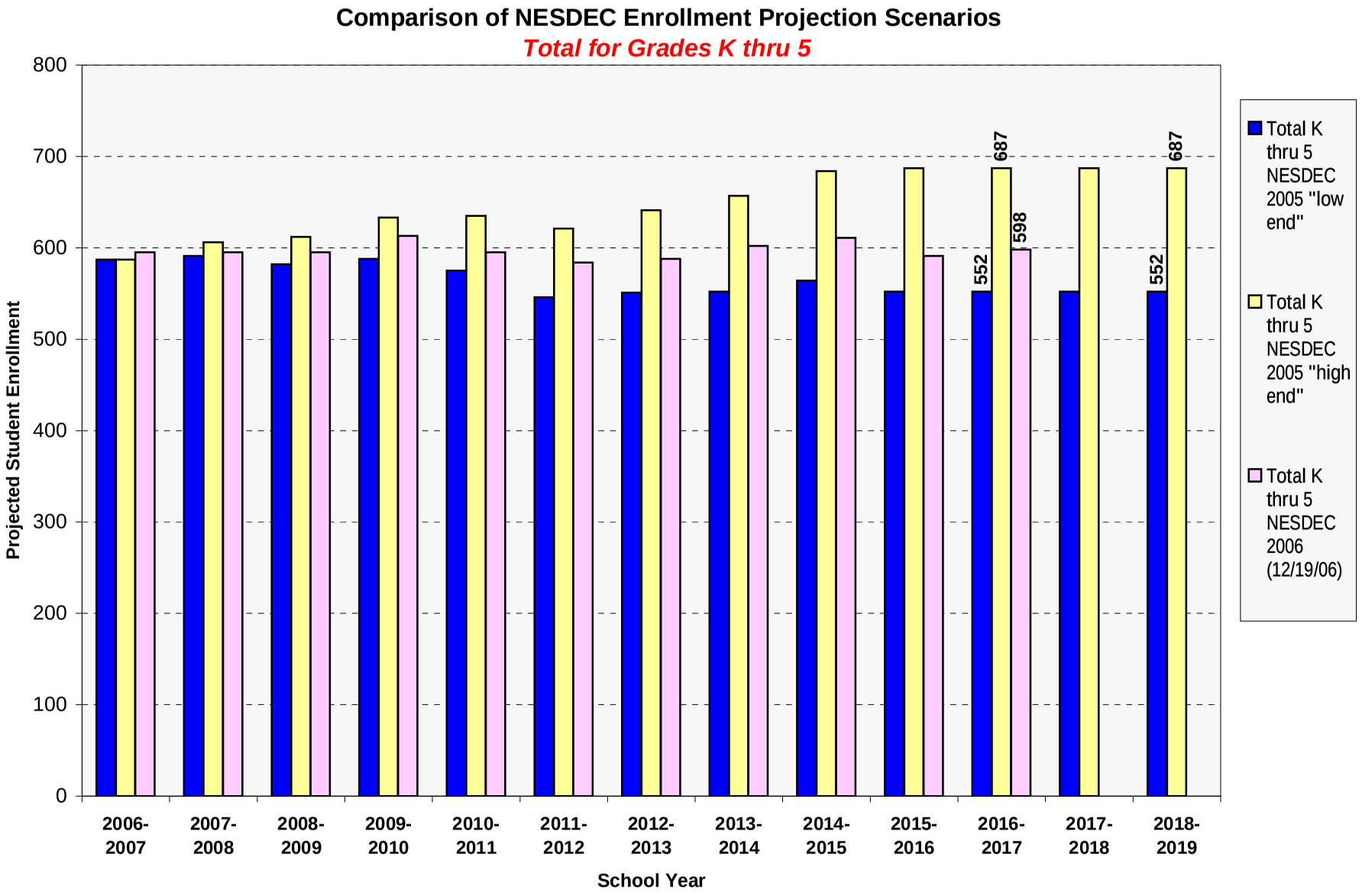
Total for Grades 3 thru 5

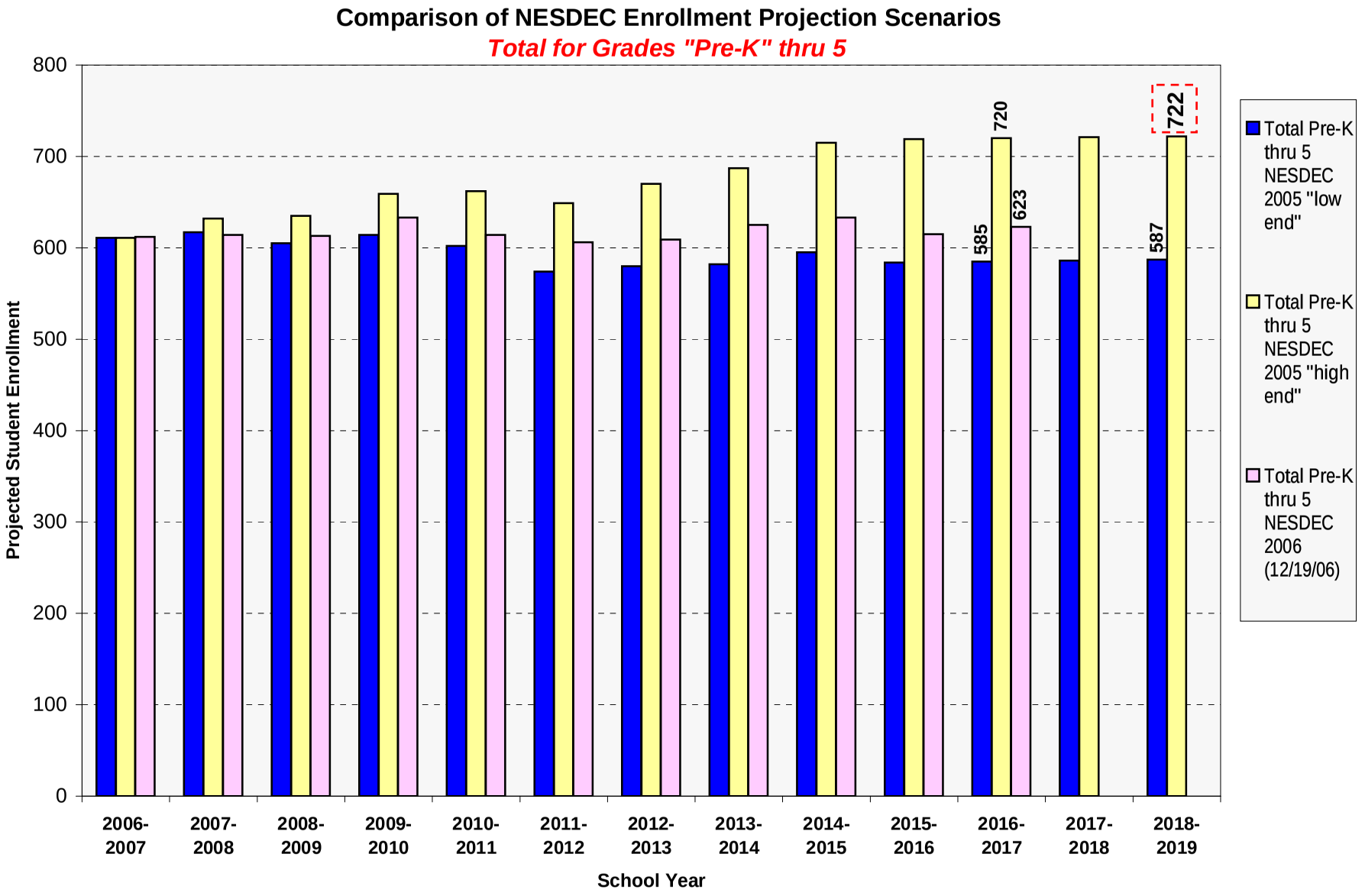


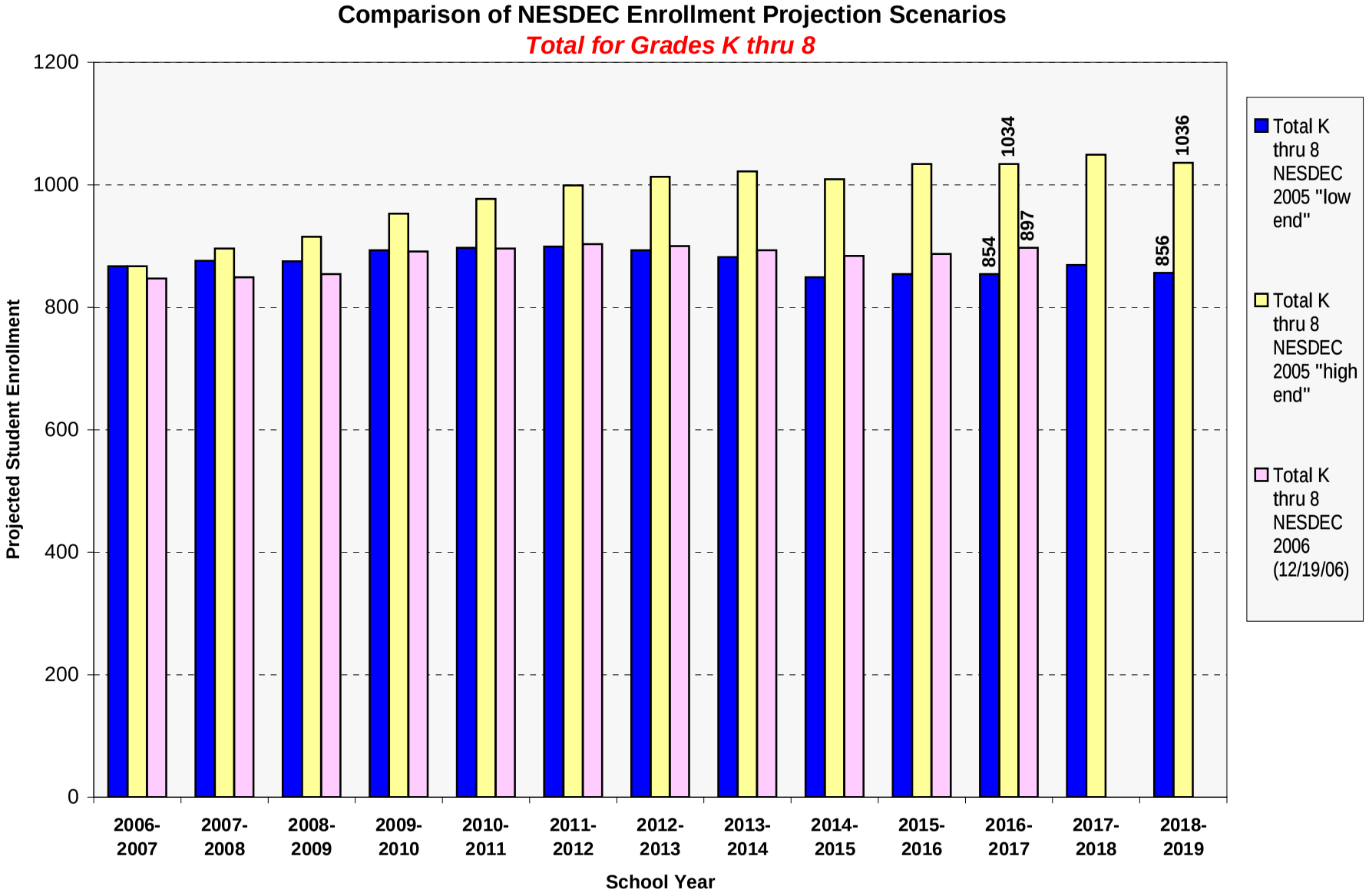
Comparison of NESDEC Enrollment Projection Scenarios

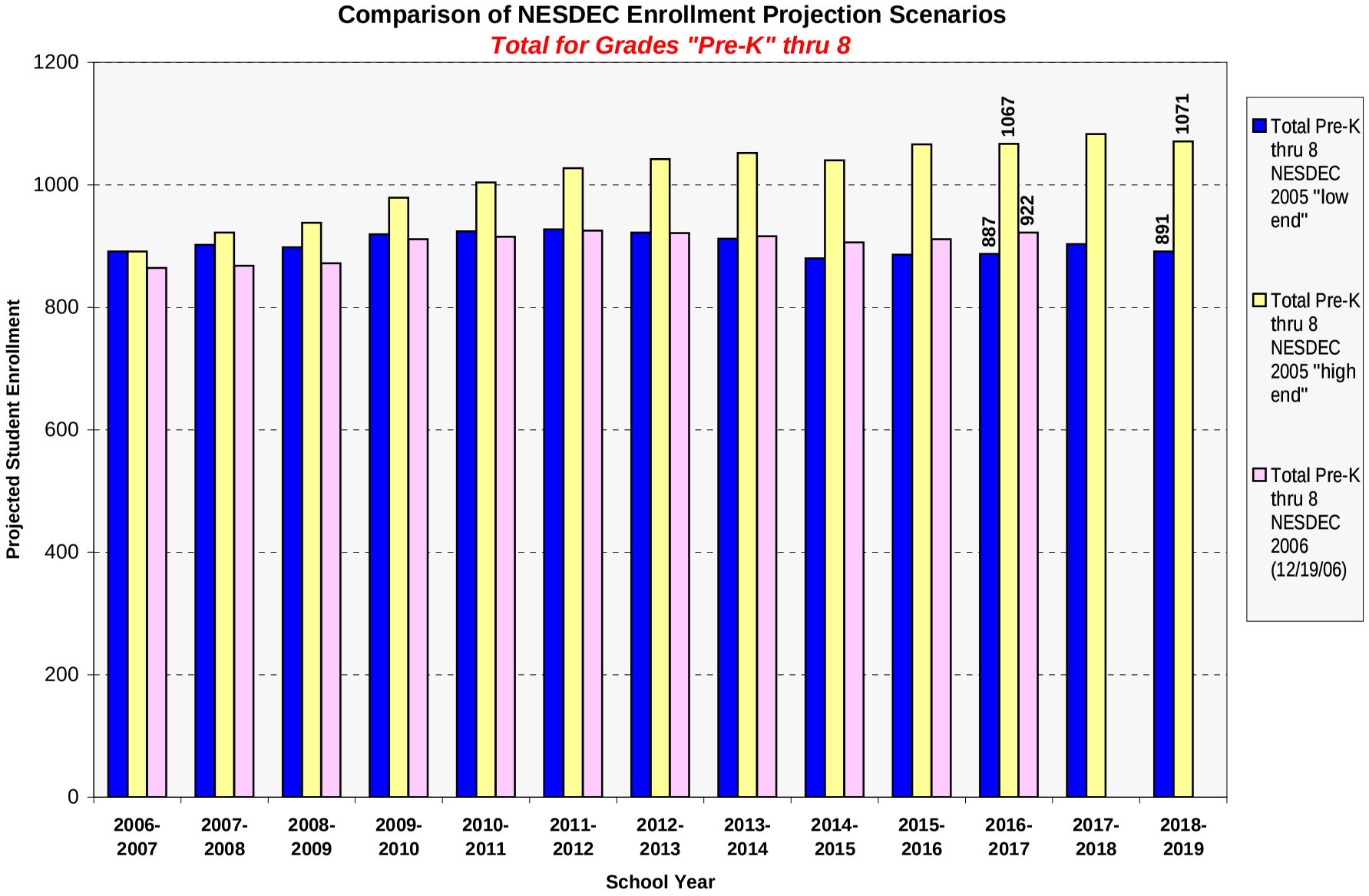
Total for Grades 6 thru 8




Comparison of NESDEC Enrollment Projection Scenarios
Total for Grades K thru 5
Projected Student Enrollment
800
700
600
500
400
300
200
100
0
552
687
598
552
687
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
2017-2018
2018-2019
School Year
Total K thru 5 NESDEC 2005 "low end"
Total K thru 5 NESDEC 2005 "high end"
Total K thru 5 NESDEC 2006 (12/19/06)


Comparison of NESDEC Enrollment Projection Scenarios
Total for Grades "Pre-K" thru 5
Projected Student Enrollment
800
700
600
500
400
300
200
100
0
585
720
623
587
722
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
2017-2018
2018-2019
School Year
Total Pre-K thru 5 NESDEC 2005 "low end"
Total Pre-K thru 5 NESDEC 2005 "high end"
Total Pre-K thru 5 NESDEC 2006 (12/19/06)


Comparison of NESDEC Enrollment Projection Scenarios
Total for Grades K thru 8
Projected Student Enrollment
1200
1000
800
600
400
200
0
854
1034
897
856
1036
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
2017-2018
2018-2019
School Year
Total K thru 8 NESDEC 2005 "low end"
Total K thru 8 NESDEC 2005 "high end"
Total K thru 8 NESDEC 2006 (12/19/06)


Comparison of NESDEC Enrollment Projection Scenarios
Total for Grades "Pre-K" thru 8
Projected Student Enrollment
1200
1000
800
600
400
200
0
887
922
1067
891
1071
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
2017-2018
2018-2019
School Year
Total Pre-K thru 8 NESDEC 2005 "low end"
Total Pre-K thru 8 NESDEC 2005 "high end"
Total Pre-K thru 8 NESDEC 2006 (12/19/06)

NESDEC
New England School Development Council
Celebrating over sixty years of service to education

December 19, 2006

Mr. Michael Wood
Superintendent of Schools
50 Mechanic Street
Bolton, MA 01740

Dear Michael:

The attached enrollment projection for Stow, dated December 19, 2006 is a revision of the Stow projecton from November. The principal change in this revision is the inclusion of the 2005 Stow births (77 births is the provisional number not-yet-released by the DPH v. an estimate of 81 births used in the November projection for Stow).

The enclosed revised projections should be read in conjunction with NESDEC's April, 2005 Demography and Enrollment Projections booklet. This memo, with the attachments, is an update of that Report.

Page 11 of the 2005 Report includes the assumption that Stow births (used as a ratio in projecting future Kindergarten enrollment) will continue in the range of 81-86 per year. In fact, this statistic continues to track at 82-83 births.

Page 11 of the 2005 Report also includes the assumption that Stow will have 105-120 new households per year as a result of real estate turnover. In fact, real estate sales began to slow down by mid-2005 as follows:

Stow	Single-Family Sales	Condo Sales
2002	102	41
2003	112	31
2004	117	7
2005	93	9
2006*	48	3

* January – October

Turnover of real estate has a large impact upon school enrollments. **If one compares the 2006 data with the most recent four-year average (2002-2005), the 48 sales of single-family homes represents 53% of the 90 homes sold in the first ten months of a "typical year" (2002-2005); the 3 condos sold in 2006 can be compared with an average of 19.5 condo sales in Jan-Oct for the four prior years.** Meanwhile, Stow

60th Anniversary 1946-2006

median prices have continued to escalate: $479,000 in 2006 and $455,000 in 2005 for single-family homes; $511,373 in 2006 and $401,000 in 2005 for condos.

The April, 2005 NESDEC Report was based upon October 1, 2004 school enrollments, thus we are now two-years into the planning period described in the Report. The Report offered two scenarios, Table 14 (based upon real estate development to date) and Table 16 (based upon real estate growth anticipated in 2004-05 but not yet implemented). Despite the real estate "pause" which began in mid-2005 just after the NESDEC Report was presented, Stow K-8 enrollments appear to be tracking within the ranges anticipated by NESDEC, closer to Table 14:

	K-8	
2004-05	819	Actual when NESDEC Report written
2006-07	867	Proj. NESDEC Report Table 14 based on October 2004 data
2006-07	847	Actual
2010-11	897	Proj. NESDEC Report Table 14 ("low-end")
2010-11	896	Proj. (new, attached to memo)
2010-11	977	Proj. NESDEC Report Table 16 ("high end")
2016-17	854	Proj. NESDEC Report Table 14 ("low end")
2016-17	897	Proj. (new, attached to memo)
2016-17	1034	Proj: NESDEC Report Table 16 ("high end")

We will be happy to answer your questions.

Best Wishes,

Don Kennedy

Donald G. Kennedy, Ed.D.
New England School Development Council

5 atts.

NEW ENGLAND SCHOOL DEVELOPMENT COUNCIL--MARLBOROUGH, MA
DATE: 12/19/06
SCHOOL DISTRICT: Stow, MA (out-of-district SPED not included) 2005 data revised

HISTORICAL ENROLLMENTS BY GRADE

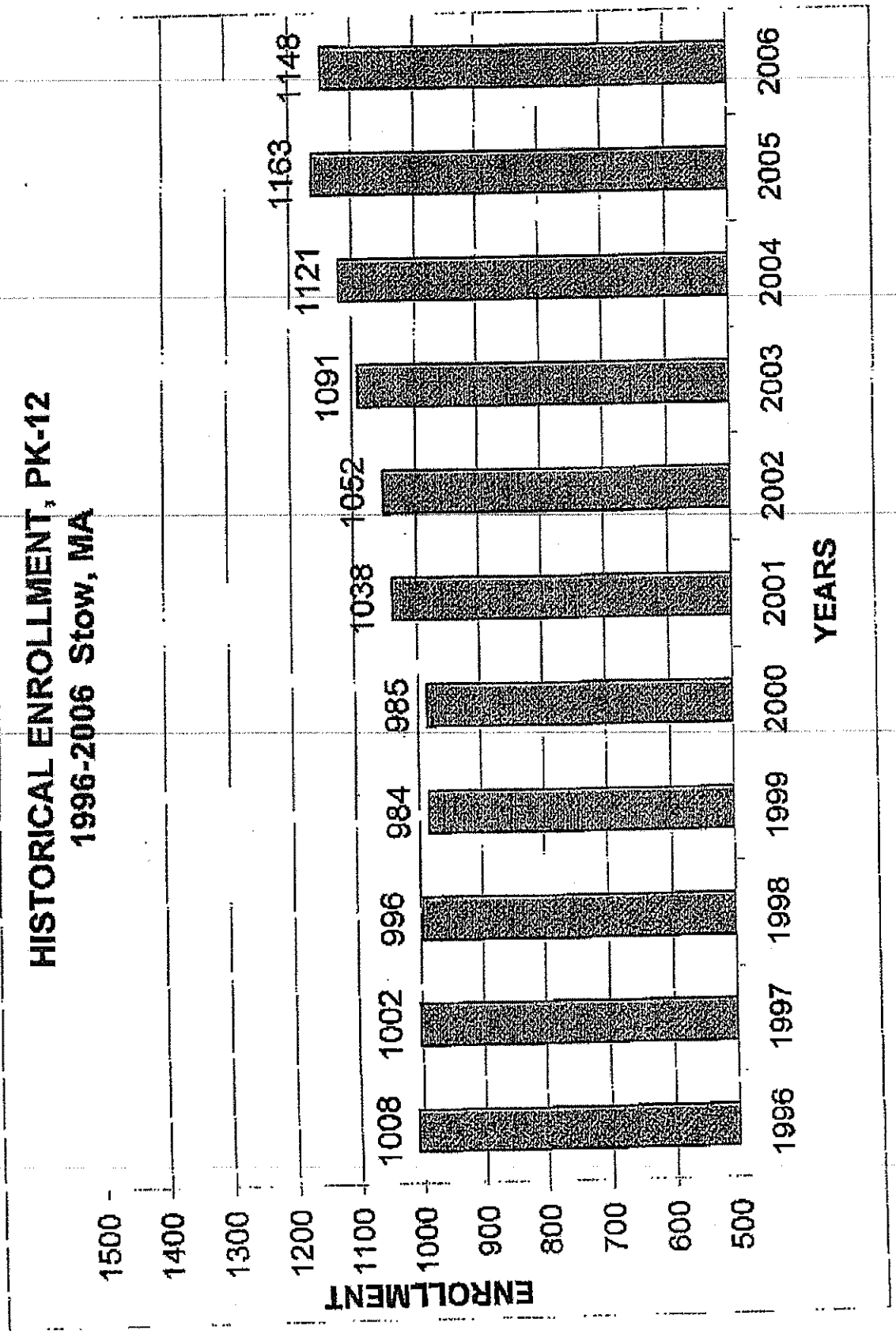
BIRTH YEAR	BIRTHS	SCHOOL YEAR	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	Ungrad	PK-12 TOTAL
1991	71	1996-97	5	77	89	82	85	92	82	90	81	78	56	64	62	65		1008
1992	82	1997-98	10	91	77	84	89	87	93	81	91	71	57	57	60	54		1002
1993	69	1998-99	7	79	89	73	99	89	82	93	79	92	54	50	51	56	3	996
1994	84	1999-00		84	83	88	71	98	90	66	93	82	67	59	60	53		984
1995	78	2000-01		87	88	85	88	74	97	86	77	90	53	65	47	48		985
1996	67	2001-02		90	94	90	88	88	76	97	85	87	70	56	69	49		1038
1997	90	2002-03	19	86	82	90	84	103	73	75	101	86	69	68	57	59		1052
1998	93	2003-04	31	102	93	87	85	86	85	93	78	103	81	68	66	51		1091
1999	95	2004-05	24	102	103	93	88	89	67	88	97	74	76	65	70	65		1121
2000	88	2005-06	18	108	112	103	95	90	91	86	84	97	66	78	66	69		1163
2001	78	2006-07	17	92	108	110	102	91	92	85	82	85	82	61	76	65		1148

HISTORICAL ENROLLMENTS IN GRADE COMBINATIONS

SCHOOL YEAR	K-2	K-5	K-6	K-8	5-8	6-8	7-8	7-12	9-12
1996-97	248	607	597	756	331	249	159	406	247
1997-98	252	521	602	764	336	243	162	390	228
1998-99	241	611	604	775	346	264	171	382	211
1999-00	255	514	580	755	331	241	175	404	229
2000-01	260	519	605	772	350	253	167	380	213
2001-02	274	526	623	795	345	269	172	415	243
2002-03	258	518	593	780	335	262	187	440	253
2003-04	282	538	631	812	359	274	181	429	248
2004-05	298	562	650	821	346	259	171	447	276
2005-06	323	599	685	866	358	267	181	460	279
2006-07	310	595	680	847	344	252	167	451	284

HISTORICAL ENROLLMENT DATA
ANNUAL PERCENTAGE CHANGES

Year	Total	Diff.	%
1996-97	1008		
1997-98	1002	-6	-0.6%
1998-99	996	-6	-0.6%
1999-00	984	-12	-1.2%
2000-01	985	1	0.1%
2001-02	1038	53	5.4%
2002-03	1052	14	1.3%
2003-04	1091	39	3.7%
2004-05	1121	30	2.7%
2005-06	1163	42	3.7%
2006-07	1148	-15	-1.3%
TOTAL CHANGE 1996-2006		140	13.9%


HISTORICAL ENROLLMENT, PK-12
1996-2006 Stow, MA
ENROLLMENT
YEARS
1500
1400
1300
1200
1100
1000
900
800
700
600
500
1008
1002
996
984
985
1038
1052
1091
1121
1163
1148
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006

NEW ENGLAND SCHOOL DEVELOPMENT COUNCIL--MARLBOROUGH, MA
SCHOOL DISTRICT: Stow, MA (out-of-district SPED not included) 2005 data revised
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ENROLLMENT PROJECTIONS BY GRADE*

BIRTH YEAR	BIRTHS		SCHOOL YEAR	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	Ungrad	PK-12 TOTAL
2001	76		2006-07	17	92	108	110	102	91	92	85	82	85	82	61	76	65		1148
2002	73		2007-08	19	85	95	107	111	104	93	91	81	82	71	82	61	73		1155
2003	73		2008-09	18	85	88	95	108	113	106	92	86	81	69	71	82	59		1153
2004	100		2009-10	20	116	88	88	96	110	115	105	87	86	68	69	71	79		1198
2005	77	prov	2010-11	19	89	119	88	89	98	112	114	100	87	72	68	69	66		1192
2006	81	(est.)	2011-12	22	94	92	116	89	91	100	111	108	100	73	72	68	66		1204
2007	83	(est.)	2012-13	21	96	97	92	119	91	93	99	105	108	84	73	72	65		1215
2008	85	(est.)	2013-14	23	99	99	97	93	121	93	92	94	105	91	84	73	69		1233
2009	81	(est.)	2014-15	22	94	102	99	98	95	123	92	87	94	88	91	84	70		1239
2010	82	(est.)	2015-16	24	96	97	101	100	100	97	122	87	87	79	88	91	81		1250
2011	83	(est.)	2016-17	25	96	99	97	102	102	102	96	116	87	73	79	88	87		1249

PROJECTED ENROLLMENTS IN GRADE COMBINATIONS*

SCHOOL YEAR	K-2	K-5	K-6	K-8	5-8	6-8	7-8	7-12	9-12
2006-07	310	595	680	847	344	252	167	451	284
2007-08	287	595	686	849	347	254	163	450	287
2008-09	268	595	687	854	365	259	167	448	281
2009-10	292	613	718	891	393	278	173	460	287
2010-11	296	595	709	896	413	301	187	464	277
2011-12	304	584	695	903	419	319	208	487	279
2012-13	285	588	687	900	405	312	213	507	294
2013-14	295	602	694	893	384	291	199	516	317
2014-15	295	611	703	884	396	273	181	514	333
2015-16	294	591	713	887	393	296	174	513	339
2016-17	292	598	694	897	401	299	203	530	327

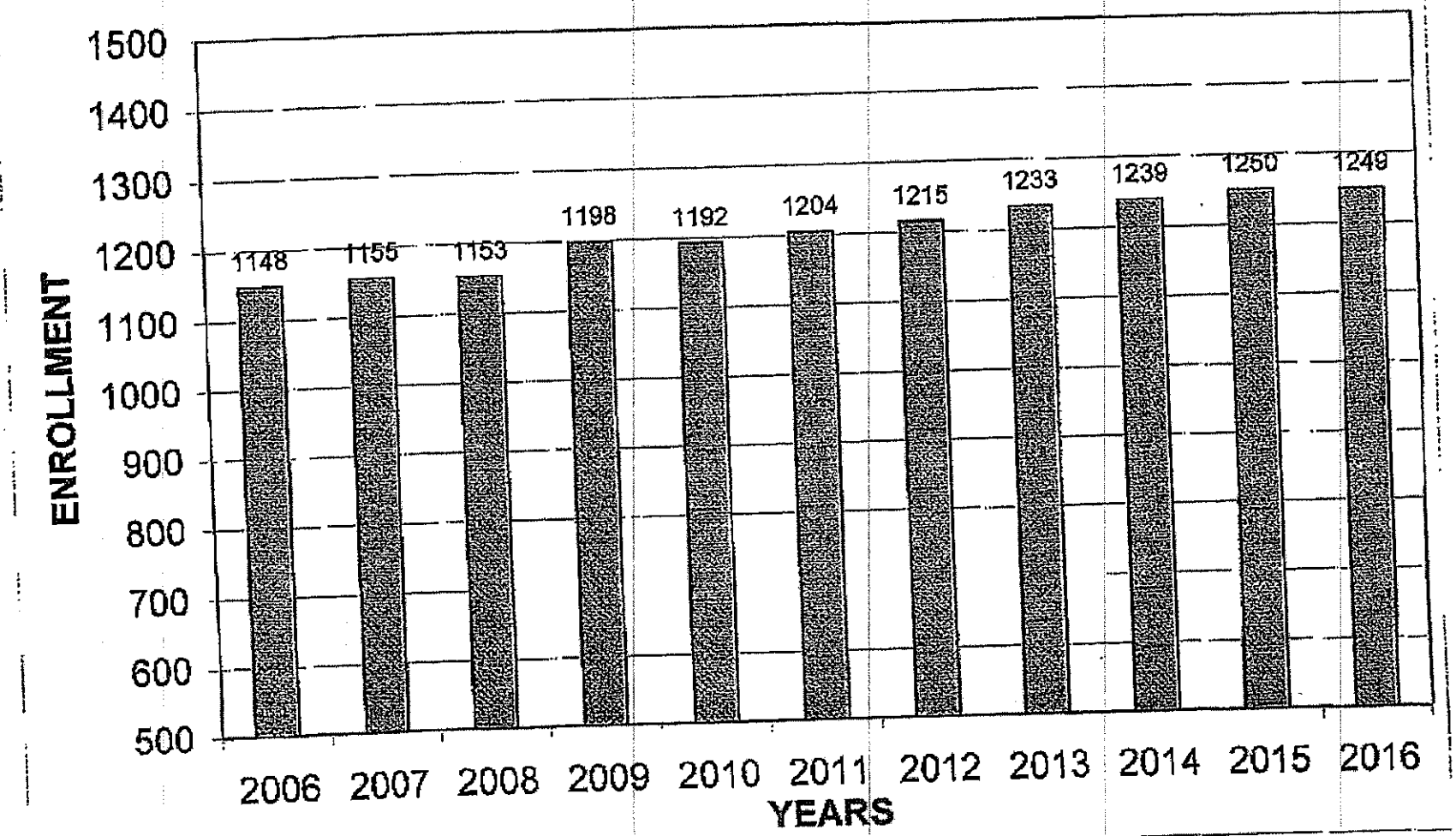
*PROJECTIONS SHOULD BE UPDATED ON AN ANNUAL BASIS

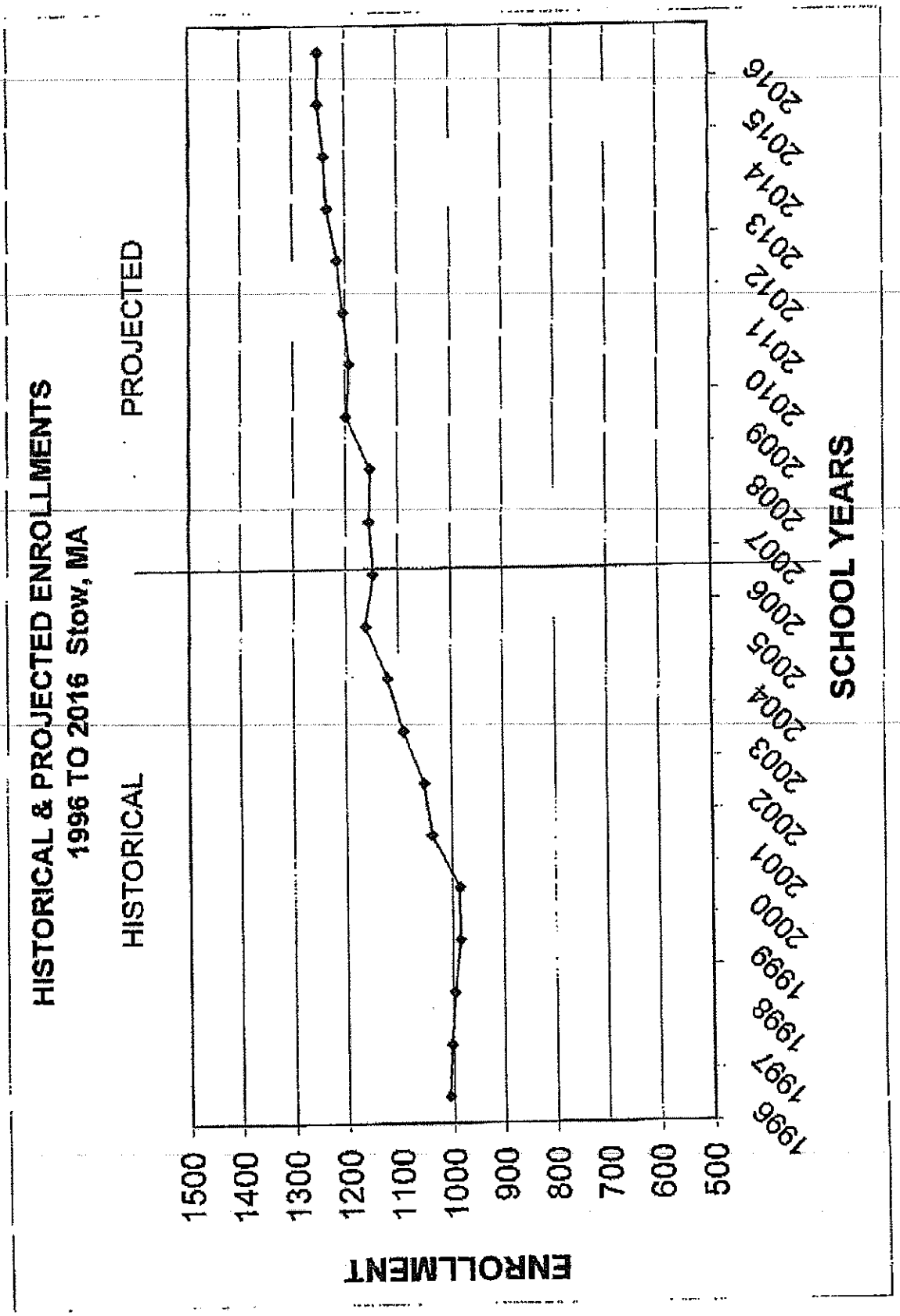
PROJECTED ENROLLMENT DATA
ANNUAL PERCENTAGE CHANGES

Years	Total	Diff.	%
2006-07	1148		
2007-08	1155	7	0.6%
2008-09	1153	-2	-0.2%
2009-10	1198	45	3.9%
2010-11	1192	-6	-0.5%
2011-12	1204	12	1.0%

TOTAL CHANGE 2006-2011 56 4.9%

PROJECTED PK-12 ENROLLMENT TO 2016 BASED ON DATA THROUGH SCHOOL YEAR 2006-07 Stow, MA




HISTORICAL & PROJECTED ENROLLMENTS
1996 TO 2016 Stow, MA
HISTORICAL
PROJECTED
ENROLLMENT
1500
1400
1300
1200
1100
1000
900
800
700
600
500
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
SCHOOL YEARS

NEW ENGLAND SCHOOL DEVELOPMENT COUNCIL–MARLBOROUGH, MA
SCHOOL DISTRICT: Stow, MA (out-of-district SPED not included) 2005 data revised
DATE: 11/08/06

ENROLLMENT PROJECTIONS BY GRADE*

BIRTH YEAR	BIRTHS	SCHOOL YEAR	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	Ungrad	PK-12 TOTAL
2001	78	2006-07	17	92	108	110	102	91	92	85	82	85	82	61	76	65		1148
2002	73	2007-08	17	85	95	107	111	104	93	91	81	82	71	82	61	73		1153
2003	73	2008-09	17	85	88	95	108	113	106	92	86	81	69	71	82	59		1152
2004	100	2009-10	17	116	88	88	96	110	115	105	87	86	68	69	71	79		1195
2005	81 (est.)	2010-11	17	94	119	88	89	98	112	114	100	87	72	68	69	68		1195
2006	82 (est.)	2011-12	17	95	97	118	89	91	100	111	108	100	73	72	68	66		1205
2007		2012-13			98	97	119	91	93	99	105	108	84	73	72	65		
2008		2013-14				98	98	121	93	92	94	105	91	84	73	69		
2009		2014-15					99	100	123	92	87	94	88	91	84	70		
2010		2015-16						101	102	122	87	87	79	88	91	81		
2011		2016-17							103	101	116	87	73	79	88	87		

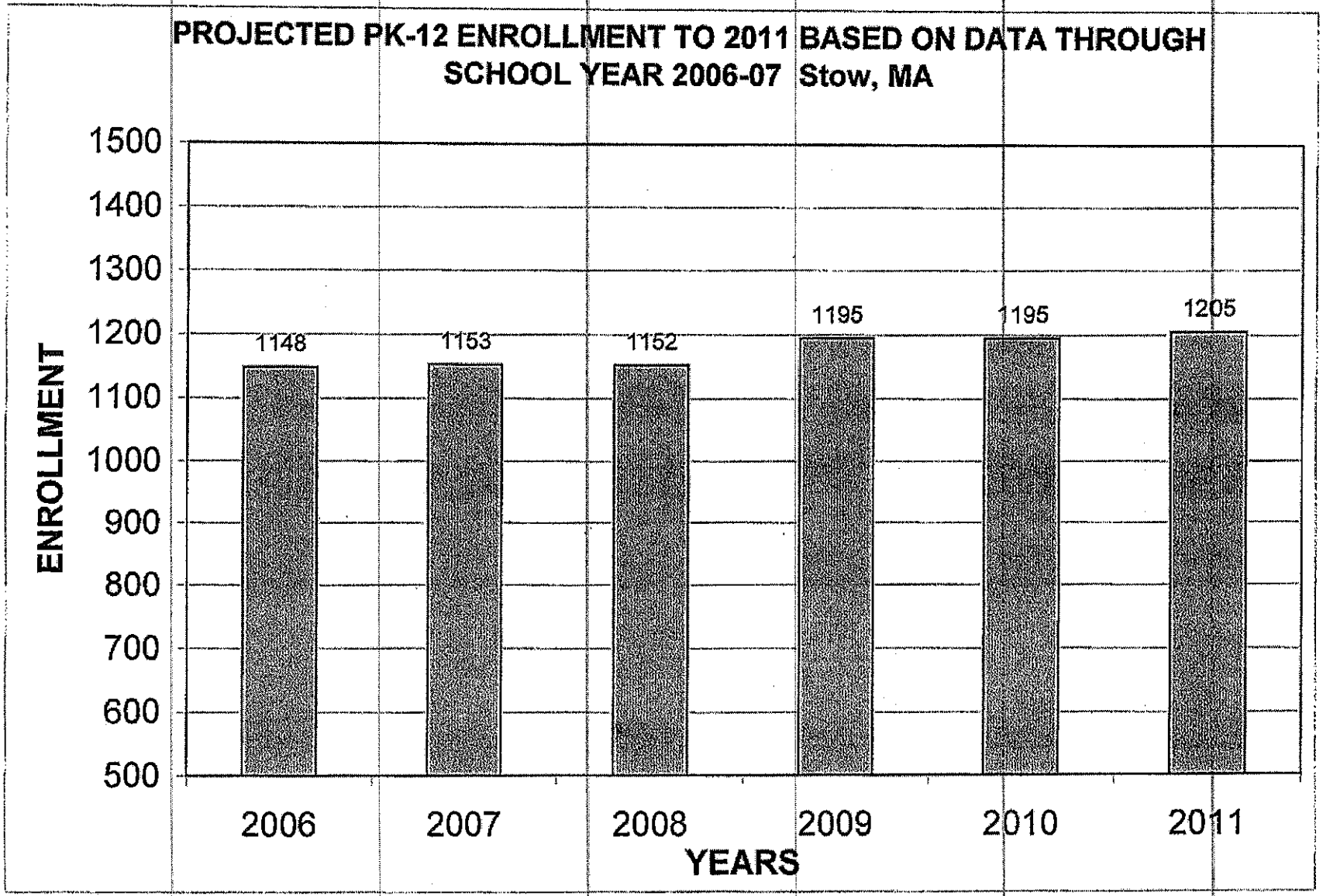
PROJECTED ENROLLMENTS IN GRADE COMBINATIONS*

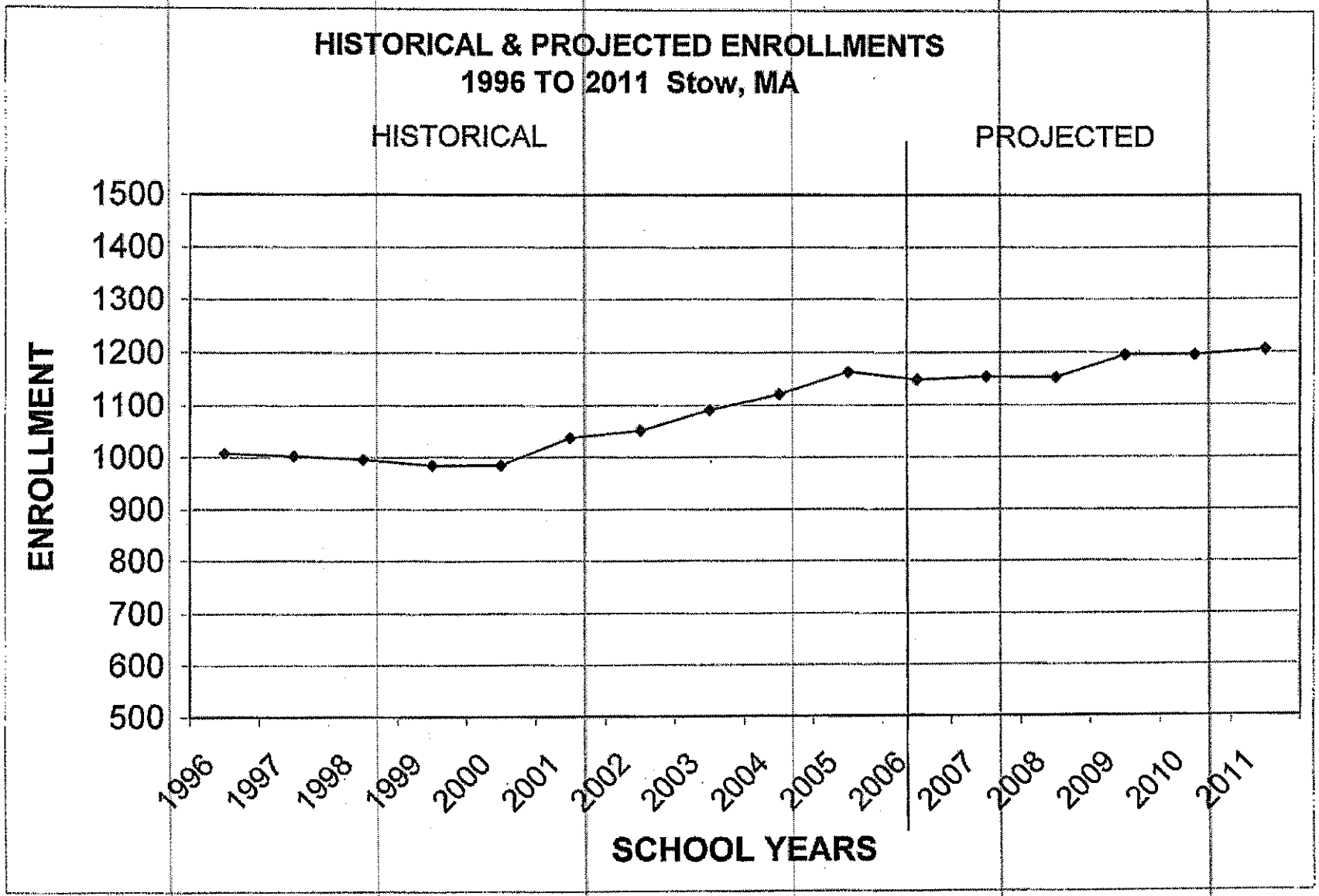
SCHOOL YEAR	K-2	K-5	K-6	K-8	5-8	6-8	7-8	7-12	9-12
2006-07	310	595	680	847	344	252	167	451	284
2007-08	287	595	686	849	347	254	163	450	287
2008-09	268	595	687	854	365	259	167	448	281
2009-10	292	613	718	891	393	278	173	460	287
2010-11	301	600	714	901	413	301	187	464	277
2011-12	310	590	701	909	419	319	208	487	279
2012-13					405	312	213	507	294
2013-14					384	291	199	516	317
2014-15					396	273	181	514	333
2015-16					398	296	174	513	339
2016-17					407	304	203	530	327

*PROJECTIONS SHOULD BE UPDATED ON AN ANNUAL BASIS

PROJECTED ENROLLMENT DATA
ANNUAL PERCENTAGE CHANGES

Years	Total	Diff.	%
2006-07	1148		
2007-08	1153	5	0.4%
2008-09	1152	-1	-0.1%
2009-10	1195	43	3.7%
2010-11	1195		
2011-12	1205	10	0.8%
TOTAL CHANGE 2006-2011		57	5.0%


PROJECTED PK-12 ENROLLMENT TO 2011 BASED ON DATA THROUGH SCHOOL YEAR 2006-07 Stow, MA
ENROLLMENT
1500
1400
1300
1200
1100
1000
900
800
700
600
500
1148
1153
1152
1195
1195
1205
2006
2007
2008
2009
2010
2011
YEARS


HISTORICAL & PROJECTED ENROLLMENTS
1996 TO 2011 Stow, MA
HISTORICAL
PROJECTED
ENROLLMENT
1500
1400
1300
1200
1100
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900
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1996
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2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
SCHOOL YEARS

NEW ENGLAND SCHOOL DEVELOPMENT COUNCIL--MARLBOROUGH, MA
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1991	71	1996-97	5	77	89	82	85	92	82	90	81	78	56	64	62	65		1008
1992	82	1997-98	10	91	77	84	89	87	93	81	91	71	57	57	60	54		1002
1993	69	1998-99	7	79	89	73	99	89	82	93	79	92	54	50	51	56	3	996
1994	84	1999-00		84	83	88	71	98	90	66	93	82	67	59	50	53		984
1995	78	2000-01		87	88	85	88	74	97	86	77	90	53	65	47	48		985
1996	87	2001-02		90	94	90	88	88	76	97	85	87	70	55	69	49		1038
1997	90	2002-03	19	86	82	90	84	103	73	75	101	86	69	68	57	59		1052
1998	93	2003-04	31	102	93	87	85	86	85	93	78	103	81	68	68	51		1091
1999	95	2004-05	24	102	103	93	88	89	87	88	97	74	76	65	70	65		1121
2000	88	2005-06	18	108	112	103	95	90	91	86	84	97	66	78	66	69		1163
2001	78	2006-07	17	92	108	110	102	91	92	85	82	85	82	61	76	65		1148

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2001-02	274	526	623	795	345	269	172	415	243
2002-03	258	518	593	780	335	262	187	440	253
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2004-05	298	562	650	821	346	259	171	447	276
2005-06	323	599	685	866	358	267	181	460	279
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HISTORICAL ENROLLMENT DATA
ANNUAL PERCENTAGE CHANGES

Year	Total	Diff.	%
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1998-99	996	-6	-0.6%
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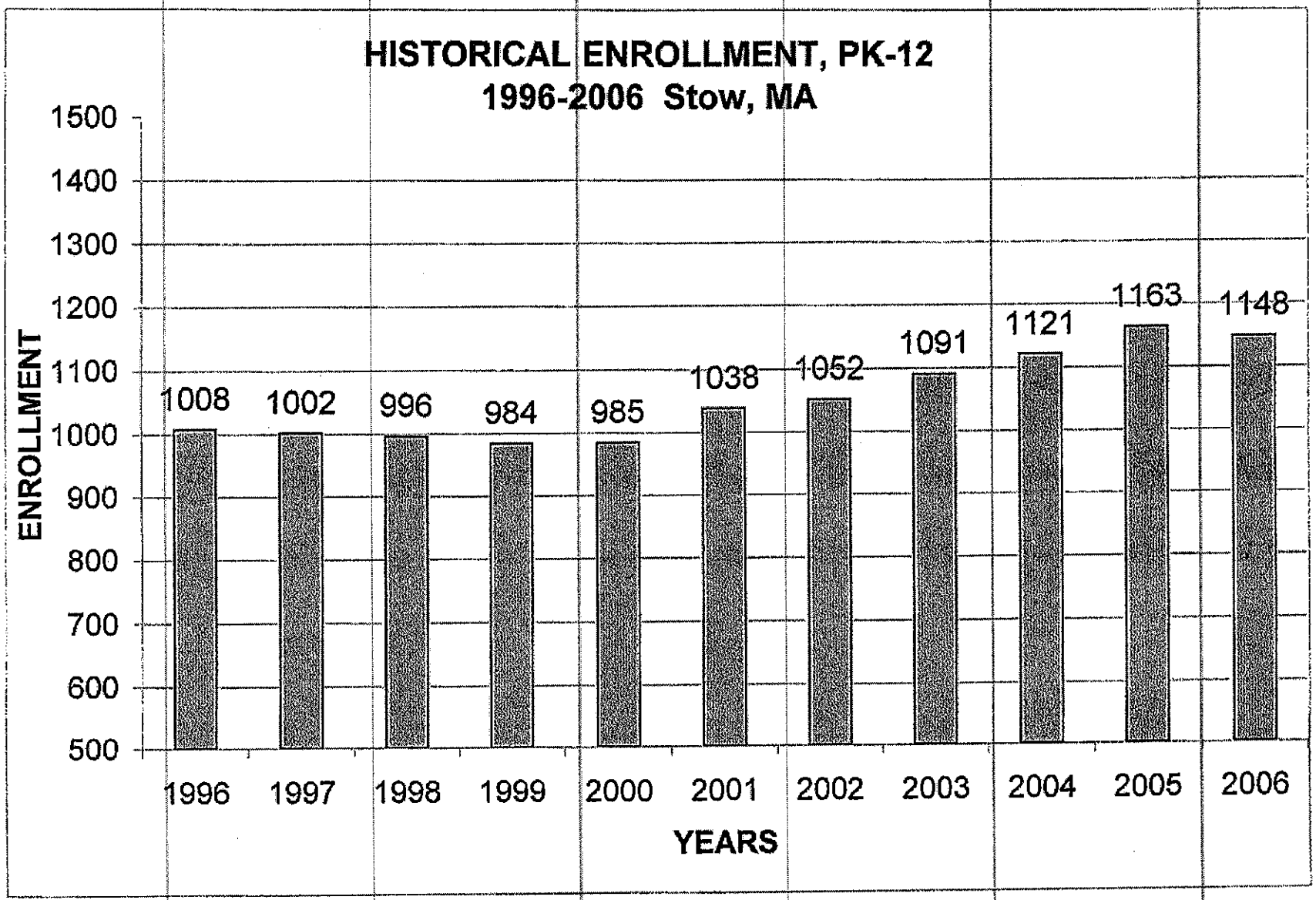
2000-01	985	1	0.1%
2001-02	1038	53	5.4%
2002-03	1052	14	1.3%
2003-04	1091	39	3.7%
2004-05	1121	30	2.7%
2005-06	1163	42	3.7%
2006-07	1148	-15	-1.3%

TOTAL
CHANGE 1996-2006 140 13.9%


HISTORICAL ENROLLMENT, PK-12
1996-2006 Stow, MA
ENROLLMENT
1500
1400
1300
1200
1100
1000
900
800
700
600
500
1008
1002
996
984
985
1038
1052
1091
1121
1163
1148
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
YEARS

SECTION 3.1 PROPOSED EDUCATIONAL PROGRAMS

ELEMENTARY SCHOOLS

This Master Plan explored retaining the Town's two elementary schools (Center and Pompositticut) and combining the schools into a single building. Since each building requires certain spaces such as gym, cafeteria, library, administrative spaces etc., the space programs vary depending on the number of buildings. A combined building does afford certain economies of space.

The following spread sheets summarize all of the necessary spaces that make up a school to meet Stows' elementary grades needs. This table includes the classroom spaces as well as the many spaces that are not classrooms. These include spaces such as: teachers work spaces, student support areas, storage room's conference rooms as well as spaces that serve the entire school community such as: school administration, gymnasium, library and cafeteria.

This spread sheet also compares the space needs with those provided by the existing building.

The summary of spaces are expressed in Net Educational Area. This is the usable space within the rooms. A 1.45 net to gross multiplier is applied to account for other areas of the building including: corridors, mechanical rooms, wall thicknesses, toilet rooms etc. This resulting figure is referred to as the gross building area.

For a single school solution, Scenario 3, this process has determined that Stow Elementary Schools needs approximately 70,740 square feet of net educational area compared to the current 50,605 net educational area. This results in the need for approximately 102,573 square feet of gross area compared to the current 72,775 gross area.

The two school solution, Scenario 1, for the reasons explained above would require approximately 86,160 square feet of net educational space and approximately 124,961 gross square feet. (This gross square foot number included retaining the existing café/gymnasium space at Center which was not calculated in the cost analysis in Section 4.2. There was much discussion about the proposed use for this space should it remain and it was finally determined that it would remain).

The Educational Program was developed in three charts. All assumed a PreK – 5 population of 660 students.

- **Single School at Center** shows the program requirements when all grades are consolidated under one roof. This has the efficiencies of a

single gym, cafeteria, library and administration. This program reflects Scenario 3.

- **Pompositticut School, Grades PreK – 2**, for a total population of 346 students. This program is for just the PreK – grade 2 students. This is similar to the current Pompositticut school with the addition of the PreK and upgraded for population increases and the appropriate educational spaces for contemporary education This program reflects the Pompo portion of Scenario 1.

- **Center School, Grades 3 – 5,** for a total population of 321 students. This program is for just the grades 3 – 5 students. This program is similar to the current Center School, but upgraded for population increases and the appropriate educational spaces for contemporary education. This program reflects the Center portion of Scenario 1.

HALE MIDDLE SCHOOL

This Master Plan explored the educational needs for the Hale Middle School. The largest limiter on expansion of this building is the capacity of the core spaces. During the last renovation and addition, the cafeteria was made smaller, turning some space over to offices. Any expansion of the school will require the reversing of that space.

Similar to the elementary school populations, the projections vary depending on when they were done. The most recent in December of 2006, reflect the housing slow down as discussed for the elementary grades.

The current population for grades 6 through 8 is 252 students. This is expected to rise to 300 to 378 students in approximately five years. The ten year projections show an enrollment of 300 - 350 students. An increase from the current enrollment but a decline from the peak enrollment.

The most logical location for a classroom addition, if required, would be at the north end of the current classroom wing. This would require extending the corridor through the science room and recreating the proper sized science room. The addition would be 2 story and could be 2 or 4 classrooms per floor, based on the classroom need. This could result in an additional 4 or 8 classrooms.

The short term solution would be to relocate the 4 temporary classrooms from the Pompositticut School to the Middle School once the Center School project is completed. Following the completion of the Center School project, the Hale school population project should be revisited to determine the long term educational needs.

HIGH SCHOOL

This Master Plan did not explore the High School. The Town of Stow is a member of the Nashoba Regional School district and the high school is located in Bolton.

PROGRAM INADEQUACIES

We have compared the size of existing program spaces with the needs identified in the Summary of Spaces. All spaces that are under the program area requirements are colored on the floor plans, (attached within this section).

MSBA COMPLIANCE / VARIATION

In May of 2006, the MSBA published Draft Regulations and in early September final regulations were promulgated. The work of this study was developed adhering to the new regulations, where regulations exist.

Space standards – The MSBA has not yet developed space standards for renovation projects. At the time we conducted educational programming for the schools, the space standards were not available. As agreed with the Committee, SMMA used the standards for New Construction as a guide for developing the educational program. Prior to moving forward with proposed projects, it will be necessary to work with the MSBA to determine that the space requirements are acceptable.

In areas where the existing rooms identified a minor deviation above or below the regulations, it was determined that those spaces would remain unchanged allowing the existing partitions to remain in place and minimize costs.

SINGLE SCHOOL AT CENTER

Room Type	MSBA Prototype 660	Assume 660 Students: Room Sq.Ft.	Number of Rooms	Area Totals	Existing Combined Schools: Room Sq.Ft.	Number of Rooms	Area Totals	Delta	Comments
PRE - KINDERGARTEN w/toilet		1,200	2	2,400	0	0	0		
Total Pre K	**0**			**2,400**			**0**	**-2,400**	
CORE ACADEMIC SPACES									
Typical Classrooms - Grade K full day (w/toilet)		1,200	6	7,200	varies	5	5,175	-2,025	(2) at 900, (1) at 1,025, (2) at 1,175
Typical Classrooms - Grades 1-5, (including cubbies within the classrooms)		1,000	26	26,000	varies	24	22,653	-3,347	(1) at 680, (1) at 690, (2) at 900, (1) at 1,133, (1) at 1,222, (1) at 1,415, (4) at 1,550, (1) at 1,883
Primary, Intermediate Book Storage		300	2	600	0	0	0	-600	
Science Classroom (Grades 3 - 5)		1,200	1	1,200	1,020	1	1,020	180	serves grades 3 - 5
Science Office					85	1	85	85	
Remedial Reading Rooms		500	2	1,000	570	1	570	-430	
Total Core Academic	**27,600**			**36,000**			**29,503**	**-6,497**	
SPECIAL EDUCATION									
Reg SPED - Resource Room		1,000	2	2,000		2	385	-1,615	
Book Storage		150	1	150	0	0	0	-150	in lieu of classrooms
OT / PT Classroom		950	1	950		2	795	-155	in lieu of classrooms
ESL - English as a Second Language		300	1	300	0	0	0	-300	in lieu of small group
School Psychologist Office / Testing		200	1	200	0	0	0	-200	in lieu of small group
Speech Room		300	1	300	0	0	0	-300	in lieu of small group
	7,040			**3,900**			**1,180**	-2,720	
SPECIAL EDUCATION - PASS PROGRAM									
Classrooms		900	1	900	0	0	0	-900	average 8 students each
Time Out Room		100	1	100	0	0	0	-100	
Small Group Room		300	1	300	0	0	0	-300	
Adjustment Counselors Office		120	1	120	0	0	0	-120	
Total SPED	**0**			**1,420**			**0**	**-1,420**	
PASS Program Included in this Combined School Only									
ART & MUSIC									
Music Classroom		1,000	1	1,000	varies	2	1,670	670	1 class in a 6 day rotation
Music Storage		200	1	200	0	0	0	-200	
Band Room (2nd music room)		0	0	0	0	0	0	0	see Dining (Platform)
Band Storage		300	1	300	0	0	0	-300	Adjacent to Dining / Platform
Art Classroom		1,000	2	2,000		2	1,460	-540	1 class in a 6 day rotation
Kiln		100	1	100	165	1	165	65	
Storage		100	1	100	0	0	0	-100	
Total Music & Art	**5,000**			**3,700**			**3,295**	**-405**	
HEALTH & PHYSICAL EDUCATION									
Gymnasium		6,000	1	6,000		2	6,610	610	6000 SF Min Size, 2 classes in a 6 day rotation
Gym Storage		300	1	300		2	185	-115	includes gymnastic equipment
PE / Health Instructor's Off. w/shower and tlt		150	2	300	200	1	200	-100	2nd office
Health Teacher Office		120	1	120	0	0	0	-120	
Total PE	**6,300**			**6,720**			**6,995**	**275**	
LIBRARY / MEDIA CENTER									
Media Center/ Reading Room		3,500	1	3,500		2	1,672		inclusive of office, workroom
Computer Lab		1,200	1	1,200		2	1,460		
Total Library / Media	**3,500**			**4,700**			**3,132**	**-1,568**	
DINING & FOOD SERVICE									
Cafetorium (212 seat café) (3 seatings)		3,180	1	3,180	1,400	1	1,400	-1,780	15/Occ SF Dining x 212 students
Platform / Band Classroom		1,000	1	1,000	0	0	0	-1,000	Operable wall
Table, Chair Equipment Storage		300	1	300	0	2	210	-90	
Kitchen		1,900	1	1,900	0	2	895	-1,005	
Staff Lunch Room		0	0	0	0	2	690	690	also used as teachers work room
Total Dining	**6,680**			**6,380**			**3,195**	**-3,185**	
MEDICAL									
Medical Suite									near outdoor play area
Nurse Toilet		60	1	60		2	65	5	
Nurse Office		120	1	120		2	390	270	
Waiting room		130	1	130					
Resting Area		125	1	125	0	0	0	-125	
Examination Room		100	1	100					
Total Medical Suite	**510**			**535**			**455**	**-80**	

Room Type	MSBA Prototype 660	Assume 660 Students: Room Sq.Ft.	Number of Rooms	Area Totals	Existing Combined Schools: Room Sq.Ft.	Number of Rooms	Area Totals	Delta	Comments
ADMINISTRATION & GUIDANCE									
Administrative Suite									
General Office / Waiting / Secretary		400	1	400		2	370	-30	
Teachers' Mail and time room		100	1	100		2	220	120	
Copy Room / Work Room		150	1	150		2	190	40	
Records Room		110	1	110	0	0	0	-110	
Principal's Office w/conference		375	1	375		2	385	10	
Assistant Principal's Office		150	1	150	95	1	95	-55	
Conference Room		250	1	250	0	2	260	10	
Admin. Toilet		75	1	75	0	0	0	-75	
Total Administration	**1,750**			**1,610**			**1,520**	-90	
Guidance Suite									
Guidance Office / Small Group		180	1	180		2	485	305	
Guidance Storeroom		0	0	0	0	0	0	0	
Total Guidance	**335**			**180**			**485**	**305**	
Teachers' Workroom/ Lounge w/toilets	**450**	800	1	800	0	0	0	-800	2 rms., lounge and work
				800			**0**		
MAINTENANCE & CUSTODIAL									
Custodian's Office		120	1	120	110	1	110	-10	
Maintenance Workshop		375	1	375	300	1	300	-75	
Outdoor Storage		300	1	300	0	0	0	-300	
Recycling Room/ Trash		300	1	300	400	1	400	100	
Receiving and General School Supply / Storage		900	1	900	35	1	35	-865	
Total Custodial	**2,400**			**1,995**			**845**	**-1,150**	
TECHNOLOGY									
Tele/DataTermination / Head End Room		200	1	200	0	0	0	-200	
Tech Storage / Repair		200	1	200	0	0	0	-200	
Total Technology	**0**			**400**			**0**	**-400**	
Net Square Feet	61,565			70,740			50,605		
Net to Gross Multiplier use 1.45 (1.5 for MSBA)									
Gross Square Footage	**92,348**			**102,573**			**72,775**	actual	
SF/Pupil Total Capacity	**146**	**171**							
Center Program for 321 Gross Area		63,452							
POMPO Program for 346 Gross Area		61,509							
Total 2 schools		**124,961**							
MSBA assumes 4 Kindergarten classrooms for a 600 student school		+ 1		1	1,200	1.45	1,740		
MSBA assumes 21 general classrooms for a 600 student school		+ 5		5	1,000	1.45	7,250		
Pre-K				2,400					
PASS Program				1,420					
				3,820	x	1.45	5,539		
							14,529		
Indicates space not specifically in the new MSBA guideline EdSpecs, some often included in many Elem Schools				Net area equals		7,315	X	1.45	10,607
MSBA Guidelines for an Elementary School for 660 students:			660	x	145	=	95,700		

POMPOSITTICUT SCHOOL

GRADES PREK-2, 346 STUDENTS

Room Type	MSBA Prototype 346	Assume 346 Students			Existing Pompo School			Delta	Comments
		Room Sq.Ft.	Number of Rooms	Area Totals	Room Sq.Ft.	Number of Rooms	Area Totals		
PRE - KINDERGARTEN w/toilet		1,200	2	2,400	0	0	0		
Total Pre K	**0**			**2,400**			**0**	**-2,400**	
CORE ACADEMIC SPACES									
Typical Classrooms - Grade K full day (w/toilet)		1,200	5	6,000	varies	5	5,175	-825	(2) at 900, (1) at 1,025, (2) at 1,175
Typical Classrooms - Grades 1-2		1,000	11	11,000	varies	12	11,923	923	(1) at 680, (1) at 690, (2) at 900, (1) at 1,133, (1) at 1,222, (1) at 1,415, (4) at 1,550, (1) at 1,883
Grade Level Storage		300	1	300	0	0	0	-300	
Remedial Reading Rooms		500	1	500	570	1	570	70	
Total Core Academic	**14,750**			**17,800**			**17,668**	**-132**	
SPECIAL EDUCATION									
Reg SPED - Resource Room		1,000	1	1,000	285	1	285	-715	confirm quantity
Book Storage		150	1	150	0	0	0	-150	in lieu of classrooms
OT / PT Classroom		950	1	950	345	1	345	-605	in lieu of classrooms
ESL - English as a Second Language		300	1	300	0	0	0	-300	in lieu of classrooms
School Psychologist Office / Testing		200	1	200	0	0	0	-200	in lieu of classrooms
Speech Room		300	1	300	0	0	0	-300	in lieu of classrooms
Total SPED	**3,520**			**2,900**			**630**	**-2,270**	
NOTE - No PASS Program in this Calc.									
ART & MUSIC									
Music Classroom		1,000	1	1,000	780	1	780	-220	1 class in a 6 day rotation
Music Storage		200	1	200	0	0	0	-200	
Art Classroom		1,000	1	1,000	570	1	570	-430	1 class in a 6 day rotation
Kiln		100	1	100	0	0	0	-100	
Storage		100	1	100	0	0	0	-100	
Total Music & Art	**2,500**			**2,400**			**1,350**	**-1,050**	
NOTE: K-2 = 321 students, PK 25 students = 346 students for classroom planning									
HEALTH & PHYSICAL EDUCATION									
Gymnasium		4,000	1	4,000	3,110	1	3,110	-890	6000 SF Min Size, 2 classes in a 6 day rotation
Gym Storage		200	1	200	40	1	40	-160	
PE / Health Instructor's Off. w/shower and tlt		150	1	150	0	0	0	-150	
Health Teacher Office		120	1	120	0	0	0	-120	
Total PE	**6,300**			**4,350**			**3,150**	**-1,200**	
LIBRARY / MEDIA CENTER									
Media Center/ Reading Room		2,020	1	2,020	782	1	782		inclusive of office, workroom
Computer Lab		1,200	1	1,200	570	1	570		
Total Library / Media	**2,020**			**3,220**			**1,352**	**-1,868**	
DINING & FOOD SERVICE									
Cafetorium (150 seat café) (2 seatings)		2,250	1	2,250	0	0	0	-2,250	15/Occ SF Dining
Platform		1,000	1	1,000	0	0	0	-1,000	
Table, Chair Equipment Storage		200	1	200	40	1	40	-160	
Kitchen		400	1	400	300	1	300	-100	Warming kitchen only
Staff Lunch Room		0	0	0	345	1	345	345	also used as teachers work room
Total Dining	**4,500**			**3,850**			**685**	**-3,165**	
MEDICAL									
Medical Suite									near outdoor play area
Nurse Toilet		60	1	60	20	1	20	-40	
Nurse Office		120	1	120	170	1	170	50	
Waiting room		130	1	130	0	0	0	-130	
Resting Area		125	1	125	0	0	0	-125	
Examination Room		100	1	100	0	0	0	-100	
Total Medical Suite	**510**			**535**			**190**	**-345**	

Room Type	MSBA Prototype 346	Assume 346 Students: Room Sq.Ft.	Number of Rooms	Area Totals	Existing Pompo School: Room Sq.Ft.	Number of Rooms	Area Totals	Delta	Comments
ADMINISTRATION & GUIDANCE									
Administrative Suite									
General Office / Waiting / Secretary		300	1	300	270	1	270	-30	
Teachers' Mail and time room		100	1	100	155	1	155	55	
Copy Room / work room		150	1	150	100	1	100	-50	
Records Room		110	1	110	0	0	0	-110	
Principal's Office w/conference		375	1	375	180	1	180	-195	
Assistant Principal's Office		150	1	150	95	1	95	-55	
Conference Room		250	1	250	135	1	135	-115	
Admin. Toilet		75	1	75	0	0	0	-75	
Total Adminisration	**1,530**			**1,510**			**935**	**-575**	
Guidance Suite									
Guidance Office / Small Group		180	2	360	285	1	285	-75	
Guidance Storeroom		0	0	0	0	0	0	0	
Total Guidance	**185**			**360**			**285**	**-75**	
Teachers' Workroom/ Lounge w/toilets	300	800	1	800	0	0	0	-800	2 rms., lounge and work
	300			**800**			**0**	**-800**	
CUSTODIAL & MAINTENANCE									
Custodial/ Maintenance Suite									
Custodian's Office		120	1	120	110	1	110	-10	
Maintenance Workshop		375	1	375	1,010	1	1,010	635	
Outdoor Storage		300	1	300	0	0	0	-300	
Recycling Room/ Trash		300	1	300	0	0	0	-300	
Receiving and General School Supply / Storage		800	1	800	0	0	0	-800	
Total Custodial	**2,100**			**1,895**			**1,120**	**-775**	
TECHNOLOGY									
Tele/DataTermination / Head End Room		200	1	200	0	0	0	-200	
Tech Storage / Repair		200	1	200	0	0	0	-200	
Total Technology	**0**			**400**			**0**	**-400**	
Net Square Feet	38,215			42,420			27,365		
Net to Gross Multiplier use 1.45 (1.5 for MSBA)									
Gross Square Footage	**57,323**			**61,509**			**36,415**	actual	
SF/Pupil Total Capacity	182	205							
Indicates space not specifically in the new MSBA guideline EdSpecs, some often included in many Elem Schools				Net area equals		4,245	X	1.45	6,155
MSBA Guidelines for an Elementary School for 300 students:			300	x	180	=	54,000		

CENTER SCHOOL

GRADES 3-5, 321 STUDENTS

Room Type	MSBA Prototype 321	Assume 321 Students			Existing Center School			Delta	Comments
		Room Sq.Ft.	Number of Rooms	Area Totals	Room Sq.Ft.	Number of Rooms	Area Totals		
CORE ACADEMIC SPACES									
Typical Classrooms - Grades 3-5		1,000	15	15,000	varies	12	10,730	-4,270	(7) at 890, (5) at 900
Grade Level Storage		300	1	300	0	0	0	-300	
Science Classroom		1,200	1	1,200	1,020	1	1,020	180	
Science Office		0	0	0	85	1	85	85	
Remedial Reading Rooms		500	1	500	0	1	0	-500	
Total Core Academic	**12,850**			**17,000**			**11,835**	**-5,165**	
SPECIAL EDUCATION									
Reg SPED - Resource Room		1,000	2	2,000	100	1	100	-1,900	confirm quantity
Book Storage		150	1	150	0	0	0	-150	in lieu of classrooms
OT / PT Classroom		950	1	950	450	1	450	-500	in lieu of classrooms
ESL - English as a Second Language		300	1	300	0	0	0	-300	in lieu of classrooms
School Psychologist Office / Testing		200	1	200	0	0	0	-200	in lieu of classrooms
Speech Room		300	1	300	0	0	0	-300	
Total SPED	**3,520**			**3,900**			**550**	**-3,350**	
NOTE - No PASS Program in this Calc.									
ART & MUSIC									
Music Classroom		1,000	1	1,000	890	1	890	-110	1 class in a 6 day rotation
Music Storage		200	1	200	0	1	0	-200	
Band Room		0	1	0	0	0	0	0	see Dining (Platform)
Band Storage		300	1	300	0	0	0	-300	adjacent to platform
Art Classroom		1,000	1	1,000	890	1	890	-110	1 class in a 6 day rotation
Kiln		100	1	100	165	1	165	65	
Storage		100	1	100	0	0	0	-100	
Total Music & Art	**2,500**			**2,700**			**1,945**	**-755**	
NOTE: 3-5 = 321 students for classroom planning									
HEALTH & PHYSICAL EDUCATION									
Gymnasium		6,000	1	6,000	3,500	1	3,500	-2,500	6000 SF Min Size, 2 classes in a 6 day rotation
Gym Storage		300	1	300	145	1	145	-155	includes gymnastic equipment
PE / Health Instructor's Off. w/shower and tlt		150	1	150	200	1	200	50	
Health Teacher Office		120	1	120	0	0	0	-120	
Total PE	**6,300**			**6,570**			**3,845**	**-2,725**	
LIBRARY / MEDIA CENTER									
Media Center/ Reading Room		2,020	1	2,020	890	1	890	-1,130	inclusive of office, workroom
Computer Lab		1,200	1	1,200	890	1	890	-310	
Total Library / Media	**2,020**			**3,220**			**1,780**	**-1,440**	
DINING & FOOD SERVICE									
Cafetorium (150 seat café) (2 seatings)		2,250	1	2,250	1,400	1	1,400	-850	15/Occ SF Dining x 300 students
Platform / Band Classroom		1,000	1	1,000	0	0	0	-1,000	operable wall
Table, Chair Equipment Storage		200	1	200	170	1	170	-30	
Kitchen		1,600	1	1,600	595	1	595	-1,005	1600 SF for first 300 + 1 SF add.
Staff Lunch Room		0	0	0	345	1	345	345	
Total Dining	**4,500**			**5,050**			**2,510**	**-2,540**	
MEDICAL									
Medical Suite									near outdoor play area
Nurse Toilet		60	1	60	45	1	45	-15	
Nurse Office		120	1	120	220	1	220	100	
Waiting room		130	1	130	0	1	0	-130	
Resting Area		125	1	125	0	0	0	-125	
Examination Room		100	1	100	0	0	0	-100	
Total Medical Suite	**510**			**535**			**265**	**-270**	

Room Type	MSBA Prototype 321	Assume 321 Students: Room Sq.Ft.	Number of Rooms	Area Totals	Existing Center School: Room Sq.Ft.	Number of Rooms	Area Totals	Delta	Comments
ADMINISTRATION & GUIDANCE									
Administrative Suite									
General Office / Waiting / Secretary		300	1	300	100	1	100	-200	
Teachers' Mail and time room		100	1	100	65	1	65	-35	
Copy Room / Work Room		150	1	150	90	1	90	-60	
Records Room		110	1	110	0	0	0	-110	
Principal's Office w/conference		375	1	375	205	1	205	-170	
Assistant Principal's Office		150	1	150	0	1	0	-150	
Conference Room		250	1	250	125	1	125	-125	
Admin. Toilet		75	1	75	0	0	0	-75	
Total Administration	**1,530**			**1,510**			**585**	-925	
Guidance Suite									
Guidance Office / Small Group		180	1	180	200	1	200	20	
Guidance Storeroom		0	0	0	0	0	0	0	
Total Guidance	**185**			**180**			**200**	**20**	
Teachers' Workroom/ Lounge w/toilets		800	1	800	0	0	0	-800	2 rms., lounge and work
	300			**800**			**0**	**-800**	
CUSTODIAL & MAINTENANCE									
Custodial/ Maintenance Suite									
Custodian's Office		120	1	120	0	0	0	-120	
Maintenance Workshop		375	1	375	0	0	0	-375	
Outdoor Storage		300	1	300	400	1	400	100	
Recycling Room/ Trash		300	1	300	0	0	0	-300	
Receiving and General School Supply / Storage		800	1	800	35	1	35	-765	
Total Custodial	**2,100**			**1,895**			**435**	**-1,460**	
TECHNOLOGY									
Tele/DataTermination / Head End Room		200	1	200	0	0	0	-200	
Tech Storage / Repair		200	1	200	0	0	0	-200	
Total Technology	**0**			**400**			**0**	**-400**	
Net Square Feet	36,315			43,760			23,950		
Net to Gross Multiplier use 1.45 (1.5 for MSBA)	18,158			19,692					
Gross Square Footage	**54,473**			**63,452**			**36,360**	actual	
SF/Pupil Total Capacity	182	212							
Indicates space not specifically in the new MSBA guideline EdSpecs, some often included in many Elem Schools				Net area equals		3,345	x	1.45	4,850
MSBA Guidelines for an Elementary School for 300 students:			300	x	180	=	54,000		

CENTER ELEMENTARY
SCHOOL

SCALE: 1/16" = 1'-0

Program Deficiencies

Stow Schools Master Plan
Stow, Massachusetts

SMMA
SYMMES MAINI & MCKEE ASSOCIATES

POMPOSITTICUT ELEMENTARY SCHOOL

SCALE: 1/16" = 1'-0"

Program Deficiencies

Stow Schools Master Plan
Stow, Massachusetts

SMMA
SYMMES MAINI & MCKEE ASSOCIATES

SECTION 4.1 MASTER PLAN OPTIONS

PROCESS

The Options development first took the form of what possibilities existed at each of the three school sites: Pompositticut, Center and Hale. These were classified as "Component Options". Component options could have sub options that reflect different grade configurations or building sizes.

The combination of Component Options that work to form a possible solution for the PreK- 8 system are then referred to as "Scenarios".

Developing and exploring Options for the schools included varying combinations of the following variables: Existing Sites; Grade Configurations; Renovations of building(s); Additions and Renovations of building(s); New Construction; Needs vs. Wants

Component Options were discussed in detail with the SBTF before moving forward to develop Scenarios.

COMPONENT OPTIONS:

Pompositticut

P1A Pompo renovations only – renovations within the existing building foot print (grades 1 – 2)

P1B Pompo renovations only – renovations within the existing building foot print (grades PreK - 1)

P1C/D Pompo renovations only – renovations within the existing building foot print, reviewed maintaining/eliminating the corridor partitions (grades PreK - 1)

P1E Pompo renovations only – renovations within the existing building, use only part of the building, turn over remainder of building for other uses (grades Pre-K – K)

P2A Pompo additions and renovations – (grades PreK – 2)

P2B Pompo additions and renovations – (grades K – 2)

P3A New building for grades PreK – 2 -Use the Pompo site but not the

Pompositticut

	building
P3B	New building for grades K – 2 -Use the Pompo site but not the building
P4	Do not use Pompo building or site for school use

Center

C1A	Center renovations only – renovations within the existing building foot print (grades 3 – 5)
C1B	Center renovations only – renovations within the existing building foot print (grades 3 – 4)
C1C	Center renovations only – renovations within the existing building foot print (Early Childhood Center grades PreK – 1)
C2A	Center additions and renovations – (grades 3 – 5)
C2B	Center additions and renovations – (grades 2 – 5)
C2C	Center additions and renovations – (grades 2 – 4)
C2D	Center additions and renovations – (grades PreK – 5)
C2E	Center additions and renovations – (grades PreK – 5)
C2D	Center additions and renovations – (grades PreK – 5, existing bldg for 4 – 5, new bldg for PreK - 3)
C2F	Center additions and renovations – (grades 1 – 5, existing bldg for 1 – 2, new bldg for 3 – 5)
C3A	New Building - Use the Center site but not the building (grades 3 – 5)
C3B	New Building - Use the Center site but not the building (grades PreK – 5)
C3C	New Early Childhood Center on Center sire (grades PreK – 1)
C3A	New Building - Use the Center site but not the building (grades 2 – 5)

Hale

H1 Status Quo – How many students does the current building accommodate?

H2 Hale additions and renovations – How many students can be planned for and for which grades

New Building Site(s)

S1 New building at the Center School / Hale site

SCENARIOS

Seven scenarios were developed in both spread sheet form and graphically to demonstrate the building areas needed; the approximate site coverage and a possible design parti for each.

These scenarios combined component options from above to address the Pre-K -8 grades and populations

Through a series of SBTF meetings as well as community meetings, the pros and cons were discussed along with the possible site and building configurations. The process reduced the Scenarios to #1 Heavy and #3

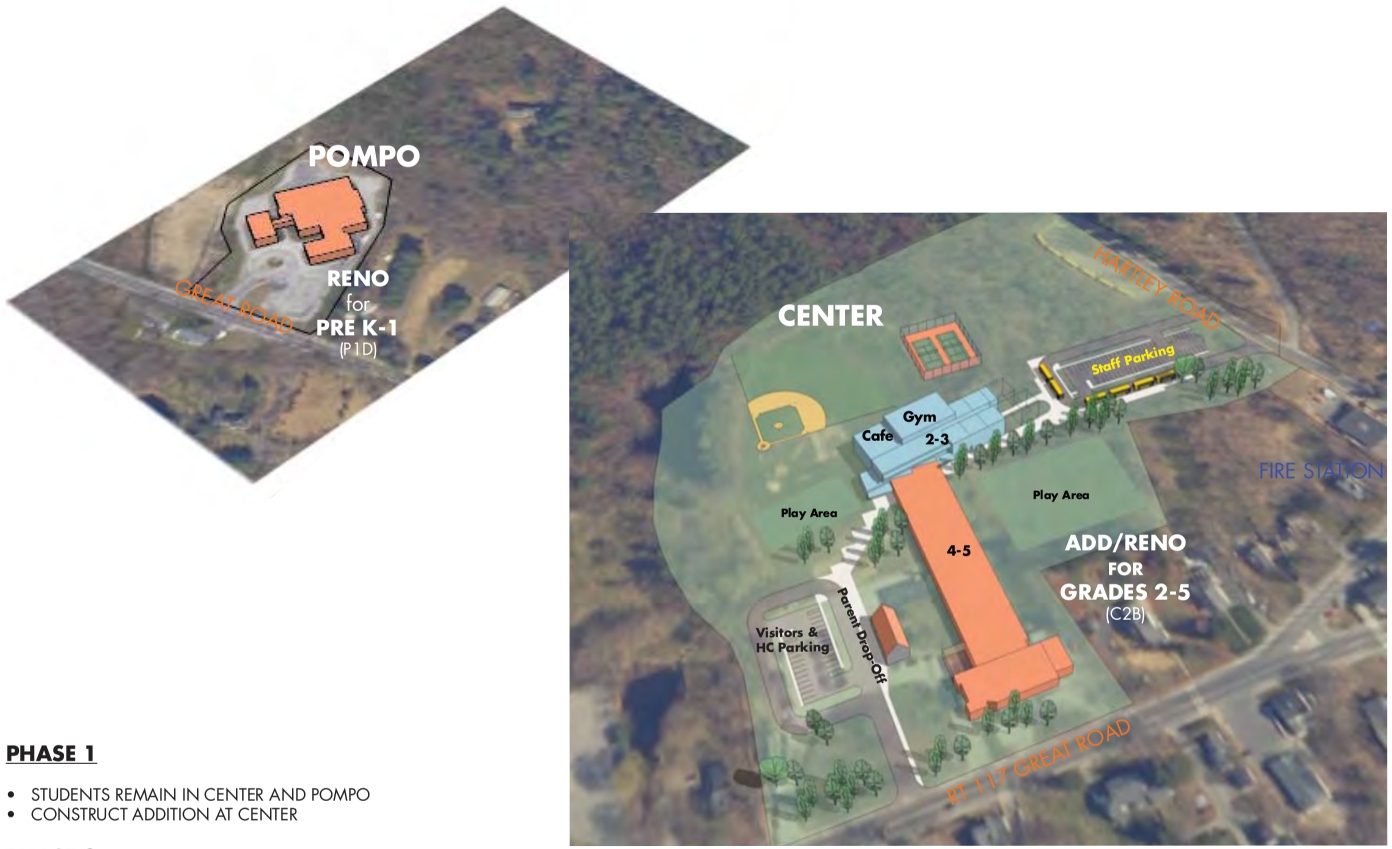
The SBTF recommended proceeding with Scenario 3 that renovates the existing Center School building to accommodate Grades 4 – 5, and constructs an addition behind the school to accommodate Grades PreK – 3 and the core spaces of cafeteria, gymnasium, library and administration.

	Pompo Site	Center Site	Hale Site	Totals
Scenario 1 Heavy				
Component				
Scenario	P1D Heavy	C2B	H1	
Grades Served	PreK - 1	2 - 5	6 - 8	PreK - 8
Total Area	36,415	65,358	71,750	173,523
Scenario 1 Light				
Component				
Scenario	P1D Light	C2B	H1	
Grades Served	PreK - 1	2 - 5	6 - 8	PreK - 8
Total Area	36,415	65,358	71,750	173,523
Scenario 2				
Component				
Scenario	P4	C2D	H1	
Grades Served	decommission	PreK - 5	6 - 8	PreK - 8
Total Area	0	102,573	71,750	174,323
Scenario 3				
Component				
Scenario	P4	C2E	H1	
Grades Served	decommission	PreK - 5	6 - 8	PreK - 8
Total Area	0	102,573	71,750	174,323
Scenario 4				
Component				
Scenario	P4	C3B	H1	
Grades Served	decommission	PreK - 5	6 - 8	PreK - 8
Total Area	0	102,573	71,750	174,323
Scenario 5				
Component				
Scenario	PID	C3D	H1	
Grades Served	PreK - 1	2 - 5	6 - 8	PreK - 8
Total Area	36,415	71,048	71,750	179,213
Scenario 6				
Component				
Scenario	P4	C3C + C2B	H1	
Grades Served	abandon	PreK - 5	6 - 8	PreK - 8
Total Area	0	108,378	71,750	180,128
Scenario 7				
Component				
Scenario	P1E	C2F	H1	
Grades Served	PreK - K	1 - 5	6 - 8	PreK - 8
Total Area	36,415	81,312	71,750	189,477

Option	Description	Grade Levels Served	# of Students	# of Reg Classrooms	Existing Area Renovations	New Construction	Approx. Gross Area	Cost	Pros	Cons
Pompositticut School										
P1A	Renovation within the existing building footprint	1 - 2	214 +/-	11	36,415	0	36,415			5 Classrms undersized; Likely other program compromises; Combined Gym / Cafeteria; No flexibility for expansion; No room for PreK or K
P1B	Renovation within the existing building footprint	PreK - 1	239 +/-	11	36,415	0	36,415		Some flexibility for growth	4 Classrms undersized; Combined Gym / Cafeteria; Larger than necessary for the grades served
P1C	Renovation within the existing building footprint	PreK - 1	239 +/-	11	36,415	0	36,415		Reuse of existing building, addition of grade PK	Loss of grade 2
P1D	Renovation within the existing building footprint	PreK - 1	239 +/-	11	36,415	0	36,415		Reuse of existing building, addition of grade PK	Loss of grade 2
P1E	existing building foot print using only part of the building - remainder turne3d over for other	PreK - K	132 +/-	7	36,415	0	36,415		Keeps the building as a school; allows for future expansion	
P2A	Additions and Renovations for PreK - 2	PreK - 2	346 +/-	18	36,415	20,800	57,215			See P2B for size of smaller building; Site is likely too small to support an addition of the size required to support PreK - 2
P2B	Additions and Renovations for K - 2	K - 2	321 +/-	16	36,415	19,200	55,615			4 Classrms undersized; Likely other program compromises; Site is likely too small to support an addition of the size required to support PreK - 2
P3A	New Building for: Grades PreK - 2	PreK - 2	346 +/-	18	0	61,510	61,510		2 story building makes better use of the site	Requires moving students off site for the construction period
P3B	New Building for: Grades K - 2	K - 2	321 +/-	16	0	59830	59830		2 story building makes better use of the site	Requires moving students off site for the construction period
P4	Don't Use Pompo Bldg.	NA	NA	NA	NA	NA	NA	NA		

Option	Description	Grade Levels Served	# of Students	# of Reg. Classrooms	Existing Area Renovations	New Construction	Approx. Gross Area	Cost	Pros	Cons
CENTER SCHOOL										
C1A	Renovation within the existing building foot print	3 - 5	321 +/-	15	34,258	0	34,258			All classrooms undersized; Undersized administration, medical, custodial, OT/PT: No: Sped support, music, band, art, library, computer classroom, separate gym
C1B	Renovation within the existing building foot print	3 - 4	210 +/-	11	34,258	0	34,258			No 5th grade, All classrooms undersized; Undersized administration, medical, custodial, OT/PT, speech, remedial reading: No: Sped support, band, separate gym
C1C	Renovation within the existing building foot print Early Childhood Center	PreK - 1	239 +/-	11	34,258	0	34,258		Early Childhood Center, can be used with other Center site component options	some undersized spaces, 1st grade classrooms = 868 sf +/-, only 4 kindergarten rooms
C2A	Additions and Renovations for Grades 3 - 5	3 - 5	321 +/-	15	34,258	20,300	54,558			Can only be used with P3A
C2B	Additions and Renovations for Grades 2 - 5	2 - 5	428 +/-	21	34,258	31,100	65,358			
C2C	Additions and Renovations for Grades 2 - 4	2 - 4	321 +/-	15	34,258	20,300	54,558			
C2D	Additions and Renovations for Grades PK - 5; Exist for PreK-1; New Bldg for 2-5	PreK - 5	660	33	34,258	68,315	102,573		Single campus, No compromises to Educational Program	
C2E	Additions and Renovations for Grades PK - 5; Exist for 4-5; New Bldg for PreK-3	PreK - 5	660	33	34,258	68,315	102,573			
C2F	Additions and Renovations for Grades 1 - 5; Exist for 1-2; New Bldg for 3-5	1 - 5	535	26	34,258	47,054	81,312			
C3A	New Building for: Grades 3 - 5	3 - 5	321 +/-	32	0	63,452	63,452		No compromises to Educational Program	Can only be used with P3A
C3B	New Building for: Grades PreK - 5	PreK - 5	660	33	0	102,573	102,573		No compromises to Educational Program	
C3C	New Early Childhood Center on Center Site	PreK - 1	239 +/-	11	0	43,020	43,020			Can only be used with C2B
C3D	New Building for Grades 2-5	2 - 5	428 +/-	21	0	71,048	71,048			Can only be used with C2B

Option	Description	Grade Levels Served	# of Students	# of Reg Classrooms	Existing Area Renovations	New Construction	Approx. Gross Area	Cost	Pros	Cons
HALE MIDDLE SCHOOL										
H1	Additions to accommodate projected 6 - 8 population and new support space, return the Cafeteria to its original square footage	6 - 8	300 - 319	17	64,650	7,100	71,750		Only minor renovations required	
H2	Additions to accommodate projected 5 - 8 population and new support space, return the Cafeteria to its original square footage	5 - 8	400 - 419	21	64,650	11,860	76,510		Only minor renovations required	
Currently 13 regular classrooms										



PHASE 1

- STUDENTS REMAIN IN CENTER AND POMPO
- CONSTRUCT ADDITION AT CENTER

PHASE 2

- MOVE GRADES 3—5 INTO NEW ADDITION AND PORTABLE CLASSROOMS
- RENOVATE CENTER

PHASE 3

- MOVE K—2 TO CENTER AND PORTABLE CLASSROOMS
- RENOVATE POMPO (MOVE PORTABLES TO HALE)
- WHEN POMPO IS COMPLETE, MOVE GRADES K—2 BACK TO POMPO AND BRING PRE-K FROM DISTRICT

LEGEND

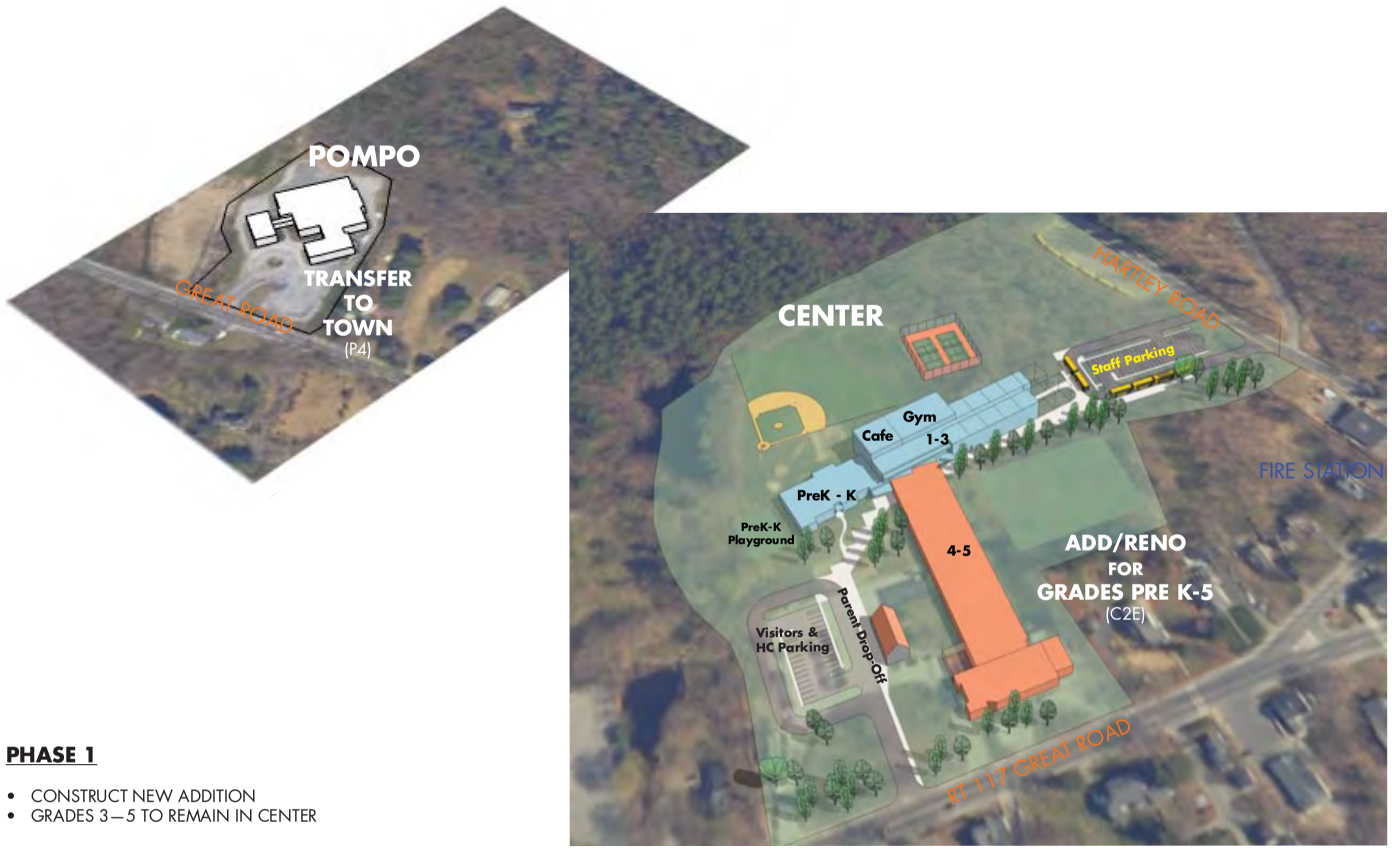
- EXISTING BUILDING TO BE RENOVATED
- NEW CONSTRUCTION
- BUILDING TURNED OVER TO THE TOWN
- POSSIBLE CLASSROOM EXPANSION

Stow Schools Master Plan

Stow, Massachusetts

Scenario One
Two Site Proposal

SMMA
SYMMES MAINI & MCKEE ASSOCIATES



PHASE 1

- CONSTRUCT NEW ADDITION
- GRADES 3—5 TO REMAIN IN CENTER

PHASE 2

- GRADES K—2 TO REMAIN AT POMPO
- GRADES 3—5 TO MOVE INTO NEW ADDITION
- RENOVATE CENTER
- AT COMPLETION OF PROJECT REARRANGE GRADES TO PERMANENT CONFIGURATION
- BRING PRE-K FROM DISTRICT
- TURN POMPO OVER TO THE TOWN

LEGEND

- EXISTING BUILDING TO BE RENOVATED
- NEW CONSTRUCTION
- BUILDING TURNED OVER TO THE TOWN
- POSSIBLE CLASSROOM EXPANSION

Stow Schools Master Plan

Stow, Massachusetts

Scenario Three
One Site Proposal

SMMA
SYMMES MAINI & MCKEE ASSOCIATES

SECTION 4.2 COST ANALYSIS

In the course of the study, SMMA explored various Options for satisfying the educational school building needs of the school system, all options were estimated on a unit rate basis. The preferred options we further developed to include more detail.

The total Project Costs are comprised of "hard" and "soft" costs. Hard costs include all direct construction costs, general contractor's overhead and profit and contingencies. Soft costs include non direct construction costs such as furnishings and equipment; computers and other technology; design fees, Owners Project Manager fees; Clerk of Works, site survey & borings; hazardous material and geotechnical testing and monitoring; and other construction phase testing, etc.

All costs identified are based upon unit rates per square foot based upon current prevailing rates for construction in this market and represents a reasonable opinion of cost. Costs vary due to fluctuating markets conditions; lack of surplus bidders; perception of risk and material availability.

Escalation costs were factored into the two preferred options only based upon the timeline noted in section 4.3. This escalation assumed 8% per annum from Stow Town Meeting in May to the midpoint of construction since all estimated construction costs were based upon a January 2007 publicly bid project.

ALTERNATIVE CONSTRUCTION

The SBTF expressed an interest in exploring alternative construction methods to accomplish the project. These could include pre-engineered steel structures or pre-fabricated modular construction.
Pre-engineered steel structures are most often used for large span open areas. The gym and cafeteria may be places where this method can be further explored.

The committee did have a representative of Kullman Buildings present pre-fabricated modular construction techniques and methods. The methodology does appear to be realistic with respect to achieving the type of classroom spaces desired (not long span spaces).

The cost of this type of modular construction does appear to be similar to that of conventional construction. Since the erection time is shorter, there may be some financial savings.

The representative noted that they construct buildings only, still requiring a General Contractor for foundations, site work and other related activities.

What needs to be explored further (primarily by the vendor) is how this construction type can work within the Massachusetts bid laws.

The SBTF felt that further exploration of alternative construction methodology should be left up to the School Building Committee, yet to be formed.

SECTION 4.2.1 PROJECT BUDGET

Attached is the anticipated project budget for Scenarios 1 and 3 in January 2007 bid dollars and escalated to the midpoint of construction dollars.

Preliminary Project Budget
Pompo & Center Schools - Scenario 1 (Two Sites Scenario)
Stow, MA
January 2007 Dollars (without Escalation) **Date: 4.23.07**

Estimated General Construction Cost				Phase I costs Design & Bidding		Phase II costs Construction	
a.) Building construction Cost, including site, asbestos removal, portables - P1D & C2B	$22,313,104						100%
b.) Construction Contingency (8% of ECC)	$1,785,048						100%
c.) Design Contingency (5% of ECC) (included in a.)	$0						100%
d.) Commissioning ($1/ sf) (included in a.)	$101,773						100%
e.) Construction testing	$100,000						100%
f.) Septic Upgrades (included in a.)	$0						
g.) Utility backcharges	TBD						100%
h.) Escalation (8% from TM in May '07 to Midpoint of Const. in Sept '10)							100%
		$24,299,925					
Estimated Costs for Furnishings and Equipment							
a.) Educational Furnishings and Equipment (FFE) ($1,300 x 660 students)	$858,000						100%
b.) Technology Equipment ($1,300 x 660 students)	$858,000						100%
c.) Library Books (assumes 50% replacement)	$100,000	$1,816,000					100%
Architects/Engineers Basic Design Services							
a). Basic Services Fee - Includes all disciplines design through Contract Administration	$1,785,048			$1,249,534	70%		30%
b). Additional services to be determined upon scheme selection							
Topographic survey	$25,000			$25,000	100%		
Geotechnical Investigation	$30,000			$30,000	100%		
Food Service Design	$15,000			$12,000	80%		20%
Acoustic Design	$5,000			$4,000	80%		20%
Detailed Cost Estimating	$50,000			$50,000	100%		
On Site Traffic Design (included in basic services)	$0			$0	100%		
Off Site Traffic Study (TBD)	$0			$0	100%		
Off Site Traffic Design (TBD)	$0			$0	80%		20%
Hardware Consultancy (included in a.)	$0			$0	100%		
Structural Peer Review	$5,000			$5,000	100%		
Site Permitting (planning board, con com)	$40,000			$40,000	100%		
Permitting - (Level of effort TBD)	$0			$0	100%		
Hazardous Material Consultant	$15,000			$6,000	40%		60%
FF&E Design	$51,480			$10,296	20%		80%
A/E Reimbursable Expenses	$150,000			$105,000	70%		30%
Technology Equipment Design	$51,480			$10,296	20%		80%
Technology Infrastructure Design - included in basic service	$0			$0	100%		
Total Basic and Additional Services Fee	$2,223,008	$2,223,008		$1,547,126			
Owner Costs							
a.) Clerk of Works (included in OPM)	$0			$0	0%		100%
b.) Owner's Project Manager (ECC x 3%)	$669,393			$200,818	30%		70%
c.) Advertising expenses	$5,000			$5,000	100%		
d.) Printing of bid and construction documents	$15,000			$15,000	100%		100%
e.) Moving Expenses	$30,000			$0	0%		100%
Total Owner Costs	$719,393	$719,393		$220,818			
TOTAL ESTIMATED PROJECT COST - PRE-ESCALATION		$29,058,327					
All costs in January 2007 bid dollars							
Total of Phase 1 Costs				$1,767,944			

Preliminary Project Budget
Pompo & Center Schools - Scenario 1 (Two Sites Scenario)
Stow, MA
January 2007 Dollars (Escalated to September 2010) **Date: 4.23.07**

Estimated General Construction Cost				Phase I costs Design & Bidding		Phase II costs Construction	
a.) Building construction Cost, including site, asbestos removal, portables - P1D & C2B	$22,313,104						100%
b.) Construction Contingency (8% of ECC)	$1,785,048						100%
c.) Design Contingency (5% of ECC) (included in a.)	$0						100%
d.) Commissioning ($1/ sf) (included in a.)	$101,773						100%
e.) Construction testing	$100,000						100%
f.) Septic Upgrades (included in a.)	$0						
g.) Utility backcharges	TBD						100%
h.) Escalation (8% from TM in May '07 to Midpoint of Const. in Sept '10)	$6,544,530						100%
		$30,844,455					
Estimated Costs for Furnishings and Equipment							
a.) Educational Furnishings and Equipment (FFE) ($1,300 x 660 students)	$858,000						100%
c.) Technology Equipment ($1,300 x 660 students)	$858,000						100%
e.) Library Books (assumes 50% replacement)	$100,000	$1,816,000					100%
Architects/Engineers Basic Design Services							
a). Basic Services Fee - Includes all disciplines design through Contract Administration	$1,785,048			$1,249,534	70%		30%
b). Additional services to be determined upon scheme selection							
Topographic survey	$25,000			$25,000	100%		
Geotechnical Investigation	$30,000			$30,000	100%		
Food Service Design	$15,000			$12,000	80%		20%
Acoustic Design	$5,000			$4,000	80%		20%
Detailed Cost Estimating	$50,000			$50,000	100%		
On Site Traffic Design (included in basic services)	$0			$0	100%		
Off Site Traffic Study (TBD)	$0			$0	100%		
Off Site Traffic Design (TBD)	$0			$0	80%		20%
Hardware Consultancy (included in a.)	$0			$0	100%		
Structural Peer Review	$5,000			$5,000	100%		
Site Permitting (planning board, con com)	$40,000			$40,000	100%		
Permitting - (Level of effort TBD)	$0			$0	100%		
Hazardous Material Consultant	$15,000			$6,000	40%		60%
FF&E Design	$51,480			$10,296	20%		80%
A/E Reimbursable Expenses	$150,000			$105,000	70%		30%
Technology Equipment Design	$51,480			$10,296	20%		80%
Technology Infrastructure Design - included in basic service	$0			$0	100%		
Total Basic and Additional Services Fee	$2,223,008	$2,223,008		$1,547,126			
Owner Costs							
a.) Clerk of Works (included in OPM)	$0			$0	0%		100%
b.) Owner's Project Manager (ECC x 3%)	$669,393			$200,818	30%		70%
d.) Advertising expenses	$5,000			$5,000	100%		
e.) Printing of bid and construction documents	$15,000			$15,000	100%		100%
f.) Moving Expenses	$30,000			$0	0%		100%
Total Owner Costs	$719,393	$719,393		$220,818			
TOTAL ESTIMATED PROJECT COST - PRE-ESCALATION		$35,602,857					
Total of Phase 1 Costs				$1,767,944			

Preliminary Project Budget
Pompo & Center Schools - Scenario 3 (One Site Scenario)
Stow, MA
January 2007 Dollars (without Escalation) **Date: 4.23.07**

Estimated General Construction Cost				Phase I costs Design & Bidding		Phase II costs Construction	
a.) Building construction Cost, including site, asbestos removal, portables - P4 & C2E	$22,833,209						100%
b.) Construction Contingency (8%) (included in a.)	$1,826,657						100%
c.) Design Contingency (5% of ECC) (included in a.)	$0						100%
d.) Commissioning ($1/ sf) (included in a.)	$102,573						100%
e.) Construction testing (included in a.)	$100,000						100%
f.) Septic Upgrades (included in a.)	$0						
g.) Utility backcharges	TBD						100%
h.) Escalation (8% from TM in May '07 to Midpoint of Const. in Jan '10)							100%
		$24,862,439					
Estimated Costs for Furnishings and Equipment							
a.) Educational Furnishings and Equipment (FFE) ($1,300 x 660 students)	$858,000						100%
b.) Technology Equipment ($1,300 x 660 students)	$858,000						100%
c.) Library Books (assumes 50% replacement)	$100,000	$1,816,000					100%
Architects/Engineers Basic Design Services							
a). Basic Services Fee - Includes all disciplines design through Contract Administration	$1,826,657			$1,278,660	70%		30%
b). Additional services to be determined upon scheme selection							
Topographic survey	$25,000			$25,000	100%		
Geotechnical Investigation	$30,000			$30,000	100%		
Food Service Design	$15,000			$12,000	80%		20%
Acoustic Design	$5,000			$4,000	80%		20%
Detailed Cost Estimating	$50,000			$50,000	100%		
On Site Traffic Design (included in basic services)	$0			$0	100%		
Off Site Traffic Study (TBD)	$0			$0	100%		
Off Site Traffic Design (TBD)	$0			$0	80%		20%
Hardware Consultancy (included in a.)	$0			$0	100%		
Structural Peer Review	$5,000			$5,000	100%		
Site Permitting (planning board, con com)	$40,000			$40,000	100%		
Permitting - (Level of effort TBD)	$0			$0	100%		
Hazardous Material Consultant	$15,000			$6,000	40%		60%
FF&E Design	$51,480			$10,296	20%		80%
A/E Reimbursable Expenses	$150,000			$105,000	70%		30%
Technology Equipment Design	$51,480			$10,296	20%		80%
Technology Infrastructure Design - included in basic service	$0			$0	100%		
Total Basic and Additional Services Fee	$2,264,617	$2,264,617		$1,576,252			
Owner Costs							
a.) Clerk of Works (included in OPM)	$0			$0	0%		100%
b.) Owner's Project Manager (ECC x 3%)	$684,996			$205,499	30%		70%
c.) Advertising expenses	$5,000			$5,000	100%		
d.) Printing of bid and construction documents	$15,000			$15,000	100%		100%
e.) Moving Expenses	$30,000			$0	0%		100%
Owner Costs Total	$734,996	$734,996		$225,499			
TOTAL ESTIMATED PROJECT COST		$29,678,052					
All costs in January 2007 bid dollars							
Total of Phase 1 Costs				$1,801,751			

Preliminary Project Budget
Pompo & Center Schools - Scenario 3 (One Site Scenario)
Stow, MA
January 2007 Dollars (Escalated to January 2010) **Date: 4.23.07**

Estimated General Construction Cost				Phase I costs Design & Bidding		Phase II costs Construction	
a.) Building construction Cost, including site, asbestos removal, portables - P4 & C2E	$22,833,209						100%
b.) Construction Contingency (8%) (included in a.)	$1,826,657						100%
c.) Design Contingency (5% of ECC) (included in a.)	$0						100%
d.) Commissioning ($1/ sf) (included in a.)	$102,573						100%
e.) Construction testing (included in a.)	$100,000						100%
f.) Septic Upgrades (included in a.)	$0						
g.) Utility backcharges	TBD						100%
h.) Escalation (8% from TM in May '07 to Midpoint of Const. in Jan '10)	$5,397,405						100%
		$30,259,844					
Estimated Costs for Furnishings and Equipment							
a.) Educational Furnishings and Equipment (FFE) ($1,300 x 660 students)	$858,000						100%
b.) Technology Equipment ($1,300 x 660 students)	$858,000						100%
c.) Library Books (assumes 50% replacement)	$100,000	$1,816,000					100%
Architects/Engineers Basic Design Services							
a). Basic Services Fee - Includes all disciplines design through Contract Administration	$1,826,657			$1,278,660	70%		30%
b). Additional services to be determined upon scheme selection							
Topographic survey	$25,000			$25,000	100%		
Geotechnical Investigation	$30,000			$30,000	100%		
Food Service Design	$15,000			$12,000	80%		20%
Acoustic Design	$5,000			$4,000	80%		20%
Detailed Cost Estimating	$50,000			$50,000	100%		
On Site Traffic Design (included in basic services)	$0			$0	100%		
Off Site Traffic Study (TBD)	$0			$0	100%		
Off Site Traffic Design (TBD)	$0			$0	80%		20%
Hardware Consultancy (included in a.)	$0			$0	100%		
Structural Peer Review	$5,000			$5,000	100%		
Site Permitting (planning board, con com)	$40,000			$40,000	100%		
Permitting - (Level of effort TBD)	$0			$0	100%		
Hazardous Material Consultant	$15,000			$6,000	40%		60%
FF&E Design	$51,480			$10,296	20%		80%
A/E Reimbursable Expenses	$150,000			$105,000	70%		30%
Technology Equipment Design	$51,480			$10,296	20%		80%
Technology Infrastructure Design - included in basic service	$0			$0	100%		
Total Basic and Additional Services Fee	$2,264,617	$2,264,617		$1,576,252			
Owner Costs							
a.) Clerk of Works (included in OPM)	$0			$0	0%		100%
b.) Owner's Project Manager (ECC x 3%)	$684,996			$205,499	30%		70%
c.) Advertising expenses	$5,000			$5,000	100%		
d.) Printing of bid and construction documents	$15,000			$15,000	100%		100%
e.) Moving Expenses	$30,000			$0	0%		100%
Owner Costs Total	$734,996	$734,996		$225,499			
TOTAL ESTIMATED PROJECT COST		$35,075,457					
Total of Phase 1 Costs				$1,801,751			

SECTION 4.2.2 CONSTRUCTION COSTS

Attached is the estimated construction costs (ECC) for Scenarios 1 and 3 in January 2007 bid dollars, no escalation is factored into these numbers.

Pompositicut and Center Elementary Schools
Stow, Massachusetts

Symmes Maini & McKee Associates, Inc. / SMMA

MASTER PLAN CONSTRUCTION COST SUMMARY

4.23.07

MASTER PLAN CONSTRUCTION COST SUMMARY

Project: Stow Elementary Schools
Location: Stow, MA

INTRODUCTION

This Detailed Estimate has been established for the additions and renovations of the proposed Pompositticut and Center Schools including associated site works in accordance with conceptual drawings prepared by SMMA.

This estimate is based upon references from similar projects recently bid in the Commonwealth of Massachusetts under the public bidding laws of MGL Chapter 149.

BRIEF DESCRIPTION OF PROJECT

This project comprises of renovation and additions to the Center School and renovated or decommissioning of the Pompositticut school to accommodate a total of 660 students with core space to accomodate 700 students. The existing buildings are single story and the proposed additions are one and two stories.

BASIS FOR PRICING

All costs contained herein are SMMA'a opinion of probable costs and represents our best judgment as a Consultants familiar with the construction industry. These costs are dependent on the final selection of specification, design, procurement.

EXCLUDED

Items that are not considered in this estimate include, but are not limited to:

1. Land acquisition and real estate fees
2. Utility company back charges
3. Escalation

MASTER PLAN CONSTRUCTION COST SUMMARY

in January 2007 Dollars (No escalation)
Project: Stow Elementary Schools
Location: Stow, MA

Architect: SMMA Date:4.23.07

	School Area (sq ft)	Cost per Sq ft	Total
Scenario 1			
Renovate Pompo (PID)	36,415	185	6,719,148
Renovate Center (C2B/E)	34,258	148	5,081,081
Addition to Center (C2B)	31,100	338	10,512,875
Anticipated Construction Cost $	101,773	219	**22,313,104**
Scenario 3			
Decommission Pompo (P4)	36,415	-	-
Renovate Center (C2B/E)	34,258	148	5,081,081
Addition to Center (C2E)	68,315	260	17,752,128
Anticipated Construction Cost $	102,573	223	**22,833,209**

MASTER PLAN CONSTRUCTION COST SUMMARY

Project: Stow Pompositticut Elementary School
Location: Stow, MA

Existing Building - Renovation Only (P1D)

Date: 04.01.07

Architect: SMMA

		Elemental Cost			Element Amount		Rate per sf GFA		
	Element	Quantity		Unit Rate	Sub-Total	Total	Sub-Total	Total	%
A10	**FOUNDATIONS**					-		$ -	0.0
1010	Standard Foundations	-	sf	0.00	-		0.00		
1030	Slab on grade	-	sf	0.00	-		0.00		
B10	**STRUCTURE**					-		$ -	0.0
1010	Upper floor construction	-	sf	0.00	-		0.00		
1020	Roof construction	-	sf	0.00	-		0.00		
B20	**EXTERIOR CLOSURE**					116,000		$ 3.18	2.9
2010	Exterior walls	13,000	sf	6.00	78,000		2.14		
2020	Windows	5,000	sf	4.00	20,000		0.55		
2030	Exterior doors	12	lvs	1500.00	18,000		0.49		
B30	**ROOFING**					550,565		$ 15.12	13.8
3010	Roof Coverings	36,415	sf	11.00	400,565		11.00		
3020	Roof Openings	0	ea	0.00	-		0.00		
3025	Projections & Canopies	1,000	sf	150.00	150,000		4.12		
C10	**INTERIOR CONSTRUCTION**					318,000		$ 8.73	8.0
1010	Partitions	15,000	sf	18.00	270,000		7.41		
1020	Doors	40	lvs	1200.00	48,000		1.32		
C20	**STAIRCASES**					-		$ -	0.0
2010	Stair Construction	-	flghts	0.00	-		0.00		
2020	Stair Finishes	-	sf	0.00	-		0.00		
C30	**INTERIOR FINISHES**					346,320		$ 9.51	8.7
3010	Wall Finishes	55,000	sf	1.00	55,000		1.51		
3020	Floor Finishes	36,415	sf	5.00	182,075		5.00		
3030	Ceiling Finishes	36,415	sf	3.00	109,245		3.00		
D10	**VERTICAL MOVEMENT**					-		$ -	0.0
1010	Elevators	-	elv	-	-		0.00		
D15	**MECHANICAL**					1,201,695		$ 33.00	30.2
20	Plumbing	36,415	sf	6.00	218,490		6.00		
30	HVAC (Limited AC)	36,415	sf	22.00	801,130		22.00		
40	Fire protection	36,415	sf	5.00	182,075		5.00		
D50	**ELECTRICAL**					582,640		$ 16.00	14.6
5010	Service & distribution	36,415	sf	5.00	182,075		5.00		
5020	Lighting & power	36,415	sf	6.00	218,490		6.00		
5030	Communications & Data	36,415	sf	5.00	182,075		5.00		
E10	**EQUIPMENT**					182,075		$ 5.00	4.6
1010	Institutional	36,415	sf	5.00	182,075		5.00		
E20	**FURNISHINGS**					218,490		$ 6.00	5.5
2010	Fixed Furnishings	36,415	sf	6.00	218,490		6.00		
F20	**DEMOLITION**					467,933		$ 12.85	11.7
1010	Abatement	36,415	sf	7.85	285,858		7.85		
1020	Demoltion - Selective	36,415	sf	5.00	182,075		5.00		
	NET BUILDING COST				$	3,983,718		$ 109.40	100.0
G	**SITE DEVELOPMENT**					695,600		$ 19.10	50.0
10	Site Preparation	376,000	sf	0.75	282,000		7.74		
20	Site Improvements	376,000	sf	0.30	112,800		3.10		
30	Mechanical Utilities	376,000	sf	0.30	112,800		3.10		
40	Electrical Utilities	376,000	sf	0.50	188,000		5.16		
50	Title V Improvements	1	ls	0.00	-		0.00		
H	**PHASING**					696,000		$ 19.11	50.0
10	Modular's	1	ls		696,000		19.11		
	NET CONSTRUCTION COST				$	5,375,318		$ 147.61	100.0
Z	**GEN CONDITIONS OH&P**					1,075,064		$ 29.53	80.0
1	General Conditions	14.00%			752,545		20.67		
2	Overheads & profit	6.00%			322,519		8.86		
Z10	**CONTINGENCIES**					268,766		$ 7.38	20.0
11	Design & Pricing	5.00%			268,766		7.38		
	TOTAL CONSTRUCTION COST				$	6,719,148		$ 184.52	100.0
	GROSS FLOOR AREA	36,415	sf	TOTAL COST		$ 6,719,148		$ 184.52	100.0

ELEMENTAL COST PLAN

MASTER PLAN CONSTRUCTION COST SUMMARY

Project: Stow Center Elementary School
Location: Stow, MA

Existing Building - Addition Only (C2B)

Date: 04.01.07

Architect: SMMA

	Element	Elemental Cost Quantity		Unit Rate	Element Amount Sub-Total	Total	Rate per sf GFA Sub-Total	Total	%
A10	**FOUNDATIONS**					531,300		$ 17.08	8.9
1010	Standard Foundations	23,100	sf	14.00	323,400		10.40		
1030	Slab on grade	23,100	sf	9.00	207,900		6.68		
B10	**STRUCTURE**					709,500		$ 22.81	11.9
1010	Upper floor construction	8,000	sf	16.50	132,000		4.24		
1020	Roof construction	23,100	sf	25.00	577,500		18.57		
B20	**EXTERIOR CLOSURE**					1,340,000		$ 43.09	22.4
2010	Exterior walls	15,000	sf	55.00	825,000		26.53		
2020	Windows	10,000	sf	50.00	500,000		16.08		
2030	Exterior doors	10	lvs	1500.00	15,000		0.48		
B30	**ROOFING**					404,100		$ 12.99	6.8
3010	Roof Coverings	23,100	sf	11.00	254,100		8.17		
3020	Roof Openings	0	ea	0.00	-		0.00		
3025	Projections & Canopies	1,000	sf	150.00	150,000		4.82		
C10	**INTERIOR CONSTRUCTION**					480,000		$ 15.43	8.0
1010	Partitions	30,000	sf	14.00	420,000		13.50		
1020	Doors	50	lvs	1200.00	60,000		1.93		
C20	**STAIRCASES**					56,000		$ 1.80	0.9
2010	Stair Construction	4	flghts	9500.00	38,000		1.22		
2020	Stair Finishes	1,200	sf	15.00	18,000		0.58		
C30	**INTERIOR FINISHES**					354,900		$ 11.41	5.9
3010	Wall Finishes	50,000	sf	1.50	75,000		2.41		
3020	Floor Finishes	31,100	sf	5.00	155,500		5.00		
3030	Ceiling Finishes	31,100	sf	4.00	124,400		4.00		
D10	**VERTICAL MOVEMENT**					80,000		$ 2.57	1.3
1010	Elevators	1	elv	80,000	80,000		2.57		
D15	**MECHANICAL**					964,100		$ 31.00	16.1
20	Plumbing	31,100	sf	5.00	155,500		5.00		
30	HVAC (Limited AC)	31,100	sf	22.00	684,200		22.00		
40	Fire protection	31,100	sf	4.00	124,400		4.00		
D50	**ELECTRICAL**					590,900		$ 19.00	9.9
5010	Service & distribution	31,100	sf	5.00	155,500		5.00		
5020	Lighting & power	31,100	sf	7.00	217,700		7.00		
5030	Communications & Data	31,100	sf	7.00	217,700		7.00		
E10	**EQUIPMENT**					155,500		$ 5.00	2.6
1010	Institutional	31,100	sf	5.00	155,500		5.00		
E20	**FURNISHINGS**					311,000		$ 10.00	5.2
2010	Fixed Furnishings	31,100	sf	10.00	311,000		10.00		
F20	**DEMOLITION**					-		$ -	0.0
1010	Abatement	-	sf	9.50	-		0.00		
1020	Demoltion - Selective	-	sf	8.00	-		0.00		
	NET BUILDING COST				$	5,977,300		$ 192.20	100.0
G	**SITE DEVELOPMENT**					2,153,000		$ 32.94	88.5
10	Site Preparation	326,000	sf	1.50	489,000		7.48		
20	Site Improvements	326,000	sf	1.20	391,200		5.99		
30	Mechanical Utilities	326,000	sf	1.40	456,400		6.98		
40	Electrical Utilities	326,000	sf	1.40	456,400		6.98		
50	Title V Improvements	1	ls	360000.00	360,000		5.51		
H	**PHASING**					280,000		$ 4.28	11.5
10	Modular's	1	ls		280,000		4.28		
	NET CONSTRUCTION COST				$	8,410,300		$ 229.42	100.0
Z	**GEN CONDITIONS OH&P**					1,682,060		$ 54.09	80.0
1	General Conditions	14.00%			1,177,442		37.86		
2	Overheads & profit	6.00%			504,618		16.23		
Z10	**CONTINGENCIES**					420,515		$ 13.52	20.0
11	Design & Pricing	5.00%			420,515		13.52		
	TOTAL CONSTRUCTION COST				$	10,512,875		$ 297.03	100.0
	GROSS FLOOR AREA	31,100	sf	TOTAL COST		$ 10,512,875		$ 297.03	100.0

ELEMENTAL COST PLAN

MASTER PLAN CONSTRUCTION COST SUMMARY

Project: Stow Center Elementary School
Location: Stow, MA

Existing Building - Renovation Only (C2B/E)

Date: 04.01.07

Architect: SMMA

	Element	Elemental Cost Quantity		Unit Rate	Element Amount Sub-Total	Total	Rate per sf GFA Sub-Total	Total	%
A10	**FOUNDATIONS**					-		$ -	0.0
1010	Standard Foundations	-	sf	0.00	-		0.00		
1030	Slab on grade	-	sf	0.00	-		0.00		
B10	**STRUCTURE**					-		$ -	0.0
1010	Upper floor construction	-	sf	0.00	-		0.00		
1020	Roof construction	-	sf	0.00	-		0.00		
B20	**EXTERIOR CLOSURE**					499,000		$ 14.56	12.3
2010	Exterior walls	12,000	sf	15.00	180,000		5.25		
2020	Windows	7,000	sf	40.00	280,000		8.17		
2030	Exterior doors	26	lvs	1500.00	39,000		1.14		
B30	**ROOFING**					526,838		$ 15.38	13.0
3010	Roof Coverings	34,258	sf	11.00	376,838		11.00		
3020	Roof Openings	0	ea	0.00	-		0.00		
3025	Projections & Canopies	1,000	sf	150.00	150,000		4.38		
C10	**INTERIOR CONSTRUCTION**					192,000		$ 5.60	4.7
1010	Partitions	8,000	sf	18.00	144,000		4.20		
1020	Doors	40	lvs	1200.00	48,000		1.40		
C20	**STAIRCASES**					-		$ -	0.0
2010	Stair Construction	-	flghts	0.00	-		0.00		
2020	Stair Finishes	-	sf	0.00	-		0.00		
C30	**INTERIOR FINISHES**					329,064		$ 9.61	8.1
3010	Wall Finishes	55,000	sf	1.00	55,000		1.61		
3020	Floor Finishes	34,258	sf	5.00	171,290		5.00		
3030	Ceiling Finishes	34,258	sf	3.00	102,774		3.00		
D10	**VERTICAL MOVEMENT**					-		$ -	0.0
1010	Elevators	-	elv	-	-		0.00		
D15	**MECHANICAL**					1,130,514		$ 33.00	27.8
20	Plumbing	34,258	sf	6.00	205,548		6.00		
30	HVAC (Limited AC)	34,258	sf	22.00	753,676		22.00		
40	Fire protection	34,258	sf	5.00	171,290		5.00		
D50	**ELECTRICAL**					548,128		$ 16.00	13.5
5010	Service & distribution	34,258	sf	5.00	171,290		5.00		
5020	Lighting & power	34,258	sf	6.00	205,548		6.00		
5030	Communications & Data	34,258	sf	5.00	171,290		5.00		
E10	**EQUIPMENT**					171,290		$ 5.00	4.2
1010	Institutional	34,258	sf	5.00	171,290		5.00		
E20	**FURNISHINGS**					205,548		$ 6.00	5.1
2010	Fixed Furnishings	34,258	sf	6.00	205,548		6.00		
F20	**DEMOLITION**					462,483		$ 13.50	11.4
1010	Abatement	34,258	sf	9.50	325,451		9.50		
1020	Demoltion - Selective	34,258	sf	4.00	137,032		4.00		
	NET BUILDING COST				$	4,064,865		$ 118.65	100.0
G	**SITE DEVELOPMENT**					-		$ -	0.0
10	Site Preparation						0.00		
20	Site Improvements						0.00		
30	Mechanical Utilities						0.00		
40	Electrical Utilities						0.00		
50	Title V Improvements						0.00		
H	**PHASING**					-		$ -	0.0
10	Modular's						0.00		
	NET CONSTRUCTION COST				$	4,064,865		$ 118.65	0.0
Z	**GEN CONDITIONS OH&P**					812,973		$ 23.73	80.0
1	General Conditions	14.00%			569,081		16.61		
2	Overheads & profit	6.00%			243,892		7.12		
Z10	**CONTINGENCIES**					203,243		$ 5.93	20.0
11	Design & Pricing	5.00%			203,243		5.93		
	TOTAL CONSTRUCTION COST				$	5,081,081		$ 148.31	100.0
	GROSS FLOOR AREA	34,258	sf	TOTAL COST		$ 5,081,081		$ 148.31	100.0

ELEMENTAL COST PLAN

MASTER PLAN CONSTRUCTION COST SUMMARY

Project: Stow Center Elementary School
Location: Stow, MA

Existing Building - Addition Only (C2E)

Date: 04.01.07

Architect: SMMA

	Element	Elemental Cost Quantity		Unit Rate	Element Amount Sub-Total	Total	Rate per sf GFA Sub-Total	Total	%
A10	**FOUNDATIONS**					922,300		$ 13.50	7.8
1010	Standard Foundations	40,100	sf	14.00	561,400		8.22		
1030	Slab on grade	40,100	sf	9.00	360,900		5.28		
B10	**STRUCTURE**					1,336,048		$ 19.55	11.2
1010	Upper floor construction	20,215	sf	16.50	333,548		4.88		
1020	Roof construction	40,100	sf	25.00	1,002,500		14.67		
B20	**EXTERIOR CLOSURE**					2,138,000		$ 31.29	18.0
2010	Exterior walls	24,000	sf	55.00	1,320,000		19.32		
2020	Windows	16,000	sf	50.00	800,000		11.71		
2030	Exterior doors	12	lvs	1500.00	18,000		0.26		
B30	**ROOFING**					741,100		$ 10.85	6.2
3010	Roof Coverings	40,100	sf	11.00	441,100		6.46		
3020	Roof Openings	0	ea	0.00	-		0.00		
3025	Projections & Canopies	2,000	sf	150.00	300,000		4.39		
C10	**INTERIOR CONSTRUCTION**					1,172,000		$ 17.16	9.9
1010	Partitions	70,000	sf	14.00	980,000		14.35		
1020	Doors	160	lvs	1200.00	192,000		2.81		
C20	**STAIRCASES**					56,000		$ 0.82	0.5
2010	Stair Construction	4	flghts	9500.00	38,000		0.56		
2020	Stair Finishes	1,200	sf	15.00	18,000		0.26		
C30	**INTERIOR FINISHES**					794,835		$ 11.63	6.7
3010	Wall Finishes	120,000	sf	1.50	180,000		2.63		
3020	Floor Finishes	68,315	sf	5.00	341,575		5.00		
3030	Ceiling Finishes	68,315	sf	4.00	273,260		4.00		
D10	**VERTICAL MOVEMENT**					80,000		$ 1.17	0.7
1010	Elevators	1	elv	80,000	80,000		1.17		
D15	**MECHANICAL**					2,117,765		$ 31.00	17.8
20	Plumbing	68,315	sf	5.00	341,575		5.00		
30	HVAC (Limited AC)	68,315	sf	22.00	1,502,930		22.00		
40	Fire protection	68,315	sf	4.00	273,260		4.00		
D50	**ELECTRICAL**					1,297,985		$ 19.00	10.9
5010	Service & distribution	68,315	sf	5.00	341,575		5.00		
5020	Lighting & power	68,315	sf	7.00	478,205		7.00		
5030	Communications & Data	68,315	sf	7.00	478,205		7.00		
E10	**EQUIPMENT**					341,575		$ 5.00	2.9
1010	Institutional	68,315	sf	5.00	341,575		5.00		
E20	**FURNISHINGS**					888,095		$ 13.00	7.5
2010	Fixed Furnishings	68,315	sf	13.00	888,095		13.00		
F20	**DEMOLITION**					-		$ -	0.0
1010	Abatement	-	sf	9.50	-		0.00		
1020	Demoltion - Selective	-	sf	8.00	-		0.00		
	NET BUILDING COST				$	11,885,703		$ 173.98	100.0
G	**SITE DEVELOPMENT**					2,316,000		$ 22.59	100.0
10	Site Preparation	326,000	sf	1.60	521,600		5.09		
20	Site Improvements	326,000	sf	1.40	456,400		4.45		
30	Mechanical Utilities	326,000	sf	1.50	489,000		4.77		
40	Electrical Utilities	326,000	sf	1.50	489,000		4.77		
50	Title V Improvements	1	ls	360000.00	360,000		3.51		
H	**PHASING**					-		$ -	0.0
10	Modular's	1	ls		-		0.00		
	NET CONSTRUCTION COST				$	14,201,703		$ 196.57	100.0
Z	**GEN CONDITIONS OH&P**					2,840,340		$ 41.57	80.0
1	General Conditions	14.00%			1,988,238		29.10		
2	Overheads & profit	6.00%			852,102		12.47		
Z10	**CONTINGENCIES**					710,085		$ 10.39	20.0
11	Design & Pricing	5.00%			710,085		10.39		
	TOTAL CONSTRUCTION COST				$	17,752,128		$ 248.53	100.0
	GROSS FLOOR AREA	68,315	sf	TOTAL COST		$ 17,752,128		$ 248.53	100.0

ELEMENTAL COST PLAN

SECTION 4.3 TIMELINES

Symmes Maini & McKee Associates (SMMA) developed several schedules to address the estimated durations of each scenario and the overall impact on project costs due to escalation.

The attached schedules are a result of numerous discussions which reviewed in detail the possibility of commencing multiple projects at the same time, using rented facilities for swing space and reducing the impact on students and staff. Ultimately the committee decided that the best option for the Town was to leap frog the construction process to reduce the number of modular classrooms required and minimize the disruption for the occupant of the buildings.

Graphical timelines are included for Scenarios 1 and 3 only.

Scenario 1

Pompo to be comprehensively renovated for grades PreK through 1. This brings the PreK program back from the District. Center School to be comprehensively renovated and added to, to serve grades 2 through 5.

Phase 1 (C2B)

- Students to remain in Pompo and Center
- Construct addition at Center

Construction of this Phase 1 is expected to be approximately 12 to 14 months

Phase 2 (C2B)

- Move grades 3 through 5into new addition and add some portables
- Renovate Center School

Construction of this Phase 2 is expected to be approximately 12 to 14 months

Phase 3 (P1D)

- Move grades K through 2 from Pompo to the renovated Center School and some portables
- Renovate Pompo (move portable classrooms to Hale)
- When the renovations at Pompo are complete, move grades K through 1 back to Pompo
- Bring the PreK program back from the District

Construction of this Phase 3 is expected to be approximately 14 months

Scenario 3

Center School to be comprehensively renovated and added to, to serve all grades, PreK through 5.

Phase 1 (C2E)

- Students to remain in Pompo and Center
- Construct addition at Center

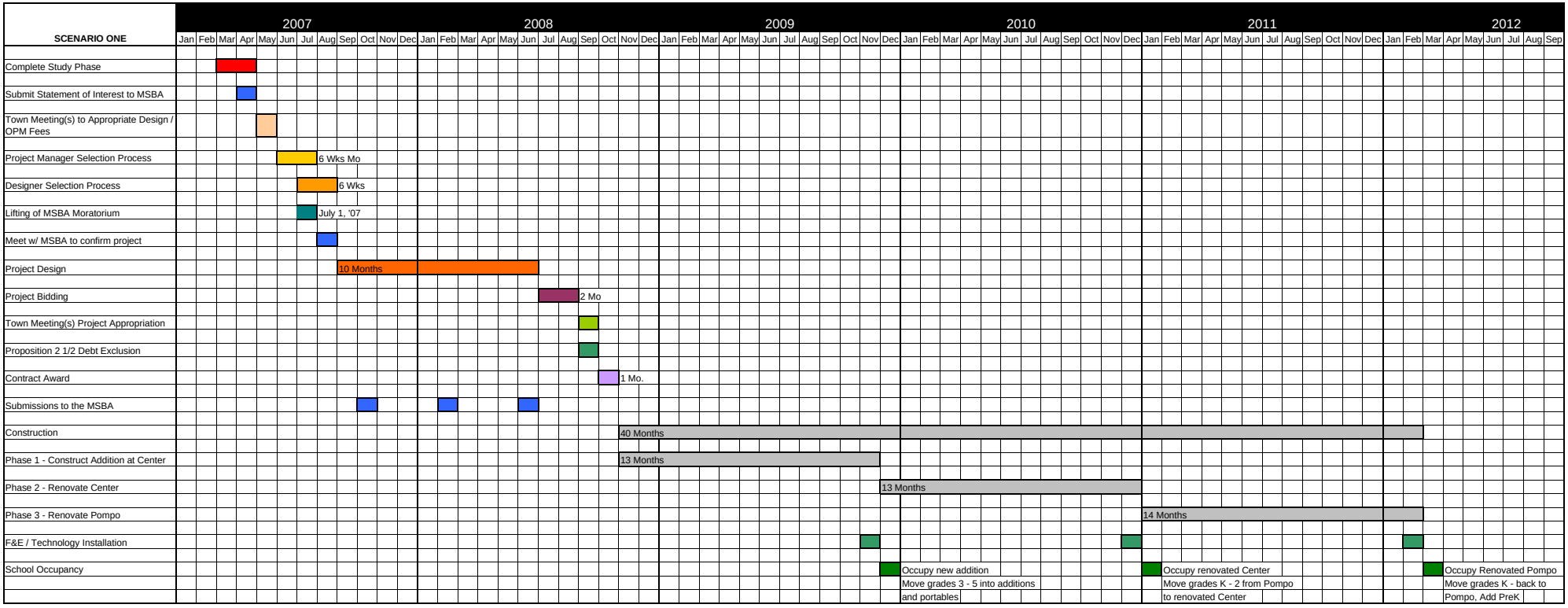
Construction of this Phase 1 is expected to be approximately 18 months

Phase 2 (C2E)

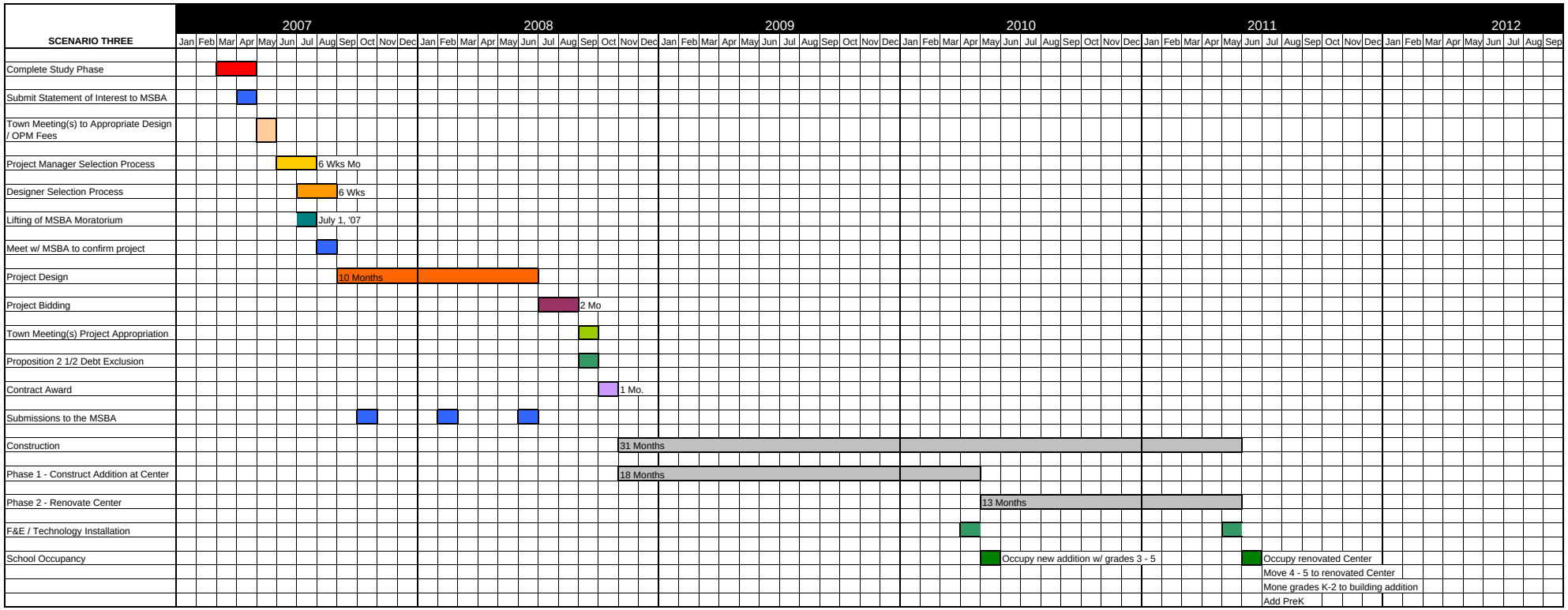
- Grades K through 2 to remain at Pompo
- Grades 3 through 5 to move into the new addition
- Renovate Center School
- At the completion of the project, re-arrange grades to their permanent configuration
- Bring the PreK program back from the District
- Turn Pompo over to the Town

Construction of this Phase 2 is expected to be approximately 12 to 14 months

SCENARIO 1
TIME LINE



SCENARIO 3
TIME LINE



SECTION 5.0 EXISTING CONDITION REPORTS

INTRODUCTION

The Town of Stow had previously commissioned a feasibility study of their elementary schools in 2002 which included existing condition reports for Center and Pompositticut Schools. Furthermore, some repairs and capital maintenance as a result of those studies was undertaken in 2004 under the direction of previous school building committees.

The SBTF determined that a repeat of this existing condition analysis could be a redundant task and an unnecessary cost to the Town. Therefore it was decided that SMMA would review the previous reports and incorporate into the SMMA report format. If any information was missing SMMA could work with the School and Town departments to obtain this information. The 2002 study did not include the Hale Middle school and therefore a full on-site evaluation was requested and performed for that facility.

Purpose Objectives

The purpose of this report is to evaluate and document findings for all major systems and physical components of the existing buildings and sites under the caveats noted above.

This report will provide a basis for guiding the decisions and recommendations that will be presented as part of the overall Study. Several options will be presented following this report and the report will help to inform those designs.

This report, however, it is not intended to represent an exhaustive study of the building and its systems. No destructive testing was undertaken to arrive at the study conclusions. Certain assumptions of unseen conditions are made based on existing drawings, documentation, input from school district personnel and experience of the team.

Background Information

In January of 2007, SMMA Civil Engineer and Architect (only) visited the Elementary School facilities to observe and assess the 'as-built' condition of the buildings and their operating systems. Corkey Tindel (Stow School Department Head Custodian) reviewed concerns and conditions of existing buildings with

the SMMA architectural/engineering team and provided insight on the facilities operation. The structural, mechanical, electrical, fire protection and plumbing engineers reviewed the existing condition report contained within the 2002 Design Partnership of Cambridge (TDPC) Feasibility Study and input said information into the attached "evaluation" reports.

The original scope of building reviews included only the Center and Pompositticut schools. This scope was increased in December 2006 to include the Hale Middle School.

In February of 2007 the entire SMMA architectural and engineering team visited the Hale Middle School and developed the attached "summary of existing conditions" and "evaluation" report.

Prior to visiting the building the A/E team reviewed the available as-designed building documents to become generally familiar with the building and to utilize as the basis for defining the existing conditions.

SECTION 5.1A CENTER SCHOOL EVALUATION REPORT

GENERAL INFORMATION

Name of School: **CENTER SCHOOL**

Address: 403 Great Road,
Stow, Massachusetts 01775

Name of Owner: Gregory J. Irvine (Principal)
Grade Levels Served: 3-5
Student Population: 272
Years in Service: 52
Year Constructed: 1954 Designer: Kilham, Hopkins, Greenley & Brodie
Additions: 1957 and 1964 Designer: Kilham, Hopkins, Greenley & Brodie
Other Site Buildings: 1917 Stone Building Designer: Unknown
Existing Drawings: Kilham, Hopkins, Greenley & Brodie
1 through 24 - Plot Plan, Foundation and Architectural and MEP Drawings
Dated November 1954

Kilham, Hopkins, Greenley & Brodie
2 Through 6 – Roof and Floor Plans, Plumbing and Heating Addition Plans
Dated May 1957

Drummey Rosane Anderson
E-1 – Site Plan and Details
Dated July 1967

The Design Partnership of Cambridge (MEP – Fitzmeyer and Tocci)
A2.0 Roof Plan
M1.0 Through E3.0 - HVAC, Plumbing and Electrical Modifications
Dated March 2004

INFORMATION CONTAINED WITHIN THIS REPORT IS DERIVED FROM THE 2002 STOW ELEMENTARY SCHOOLS FEASIBILITY STUDY, BY THE DESIGN PARTNERSHIP OF CAMBRIDGE (TDPC) AND THE 2004 SCHOOL BUILDING COMMITTEE IMPROVEMENTS DESIGNED BY TDPC.

Condition Key Criteria:
0 – Poor-Not serviceable or failed
1 – Poor/Fair – Failure Expected
2 – Fair – serviceable, maintenance required
3 – Fair/Good – functioning, maintained
4 – Good – Fully functional, new
N/A – Not applicable/Not available
M - Missing

CONSTRUCTION CLASSIFICATION DATA:

Construction Type: (from State Building Code)	
Original Building:	1954 – Not verified
Addition 1:	1957 – Not verified
Addition 2:	1964 – Not verified
Occupancy Group:	E – Educational
Area Sub-Basement:	NA
Basement:	NA
Ground Floor:	34,258 SF
Upper Floors – 2nd:	NA
Upper Floors – 3rd :	NA
Stone Building:	1,749 SF
Total:	36,007 SF

	Height	# of Stories
Height/Stories:	32’- 1 7/8” (pitched roof)	1
Original Building:	12’-0” (flat roof)	1
Addition 1:	12’-0” (estimated)	1
Addition 2:	12’-0” (estimated)	1

EVALUATION REPORT

Condition Key Criteria:
0 – Poor-Not serviceable or failed
1 – Poor/Fair – Failure Expected
2 – Fair – serviceable, maintenance required
3 – Fair/Good – functioning, maintained
4 – Good – Fully functional, new
N/A – Not applicable/Not available
M - Missing

SITE DATA:

	Description	
Land Used:	School Building/Pavement- 15%, Play Area/Ballfields- 35%, Wooded- 25%, Wetlands- 25% (Areas are Approximate)	
Lot Area:	15 acres	
Topography:	Flat area for buildings, fields higher with surrounding wetlands; slight rise to the wooded area in the north and west.	
Wetlands:	Wetlands to the northeast, northwest (Clay Pond) and southwest (Clay Pond outlet)	Note 4

	Size: *(If septic system – verify if aggregate systems applies)*	Material:	Source of Info:	Date Installed	Conditions
Utilities –Sanitary:	Pumped Septic System and leach field 4" forced main	Asbestos (transite)	2002 Report, 1957 Plans	1957	Note 5
Water:	284' deep well at 5GPM	M	2002 Report	M	M
Electricity:	Overhead Wire	N/A	2006 Site Walk, 1957 Plans	1957	M
Gas:	NStar	M	2002 Report	M	M
Oil Tank:	None, previously removed	N/A	2002 Report, 1957 Plans	1957 (Previous Tank)	M
Storm Water Management:	24" Outlet	Transite	2002 Report, 2006 Site Walk	Post 1957 (not shown on 1957 Plans)	Note 6 2
Athletic Fields – Field 1:	Baseball/Softball	Lawn, dirt baselines	2006 Site Walk	Post 1957 (not shown on 1957 Plans)	Note 7 2
Field 2:	Softball	Lawn, dirt baselines	2006 Site Walk	Post 1957 (not shown on 1957 Plans)	Note 7 2
Field 3:	Soccer	Lawn	2006 Site Walk	Post 1957 (not shown on 1957 Plans)	Note 7 3
Track:	None	N/A	2006 Site Walk	N/A	N/A
Tennis Courts:	2	Bituminous	2006 Site Walk	Post 1957	2-3

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2 – Fair – serviceable, maintenance required
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N/A – Not applicable/Not available
M - Missing

	Size: *(If septic system – verify if aggregate systems applies)*	Material:	Source of Info:	Date Installed	Conditions
				(not shown on 1957 Plans)	(puddles, good pav't)
Basketball Courts:	2 half courts & paved play area	Bituminous	2006 Site Walk	Post 1957 (not shown on 1957 Plans)	1
Playground/Total Lot:	75'x50'	Wood & Steel with wood chip ground	2006 Site Walk	Post 1957 (not shown on 1957 Plans)	3

	Type:	Source	Date Installed	Conditions
Site Lighting:	1 flood light at parking and 1 at play structure	2006 Site Walk, 2002 Report	Post 1957 (not shown on 1957 Plans)	3
Fire Hydrant:	None	2006 Site Walk	N/A	N/A

	# Spaces	Material	Date Installed	Conditions
Parking – Lot 1/2/3:	13/34	Bituminous	1957 & Later	Note 8
Bus Drop/Pick-Up Area:	5 buses	Bituminous	1957	2
Parent Drop/Pick-Up Area:		Bituminous	Post 1957 (not shown on 1957 Plans)	3
Loading & Service	1 raised bay, combined with stairway	Bituminous	1957	1
Signage:	N/A	Metal Post	M	3
Trash Management Area:	2 Dumpsters (1 recycling, 1 trash)	Steel	M	3

PROVISIONS FOR ACCESSIBILITY:

Exterior – Accessible Route:	Width	Material
Curb Cuts:	15' & 4'	Bituminous; Note 9
Walkways:	8'	Concrete; Note 9 & 11
Ramps:	None	N/A
Parking:	2 spaces	Bituminous; Note 9

SITE NOTES:

1. The site is not within a Priority Habitat of Rare Species or Estimated Habitat of Rare Wildlife area as designated by the Natural Heritage and

Endangered Species Program. No certified vernal pools are identified (Massachusetts Natural Heritage Atlas, 12th Edition, 2006)

2. Per DEP there are no Areas of Critical Environmental Concern (ACEC) within the Town of Stow.
3. Per FEMA Flood Maps, this property is located within Zone C "Area of Minimal flooding" (outside the 100yr flood).
4. The clay Pond outlets through a culvert that runs beneath the field area.
5. A second septic tank and a second 1600 linear foot leaching field was constructed in 1957 to compliment the existing system.
6. The storm water system described is a buried, intermittent stream that drains the uplands and wetlands, including Clay Pond, at the North side of the site. Three large area drains along the northeast corner of the building likely drain to this buried stream. There is no site drainage for the building roof drains or pavement area. All roofs drain though down spouts to grade and all pavement area drains overland. Ponding regularly occurs on the east side of the building (2002 report).
7. The baseball field includes a second set of baselines for softball. Baseball and softball infields are overgrown. The softball field backstop is in poor condition. The baseball field backstop is in fair condition. Both fields share outfields. The soccer field is located in the outfields.
8. The parking area in front of building is in good condition, the adjacent service drive is in poor condition. The bus turn-around and west side parking is in fair condition.
9. Only the main entrance is accessible, most secondary entrances have a step. The handicap parking is adequately signed and within 200' of the main entrance, but it is not striped correctly to the accessible route. Tennis courts and play areas are not on an accessible route.
10. There is no fire road around the building.
11. The outdoor Classroom near Clay Pond is in disrepair. The bridge to Outdoor Classroom is virtually uncrossable. There is no accessible route to the Outdoor Classroom.

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N/A – Not applicable/Not available
M - Missing

BUILDING SYSTEMS & ASSEMBLIES OF ORIGINAL BUILDINGS:

Structure	Material	Remarks	Conditions
Foundation System:	**Original 1954 Building:** Spread footings at the interior columns, with continuous concrete walls and footings at the perimeter of the building. There are haunched slabs supporting the masonry walls between the classrooms, and continuous walls with footings supporting the interior corridor masonry bearing walls. **Additions 1957 and 1964:** Same as 1954 building.	The stone building has a stone/rubble foundation.	3
Vertical Support Systems:	**Original 1954 Building:** Masonry load bearing walls at interior, at the classroom corridors, and a mix of steel pipe & wide flange columns and masonry bearing walls at the perimeter & exterior walls of the building. **Additions 1957 and 1964:** Same as 1954 building.	Perimeter stone walls up to 24" thick at the "Stone" building. Load bearing walls and foundations at the classroom wings. The boiler room walls have some visible signs of settlement, cracking, and spalling of the brick veneer. This may be evidence of an on-going process. Similar settlement cracks also exist at the 1957 and 1964 additions.	2
Floor Framing Systems:			
Ground:	**Original 1954 Building:** 5" Slab-on-Grade reinforced with #4 rods at 16"oc each way, mid depth (typical), except at spaces adjacent to the boiler room where there is a 6.5" thick reinforced framed slab. **Additions 1957 and 1964:** Same as original 1954 structure.		3
Upper Floors:	N/A		
Roof Framing System:	**Original 1954 Building:** Steel, built-up angle trusses @ 14'-10" o.c., supported on steel columns hidden in the masonry walls at the gym/cafetorium.	Roof framing at the "Stone" building includes 2x6 rafters 24" o.c. supported on the exterior stone walls. The attic floor is framed with 2x6 joists	3

Structure	Material	Remarks	Conditions
	Eight inch deep steel roof purlins, 6' to 8' o.c. frame the roof between trusses. These trusses frame the roof as well as the attic floor space. The attic floor is framed with 2x12 @ 24"wood joists. Classroom roofs are framed with 3x14 wood joists over the classrooms, framed onto double cantilevered steel beams over the corridors, and onto perimeter steel beams at the exterior walls. The roof is sheathed with wood decking. **Additions 1957 and 1964:** The roof framing for the four and six classroom additions is wood framing similar to the original 1954 building. Wood joists are supported on masonry bearing walls, as well as some steel beams.	framing to a center beam that is hung from the roof rafters, by a threaded rod supported by two collar channels bolted to the roof rafters at approx. 6 feet on center. Attic floor is decked over with 2 layers of ¾" tongue and grooved plywood. Even though the roof appears to be in good condition, it needs further investigation to determine its adequacy.	
Lateral Force Resisting System:	None: Existing interior and exterior un-reinforced load and non-load bearing masonry walls provide some, but limited lateral load resisting capability.	All wings.	2

STRUCTURE NOTES:

1. All repair, alterations, and additions to the school will need to meet the requirements of 780 CMR Chapter 34. All additions will need to be completely separated from the existing structures to avoid impacting the limited lateral system of the buildings.

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BUILDING SYSTEMS & ASSEMBLIES OF ORIGINAL BUILDINGS CONT'D:

Exterior Envelope	Material – Original Building	Material – Additions	Conditions
Exterior Wall Assembly:	Brick Veneer CMU backup/ Stone building – no insulation	Brick Veneer CMU backup – no insulation	
Exterior Trim/Fascia:	Plywood soffits and wood fascia	Same as original	1
Sloped Roof Assembly:	Asphalt shingles	Same as original	
Flat Roof Assembly:	15-20 year old Insulated EPDM system	Same as original	2
Windows:	Wood/ Metal single with pane glass – brick rowlock sills	Same as original	No thermal breaks
Clerestory Windows:			
Glazed C- Wall:	N/A	N/A	
Doors – Exterior:	Metal/ Wood	Same as original	None compliant
Interior:	Solid core wood	Same as original	
Cross-Corridor:			
Hardware:			Non compliant

EXTERIOR ENVELOPE NOTES:

1. Copper gutters and downspouts are in poor condition. Gravel stops are in a deteriorated state.

2. Wood gable ends at gymnasium/ cafetorium are deteriorated.

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Interior	Materials – Walls, Floor & Ceiling Original Building			Materials – Walls, Floor & Ceiling Addition			Conditions
	Walls	Floor	Ceiling	Walls	Floor	Ceiling	
Typical Classrooms:	CMU/ GWB	*CPT/ VAT	CSAT/ PLAS	Same as Original	Same as Original	Same as Original	
Offices:	CMU/ GWB	*CPT/ VAT	CSAT/ PLAS				
Gym:	CMU/ WD	Wood	CSAT				
Cafeteria:	CMU/ GWB	Wood	CSAT				
Library:	CMU/ GWB	*CPT/ VAT	CSAT/ PLAS				
Auditorium:	N/A	N/A					
Corridors:	CMU/ GWB	*VAT	CSAT/ PLAS				
Stairs:	CMU/ GWB						Non compliant
Toilets:	CMU/ GWB						
Kitchen:	CMU/ GWB	*VAT	CSAT/ PLAS				
Service/Mechanical:	CMU/ GWB	*VAT	CSAT/ PLAS				

INTERIOR FINISHES NOTES:

1. Perimeter casework has cosmetic and structural damage.

2. Cubbies are in poor condition.

3. Basketball backstops are in poor condition.

4. Platform fire curtain and rigging appear to be old.

5. Chalk and Tack boards are in poor condition.

ABBREVIATIONS:
CMU – Concrete Masonry Unit, or Concrete Block
CONC - Concrete
ACT – Suspended Acoustic Tile Ceiling
CSAT – Suspended Concealed Spline Acoustic Tile
PLAS – Plaster
GWB – Gypsum Wallboard
VCT – Vinyl Composition Tile
VAT – Vinyl Asbestos Tile

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CPT – Carpet
VB – Vinyl Base
CT – Ceramic Tile
PT – Porcelain Tile
WD - Wood

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PLUMBING SYSTEM:

Service	Pipe Size	Meter Size	Pressure Regulator	Oper. Pressure	Pipe Material	Source	Age	Miscellaneous
Water:	4”	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	WELL	UNKNOWN	1
Gas:	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	STEEL		UNKNOWN	2

System	Pipe Material / Condition	Type Insulation / Condition	Miscellaneous
Domestic Cold Water:			HVAC Backflow Preventer -
Domestic Hot Water:			Temperature – Recirculation-
Sanitary Waste & Vent:		N/A	
Storm Drainage:			Interior – Exterior -
Gas:		N/A	Emergency Shut-Off for Labs – Mech Shut-Off at Hood -
Non-Potable (Lab) CW:			Backflow Preventer -
Non-Potable (Lab) HW:			Backflow Preventer -
Acid (Lab) Waste & Vent:		N/A	Limestone or pH Adjust – Town Sewage-
Kitchen Waste:		N/A	Exterior Grease Trap-
Tempered Water:			Fail-Safe Mixing Valve -

Equipment	Type/Fuel	Age	Condition	Miscellaneous
Domestic Water Heater:	Gas fired Water heater	Unknown	1	Gal – 50 Recovery – Unknown CFH or KW - Unknown
Sanitary Ejector Pump:				Simplex or Duplex – Airtight Cover -
Storm Ejector Pump:				Simplex or Duplex -
Domestic Water Booster Pump:				No. of Pumps – Pressure – HP -
Interior Kitchen Grease Trap:				

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Plumbing Fixtures	Type/ Installation	Low Consump/ Metering	Accessible	Condition	Miscellaneous
Water Closet:					
Urinal:					
Lavatory:					
Drinking Fountain/Water Cooler:		N/A			
Classroom Sink					Faucet Type -
Classroom Bubbler / Drinking Fountain		N/A			
Mop Sink:		N/A	N/A		Vacuum Breaker –
Showers:					Single Handle – Master Mixer -

Miscellaneous Fixtures	Miscellaneous		
Hose Bibb:	NA		
Wall Hydrant:	2		
Floor Drain:	2		
Emergency Shower / Eyewash:	none	Stay Open -	Floor Drain -
Emergency Eyewash:	none	Stay Open -	Piped Drain -
Lab Faucets:	NA	Accessible -	
Lab Gas Cocks:	NA		

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AUTOMATIC FIRE SUPPRESSION SYSTEM:

	Size	Material	Location	Flow/Pressure	Date of Installation	Conditions
Water Service Entrance #1:	None					
Water Service Entrance #2:						
Backflow Prevention:						

	Size/Pressure	Manufacturer	Energy Source	Date of Installation	Conditions
Fire Pump:	None				

	Type	Type of Head	Zone	Date of Installation	Conditions
Suppression System	None				
Typical Classrooms					
Large Spaces					
Kitchen:					
Stairs:					
Fire Department Connections:					
Exterior:					
Interior:					
Shut-Off Valves:					
Pre-Action Controls:					

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HEATING & VENTILATING SYSTEMS:

Centralized Systems	Energy Source	Type	Manufacturer	Date of Installation	Conditions
Heating Equipment #1:	Natural Gas	Hot Water Boiler	HB Smith	1954; 1985	Poor; Fair
Cooling Equipment #1:	NA				
Exhaust Equipment #1:		Roof Mtd	Unknown	Unknown	Poor/ Inadequate

Distribution Systems	Size	Type	Manufacturer	Energy Source	Date of Installation	Conditions
Heating Distribution Equipment:	Unknown	Pumps	B&G	Electric	Unknown	Fair
Cooling Distribution Equipment:	NA					
Air Distribution Equipment:	NA					

Terminal Equipment	Type	Manufacturer	Controls	Data of Installation	Conditions
Typical Classrooms:	Unit Vents and FTR	Unknown	Pneumatic	Unknown	Poor
Offices:	FTR	Unknown	Pneumatic	Unknown	Poor
Library:					
Café/Platform:	Unit Vent and FTR	Unknown	Pneumatic	Unknown	Poor
Cafeteria/Gym:	H&V Units	Unknown	Pneumatic	Original	Poor
Gym:					
Kitchen:					
Corridors:					
Toilets:					

Ventilating Equipment	CFM	Type	Manufacturer	Controls	Date of Installation	Conditions
Ventilating Equipment – Typical Classrooms:						
Offices	None					
Library:						
Auditorium:						
Cafeteria:						
Gym:						
Kitchen:						
Corridors:						
Toilets:						

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Ventilating Equipment	CFM	Type	Manufacturer	Controls	Date of Installation	Conditions
Exhaust System :						
Offices						
Library:						
Auditorium:						
Ventilating Equipment (Continued)	CFM	Type	Manufacturer	Controls	Date of Installation	Conditions
Cafeteria:						
Gym:						
Kitchen:						
Corridors:						
Toilets:						
Combustion Air:	Insufficient					
Ventilating of Combustion Base:						
Heat Exchange:						
Energy Recovery:						

HVAC Controls	Type	Manufacturer Controls	Date of Installation	Conditions
Energy Management – Controls:	None – Pneumatic Controls			Poor
General:				
Local:				

HVAC NOTES:

1. Classroom unit ventilators noted as off, due to fan noise.

2. Combustion air does not meet current code.

3. There is no ventilation air in the office, lounge or work rooms / spaces.

4. Toilet exhaust noted as insufficient to adequately remove odors.

5. The 1954 boiler may be insulated with asbestos.

6. Due to the ages of all HVAC system components, they should be replaced, under a renovation project.

HVAC ABBREVIATIONS:

FTR – Fin tube radiation

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ELECTRICAL:

	Rating	Voltage	Metering	Date of Installation	Conditions
Service:	600A	208/120V	Utility	2004	4

	Type		Location		Conditions
Transformer:	Pole Mounted	208/120V	North Side – On site	NA	NA

	Rating	Energy Source	Manufacturer	Date of Installation	Conditions
Emergency Generator:	37.5 KVA	Diesel	NA	2004	4

	Type			Date of Installation	Conditions
Distribution System:	NA	208/120V	NA	1954/2004	1/4, Note 9

Devices	Grounded/Non Grounded			Date of Installation	Conditions
Typical Classrooms:	Grounded			1954-2004	2/4, Note 10
Offices:	Grounded			1954-2004	2/4
Gym/Cafeteria/Stage:	Grounded			1954-2004	2/4
Lobby/Corridor:	Grounded			1954-2004	2/4
Toilets:	NA				

Lighting	Lamp Type	Mounting	Date of Installation	Conditions
Typical Classrooms:	Fluorescent – T12	Surface	NA	1, Note1
Offices:	Fluorescent – T12	Surface	NA	1, Note1
Library:	Fluorescent – T12	Surface	NA	1, Note1
Gym/Cafeteria/Stage:	Fluorescent – T12	Surface	NA	1, Note1
Lobby/Corridor:	Fluorescent – T12	Surface	NA	1, Note1
Toilets:	Fluorescent – T12	Surface	NA	1, Note1
Lighting Controls:	NA			

Site Lighting	Lamp Type	Mounting	Date of Installation	Conditions
Sports Fields:	NA			
Parking:	H.I.D.	Pole	NA	2, Note 2
Walkways:	H.I.D.	Building - Surface	NA	2, Note 2
Building Entrances:	H.I.D.	Building - Surface	NA	2, Note 2

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Security System	Type	Manufacturer		Date of Installation	Conditions
CCTV:	NA			NA	Note 3
Door Access Controls:	NA			NA	
Detection Devices:	NA			NA	

Communications System	Type	Manufacturer		Date of Installation	Conditions
Master Clock / Program:	NA		None Installed		
Typical Classrooms:	Battery Type			NA	2
Offices:	Battery Type			NA	2
Public Areas:	Battery Type			NA	2

Tele/Data/Video System	Type	Manufacturer	CCTV	Date of Installation	Conditions
Typical Classrooms:	1T/1D			NA	2, Note 5
Offices:	1T/1D			NA	3
Library:	NA			NA	2
Computer:	NA			NA	2
Gym/Cafeteria/Stage:	NA			NA	2

Local Sound Systems	Type	Manufacturer	Controls	Date of Installation	Conditions
Gym/Cafeteria/Stage:	NA				Note 4

	Type	Manufacturer	Controls	Date of Installation	Conditions
Emergency Lighting:	Inc/Fluor.	NA	Battery Units	2000 – Est.	2, Note 6
Exit Lighting:	LED or Fluor.	NA	Battery Type	2000 – Est.	2

	Type	Manufacturer	Notifications	Date of Installation	Conditions
Fire Alarm System:	Zoned –Hard Wired	NA	General – to F.D.	1994	3, Note 7

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Fire Alarm Devices	Detector Type	Alarm Signal Type	Pull Station	Date of Installation	Conditions
Typical Classrooms:	HD	General		1954 – Est.	3, Note 8
Offices:	HD	General		1954 – Est.	3
Library:	HD	General		1954 – Est.	3
Auditorium/Stage:	NA			1954 – Est.	3
Gym/Cafeteria/Stage:	HD	General		1954 – Est.	3
Lobby/Corridor:	HD	General	At all exit doors	1954 – Est.	3
Kitchen:	HD	General		1954 – Est.	3
Storage/Service:	NA			1954 – Est.	3
Toilets:	NA			1954 – Est.	3

HS – Horn/Strobe, SD – Smoke Detector, HD – Heat Detector, HID – High Intensity Discharge

ELECTRICAL NOTES:

1. It is reported that the general light fixtures are quite old and many have cracked and/or yellowed lenses and light levels are inadequate. The fixtures utilize T12 lamps with magnetic ballasts, which are inefficient, based on current standards, and should be replaced.
2. It is reported that there is minimal site lighting at the school. All of which is fairly old and most likely original. There is one pole mounted flood light across from the entry drive, and another near the play structure. All other site lighting is building mounted, and is, most likely, H.I.D. wall packs.
3. There is no reported security system(s).
4. There is no reported local sound system.
5. There are reported deficiencies in quantities of data outlets/computer stations or cable type for all areas. Staff has requested more data and telephone outlets, and intercom systems for most areas. More power outlets were added in 2004, which would suggest more data outlets were added, but this is not documented. There are no telephones in classrooms; however the intercom system is used. There is also no mentioned video/CATV system.
6. The emergency lights are incandescent, battery type units, which energize upon loss of power, and are relatively new. Exit signs have been installed at the same time and are believed to be LED, battery type. They are estimated to have been installed circa 2000. The new generator, installed under the 2004 Improvements project, is also believed to be connected to general fluorescent night lights. These would also be considered emergency lights.
7. The fire alarm system control panel and annunciator were replaced around 1994, is of the zoned hard-wired type, and barely adequate for the building. Existing wiring and initiating devices were reused, and are original to the building. Audio/visual devices were not replaced, are not ADA compliant,

and do not meet current codes for coverage. An entire new addressable system with all new wiring and devices should be installed.

8. The building has no sprinkler system. Per the current code, the building is required to have a fire alarm system with full coverage by either smoke and/or heat detectors. The building, most likely, does not have full coverage for all areas. A detailed field investigation would be required for verification.

9. Other than panel SP1, all panels and feeders are original to the building or additions. The panels and feeders are well past their life expectancy and should be replaced.

10. There has been no reported project for replacement of ungrounded receptacles, it is assumed that most or all have been replaced at some point. Grounded receptacles are required by code, and most of today's school equipment requires grounded type, 3-prong receptacles. Any non-grounded type receptacles should be replaced, along with any over 20 years old.

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M - Missing

PROVISIONS FOR ACCESSIBILITY:

Exterior Accessible Route	
Accessible Route:	See Site Data for info.

	Width	Material	Hardware	Conditions
Primary Entrance:				
Exterior/Egress Doors:				
Signage:				

Interior Accessible Route	Width	Material	Hardware	Conditions
Accessible Route:				
Entrance Vestibules:				
Interior Doorways – Classrooms:				
Offices:				
Library:				
Auditorium / Stage:				
Gym/Cafeteria/Kitchen:				
Cross – Corridor:				
Stairs:				
Toilets:				

	Width	Floor Surface	Handrail/Guard Heights	Conditions
Stairways:				
Ramps:				

	Clear Floor Space/Turning Radius	Toilet Partitions	Conditions
Toilet Rooms:			
Tables & Seating – Cafeteria:			
Drinking Fountains:			
Public Tele:			
Controls:			
Signage:			
Emergency Alarms:			

SECTION 5.2A POMPOSITTICUT SCHOOL EVALUATION REPORT

GENERAL INFORMATION

Name of School: **POMPOSITTICUT SCHOOL**
Address: 511 Great Road,
Stow Massachusetts 01775

Name of Owner: Gregory J. Irvine (Principal)
Grade Levels Served: K-2
Student Population: 322
Years in Service: 35
Year Constructed: 1971 Designer:
Additions: None Designer:
Existing Drawings: Drummey Rosane Anderson
E-1 – Site Plan and Details
Dated July 1967

The Design Partnership of Cambridge (MEP – Fitzmeyer and Tocci)
M2.0 Through E3.0 - HVAC, Plumbing and Electrical Modifications
Dated March 2004

INFORMATION CONTAINED WITHIN THIS REPORT IS DERIVED FROM THE 2002 STOW ELEMENTARY SCHOOLS FEASIBILITY STUDY, BY THE DESIGN PARTNERSHIP OF CAMBRIDGE (TDPC) AND THE 2004 SCHOOL BUILDING COMMITTEE IMPROVEMENTS DESIGNED BY TDPC.

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CONSTRUCTION CLASSIFICATION DATA:

Construction Type: (from State Building Code)	
Original Building:	1971 Type unknown
Addition 1:	NA
Addition 2:	NA
Occupancy Group:	E – Educational
Area Sub-Basement:	NA
Basement:	NA
Ground Floor:	36,415 SF + (4) 925 SF Modulars = 3,700 sf
Upper Floors – 2nd:	NA
Upper Floors – 3rd :	NA
Total:	40,115 SF

	Height	# of Stories
Main Building:	13'-0"	1
Gymnasium:	18'-0"	1
Addition 1:	NA	
Addition 2:	NA	

Condition Key Criteria:
0 – Poor-Not serviceable or failed
1 – Poor/Fair – Failure Expected
2 – Fair – serviceable, maintenance required
3 – Fair/Good – functioning, maintained
4 – Good – Fully functional, new
N/A – Not applicable/Not available
M - Missing

SITE DATA:

	Description
Land Used:	School Building/Pavement- 20%, Play Area/Ballfields- 25%, Wooded- 5%, Wetlands- 50% (Areas are Approximate)
Lot Area:	19.2 acres
Topography:	Flat building area with wetlands to the north and east.
Wetlands:	Wet meadows surrounding both ball fields to the north and east. Note 1

	Size: *(If septic system – verify if aggregate systems applies)*	Material:	Source of info:	Date Installed	Conditions
Utilities –Sanitary:	Septic System. 10,000 gal. tank	M	2002 Report	1970	M
Water:	3 HP Well	M	1970 Elect. Plans	1970	M
Electricity:	Underground	M	2006 Site Walk	1970	M
Gas:	NStar	M	2002 Report	1970	M
Oil Tank:	Yes, underground, size unknown	M	2002 Report	1997	M
Storm Water Management:	15" Outlet	Corrugated Metal Pipe	2002 Report, 2006 Site Walk	1970	Note 4 3
Athletic Fields – Field 1:	200' x 120'	Lawn	2002 Report, 2006 Site Walk	M	Note 5 3
Field 2:	300' x 160'	Lawn	2002 Report, 2006 Site Walk	M	3
Field 3:	None	N/A	N/A	N/A	N/A
Track:	None	N/A	N/A	N/A	N/A
Tennis Courts:	None	N/A	N/A	N/A	N/A
Play Courts:	100' x 250' approximate triangular shape	Bituminous	2006 Site Walk	M	2
Playground/Total Lot:	75' x 50'	Wood & Steel with wood chip ground	2006 Site Walk	M	3

	Type:	Source	Date Installed	Conditions
Site Lighting:	1 cobra head light	2006 Site Walk, 2002 Report	Post 1957 (not shown on 1970 Plans)	2
Fire Hydrant:	None	N/A	N/A	N/A

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2 – Fair – serviceable, maintenance required
3 – Fair/Good – functioning, maintained
4 – Good – Fully functional, new
N/A – Not applicable/Not available
M - Missing

	# Spaces	Material	Date Installed	Conditions
Parking – Lot 1/2/3:	49	Bituminous	1970	2
Bus Drop/Pick-Up Area:	5 buses	Bituminous	1970	2
Parent Drop/Pick-Up Area:	Same area as Parking 4 cars, queue in parking aisle	Bituminous	1970	2
Loading & Service	1 raised bay	Bituminous	1970	1
Signage:	N/A	Metal Post	M	3
Trash Management Area:	2 Dumpsters (1 recycling, 1 trash)	Steel	M	3

PROVISIONS FOR ACCESSIBILITY:

Exterior – Accessible Route:	Width	Material
Curb Cuts:	3’	Concrete; Note 6
Walkways:	8’	Concrete; Note 6
Ramps:	None	N/A
Parking:	None	N/A

SITE NOTES:

1. Portions of the site are within a Priority Habitat of Rare Species and Estimated Habitat of Rare Wildlife area as designated by the Natural Heritage and Endangered Species Program. It appears that a portion of the site immediately surrounding the school and parking area (approximately 3 acres) is not within the Priority Habitat of Rare Species and Estimated Habitat of Rare Wildlife area (Massachusetts Natural Heritage Atlas, 12th Edition, 2006). No certified vernal pools are identified.
2. Per DEP there are no Areas of Critical Environmental Concern (ACEC) within the Town of Stow.
3. Per FEMA Flood Maps, this property is located within Zone C “Area of Minimal flooding” (outside the 100yr flood).
4. The stormwater management system is composed of catchbasins and piping network that discharges into the wetlands to the west. No curbing system directs runoff to the basins, thus some erosion exists along pavement edges, especially near the basins.
5. The lower field, nearest the school, is very close to the surrounding wetlands in elevation and is typically too wet to use between November and May (according to Gregory Irvine, Principal, 2006).

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6. The main entrance is the only accessible entrance; most secondary entrances have a step. There is neither handicap parking, signage, nor an accessible route from the parking area. There is an accessible/crosswalk route striped, but it is not located at a curb cut.

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M - Missing

BUILDING SYSTEMS & ASSEMBLIES OF ORIGINAL BUILDINGS:

Structure	Material	Remarks	Conditions
Foundation System:	Interior Spread footings. Exterior continuous concrete walls and footings.	Minor settlement and shrinkage cracks exist in the foundations walls; however these have no impact on the performance of the foundations.	3
Vertical Support Systems:	Steel columns at high roof areas, load bearing cmu walls at the low roof areas.		3
Floor Framing System:	N/A		
Ground:	Slab-on-Grade		3
Upper Floors:	N/A		
Roof Framing System:	Steel bar joists supported on steel beams at the high roof areas, and bar joist supported on predominantly cmu bearing walls elsewhere. Roof decking material is a "Tectum" plank product at the high roof areas, and a lightgage metal deck elsewhere.		3
Lateral Force Resisting System:	None Observed: Limited lateral load resistance provided by interior and exterior un-reinforced cmu walls.		3

STRUCTURE NOTES:

1. All repair, alterations, and additions to the school will need to meet the requirements of CMR Chapter 34. A second story addition to the school in part or in-total may not be economically feasible and will require substantial upgrade to the existing gravity and lateral load resisting system of the building.

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Exterior Envelope	Material	Remarks	Conditions
Exterior Wall Assembly:	Brick Veneer/ CMU backup		2
Exterior Trim/Fascia:	Metal		2
Sloped Roof Assembly:			
Flat Roof Assembly:	15-20 year old Insulated EPDM system	Metal gravel stops and flashing are in good condition	2
Windows:	*Steel, single pane glass –not insulated	Brick sills	No thermal breaks
Clerestory Windows:	Steel		2
Glazed C- Wall:	N/A		
Doors – Exterior:	Metal		1
Interior:	Solid core wood		1
Cross-Corridor:			
Hardware:			Non-accessible

EXTERIOR ENVELOPE NOTES:

1. Caulking sealants, control joints are in poor condition throughout and should be replaced.

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2 – Fair – serviceable, maintenance required
3 – Fair/Good – functioning, maintained
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N/A – Not applicable/Not available
M - Missing

Interior	Materials – Walls, Floor & Ceiling Original Building			Materials – Walls, Floor & Ceiling Addition			Conditions
	Walls	Floor	Ceiling	Walls	Floor	Ceiling	
Typical Classrooms:	CMU/ OP	CPT/ VAT		N/A	N/A	N/A	
Offices:	CMU	CPT/ VAT					
Gym:	CMU		ACT				
Cafeteria:	CMU		ACT				
Library:	CMU	CPT/ VAT					
Auditorium:							
Corridors:	CMU	VAT					
Stairs:	N/A						
Toilets:	CMU/ CT	CT					
Kitchen:	CMU	VAT					
Service/Mechanical:	CMU	VAT					

INTERIOR FINISHES NOTES:

1. Carpet flooring is in fair to poor condition.

2. Vinyl floor tiles contain asbestos.

3. Existing casework in art and science rooms is worn and non-compliant with barrier-free requirements.

4. Wood storage closets along the south wall in the gym/cafeteria are worn and in poor condition.

5. Chalk and Tack boards are in fair condition.

ABBREVIATIONS:
BRK – Brick Masonry
CMU – Concrete Masonry Unit, or Concrete Block
WD – Wood
CONC - Concrete
ACT – Suspended Acoustic Tile Ceiling
CSAT – Suspended Concealed Spline Acoustic Tile
PLAS – Plaster
GWB – Gypsum Wallboard
VCT – Vinyl Composition Tile
VAT – Vinyl Asbestos Tile
CPT – Carpet
VB – Vinyl Base

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RBR – Rubber Treads & Risers/Tile
CT – Ceramic Tile
QT – Quarry Tile
* – Suspected Asbestos Containing Material.

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N/A – Not applicable/Not available
M - Missing

PLUMBING SYSTEM:

Service	Pipe Size	Meter Size	Pressure Regulator	Oper. Pressure	Pipe Material	Source	Age	Miscellaneous
Water:	4"	Unknown	Unknown	Unknown		Well	1971	1
Gas:	Unknown	Unknown	Unknown	Unknown	Steel		Unknown	3

System	Pipe Material / Condition	Type Insulation / Condition	Miscellaneous
Domestic Cold Water:			HVAC Backflow Preventer –
Domestic Hot Water:			Temperature – Recirculation –
Sanitary Waste & Vent:		N/A	
Storm Drainage:			Interior – Exterior –
Gas:		N/A	Emergency Shut-Off for Labs – Mech Shut-Off at Hood –
Non-Potable (Lab) CW:			Backflow Preventer –
Non-Potable (Lab) HW:			Backflow Preventer –
Acid (Lab) Waste & Vent:		N/A	Limestone or pH Adjust – Town Sewage-
Kitchen Waste:		N/A	Exterior Grease Trap –
Tempered Water:			Fail-Safe Mixing Valve –

Equipment	Type/Fuel	Age	Condition	Miscellaneous
Domestic Water Heater:	Gas fired water heater			Gal – 50 Recovery – Unknown CFH or KW - Unknown
Sanitary Ejector Pump:				Simplex or Duplex – Airtight Cover -
Storm Ejector Pump:				Simplex or Duplex -
Domestic Water Booster Pump:				No. of Pumps – Pressure – HP –
Interior Kitchen Grease Trap:				

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N/A – Not applicable/Not available
M - Missing

Plumbing Fixtures	Type/ Installation	Low Consump/ Metering	Accessible	Condition	Miscellaneous
Water Closet:					Kindergarten -
Urinal:					
Lavatory:					Kindergarten -
Drinking Fountain/Water Cooler:		N/A			
Classroom Sink					Faucet Type -
Classroom Bubbler / Drinking Fountain		N/A			
Mop Sink:		N/A	N/A		Vacuum Breaker –
Showers:					Single Handle – Master Mixer –

Miscellaneous Fixtures	Miscellaneous		
Hose Bibb:	Vacuum Breaker - Unknown		
Wall Hydrant:	Vacuum Breaker - Unknown		
Floor Drain:	Trap Primer - Unknown		
Emergency Shower / Eyewash:	Unknown	Stay Open –	Floor Drain –
Emergency Eyewash:	Unknown	Stay Open –	Piped Drain –
Lab Faucets:	Vacuum Breaker - Unknown	Accessible –	
Lab Gas Cocks:	Accessible - Unknown		

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N/A – Not applicable/Not available
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AUTOMATIC FIRE SUPPRESSION SYSTEM:

	Size	Material	Location	Flow/Pressure	Date of Installation	Conditions
Water Service Entrance #1:	None					
Water Service Entrance #2:						
Backflow Prevention:						

	Size/Pressure	Manufacturer	Energy Source	Date of Installation	Conditions
Fire Pump:	None				

	Type	Type of Head	Zone	Date of Installation	Conditions
Suppression System	None				
Typical Classrooms					
Large Spaces					
Kitchen:					
Stairs:					
Fire Department Connections:					
Exterior:					
Interior:					
Shut-Off Valves:					
Pre-Action Controls:					

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1 – Poor/Fair – Failure Expected
2 – Fair – serviceable, maintenance required
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4 – Good – Fully functional, new
N/A – Not applicable/Not available
M - Missing

HEATING & VENTILATING SYSTEMS:

Centralized Systems	Energy Source	Type	Manufacturer	Date of Installation	Conditions
Heating Equipment #1:	Oil	Modular Boilers	Hydrotherm	1997	Fair
Cooling Equipment #1:	NA				
Exhaust Equipment #1:	NA				

Distribution Systems	Size	Type	Manufacturer	Energy Source	Date of Installation	Conditions
Heating Distribution Equipment:	Unk.	Pumps	Armstrong	Electric	1971	Poor
Cooling Distribution Equipment:	NA					
Air Distribution Equipment:	NA					

Terminal Equipment	Type	Manufacturer	Controls	Data of Installation	Conditions
Typical Classrooms:	Unit Vents	Unknown	Pneumatic	1971	Poor
Offices:	Multizone H&V	Unknown	Pneumatic	1971	Poor
Library:	"	Unknown	Pneumatic	1971	Poor
Auditorium:					
Cafeteria:	"	Unknown	Pneumatic	1971	Poor
Gym:					
Kitchen:					
Corridors:	"	Unknown	Pneumatic	1971	Poor
Toilets:					

Ventilating Equipment	CFM	Type	Manufacturer	Controls	Date of Installation	Conditions
Ventilating Equipment – Typical Classrooms:		See Above				
Offices						
Library:						
Auditorium:						
Cafeteria:						
Gym:						
Kitchen:						
Corridors:						
Toilets:						
Exhaust System : Offices						

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N/A – Not applicable/Not available
M - Missing

Library:						
Auditorium:						
Ventilating Equipment (Continued)	CFM	Type	Manufacturer	Controls	Date of Installation	Conditions
Cafeteria:						
Gym:						
Kitchen:						
Corridors:						
Toilets:						
Combustion Air:						
Ventilating of Combustion Base:						
Heat Exchange:						
Energy Recovery:						

HVAC Controls	Type	Manufacturer Controls	Date of Installation	Conditions
Energy Management – Controls:	Pneumatic	Robert Shaw	1971	Poor
General:				
Local:				

HVAC NOTES:

Classrooms and other occupied spaces heating is supplemented by fin tub radiation.

Boiler plant is in good condition

The balance of the systems and equipment have passed their useful life expectancy.

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N/A – Not applicable/Not available
M - Missing

ELECTRICAL:

	Rating	Voltage	Metering	Date of Installation	Conditions
Service:	800A	208/120V	Utility	1971	3

	Type		Location		Conditions
Transformer:	Pad Mounted	208/120V	South Corner – Outside of Building	1971 – Est.	NA

	Rating	Energy Source	Manufacturer	Date of Installation	Conditions
Emergency Generator:	30 KVA	Natural Gas	Onan	1971	3

	Type			Date of Installation	Conditions
Distribution System:	NA	208/120V	NA	1971/2004	2/4 Note 9

Devices	Grounded/Non Grounded			Date of Installation	Conditions
Typical Classrooms:	Grounded			1971/2004	3/4
Offices:	Grounded			1971/2004	3/4
Gym/Cafeteria:	Grounded			1971/2004	3/4
Lobby/Corridor:	Grounded			1971/2004	3/4
Toilets:	NA				

Lighting	Lamp Type	Mounting	Date of Installation	Conditions
Typical Classrooms:	Fluorescent	Surface	1971	2, Note1
Offices:	Fluorescent	Surface/Recessed	1971	2, Note1
Library:	Fluorescent	Surface	1971	2, Note1
Gym/Cafeteria:	Fluorescent	Surface	1971	2, Note1
Lobby/Corridor:	Fluorescent	Surface/Recessed	1971	2, Note1
Toilets:	Fluorescent	Surface/Recessed	1971	2, Note1
Lighting Controls:	NA			
Theatre Lighting System:	NA			

Site Lighting	Lamp Type	Mounting	Date of Installation	Conditions
Sports Fields:	NA			
Parking:	H.I.D.	Pole	1971	2, Note 2
Walkways:	H.I.D.	Building - Surface	1971	2, Note 2
Building Entrances:	H.I.D.	Building - Surface	1971	2, Note 2

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Security System	Type	Manufacturer		Date of Installation	Conditions
CCTV:	NA			NA	Note 3
Door Access Controls:	NA			NA	
Detection Devices:	NA			NA	

Communications System	Type	Manufacturer		Date of Installation	Conditions
Master Clock / Program:	Model 2351	Simplex		1971 – Est.	3
Typical Classrooms:	PA				3, Note 10
Offices:	PA				3
Public Areas:	PA				3

Tele/Data/Video System	Type	Manufacturer	CCTV	Date of Installation	Conditions
Typical Classrooms:	1T/1D			NA	2, Note 5
Offices:	1T/1D			NA	3
Library:	NA			NA	2
Computer:	NA			NA	2
Gym/Cafeteria:	NA			NA	2

Local Sound Systems	Type	Manufacturer	Controls	Date of Installation	Conditions
Gym/Cafeteria:	Portable			NA	2, Note 4

	Type	Manufacturer	Controls	Date of Installation	Conditions
Emergency Lighting:	Incandescent	NA			2, Note 6
Exit Lighting:	LED	NA			4

	Type	Manufacturer	Notifications	Date of Installation	Conditions
Fire Alarm System:	Addressable	NA		2000	3, Note 7

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2 – Fair – serviceable, maintenance required
3 – Fair/Good – functioning, maintained
4 – Good – Fully functional, new
N/A – Not applicable/Not available
M - Missing

Fire Alarm Devices	Detector Type	Alarm Signal Type	Pull Station	Date of Installation	Conditions
Typical Classrooms:	HD	General		1971	3, Note 8
Offices:	HD	General		1971	3
Library:	HD	General		1971	3
Auditorium/Stage:	NA			1971	3
Gym/Cafeteria:	HD	General		1971	3
Lobby/Corridor:	HD	General	At all exit doors	1971	3
Kitchen:	HD	General		1971	3
Storage/Service:	NA			1971	3
Toilets:	NA			1971	3

HS – Horn/Strobe, SD – Smoke Detector, HD – Heat Detector, HID – High Intensity Discharge

ELECTRICAL NOTES:

1. It is reported that the general light fixtures are quite old and many have cracked and/or yellowed lenses. The fixtures may utilize T12 lamps with magnetic ballasts, which are inefficient based on current standards.

2. It is reported that there is minimal site lighting at the school. All of which is fairly old and most likely original. There is only one pole mounted flood light near the handicapped parking area. All other site lighting is building mounted, and is, most likely, H.I.D. wall packs.

3. There is a security system that reportedly works, but does not have an intercom/buzzer or camera control.

4. The local sound system is reportedly a mobile type system with a headset and amplifier cabinet.

5. There are no reported quantities of data outlets/computer stations or cable type. Staff has requested more data and telephone outlets, and intercom systems for most areas. More power outlets were added in 2004, which would suggest more data outlets were added, but are not documented. Also noted was that the data cabling was not installed in a neat and orderly fashion. There is also no mentioned video/CATV system.

6. The emergency lights are incandescent type, and energize upon loss of power. Lights are reportedly sporadically located, and may not light the paths of egress adequately. The fixtures are old and reportedly very bright, functionality is not known, therefore may be beneficial for them to be replaced.

7. The fire alarm system control panel and annunciator were replaced in 2000, it is an addressable system, and adequate for the building. Existing wiring

and initiating devices were reused, and are original to the building. Strobes were replaced and are ADA compliant, but complete coverage, per code, is not verified.

8. The building has no sprinkler system. Per the current code, the building is required to have a fire alarm system with full coverage by either smoke and/or heat detectors. It has been reported that there is not full coverage.

9. Receptacle panels were added under a 2004 renovation, and are in new condition. All other panels are original and past their life expectancy, and should be replaced.

10. The PA system does not have complete coverage, specifically noted in central class locations. There are most likely other spaces that do not have adequate coverage.

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M - Missing

PROVISIONS FOR ACCESSIBILITY:

Exterior Accessible Route	
Accessible Route:	See Site Data for info.

	Width	Material	Hardware	Conditions
Primary Entrance:				
Exterior/Egress Doors:				
Signage:				

Interior Accessible Route	Width	Material	Hardware	Conditions
Accessible Route:				
Entrance Vestibules:				
Interior Doorways – Classrooms:				
Offices:				
Library:				
Gym/Cafeteria/Kitchen:				
Cross – Corridor:				
Stairs:				
Toilets:				

	Size			Conditions
Vertical Access: (Elevators/Lifts)				

	Width	Floor Surface	Handrail/Guard Heights	Conditions
Stairways:				
Ramps:				

	Clear Floor Space/Turning Radius	Toilet Partitions	Conditions
Toilet Rooms:			
Tables & Seating – Cafeteria:			
Drinking Fountains:			
Public Tele:			
Controls:			
Signage:			
Emergency Alarms:			

SECTION 5.3A HALE MIDDLE SCHOOL EVALUATION REPORT

GENERAL INFORMATION

Name of School: **HALE SCHOOL**

Address: 55 Hartley Road
Stow, Massachusetts

Name of Owner: Town of Stow, Massachusetts

Grade Levels Served: 6th, 7th, and 8th

Student Population: Current Enrollment 257

Years in Service: 1964 - present

Year Constructed: 1964 Designer: Stoner Associates, Architects

Additions: 1996 Designer: The Design Partnership of Cambridge

Existing Drawings: Site Engineering - Hamwey Engineering Inc.
U1.2 – U1.7
Landscape - Larson Associates
L1 – L5
Architecture - The Design Partnership of Cambridge
PH 1 – PH 2, D1.1 – D1.3, X1.1 – X2.1, A1 – A11.2
Kitchen – Crabtree McGrath Associates, Inc.
K-1
Structural – Stamped by Stephen Crochett
S1.1 – S8.2
MEP – AHA Consulting Engineers
H 1.1 – H4.1, E1.1 – E6.4, DP1.1-DP1.2, P0.1 – P1.4

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N/A – Not applicable/Not available
M - Missing

CONSTRUCTION CLASSIFICATION DATA:

Construction Type: (from State Building Code)	
Original Building:	Not available
Addition 1:	
Occupancy Group:	E – Educational
Basement:	5,845 sq. ft.
Ground Floor:	47, 665 sq. ft.
Upper Floors – 2nd:	11,140 sq. ft.
Total:	64,650 sq. ft.

	Height	# of Stories
Height/Stories:	Varies	1, 1-1/2 and 2
Original Building:	23'-0"	2
Addition 1:	32'-0"	1-1/2

Condition Key Criteria:
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1 – Poor/Fair – Failure Expected
2 – Fair – serviceable, maintenance required
3 – Fair/Good – functioning, maintained
4 – Good – Fully functional, new
N/A – Not applicable/Not available
M - Missing

SITE DATA:

	Description	
Land Used:	School Building/Pavement- 15%, Play Area/Ball Fields- 25%, Wooded- 45%, Wetlands- 15% (Areas of School Parcel; Areas are Approximate)	
Lot Area:	16.7 acres (School Parcel) + 4.1 acres (Entrance Road & Fire Department Parcel)	
Topography:	Flat, level area for buildings, parking and ball fields; rise to woodlands to the East; drop to wooded wetlands to the South and West; drop to woodlands to the North	Note 1
Wetlands:	Wooded wetlands to the West & South of school building and to the West of ball fields	Note 2

	Size:	Material:	Source of info:	Date Installed	Conditions
	(If septic system – verify if aggregate systems applies)				
Utilities –Sanitary:	Two 20,000 gallon Septic Tanks pumped to Leach Field by Two 4" Force Mains One Tight Tank	Reinforced Concrete Tanks & Pump Chamber PVC piping	1964 Plans, 1996 Plans	1964 (1st septic tank), 1996 (remainder)	Note 3 M
Water:	On-site Well	M	2006 Site Walk	Between 1964 & 1996	Note 4 M
Electricity:	Overhead Wire, Generator	N/A	2006 Site Walk, 1964 Plans, 1996 Plans	1964, upgraded 1996	Note 5 M
Gas:	NStar	M	2006 Site Walk	M	M
Oil Tank:	10,000 gallon tank	Fiberglass	2006 Site Walk, 1996 Plans	1996	M
Storm Water Management:	Four 12" Diffuser Outlets and One 24" Outlet	RCP	2006 Site Walk, 1996 Plans	1996	Note 6 3
Athletic Fields – Field 1:	Softball	Lawn, dirt baselines	2006 Site Walk, 1996 Plans	1996	Note 7 2
Field 2:	Soccer	Lawn	2006 Site Walk, 1996 Plans	M	Note 7 3
Field 3:	None	N/A	N/A	N/A	N/A
Track:	None	N/A	N/A	N/A	N/A
Tennis Courts:	None	N/A	N/A	N/A	N/A

Condition Key Criteria:
0 – Poor-Not serviceable or failed
1 – Poor/Fair – Failure Expected
2 – Fair – serviceable, maintenance required
3 – Fair/Good – functioning, maintained
4 – Good – Fully functional, new
N/A – Not applicable/Not available
M - Missing

	Size:	Material:	Source of info:	Date Installed	Conditions
(If septic system – verify if aggregate systems applies)					
Play Courts:	Basketball Court	Bit Conc	2006 Site Walk, 1996 Plans	1996	3
Playground/Total Lot:	None	N/A	N/A	N/A	N/A

	Type:	Source	Date Installed	Conditions
Site Lighting:	2 pole mounted street Lights (front lot) / 2 flood lights mounted on single pole (side lot)	2006 Site Walk, 1996 Plans	1996	3
Fire Hydrant:	None	2006 Site Walk, 1996 Plans	N/A	Note 8 N/A

	# Spaces	Material	Date Installed	Conditions
Parking – Lot 1/2/3:	36 front lot / 46 side lot	Bit Conc	1996	Note 9 3
Bus Drop/Pick-Up Area:	340' (approx. 7 busses)	Bit Conc	1996	Note 9 3
Parent Drop/Pick-Up Area:	180' (approx. 9 cars)	Bit Conc	1996	Note 9 3
Loading & Service	None	N/A	N/A	Note 10
Signage:	N/A	Metal Post	1996	3
Trash Management Area:	1 recycling dumpster (front lot) / 1 garbage dumpster (side lot)	Steel	M	Note 11 3

PROVISIONS FOR ACCESSIBILITY:

Exterior – Accessible Route:	Width	Material	
Curb Cuts:	4'	Cem Conc	Note 12
Walkways:	8.5' at entrance, 5' elsewhere	Cem Conc	Note 12 & 13
Ramps:	None	N/A	
Parking:	4 front lot / 2 side lot	Bit Conc	Note 12

SITE NOTES:

1. Per FEMA Flood Maps, this property is located within Zone C "Area of Minimal Flooding" (outside the 100yr flood).
2. This site is not within a Priority Habitat of Rare Species and Estimated Habitat of Rare Wildlife area as designated by the Natural Heritage and

Endangered Species Program. No certified vernal pools are identified. There are no Areas of Critical Environmental Concern (ACEC) within the Town of Stow. (Massachusetts Natural Heritage Atlas, 12th Edition, 2006).

3. The septic system for the original school included a single 20,000 gallon septic tank with integrated pump station, transite piping and two leaching fields. During the 1996 renovations a second 20,000 gallon septic tank was added in series to the first, all transite piping removed and replaced with PVC, and the existing leaching field was removed and replaced with a new leaching field. To provide for lab acid wastes a 5,000 gallon tight tank was added during the 1996 renovations.

4. The well, pump, water treatment system and water tank are housed in a garage on the west side of the school. The 1964 design showed the well and pump building at the southeast corner of the school. During the following three decades the well was relocated. Design plans for the present well and pump system are unavailable.

5. Overhead wires (1964) along the access road provide power to the school site. The 1996 renovation provided a new transformer and backup generator and all underground site electric services from the location of the new transformer.

6. The stormwater management system is composed of catchbasins and piping network that discharges into the wetlands to the south and west. Catch basins include 4 feet deep sumps. Each outlet contains a diffuser tank that also acts as an oil/sediment trap. The diffuser outlets are placed in stone and appear to be functioning. The pavement curbing is in good condition and adequately directs runoff to catch basins.

7. Softball field is in fair condition. The baselines have grown over with weeds. The soccer field is only partially within the softball outfield and is in good condition. The septic leaching fields are located beneath the soccer field.

8. No municipal owned water mains with fire hydrants are installed near the project site. During a fire, the firefighting water supply will come from either fire apparatus or nearby ponds. One pond with available water is located to the west of Center School (approx. 0.6 miles away) with a second pond located near the intersection of Crescent Street and West Acton Road, also approximately 0.6 miles away. A dry hydrant installed at this location. The ponds have a capacity of approximately 100,000 gallons each. (Information provided by the Stow Fire Chief, David Soar, February 7, 2007.)

9. Pavement is in fair to good condition with minimal longitudinal cracking. The front parking lot is used by staff and as a parent drop off/pick up zone. Some parking overflows to the side of the access road. The side parking lot is used as a bus drop-off/pick-up and play area during school days. The side parking lot is only used for parking during school events. The fire access

road around the building is incomplete at the northwest corner of the building, between the well pump house and the side parking lot.

10. No loading zone or loading dock is available onsite. Everyday the kitchen prepares food for the two elementary schools (Center and Pompositticut). The delivery van backs onto the sidewalk near the kitchen door for loading.
11. The garbage dumpster is located on the sidewalk at a wide curb cut, adjacent to the side lot near the kitchen entrance. The designed waste management area at the northeast corner of the side lot (1996 plans) was not completed; only the concrete pad was constructed without the 6-foot high wood fence. The recycle dumpster is located near the front entrance to the school.
12. Both main entrances and all secondary entrances are ADA/MAAB accessible. All site walks appear to be accessible. Crosswalk striping is absent from the handicap parking to the sidewalk and pedestrian roadway crossing.
13. The trail to the environmental science cabin to the south of the school is not ADA/MAAB accessible and neither is the boardwalk that continues from there across the southern wetlands to the Stow Outdoor Classroom.

Condition Key Criteria:
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1 – Poor/Fair – Failure Expected
2 – Fair – serviceable, maintenance required
3 – Fair/Good – functioning, maintained
4 – Good – Fully functional, new
N/A – Not applicable/Not available
M - Missing

BUILDING SYSTEMS & ASSEMBLIES OF ORIGINAL BUILDINGS:

Structure	Material	Remarks	Conditions
Foundation System:	concrete spread footings; 12" thick concrete foundation walls		3
Vertical Support Systems:	Steel columns and 8"-12" CMU bearing walls		3
Floor Framing System:			
Ground:	Lower Level/1st floor: concrete slab on grade	Floor tiles warped and damaged from below	2
Upper Floors:	Main Level/2nd Floor: 4" concrete slab on grade (original building)	Observed cracks and spalling concrete on underside of slab in Consumer Science Room	3
	Main Level/2Nd Floor (original building): concrete slab formed with concrete beams	Stepped floors	2
	Main level/2nd Floor (renovation): 2½" concrete slab on 1½" composite metal deck supported by wide flange steel beams		3
	3rd Floor (original): concrete slab on metal deck on bar joists		3
	3rd Floor (renovation): 2½" concrete slab on 1½" composite metal deck supported by wide flange steel beams		3
Roof Framing System:	1 ½" metal deck on bar joists		3
Lateral Force Resisting System:	CMU masonry walls; steel braced frames		3

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Exterior Envelope	Material	Remarks	Conditions
Exterior Wall Assembly:	Brick, EIFS, Precast		4
Exterior Trim/Fascia:	Alum		4
Sloped Roof Assembly:	EPDM Membrane, Standing Seam Metal	Under warranty	4
Flat Roof Assembly:	EPDM Membrane	Under warranty	4
Windows:	Alum		4
Clerestory Windows:	Kalwall	At Gym	4
Glazed C- Wall:	Alum	See Note 3	4
Doors – Exterior:	Alum		4
Interior:	Wood doors with HM frame		4
Cross-Corridor:	Wood doors with HM frame		4
Hardware:	Chrome	All accessible lever handle	4

EXTERIOR ENVELOPE NOTES:

1. Brick veneer with CMU backup wall or light gauge metal framed backup wall. Exterior insulated finish system (EIFS) at some locations of new addition. Double glazed windows and curtain walls. EPDM membrane roof with skylights. Aluminum fascia with soffit vents.
2. Brick, precast, EIFS, windows, curtain wall in good condition, including original building. Some staining of brick outside of Art Room (paint) and EIFS at backside of classroom wing.
3. Indication of some deterioration of the concrete sill at the curtain walls of the original building at grade. See photo.
4. School is serviced by onsite well water (containing high iron levels as reported from Principal and custodial staff). Samples are taken daily by outside consultant. Septic system is original to building with no reported problems.
5. Exterior metal storage container located adjacent to gym contains gym equipment, desks, chairs, etc.

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Interior	Materials – Walls, Floor & Ceiling Original Building			Materials – Walls, Floor & Ceiling Addition			Conditions
	Walls	Floor	Ceiling	Walls	Floor	Ceiling	
Typical Classrooms:	CMU	VCT	ACP	GWB	VCT	ACP	4
Offices:	GWB	CPT	ACP				4
Gym:				CMU	WOOD	TECT	4
Cafeteria:	CMU	VCT	ACP/ GWB				4
Library:	GWB	CPT	TECT				
Auditorium:				GWB	CONC	ACOUS	4
Corridors:	CMU	VCT	ACP	CMU	VCT	ACP	4
Stairs:	CMU	VINYL					4
Toilets:	CMU	CT	GWB				4
Kitchen:	GWB	CT	GWB				4
Service/Mechanical:	CMU	CONC	ETS				4

INTERIOR FINISHES NOTES:

1. Typical classroom size of 32' x 26' (approx 832 sq. ft). Classroom size is comfortable with natural light and clerestory light from corridor.
2. Corridors at Classroom wing have glazed CMU and clerestory transoms with wired glass above lockers. Lockers are in good condition.
3. Science rooms have epoxy resin bench tops with integrated epoxy sinks and emergency showers. No services (gas, vacuum, compressed air) and no fume hoods.
4. Toilet room partitions are plastic laminate and are racking.
5. Lower level home economics rooms show signs of settlement, causing VCT floor to crack. See structural comments. Humidity is high in the lower level. Dehumidifiers are used during spring/summer months. Principal stated there were previous mold problems. Currently, no visible sign of mold or mildew. No toilet rooms at lower level.
6. Elevator does not meet current code due to cab size, door size and operation and not accessible for a stretcher.
7. Communicating stair to lower level is not classified at egress stair. Lower level has 2 means of egress directly outside. Stair 5 is also not classified as egress stair. There is no rated enclosure. Stair 6 is the only enclosed rated stair at classroom wing.
8. Principal and custodial staffed mentioned that upper level classrooms get extremely hot and uncomfortable on hot days. Small operable windows with screens, are present, but not sufficient. Large fans are located in the corridors and run during winter months, to keep air circulating.

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9. Cafeteria appears undersized for current population. During renovation, space was taken away to provide for guidance offices. Currently serves 3 lunch periods, (96 students). Will have to convert to 4 lunch periods with increased upcoming enrollments.
10. Icy conditions occur at the exit of the wood shop due to a rain leader at this location.
11. The kitchen supplies lunch to nearby elementary schools, Center and Pompositticut. There is no loading area/receiving area and the kitchen is currently serviced through corridor and single leaf exterior door. Flashing above this door has deteriorated. The dishwasher is currently not working.
12. Roof of new addition had several leaks and was surveyed with infrared device and leaks were fixed. Roof appears to be in very good condition.
13. Public address system was updated during the renovation project. Phones and televisions are in every classroom, every teacher has a lap top computer and Smartboards are in use in some classrooms.
14. Storage space is minimal.
15. Overall building was very clean and in very good condition and well maintained.

ABBREVIATIONS:
BRK – Brick Masonry
CMU – Concrete Masonry Unit, or Concrete Block
WD – Wood
CONC - Concrete
ACP – Suspended Acoustic Tile Panel
ACOUST – Acoustical Ceiling System
PLAS – Plaster
GWB – Gypsum Wallboard
VCT – Vinyl Composition Tile
VAT – Vinyl Asbestos Tile
CPT – Carpet
VB – Vinyl Base
RBR – Rubber Treads & Risers/Tile
TECT - Tectum
CT – Ceramic Tile
QT – Quarry Tile
ETS – Exposed to Structure

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PLUMBING SYSTEM:

Service	Pipe Size	Meter Size	Pressure Regulator	Oper. Pressure	Pipe Material	Source	Age	Miscellaneous
Water:	4"	1 ¼"	NONE	80 PSI FROM TANK	COPPER(2)	WELL	UNKNOWN	SEE NOTE 5
Gas:	3"	2225 CFH	YES	12"W.C.	STEEL (3)	LOCAL GAS COMPANY	1996	THERMOPLASTIC PIPING TO EMERGENCY GENERATOR

System	Pipe Material / Condition	Type Insulation / Condition	Miscellaneous
Domestic Cold Water:	Copper (3)	Fiberglass (3)	HVAC Backflow Preventer - Yes
Domestic Hot Water:	Copper (3)	Fiberglass (3)	Temperature – 120 Recirculation- yes
Sanitary Waste & Vent:	CI, copper, steel (3)	N/A	
Storm Drainage:	CI (3), aluminum		Interior – yes Exterior – roof drains (3), gutters (1,2) (see note 3), downspouts (2)
Gas:	Steel (3)	N/A	Emergency Shut-Off for Labs – N/A Mech Shut-Off at Hood – Unknown
Non-Potable (Lab) CW:	Copper (3)	Fiberglass (3)	Backflow Preventer – yes
Non-Potable (Lab) HW:	Copper (3)	Fiberglass (3)	Backflow Preventer – yes, (see note 1)
Acid (Lab) Waste & Vent:	PVC, Polypropylene (3)	N/A	Limestone or pH Adjust – none Piped to exterior holding tank (unknown condition)
Kitchen Waste:	Copper (3) CI (3)	N/A	Exterior Grease Trap- yes (unknown condition)
Tempered Water:	(See note 6)		Fail-Safe Mixing Valve – no, fed with domestic cold water

Equipment	Type/Fuel	Age	Condition	Miscellaneous
Domestic Water Heater:	Gas-fired PVI water heater	1996	(3)	Gal – 400 Recovery – 750 gph CFH – 600,000 BTUH
Sanitary Ejector Pump:	Weil Submersible duplex pump	1996	(2)	Duplex Airtight Cover - yes

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Equipment	Type/Fuel	Age	Condition	Miscellaneous
Storm Ejector Pump:	none			Simplex or Duplex -
Domestic Water Booster Pump:	none			No. of Pumps – Pressure – HP -
Interior Kitchen Grease Trap:	Recessed	unknown	(2)	1 at three pot sink

Plumbing Fixtures	Type/ Installation	Low Consump/ Metering	Accessible	Condition	Miscellaneous
Water Closet:	Wall hung	Yes	Yes	(3)	
Urinal:	Wall hung	Yes	Yes	(3)	
Lavatory:	Wall Hung	Yes	Yes	(3)	
Drinking Fountain/Water Cooler:	Wall Hung	N/A	Yes	(2)	
Classroom Sink	Surface mounted-SS	No	varies	(3)	Faucet Type - varies
Classroom Bubbler / Drinking Fountain	N/A	N/A			
Mop Sink:	MR	N/A	N/A	(3)	Vacuum Breaker –yes
Showers:	Tiled	No	Yes	(1) (3) See note 2	Single Handle – yes Master Mixer - yes

Miscellaneous Fixtures	Miscellaneous		
Hose Bibb:	Vacuum Breaker - yes		
Wall Hydrant:	Vacuum Breaker - yes		
Floor Drain:	Trap Primer - yes		
Emergency Shower / Eyewash:	Location – Science Rooms (3)	Stay Open - yes	Floor Drain - No
Emergency Eyewash:	Location – Water Service building	Stay Open - unknown	Piped Drain - No
Lab Faucets:	Vacuum Breaker – yes	Accessible - No	
Lab Gas Cocks:	N/A		

PLUMBING NOTES:

1. Delivery of hot water to sinks at second floor science lab 179 takes an unusual amount of time.
2. Accessible shower in boys' locker room is broken/damaged.

3. Gutters on west side of the building need replacement and or fixing and need to be cleaned thoroughly to allow for adequate drainage.
4. Kitchen Dishwasher is reported to be in non-working order.
5. Control panel for well has been replaced within the past year.
6. Emergency Shower/eyewash units are currently supplied by cold water. This does not meet current code.
7. There are no bathrooms in basement level.

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AUTOMATIC FIRE SUPPRESSION SYSTEM:

	Size	Material	Location	Flow/Pressure	Date of Installation	Conditions
Water Service Entrance	N/A					
Water Service Entrance	N/A					
Backflow Prevention:	N/A					

	Size/Pressure	Manufacturer	Energy Source	Date of Installation	Conditions
Fire Pump:	N/A				

	Type	Type of Head	Zone	Date of Installation	Conditions
Suppression System	N/A				
Typical Classrooms					
Large Spaces					
Kitchen:					
Stairs:					
Fire Department Connections:					
Exterior:					
Interior:					
Shut-Off Valves:					
Pre-Action Controls:					

FIRE PROTECTION NOTES:

There is no fire protection system in this building.

See Note #8 of the Site Notes on page 5 for procedures.

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HEATING & VENTILATING SYSTEMS:

Centralized Systems	Energy Source	Type	Manufacturer	Date of Installation	Conditions
Heating Equipment #1:	#2 Fuel Oil	Cast Iron	HB Smith	1996	Note 3
Cooling Equipment #1:	Electric	Direct Exp.	McQuay	1996	Note 4
Exhaust Equipment #1:	NA	Various	Unknown	1996	

Distribution Systems	Size	Type	Manufacturer	Energy Source	Date of Installation	Conditions
Heating Distribution Equipment:	7.5 HP	End Suction Pumps	Taco	Electric	1996	3
Cooling Distribution Equipment:	N/A	N/A	N/A	N/A	N/A	N/A
Air Distribution Equipment:	See Below	See Below	See Below	See Below	See Below	See Below

Terminal Equipment	Type	Manufacturer	Controls	Data of Installation	Conditions
Typical Classrooms:	Unit Vents	McQuay	DDC	1996	3
Offices:	Single Zone Packaged RTU	McQuay	DDC	1996	3
Library:	Packaged RTU	McQuay	DDC	1996	3
Auditorium:	Packaged RTU	McQuay	DDC	1996	3
Cafeteria:	Packaged RTU	McQuay	DDC	1996	3
Gym:	Constant Volume RTU (x2)	McQuay	DDC	1996	3
Kitchen:	H&V Unit	McQuay	DDC	1996	3
Corridors:	CUH	Unknown	DDC	1996	3
Toilets:	CUH	Unknown	DDC	1996	3

Ventilating Equipment	CFM	Type	Manufacturer	Controls	Date of Installation	Conditions
Ventilating Equipment – Typical Classrooms:	1250/ 1500	Unit Vents	McQuay	DDC	1996	3
Offices	Various	RTU	McQuay	DDC	1996	3
Library:			McQuay	DDC	1996	3
Auditorium:	15000	Package RTU	McQuay	DDC	ACC-2006	3

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Ventilating Equipment	CFM	Type	Manufacturer	Controls	Date of Installation	Conditions
Ventilating Equipment (Continued)	CFM	Type	Manufacturer	Controls	Date of Installation	Conditions
Cafeteria:				DDC	1996	3
Gym:	2 @ 6000	RTU	McQuay	DDC	1996	3
Kitchen:				DDC	1996	3
Corridors:	—	—	—	DDC	1996	3
Toilets:	—	—	—	DDC	1996	3
Combustion Air:	2500	H&V Unit	Unknown	DDC	1996	3
Exhaust System :				DDC	1996	3/1, Note 2
Offices	Various	—	—	DDC	1996	3
Library:	N/A	—	—	DDC	1996	3
Auditorium:	N/A	—	—	DDC	1996	3
Kitchen:	4000	H&V Unit	McQuay	DDC	1996	3
Gym:				DDC	1996	3
Kitchen:	3000	Up Blast Fan	Unknown	DDC	1996	3
Corridors:				DDC	1996	3
Toilets:	Various	—	—	DDC	1996	3
Heat Exchange:	N/A					
Energy Recovery:	N/A					

HVAC Controls	Type	Manufacturer Controls	Date of Installation	Conditions
Energy Management – Controls:	Direct Digital	Yankee Technology	1996	(see Note #1), 1

HVAC NOTES:

1. System has no head end located within the school, it is controlled centrally from the School District's Administration Building in Bolton. Alarms are not annunciated/addressed at school. Controls appear to not be functioning as intended, or desired. Some spaces are found to be 50°F on cold mornings. The system functionality as a whole should be reviewed in depth.
2. Top floor classrooms experience elevated space temperatures during early Fall/late Spring. Insufficient ventilation is suspected, no air conditioning.
3. Boilers (2) both should fire on a design winter day. Janitorial staff stated only one operates. Pumping scheme is constant volume (1 boiler, 1 pump). There is a redundant hot water pump.
4. The condensing unit associated with the auditorium air conditioning unit was replaced within the last year (approximately).
5. Dehumidifiers are located throughout the lower level.

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ABBREVIATIONS:

CUH – Cabinet Unit Heater
DDC – Direct Digital Control
RTU – Roof Top Unit
ACC – Air Cooled Compressor
H&V – Heating & Ventilating

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ELECTRICAL:

	Rating	Voltage	Metering	Date of Installation	Conditions
Service:	300KVA(Est.)	Medium	Secondary	1996	4

	Type		Location		Conditions
Transformer:	Pad Mounted	208/120V	South-East Corner	1996	4

	Rating	Energy Source	Manufacturer	Date of Installation	Conditions
Emergency Generator:	80 KVA	Natural Gas	Kohler	1996	3, Note 5

	Type			Date of Installation	Conditions
Distribution System:	1200A	208/120V	NA	1996	4

Devices	Grounded/Non Grounded			Date of Installation	Conditions
Typical Classrooms:	Grounded			1996	4
Offices:	Grounded			1996	4
Gym/Cafeteria:	Grounded			1996	4
Lobby/Corridor:	Grounded			1996	4
Toilets:	Grounded/ GFI			1996	4

Lighting	Lamp Type	Mounting	Date of Installation	Conditions
Typical Classrooms:	Fluorescent – T8	Surface	1996	4
Offices:	Fluorescent – T8/Compact	Surface/Recessed	1996	4
Library:	Fluorescent – T8	Pendant	1996	4
Gym:	H.I.D.	Pendant	1996	4
Kitchen:	Fluorescent – T8	Recessed	1996	4
Cafeteria:	H.I.D.	Pendant	1996	4
Lobby/Corridor:	Fluorescent – T8/Compact	Surface/Recessed	1996	4
Toilets:	Fluorescent – T8	Surface	1996	4
Lighting Controls:	NA			
Auditorium Lighting System:	Incandescent – ETC	Pendant/Recessed	1996	4

Site Lighting	Lamp Type	Mounting	Date of Installation	Conditions
Sports Fields:	NA			
Parking:	H.I.D.	Pole	1996	4
Walkways:	H.I.D.	Building - Surface	1996	4

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M - Missing

Site Lighting	Lamp Type		Mounting	Date of Installation	Conditions
Building Entrances:	H.I.D.		Building - Surface	1996	4
Security System	**Type**	**Manufacturer**		**Date of Installation**	**Conditions**
CCTV:	NA			NA	
Door Access Controls:	Intercom with door release	NA	Located at main entrance	1996	4
Detection Devices:	NA			NA	

Communications System	Type	Manufacturer		Date of Installation	Conditions
Master Clock:	Hard-wired	National Time		1996	4, Note 3
Typical Classrooms:	PA	Bogen		1996	4
Offices:	PA			1996	4
Public Areas:	PA			1996	4

Tele/Data/Video System	Type	Manufacturer	CATV	Date of Installation	Conditions
Typical Classrooms:	1T/3D		1 Video	1996	4, Note 1
Offices:	1T/1D		-	1996	4
Library:	3T/16D		1 Video	1996	4
Gym:	1D		5 Video	1996	4
Computer:	1T/28-30D		1 Video	1996	4
Cafeteria:	2D		2 Video	1996	4

Local Sound Systems	Type	Manufacturer	Controls	Date of Installation	Conditions
Gymnasium:	Amp with speakers	Peavey	Recessed Speakers	1996	4
Auditorium:	Console	Shure	Console with remote rack.	1996	4
Cafeteria:	Amp with speakers	Peavey	Sound Sphere type Speakers	1996	4

	Type	Manufacturer	Controls	Date of Installation	Conditions
Emergency Lighting:	Fluorescent/ Incandescent	NA		1996	4, Note 4
Exit Lighting:	LED	NA		1996	4

	Type	Manufacturer	Notifications	Date of Installation	Conditions

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M - Missing

Site Lighting	Lamp Type		Mounting	Date of Installation	Conditions
Fire Alarm System:	Addressable	Harrington	General/Trouble	1996	4

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N/A – Not applicable/Not available
M - Missing

Fire Alarm Devices	Detector Type	Alarm Signal Type	Pull Station	Date of Installation	Conditions
Typical Classrooms:	HD	General		1996	3, Note 2
Offices:	HD	General		1996	3
Library:	SD	General		1996	3
Auditorium/Stage:	Beam/SD	General		1996	4/3
Gym:	Beam	General		1996	4
Cafeteria:	SD	General		1996	3
Lobby/Corridor:	HD	General	At all exit doors	1996	3
Kitchen:	HD	General		1996	3
Storage/Service:	NA	General		1996	3
Toilets:	NA	General		1996	3

ELECTRICAL NOTES:

1. The average class has one teacher computer and one student computer. Several classrooms were noted with 2 or 3 computers. Voice cabling is CAT 3, and data cabling is CAT 5.

2. It was reported that smoke detectors periodically malfunction and are replaced upon failure, typical for all areas.

3. Classrooms and student common areas have system type clocks. Offices, in general, have individual battery or plug in type clocks.

4. Most emergency lighting is achieved by night light on the generator, but emergency battery packs have been installed in many areas of the school.

5. 1964 Drawings indicate there is a 15KW generator in the mechanical room. It was not found during the walk-through. The newer 80KW generator is used for stand-by loads, and lighting per the panel schedule. There is no separation between the two loads. Separation is required by current code, but the lights on the schedule may be the emergency battery units (see note 4). Further investigation would be required to verify the exact functions of the generator system.

ABBREVIATIONS:
HS – Horn/Strobe
SD – Smoke Detector
HD – Heat Detector
HID – High Intensity Discharge

Condition Key Criteria:
0 – Poor-Not serviceable or failed
1 – Poor/Fair – Failure Expected
2 – Fair – serviceable, maintenance required
3 – Fair/Good – functioning, maintained
4 – Good – Fully functional, new
N/A – Not applicable/Not available
M - Missing

PROVISIONS FOR ACCESSIBILITY:

Exterior Accessible Route	
Accessible Route:	See Site Note #13

	Width	Material	Hardware	Conditions
Primary Entrance:	Pair of 3'-0" x 7'-0"	VCT	Lever	4
Exterior/Egress Doors:	3'-0" x 7'-0"	VCT	Lever	4
Signage:	None at Exterior			0

Interior Accessible Route	Width	Material	Hardware	Conditions
Accessible Route:	7'-0" to 9'-0"	VCT	Lever	4
Entrance Vestibules:	3'-0" x 7'-0"	VCT	Lever	4
Interior Doorways – Classrooms:	3'-0" x 7'-0"	VCT	Lever	4
Offices:	3'-0" x 7'-0"	Carpet/VCT	Lever	4
Library:	3'-0" x 7'-0"	Carpet	Lever	4
Gym/Cafeteria/Kitchen:	Pair 3'-0" x 7'-0"	Wood/VCT/CT	Lever	4
Cross – Corridor:	Pair 3'-0" x 7'-0"	VCT	Lever	4
Stairs:	Pair 3'-0" x 7'-0"	VCT	Lever	4
Toilets:	3'-0" x 7'-0"	Ceramic Tile	Lever	4

	Size			Conditions
Vertical Access: (Elevators/Lifts)	3'-6" x 5'-0" Elev. Cab Accessible Lift at Stage	Rubber	Metal door and Gate	0 4

	Width	Floor Surface	Handrail/ Guard Heights	Conditions
Stairways:	Varies 4'-0" to 8'-0"	VCT	Painted Metal	4
Ramps:	N/A	N/A	N/A	N/A

	Clear Floor Space/Turning Radius	Toilet Partitions	Conditions
Toilet Rooms:	None on lower level. All others have at least one.	PLAM	3
Tables & Seating – Cafeteria:	No specific Accessible seating		0
Drinking Fountains:	Recessed in Wall but not compliant		0
Public Tele:	Located outside of Auditorium		4
Controls:			
Signage:	Compliant		0
Emergency Alarms:	Compliant		4

Condition Key Criteria:
0 – Poor-Not serviceable or failed
1 – Poor/Fair – Failure Expected
2 – Fair – serviceable, maintenance required
3 – Fair/Good – functioning, maintained
4 – Good – Fully functional, new
N/A – Not applicable/Not available
M - Missing

ACCESSIBILITY NOTES:

1. Control Booth at Auditorium is not accessible.

SECTION 5.3B SUMMARY OF EXISTING CONDITIONS HALE MIDDLE SCHOOL

SITE / CIVIL

In general the site drainage system is in fair to good condition and adequately drains, via diffuser chambers and stone diffusers, to the wetlands at the south and west sides of the site. No ponding on site is evident. Water quality structures are not in full compliance with current Massachusetts Stormwater Management Policy. The 1996 additions and renovations to the Hale school included a new septic system with two new leaching fields, a new pump station, a kitchen waste grease trap and an additional 20,000 gallon septic tank. The sanitary system also includes a separate acid waste system that is collected by a tight tank.

Based on discussions with the Stow Health Agent and the Hale School custodial staff, the potable well water treatment system was upgraded in the past few years. During the 1996 addition, a new water line was installed to and capped near the location of the wells for the Pilot Grove Hill residential development to the south of the school. This water line appears to have been installed for the purpose of a future, emergency water connection for the school. The water line could be cross connected with the Pilot Grove Hill water system or to a new well constructed in the vicinity. The existing water supply for the school does not include provisions for fire prevention. The nearest water supplies for fire protection are two 100,000 gallon ponds, both approximately 0.6 miles from the school.

In general the driveway, walkway and parking lot surfaces appear to be in fair to good condition. There is no continuous fire lane around the building. The MAAB/ADA handicap accessibility to the building entrances is good. Notable MAAB/ADA access deficiencies include a lack of striped cross walks to handicap parking and at roadway pedestrian crossing. There is also a non-accessible trail to the environmental science cabin and across the southern wetland to the Stow Outdoor Classroom.

The ball fields are located atop the leaching fields. The fields are well constructed for positive drainage and appear in fair to good condition.

Site traffic during school opening and closing directs the busses to the side parking lot and parents to the front lot near the main entrance. Due to the length of the driveway along Hartley Street, the queuing of parent drop-off and pick-up does not appear problematic. Any traffic congestion during pick-up likely involves conflicts between departing busses trying to cross the queue of cars waiting for pick-up. Parking during the school day uses the front lot, since

the side lot is used for student recreation. The front lot appears to be short a few parking spaces, since an informal dirt parking area on Hartley road nearest the school is often in use.

Recommendations

Future renovations to the site should include the addition of parking in the front lot or provision of paved parking off of Hartley Road nearest the school. The service/fire lane should be connected to surround the building. Any site work should improve handicap access, especially the addition of crosswalks.

Regular maintenance of the pavement with crack filling and seal coating should continue. This method of pavement maintenance has a limited life expectancy of approximately ten years, thus a pavement overlay should be conducted within this time frame. Since the site drains to wetland areas, any expansion of the school would require new drainage structures to improve runoff quality.

Any additions to the site must consider the impacts upon the septic system and water supply. Additional water supply and sewer disposal capacity will likely be required.

ARCHITECTURE

The original 1964 Hale Middle School is a multi-story building. The 1996 addition included two classrooms, gymnasium, administration and auditorium. The majority of the original building floor is a concrete slab on grade. The buildings are steel framed with steel roof deck, but also have masonry bearing walls at some locations. The exterior walls are brick with either CMU or stud backup. The 1996 addition has similar construction with locations of EIFS with either CMU or stud backup. The building has double glazed, aluminum framed windows and curtain wall.

The exterior brick appears to be in good condition with minor paint stain outside of the art room. A new insulating Kalwall clerestory is part of the gym. The existing EIFS system has minor staining at the back of the classroom wing. There is some concrete sill deterioration at the original curtain wall system at grade. The aluminum window walls and ceilings in the addition appear to be in good condition. The roof, skylights and aluminum fascia appear to be in very good condition.

The interior architectural components of the original building are in good condition, with few exceptions. The elevator, which is used daily, is not compliant for accessibility, due to cab size and door/gate operation. It does not comply with stretcher access. The elevator is in a remote locations and the corridor to the elevator is narrow and winding. None of the numerous drinking fountains are accessible. The cafeteria appears undersized with access to the freezer from the main seating area. The auditorium and gym are sufficient size

and appear to be in very good condition. Classrooms and corridors are sufficient size with natural light. Lockers appear to be in very good condition.

Stairwells appear to be non-compliant as means of egress. There is only one rated enclosed stair (Stair #6) at the end of the classroom wing. Stairs 2 and 5 are communicating, open well stairs with no enclosed rating.

Overall the facility seems to be in very good condition. This facility appears to be well maintained by the Town and custodial staff.

Concrete sill deterioration at existing curtain wall at grade.

Recommendations

Future renovations to the building should include enlarging the cafeteria by giving the space for Guidance Offices back to the cafeteria seating area. Expansion would include relocated Guidance Suite. Classroom expansions can easily be added to the end of the classroom wing. Additional rated stairwells would be required. Code compliance for new centrally located elevator and rated enclosures for the stairwells would be mandatory. Receiving and loading area should be incorporated close to the kitchen area. Toilet rooms at the lower level should be added in a renovation/addition project.

STRUCTURAL

The school overall is generally in good structural condition and serviceable for many years to come. However, a few areas of minor damage were observed, and minor repairs should be considered to prolong the serviceable life of the structure.

There are floor tiles that are broken and/or warped in the 'consumer science' room of the lower level of the original building. The facilities staff mentioned that tiles are frequently replaced. This is likely due to moisture from the ground penetrating through the slab. The original portion of the building was constructed before it was common practice to install a vapor barrier below the concrete slab, which is commonly done today to keep basements dry.

There are also cracks in the underside of the concrete slab directly above this room, which were observed above the suspended ceiling. There are pieces of plywood installed to the slab that do little more than cover up spalling concrete. It appears that at some point water has penetrated the top of the concrete slab, and eventually caused the steel reinforcing bars to rust. The rusting bars in turn, expanded and cracked the concrete.

Minor cracks in the floor tiles where noted in the classroom wing that was expanded during the renovation. It appears that the new floor was placed level to the original floor slab, but has since settled slightly, cracking the tiles along this joint.

Moisture penetrates the slab on grade eventually leading to cracking and uplifting of the floor tiles. The powder-like substance below the tile is most likely salts that were dissolved in the water and are left behind when the water evaporates.

Longitudinal cracks are visible on the underside of the concrete slab. Water permeating through the cracks has left rust stains on the concrete slab and beams. The plywood at the top of the photo covers what appears to be spalling concrete.

Recommendations

It appears that moisture is entering a portion of the existing slab on grade on the lower level. The floor tiles will continue to crack or release from the floor as long as moisture continues to penetrate the slab. This situation isn't really a structural problem, as it is more of a serviceability issue. That is, if this was a storage room, it would be reasonable to leave the floor as is. However, if the occupancy of the room requires this problem to be fixed, then there are a few possibilities.

There are basically two groups of options: ones that try to prevent the moisture from penetrating the slab, and options that allow moisture to pass through the floor but not crack the floor tiles. Methods to prevent the moisture from penetrating the slab would most likely be very expensive, and may not necessarily guarantee to keep all of the moisture out. A more affordable way to prevent the floor tiles from cracking could be to install a flooring system or membrane over that slab that allows moisture to enter through the slab, but does not affect the integrity of the flooring system. They are several products and systems that may work well in the area of concern.

The cracks on the underside of the slab, that are visible above the suspended ceiling of this room, should be investigated more thoroughly. Depending on the extent of damage there are a couple of repair options. Areas of minor cracks could be filled with a pressure-injected grout, to prevent further cracking and spalling of the concrete. Larger areas of damage may require cutting out a small portion of the slab between the concrete joists and placing new concrete and steel rebar. These repairs could be performed during the summer months when school is not in session.

PLUMBING

Piping that was visible appeared to be in serviceable condition and of adequate capacity. It is reported that the well water is monitored and tested as required by Massachusetts Department of Environmental Protection for lead. The system is reported to have an excess of iron and is being treated for such. These testing practices should continue.

There is one water heater servicing this building. A gas-fired 400 gallon, PVI water heater with a 750 gph recovery provides hot water to the building including the kitchen. It appears to be in good working condition.

Most of the plumbing fixtures are in good working order. Most of the toilet rooms have accessible fixtures. There are currently no toilet rooms in the basement level. The science rooms have protected cold and hot water systems. The faucets for the science areas have vacuum breakers installed. It was noted that the time it takes for the sink at the science room on the second floor to receive hot water is of an unacceptable time.

The emergency shower/eyewash units are currently supplied by cold water and do not meet current code requirements.

Roof drains are in good working condition. Gutters for building A are clogged, sagging, bent and failing. Icing is reported on the ground near an exit door where the gutter system is failing.

A duplex ejector pump exists in the basement level. This unit handles waste from the basement fixtures. It appears to be in good working order.

Showers are provided in the locker room area. They are built in place ceramic tile enclosures. An accessible shower stall in the boy's locker room is currently damaged.

Kitchen (grease) waste is separated from the sanitary system. An interior grease interceptor is installed at the (3) bowl sink. The condition is unknown and should be thoroughly cleaned and serviced to determine its remaining useful life. All Kitchen waste is piped to an existing exterior grease interceptor. Various equipment like the dishwasher, kettle and produce sinks are not piped to a grease interceptor and thus does not meet existing code requirements.

Overall the plumbing systems are considered to be in good to fair condition.

Recommendations

The protected hot water system feeding the science room on the second floor should be looked at. Recirculating pumps or a new recirculating system should be installed to increase the time it takes to receive hot water at the science lab sinks on the second floor.

All emergency shower/eyewash units should be supplied with tempered water to meet existing code requirements. A separate tempered water system should be designed to supply these emergency fixtures to meet current code requirements.

Repair of the accessible shower in the boy's locker room should be performed.

Grease interceptors should be provided in the kitchen area for equipment and fixtures that need to be intercepted to meet current code requirements.

Gutters and downspouts for building A should be cleaned and fixed and/or replaced to provide proper storm drainage.

FIRE PROTECTION

There is no automatic fire suppression system.

Recommendations

During any major building renovation an automatic sprinkler system should be installed to meet the requirements of the Massachusetts State Building Code and NFPA 13, "Standard for the Installation of Sprinkler Systems."

MECHANICAL

The majority of the HVAC equipment, installed in 1996 is in serviceable condition. The auditorium air conditioning was installed two years ago. Generally, the source equipment, distribution systems and terminal equipment do not require any maintenance outside of normal preventative maintenance work (i.e. filter replacement, belt adjustment, lubrication).

Recommendations

The operation of the systems in general appears to be an issue. For instance, during the heating season, only one boiler operates. The boilers appear to have been designed at 66% of the total heating load, requiring both boilers (and associated pumps) to operate on a design day. A total re-commissioning of the control system should occur. SMMA also recommends that spot testing of outdoor air quantities at air handling units and unit ventilators occur.

The top floor of the classroom wing is said to experience elevated temperatures during warm days in early fall and late spring. This is not an uncommon occurrence. SMMA suggests installing one of the two following options: Add split system air conditioning systems to these rooms, or add roof mounted exhaust fans, locally controlled by the teacher, which would increase the effective room ventilation rate. (Air would be brought into the classrooms via operable windows.)

ELECTRICAL

The electrical service originates from overhead lines along the entrance driveway, underground to a utility owned pad-mounted transformer, then underground to the main switchboard. The service was installed in the 1996 renovation project.

Power distribution system is 120/208 VAC, 3 phase 4 wire, with panels located through the school. The main service switchboard is rated at 1,200 Amps. It appears that the entire power system was replaced in the 1996 renovation project and appears to be in fine working condition. There is plenty of spare capacity within the panels for future loads, and there were no reported overloaded circuits or wiring issues.

The older 15KW emergency generator was not found during inspection; if still installed is indoor type, and gas fired. There is no apparent 2-hour separation based on the current drawings, which does not comply with the latest code requirements. This generator, if installed in 1964, would also be quite old, and would be considered past its useful life.

The 80KW stand-by generator was installed in the 1996 renovation project. The generator reportedly works fine, and appears to be in good condition.

Lighting fixtures in classrooms, corridors, and offices are fluorescent type with fairly high energy efficiency. Lighting fixtures were replaced in the 1996 renovation project, and are in generally good condition.

Site lighting is done utilizing 30' pole lights with 400W metal halide lamps in the front two parking lots. The rear parking lot utilizes a 30' pole with two 1000W metal halide flood lights. Walkways and exits are primarily lighted with building mounted 250W metal halide wall packs.

The fire alarm system was replaced in the 1996 renovation project. The system is an addressable system. Upon power loss, the panel reportedly must be reset, and other than the smoke detector issues, has no other reported problems.

The master clock and public address system are in fine condition, installed in the 1996 renovation project. The classroom clocks and speakers are generally installed recessed in panels. Other than the main entrance door lock system, there is no security system.

The data backbone is believed to be optical fiber, with distribution cabling utilizing Category 5 copper cable. The voice cabling utilizes Category 3 copper cable. The IDFs connect to the MDF using optical fiber cable. The age of the network cable is approximately 10 years. Data cables are distributed in classrooms in surface raceway with surface mounted boxes, containing an average of 2 data jacks with some recessed outlets.

Recommendations

Existing electrical service and distribution system is in fine condition, is adequately sized for the current building size, and can remain intact.

Verify separation of life safety and stand-by generator loads. Upon review, it appears fine, but if any night lights or the auditorium transfer system are connected to the newer 80KW generator, some rework would be required to meet the current code. Replace the 15KW life safety generator, if it still installed.

The lighting system is somewhat new, and primarily utilizes efficient fluorescent technology. There has been no excessive ballast failure reported, but could increase over the next several years, since they are about 9-10 years old. There

are some corridors with only recessed downlights that are somewhat dim, and could use supplemental lighting.

Site lighting appears in good condition and reportedly lights the site properly. The door exit fixtures are metal halide, and are not on the generator, which would not meet code for proper egress. In general, wall packs and flood lights produce glare and uplight, which is not desirable for current dark sky standards. Replacement for these fixtures may be desirable to the Town and/or abutting residents.

The fire alarm system is in good condition. As reported, smoke detectors fail intermittently and have been replaced as required. Replacement of all original 1996 smoke detectors is recommended to avoid false and nuisance alarms. The main panel should be reprogrammed, repaired, and/or wired so that it does not have to be reset upon power loss. This is not typical for fire alarm systems.

Expand the current master clock system to include all offices and the balance of spaces not on the system.

Install a complete CCTV and intrusion type security system. The CCTV system should consist of coverage at all entrances, corridors, and places of student assembly (i.e. Café, Gym, Auditorium, and Library). The intrusion detection should consist of full perimeter coverage with door contacts and glass break sensors. Some additional motion sensors could be installed in some areas for added protection. Recommend providing an integrated system that includes security, access control and surveillance.

SECTION 6.1 MASSACHUSETTS SCHOOL BUILDING AUTHORITY (MSBA)

BACKGROUND

In May of 2006, the MSBA published Draft Regulations and in early September final regulations were promulgated. The work of this study was developed adhering to the new regulations, where regulations exist. The MSBA has not yet developed space standards for renovation projects. Prior to moving forward with proposed projects, it will be necessary to work with the MSBA to determine that the space requirements are acceptable.

NEEDS SURVEY

Leading up to the spring of 2006, MSBA conducted a review of all school buildings within the Commonwealth. The intent of this effort was to develop baseline data about the general physical condition of the school facilities. The results of the study were published in April of this year.

Schools were rated from 1 to 4.

Rating 1	Building in good condition with few or no building systems needing attention.
Rating 2	The building is generally in good condition, however a few building systems may need attention.
Rating 3	The building is in fair to poor condition and some building systems may need to be repaired or replaces.
Rating 4	The building is in poor condition and a possible candidate for major renovation or replacement.

The Stow schools were rated as follows:

School	Rating
Pompositticut Elementary	2
Center Elementary	3
Hale Middle	1

SMMA's investigation of the physical conditions of the schools suggests that the state ratings may not adequately represent the actual conditions.

STATEMENT OF INTEREST FORM (SOI)

The MSBA has established the Statement of Interest Form as the first step in the Application Process. The purpose of the SOI is to ascertain from communities whether they believe they have any deficiencies in their school facility that meets one or more of the statutory priorities.

The priorities are as follows:

(1.) Replacement or renovation of a building which is structurally unsound or otherwise in a condition seriously jeopardizing the health and safety of school children, where no alternative exists; as determined in the judgment of the Authority;
(2.) Elimination of existing severe overcrowding; as determined in the judgment of the Authority;
(3.) Prevention of loss of accreditation; as determined in the judgment of the Authority;
(4.) Prevention of severe overcrowding expected to result from increased enrollments, which must be substantiated; as determined in the judgment of the Authority;
(5.) Replacement, renovation or modernization of the heating system in any schoolhouse to increase energy conservation and decrease energy related costs in the schoolhouse; as determined in the judgment of Authority;
(6.) Short term enrollment growth; as determined in the judgment of the Authority;
(7.) Replacement or addition to obsolete buildings in order to provide a full range of programs consistent with state and approved local requirements; as determined in the judgments of the Authority;
(8.) Transition from court-ordered and board approved racial balance school districts to walk-to, so-called, or other school districts; as determined in the judgment of the Authority.

The Stow Building Task Force Committee voted to submit an SOI for the Pompositticut and Center Elementary Schools. The Committee, the School Administration and SMMA worked together to evaluate the elementary school issues with respect to the SOI Priorities.

The Committee presented the Statement of Interest Form to the Nashoba Regional School Committee on April 5, 2007 and the Stow Board of Selectmen on April 10, 2007. At each meeting, the respective boards approved the SOI. It has since been submitted to the MSBA. The submitted SOI's are included in Appendix D

APPENDIX A SCENARIO OPTIONS

As the study progressed concepts were eliminated and were not developed any further. Attached are copies of those concepts from preliminary, through advanced to final stages.

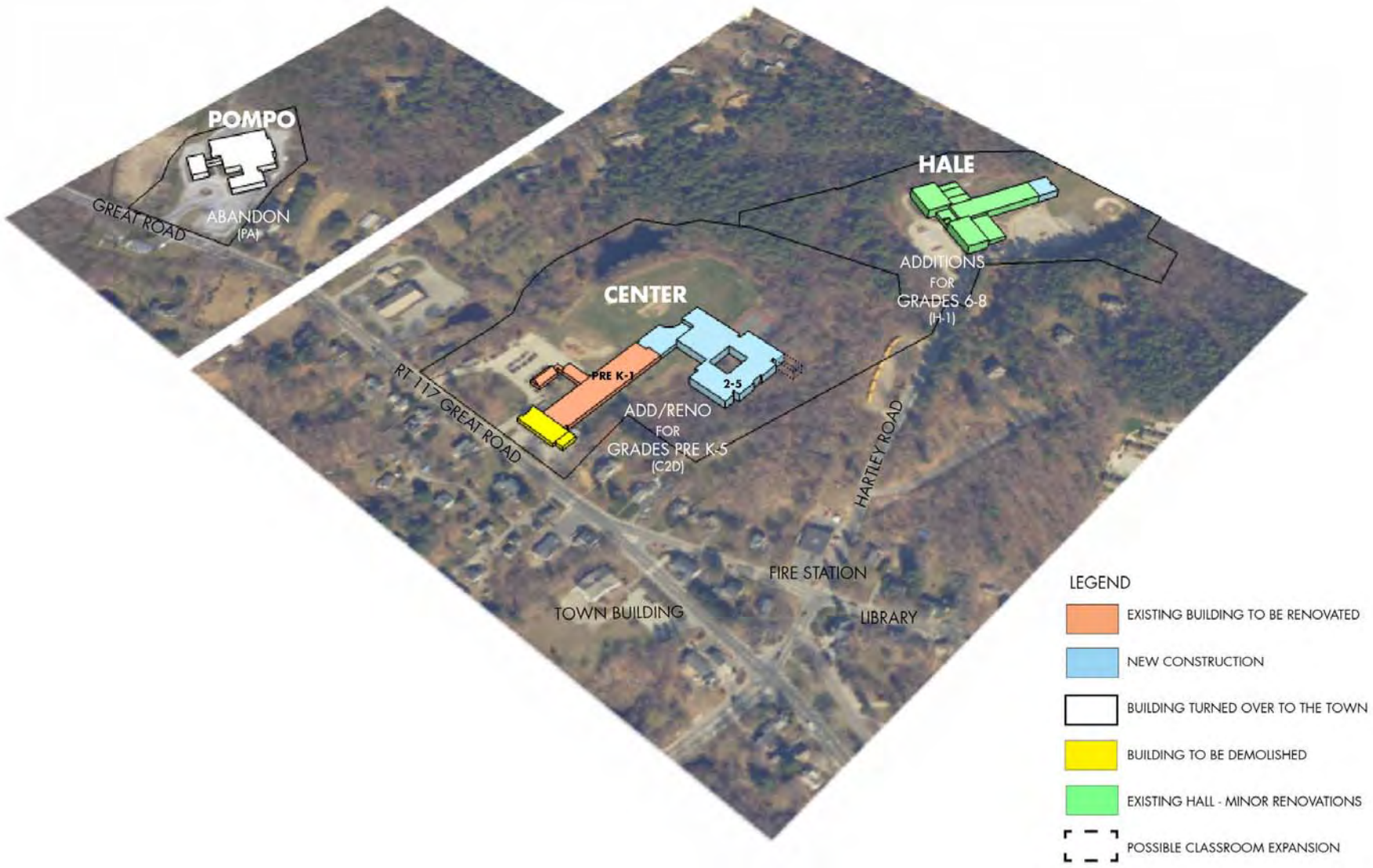
The final preferred options are located in Section 4.1 of this study.

Scenario 1 - Preliminary Concept 2/10/07

Stow Schools Master Plan

Stow, Massachusetts

SMMA
SYMMES MAINI & MCKEE ASSOCIATES

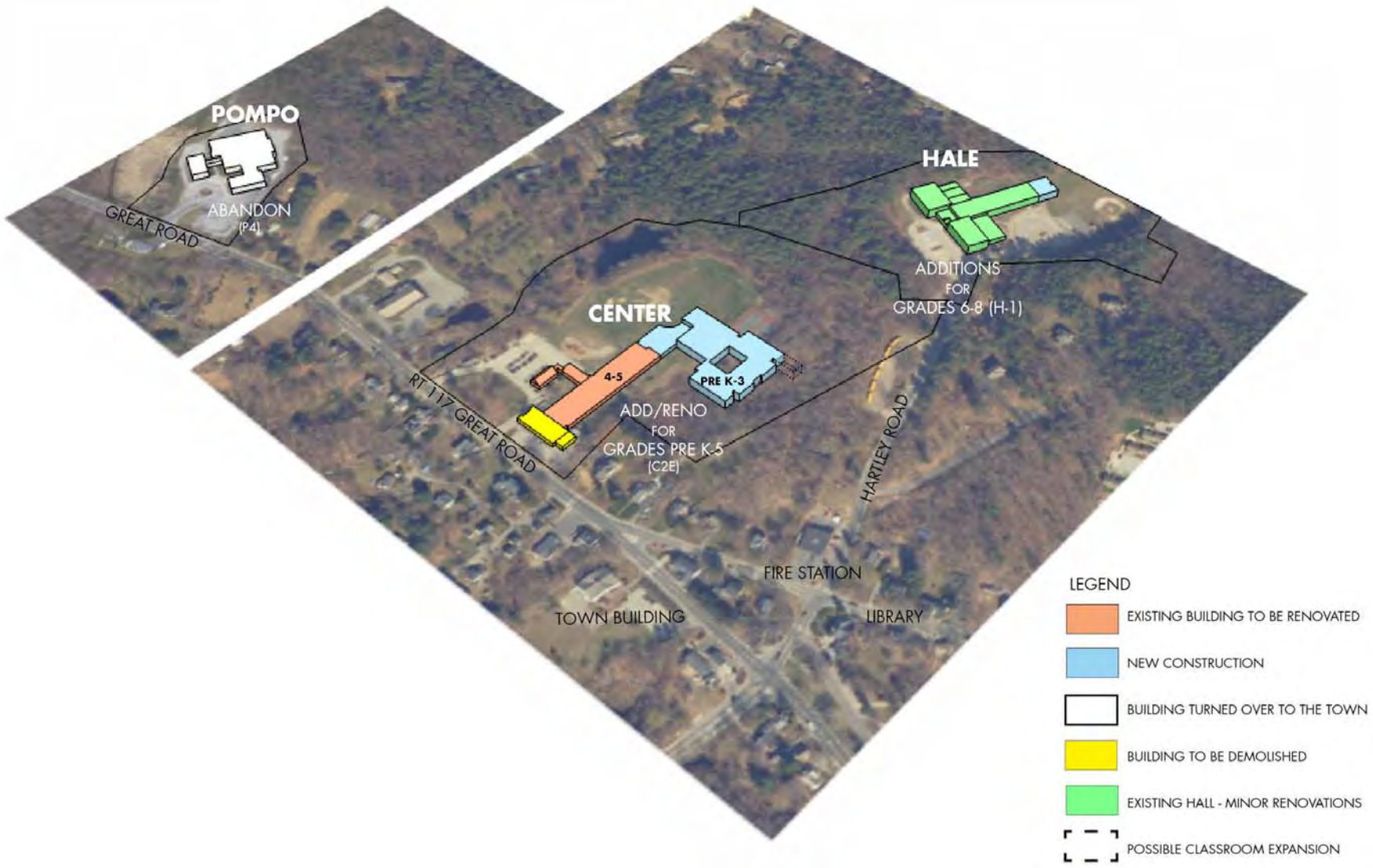


Scenario 2 - Preliminary Concept 2/10/07

Stow Schools Master Plan

Stow, Massachusetts

SMMA
SYMMES MAINI & MCKEE ASSOCIATES

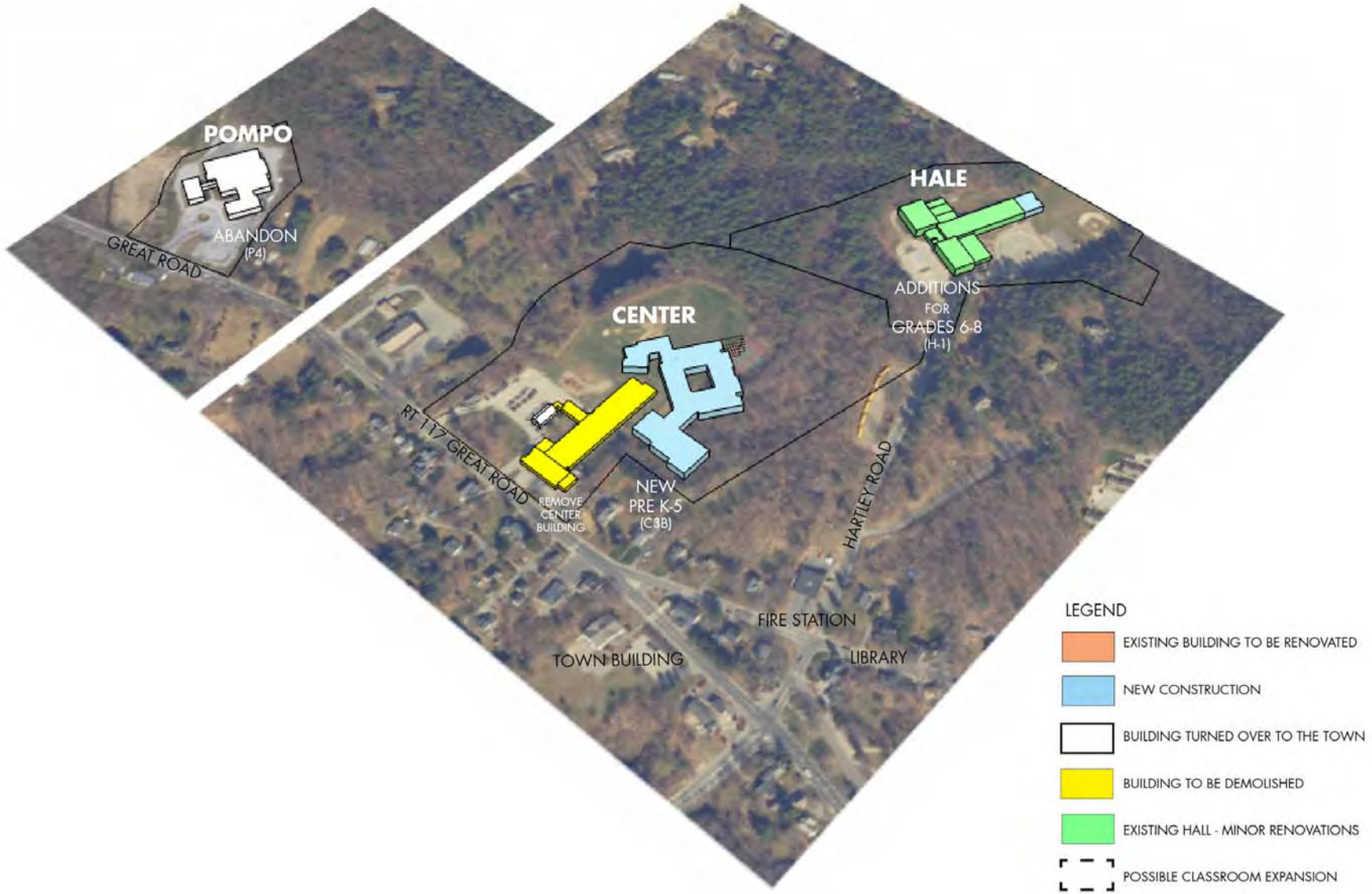


Scenario 3 - Preliminary Concept 2/10/07

Stow Schools Master Plan

Stow, Massachusetts

SMMA
SYMMES MAINI & MCKEE ASSOCIATES



Scenario 4 - Preliminary Concept 2/10/07

Stow Schools Master Plan

Stow, Massachusetts

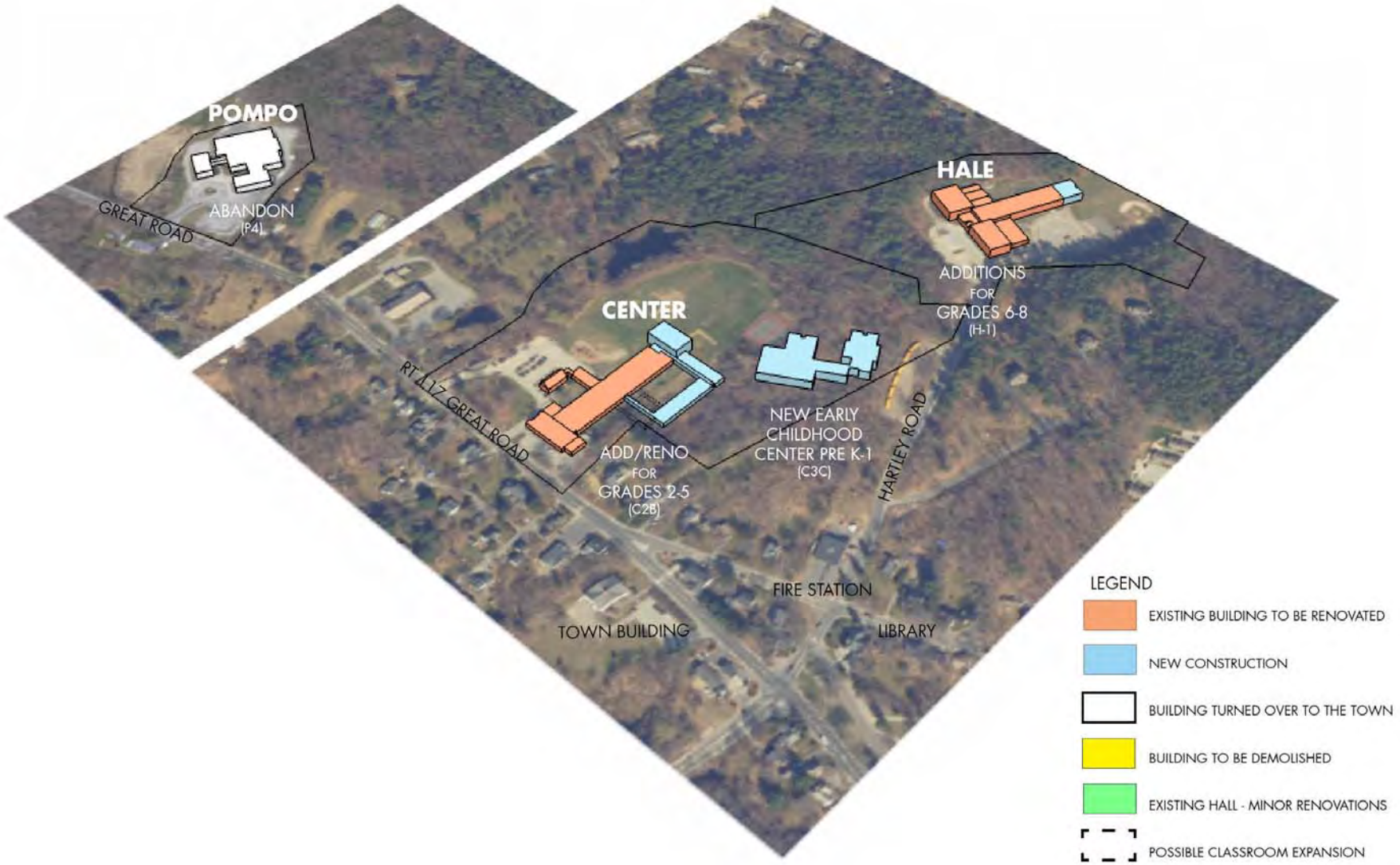
SMMA
SYMMES MAINI & MCKEE ASSOCIATES

Scenario 5 - Preliminary Concept 2/10/07

Stow Schools Master Plan

Stow, Massachusetts

SMMA
SYMMES MAINI & MCKEE ASSOCIATES

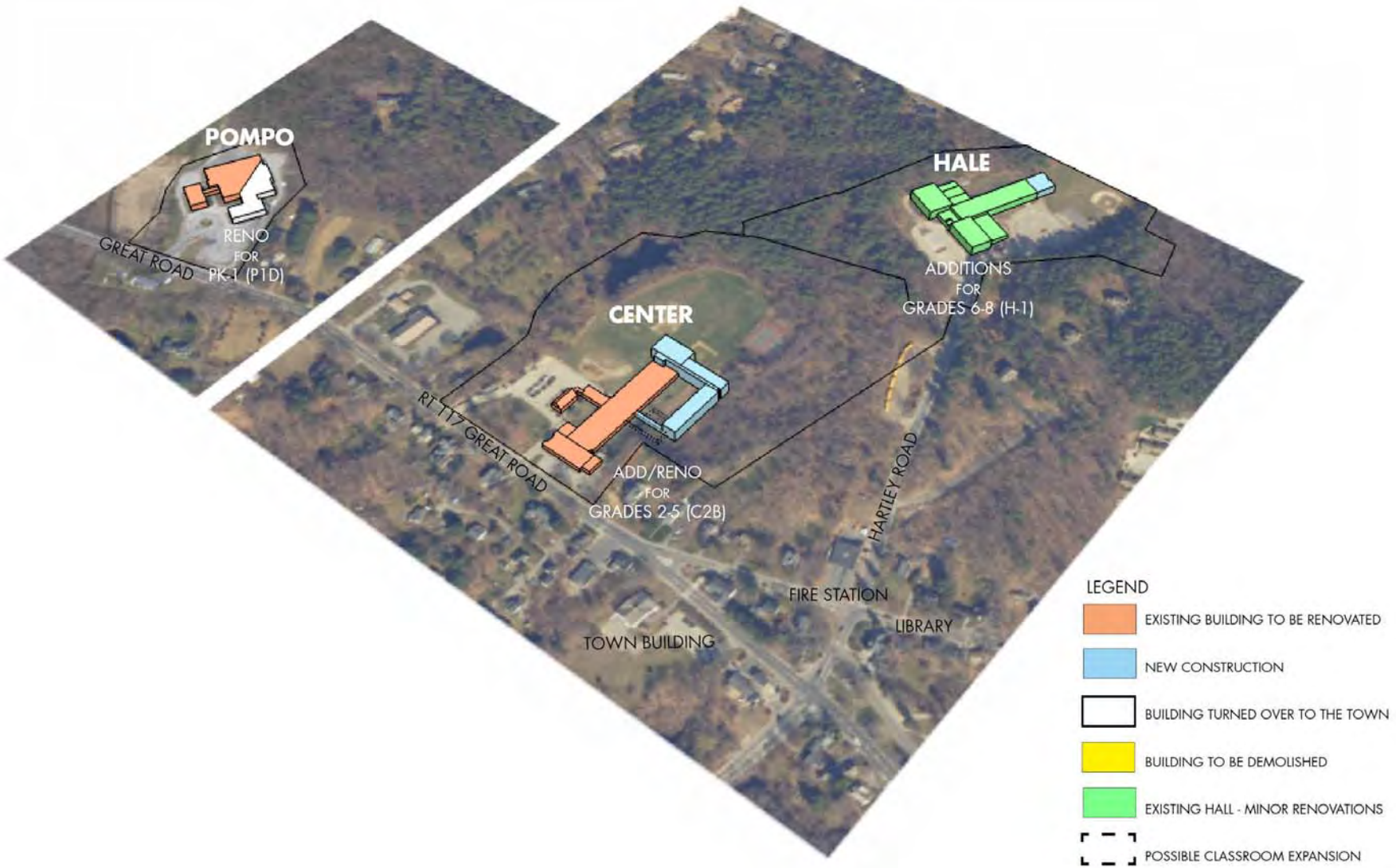


Scenario 6 - Preliminary Concept 2/10/07

Stow Schools Master Plan

Stow, Massachusetts

SMMA
SYMMES MAINI & MCKEE ASSOCIATES



Scenario 7 - Preliminary Concept 2/10/07

Stow Schools Master Plan

Stow, Massachusetts

SMMA
SYMMES MAINI & MCKEE ASSOCIATES

PHASE 1

- STUDENTS REMAIN IN CENTER AND POMPO
- CONSTRUCT ADDITION AT CENTER

PHASE 2

- MOVE GRADES 3—5 INTO NEW ADDITION AND PORTABLE CLASSROOMS
- RENOVATE CENTER

PHASE 3

- MOVE K—2 TO CENTER AND PORTABLE CLASSROOMS
- RENOVATE POMPO (MOVE PORTABLES TO HALE)
- WHEN POMPO IS COMPLETE, MOVE GRADES K—2 BACK TO POMPO AND BRING PRE-K FROM DISTRICT

LEGEND

- EXISTING BUILDING TO BE RENOVATED
- NEW CONSTRUCTION
- BUILDING TURNED OVER TO THE TOWN
- BUILDING TO BE DEMOLISHED
- EXISTING HALE - MINOR RENOVATIONS
- POSSIBLE CLASSROOM EXPANSION

Scenario 1 - Advanced Concepts 2/21/07

Stow Schools Master Plan

Stow, Massachusetts

SMMA
SYMMES MAINI & MCKEE ASSOCIATES

PHASE 1

- CONSTRUCT NEW ADDITION
- GRADES 3—5 TO REMAIN IN CENTER

PHASE 2

- GRADES K—2 TO REMAIN AT POMPO
- GRADES 3—5 TO MOVE INTO NEW ADDITION
- RENOVATE CENTER
- AT COMPLETION OF PROJECT REARRANGE GRADES TO PERMANENT CONFIGURATION
- BRING PRE-K FROM DISTRICT
- TURN POMPO OVER TO THE TOWN

Scenario 3 - Advanced Concepts 2/21/07

Stow Schools Master Plan

Stow, Massachusetts

SMMA
SYMMES MAINI & MCKEE ASSOCIATES

PHASE 1

- GRADES K—2 TO REMAIN AT POMPO
- GRADES 3—5 TO REMAIN AT CENTER
- CONSTRUCT NEW BUILDING
- AT COMPLETION OF CONSTRUCTION - MOVE ALL GRADES INTO NEW BUILDING
- BRING PRE-K FROM DISTRICT
- TURN POMPO OVER TO THE TOWN

PHASE 2

- DEMOLISH CENTER SCHOOL AND COMPLETE SITE WORK

Scenario 4 - Advanced Concepts 2/21/07

Stow Schools Master Plan

Stow, Massachusetts

SMMA
SYMMES MAINI & MCKEE ASSOCIATES

PHASE 1

- GRADES K—2 TO REMAIN AT POMPO
- GRADES 3—5 TO REMAIN AT CENTER
- CONSTRUCT NEW BUILDING

PHASE 2

- MOVE GRADES K—2 TO NEW BUILDING
- GRADES 3—5 TO REMAIN AT CENTER
- RENOVATE POMPO

PHASE 3

- MOVE K—1 BACK TO POMPO
- MOVE GRADES 2—5 INTO NEW BUILDING
- BRING PRE-K FROM DISTRICT
- DEMO CENTER AND COMPLETE SITE WORK

LEGEND

- EXISTING BUILDING TO BE RENOVATED
- NEW CONSTRUCTION
- BUILDING TURNED OVER TO THE TOWN
- BUILDING TO BE DEMOLISHED
- EXISTING HALE - MINOR RENOVATIONS
- POSSIBLE CLASSROOM EXPANSION

Scenario 5 - Advanced Concepts 2/21/07

Stow Schools Master Plan

Stow, Massachusetts

SMMA
SYMMES MAINI & MCKEE ASSOCIATES

PHASE 1

- STUDENTS TO REMAIN IN CENTER AND POMPO
- CONSTRUCT ADDITION AT CENTER

PHASE 2

- MOVE GRADES 3—5 INTO NEW ADDITION AND PORTABLES
- RENOVATE CENTER

PHASE 3

- MOVE K—1 TO CENTER AND PORTABLE CLASSROOMS
- RENOVATE POMPO (MOVE PORTABLES TO HALE)
- WHEN POMPO IS COMPLETE, MOVE K BACK TO POMPO AND BRING PRE-K FROM DISTRICT

Scenario 7 - Advanced Concepts 2/21/07

Stow Schools Master Plan

Stow, Massachusetts

SMMA
SYMMES MAINI & MCKEE ASSOCIATES

PHASE 1

- GRADES K—2 TO REMAIN AT POMPO
- GRADES 3—5 TO REMAIN AT CENTER
- CONSTRUCT NEW BUILDING
- AT COMPLETION OF CONSTRUCTION - MOVE ALL GRADES INTO NEW BUILDING
- BRING PRE-K FROM DISTRICT
- TURN POMPO OVER TO THE TOWN

PHASE 2

- DEMOLISH CENTER SCHOOL AND COMPLETE SITE WORK

LEGEND

- EXISTING BUILDING TO BE RENOVATED
- NEW CONSTRUCTION
- BUILDING TURNED OVER TO THE TOWN
- BUILDING TO BE DEMOLISHED
- EXISTING HALE - MINOR RENOVATIONS
- POSSIBLE CLASSROOM EXPANSION

Scenario 4 - Final Concepts 3/12/07

Stow Schools Master Plan

Stow, Massachusetts

SMMA
SYMMES MAINI & MCKEE ASSOCIATES

APPENDIX B CONCEPTUAL COST MODELS

As the study progressed concepts were eliminated and were not developed any further. Attached are the conceptual costs models for all scenarios.

The final cost models for the preferred options are located in Section 4.2 of this study.

Overview
Conceptual Cost Model Summary
(Order of Magnitude Costs for Purposes of Comparison)
Scenario Options for Stow Elementary & Middle Schools

DRAFT 1.2

Building Area Summary	Area	Const Cost/SF	Estimated Construction Cost (ECC) in Millions	Estimated Project Cost in Millions	Estimated Schedule in months	Requires Multiple Moves and/or Modular's
Scenario 1 Heavy						
P1D/P1C - Heavy Renovation Only	36,415	210	$ 7.6	$ 9.1	14	Y
C2B - Addition & *Heavy Renovation*	65,358	252	$ 16.5	$ 19.8	26	Y
Title IV additions and upgrades to septic system	ls		$ 0.3	$ 0.36		
Totals	101,773			**$ 29.3**	**40**	
Scenario 1 Light						
P1D/P1C - Heavy Renovation Only	36,415	238	$ 8.7	$ 10.4	14	Y
C2B - *Light Renovation*	65,358	208	$ 13.6	$ 16.3	22	Y
Title IV additions and upgrades to septic system	ls		$ 0.3	$ 0.36		
Totals	101,773			**$ 27.1**	**36**	
Scenario 2						
P4 - Abandon Pompo		-	$ -	$ -	0	N
C2D - Addition & Heavy Renovation Only	102,573	245	$ 25.2	$ 30.2	34	N
Waste Water Treatment Facility and upgrades to Leaching Fields	ls		$ 1.2	$ 1.44		
Totals	102,573			**$ 31.7**	**34**	
Scenario 3						
P4 - Abandon Pompo		-	$ -	$ -	0	N
C2E - Addition & Renovation Only	102,573	237	$ 24.3	$ 29.2	31	Y
Waste Water Treatment Facility and upgrades to Leaching Fields	ls		$ 1.2	$ 1.44		
Totals	102,573			**$ 30.6**	**31**	
Scenario 4						
P4 - Abandon Pompo		-	$ -	$ -	0	N
C3B - New Building	102,573	229	$ 27.6	$ 33.1	26	N
Waste Water Treatment Facility and upgrades to Leaching Fields	ls		$ 1.2	$ 1.44		
Totals	102,573			**$ 34.6**	**26**	
Scenario 5						
P1D/P1C - Heavy Renovation Only (no modulars required)	36,415	210	$ 7.0	$ 8.4	14	Y
C3D - New Building	71,048	252	$ 20.9	$ 25.1	26	N
Title IV additions and upgrades to septic system	ls		$ 0.3	$ 0.36		
Totals	107,463			**$ 33.5**	40	
Scenario 6						
P4 - Abandon Pompo		-	$ -	$ -		N
C3C - New Building	43,020	234	$ 10.0	$ 12.0	18	N
C2B - Addition & Heavy Renovation	65,358	246	$ 16.0	$ 19.2	26	Y
Waste Water Treatment Facility and upgrades to Leaching Fields	ls		$ 1.2	$ 1.44		
Totals	108,378			**$ 32.6**	44	
Scenario 7						
P1E -Heavy Renovation Only	36,415	238	$ 8.7	$ 10.4	14	Y
C2F - Addition & Heavy Renovation	81,312	246	$ 20.0	$ 24.0	28	N
Title IV additions and upgrades to septic system	ls		$ 0.3	$ 0.36		
Totals	117,727			**$ 34.8**	28	
Potential for sharing Pompo costs with other town tenant. Assume Town tenant absorbs 40% of P1E costs				$ 4.2		
Totals	117,727			**$ 30.6**		
All prices based upon January 2007 bid/construction market info						

P1C/P1D Pompositticut Building
Conceptual Cost Model Summary
Study for Stow Elementary & Middle Schools

DRAFT 1.2

Building Area Summary	Area	Const Cost/SF	CONCEPTUAL CONSTRUCTION COST (Including GC mark-up for 14 mnth project and pricing contingencies)
P1C/P1D			
No added gross square footage			
Heavy Renovation (inc. allowance for entry canopy & some exterior wall changes)	36,415	140	5,098,100
Building Total	***36,415***	***168.00***	***6,117,720***
Asbestos Abatement (TDPC Study x 1.3)	**ls**		**286,000**
Subtotal	**36,415**	**176**	**6,403,720**
Site work Allowance ($15/sf)	**ls**		**546,000**
Subtotal	**36,415**	**191**	**6,949,720**
Phasing - Vacate Site			
Temporary Modular's at Center School Site (10 Cr's, 3 Support Rooms; temp gym for 12* mnths). (Scenario 1 only)	**14 months**		**696,000**
* Assumes all children use the Center café for dining and use the temp gym for PE. Save two months for summer vacation months			
Total	**36,415**	**210**	**7,645,720**
		SAY	**$7.6 Million**
Scenario 5 - Modulars not required	delete		696,000
Total	**36,415**	**210**	**6,949,720**
		SAY	**$7.0 Million**

P4 Pompositticut Building
Conceptual Cost Model Summary
Study for Stow Elementary & Middle Schools

DRAFT 1.2

Building Area Summary	Area	Const Cost/SF	CONCEPTUAL CONSTRUCTION COST (Including GC mark-up for 0 mnth project and pricing contingencies)
P4			
Abandon Building	36,415	-	0
Building Total	***36,415***	**-**	**-**
Asbestos Abatement	**36,415**	**-**	**-**
Subtotal	**36,415**	**-**	**-**
Site work Allowance	**ls**		**-**
Subtotal	**36,415**	**-**	**-**
Total	**36,415**	**-**	**-**
		SAY	**$0 Million**

C2B - Center Building
Conceptual Cost Model Summary
Study for Stow Elementary & Middle Schools

DRAFT 1.2

Building Area Summary	Area	Const Cost/SF	CONCEPTUAL CONSTRUCTION COST (Including GC mark-up for 26 mnth project and pricing contingencies)
C2B - Heavy Reno			
Additional Square Footage	31,100	200	6,220,000
Heavy Renovation	34,258	160	5,481,280
Building Total	***65,358***	***214.84***	***14,041,536***
Asbestos Abatement (TDPC Study x 1.3)	**ls**		**325,000**
Subtotal	**65,358**	**220**	**14,366,536**
Site work Allowance	**ls**		**1,800,000**
Subtotal	**65,358**	**247**	**16,166,536**
Phasing			
Phase 1 - Build New Addition	**12-14 mnths**		
Phase 2 - Move into New*, renovate existing - Need 5 temporary Cr's	**12-14 mnths**		**280,000**
* Assumes all children use the new gymnasium for dining			
Total	**65,358**	**252**	**16,446,536**
		SAY	**$16.5 Million**

C2E - Center Building
Conceptual Cost Model Summary
Study for Stow Elementary & Middle Schools

DRAFT 1.2

Building Area Summary	Area	Const Cost/SF	CONCEPTUAL CONSTRUCTION COST (Including GC mark-up for 31 mnth project and pricing contingencies)
C2E - Heavy Reno			
Additional Square Footage for PreK-3	68,315	200	13,663,000
Renovation - for grades 4 & 5 (keep partitions)	34,258	130	4,453,540
Building Total	***102,573***	***211.95***	***21,739,848***
Asbestos Abatement (TDPC Study x 1.3)	**ls**		**325,000**
Subtotal	**102,573**	**215**	**22,064,848**
Site work Allowance * inc. wetlands replication ($35K)	**ls**		**2,200,000**
Subtotal	**102,573**	**237**	**24,264,848**
Phasing			
Phase 1 - Build New Addition	**18 mnths**		
Phase 2 - Move into New*, renovate existing	**12-14 mnths**		
* Temporarily move grades 3-5 into New			
Total	**102,573**	**237**	**24,264,848**
		SAY	**$24.3 Million**

C3B - Center Building
Conceptual Cost Model Summary
Study for Stow Elementary & Middle Schools

DRAFT 1.2

Building Area Summary	Area	Const Cost/SF	CONCEPTUAL CONSTRUCTION COST (Including GC mark-up for 26 mnth project and pricing contingencies)
C3B - New Building			
New Construction	102,573	200	20,514,600
Building Total	***102,573***	***240.00***	***24,617,520***
Demolition of Existing Building	***34,258***	***13***	***445,354***
Asbestos Abatement (TDPC Study x 1.3)	**ls**		**325,000**
Subtotal	**102,573**	**248**	**25,387,874**
Site work Allowance * inc. wetlands replication ($35K)	**ls**		**2,200,000**
Subtotal	**102,573**	**269**	**27,587,874**
Phasing			
Phase 1 - Build New Construction	**20 mnths**		
Phase 2 - Demolish existing, complete site work	**6 mnths**		
Total	**102,573**	**269**	**27,587,874**
		SAY	**$27.6 Million**

C3D - Center Building
Conceptual Cost Model Summary
Study for Stow Elementary & Middle Schools

DRAFT 1.2

Building Area Summary	Area	Const Cost/SF	CONCEPTUAL CONSTRUCTION COST (Including GC mark-up for 26 mnth project and pricing contingencies)
C3D - New Building			
New Construction	71,048	210	14,920,080
Building Total	***71,048***	***252.00***	***17,904,096***
Demolition of Existing Building	***34,258***	***13***	***445,354***
Asbestos Abatement (TDPC Study x 1.3)	**ls**		**325,000**
Subtotal	**71,048**	**263**	**18,674,450**
Site work Allowance * inc. wetlands replication ($35K)	**ls**		**2,200,000**
Subtotal	**71,048**	**294**	**20,874,450**
Phasing			
Phase 1 - Build New Construction	**20 mnths**		
Phase 2 - Demolish existing, complete site work	**6 mnths**		
Total	**71,048**	**294**	**20,874,450**
		SAY	**$20.9 Million**

APPENDIX C SITE INFORMATION

Attached are site diagrams which formed part of the site discussions which include wetland identification and well and septic location possibilities

Center School

Stow Elementary Schools Architectural Services

Stow, Massachusetts

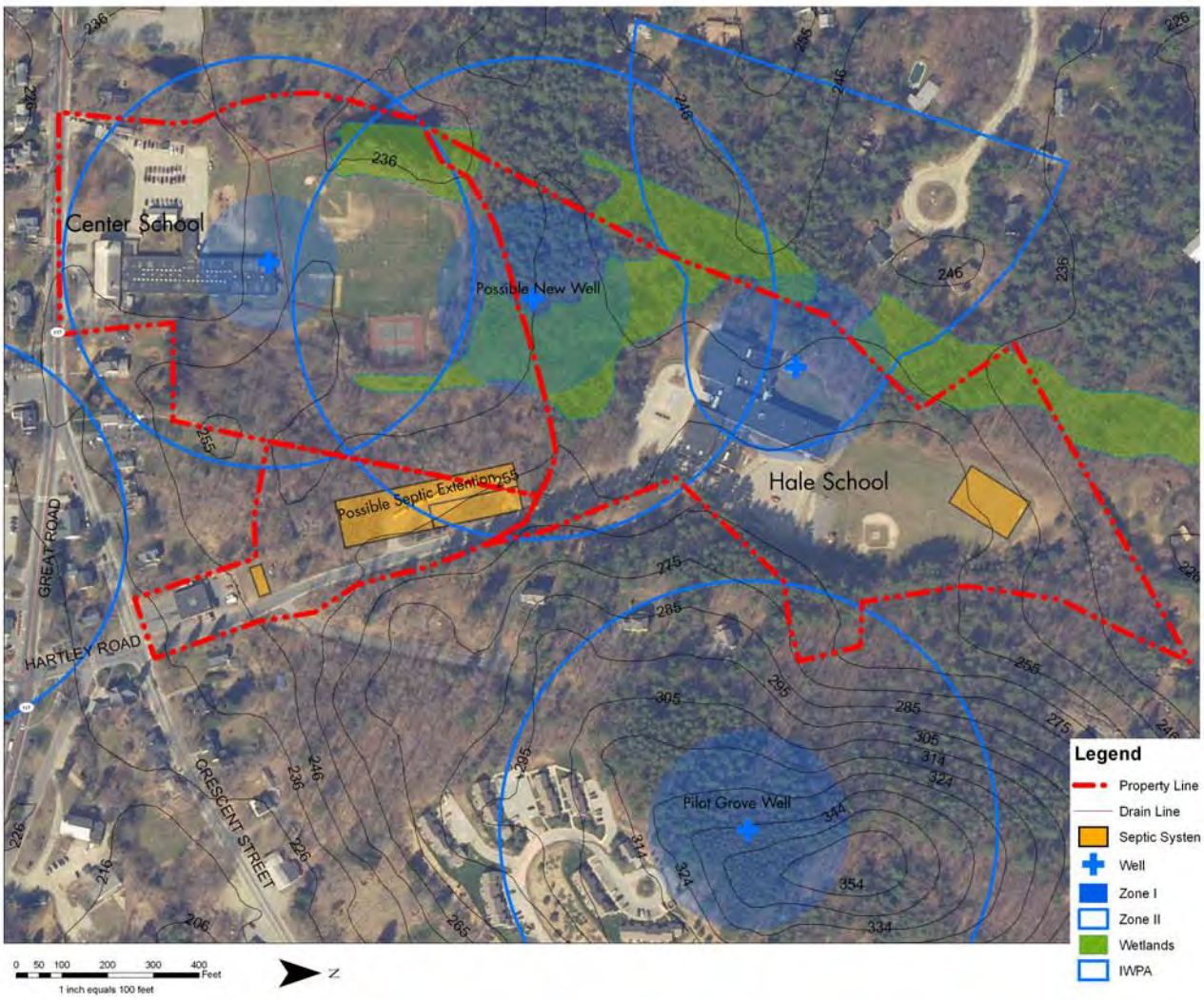
SMMA
SYMMES MAINI & MCKEE ASSOCIATES

Pompositticut School

Stow Elementary Schools Architectural Services

Stow, Massachusetts

SMMA
SYMMES MAINI & MCKEE ASSOCIATES



STOW SCHOOL STUDY

403 Great Road, Stow, MA

SMMA
SYMMES MAINI & MCKEE ASSOCIATES

APPENDIX D STATEMENT OF INTEREST FORMS

Attached are the submitted Statement of Interest forms for the two elementary schools.

School District_Nasoba Regional School District District Contact: Michael L. Wood
Name of School: Center School Date: April 10, 2007

Statement of Interest Form

The purpose of this Statement of Interest Form (the "Form") is to ascertain from cities, towns, and regional school districts whether they believe they have any deficiencies in their respective school facilities (1) that meet one or more of the statutory priorities set forth in M.G.L. c. 70B, § 8 **and** (2) for which they anticipate filing an application for funding with the Massachusetts School Building Authority (the "Authority"). This Form is **NOT** intended to obtain information about any plans or designs of any construction or renovation project that a city, town or regional school district may be considering, and no such information should be included in or submitted with this Form.

The Authority anticipates a multi-phase approach to the planning and submission of applications for funding. A critical element of this initial phase is for the city, town or regional school district, through this Statement of Interest Form, to clearly and concisely identify what they believe are deficiencies in a school facility. After July 1, 2007, the new school building assistance program will require that the Authority and the city, town or regional school district agree first on the problem necessitating a solution and then on the solution to the problem. Receipt of funding from the Authority will require a collaborative effort throughout all stages of a project, beginning with the identification of deficiencies in school facilities.

Pursuant to M.G.L. c. 70B, § 8, the Authority shall consider applications for school construction and renovation projects in accordance with the priorities listed below:

(1.) Replacement or renovation of a building which is structurally unsound or otherwise in a condition seriously jeopardizing the health and safety of school children, where no alternative exists, as determined in the judgment of the Authority;
(2.) Elimination of existing severe overcrowding, as determined in the judgment of the Authority;
(3.) Prevention of loss of accreditation, as determined in the judgment of the Authority;
(4.) Prevention of severe overcrowding expected to result from increased enrollments, which must be substantiated, as determined in the judgment of the Authority;
(5.) Replacement, renovation or modernization of the heating system in any schoolhouse to increase energy conservation and decrease energy related costs in the schoolhouse, as determined in the judgment of the Authority;
(6.) Short term enrollment growth, as determined in the judgment of the Authority;
(7.) Replacement or addition to obsolete buildings in order to provide a full range of programs consistent with state and approved local requirements, as determined in the judgment of the Authority; and
(8.) Transition from court-ordered and approved racial balance school districts to walk-to, so-called, or other school districts, as determined in the judgment of the Authority.

*This Form is **NOT** an application for funding. Submission of this Form in no way commits the Authority to accept an application, approve an application, provide a grant or any other type of funding, or places any other obligation or requirement upon the Authority.*

The application will be a separate document(s) that must be completed and submitted to the Authority for consideration for a grant pursuant to M.G.L. c. 70B and the Authority's regulations and policies. The Authority will not consider any project for funding without a properly filed application. The Authority will not accept any applications for funding until after July 1, 2007, or such later date as may be determined by the Authority.

Submission of this Form does not commit a city, town or regional school district to filing an application for funding with the Authority.

Instructions for submission of this Statement of Interest Form:

This Form must be completed by a city, town or regional school district and submitted to the Authority **BEFORE** filing an application with the Authority pursuant to M.G.L. c. 70B and the Authority's regulations and policies. This Form will be a prerequisite for presenting an application to the Authority.

The Authority expects that this Form can be completed at no cost to the city, town or regional school district. The Authority will **NOT** reimburse for any expenses that may be incurred in connection with the completion of this Form.

A separate Statement of Interest Form should be submitted for each school for which the city, town or regional school district may have an interest in applying to the Authority for funding. Please identify the priority category(s) for which you are expressing interest, provide a brief description of any deficiencies, and provide any readily available supporting documentation. More than one priority may be checked off for each school.

In the case of a city, **majority votes** of both (1) the City Council/Board of Aldermen **AND** (2) the School Committee, authorizing the Superintendent to submit this Statement of Interest Form to the Massachusetts School Building Authority, taken in accordance with the local charter, by-laws, or ordinances, are required. In the case of a town, **majority votes** of both (1) the Board of Selectmen or the equivalent governing body **AND** (2) the School Committee, authorizing the Superintendent to submit this Statement of Interest Form to the Massachusetts School Building Authority, taken in accordance with the local charter, by-laws, and ordinances, are required. If the school district is a regional school district, a vote of the Regional School Committee authorizing the Superintendent to submit this Statement of Interest Form to the Massachusetts School Building Authority is required. A form of each vote required is set forth on page 12 of this Form. Proper documentation of each vote must be submitted with this Form, as described on page 12.

Additionally, this Form must be **signed and certified** by (1) the Local Chief Executive Officer*, (2) the Chairperson of the School Committee, and (3) the Superintendent. Certification information can be found on page 13 of this Form.

* Pursuant to M.G.L. c. 4, § 7 and c. 31A, § 2, Local Chief Executive Officer means: in a city or town with a manager form of government, the manager of that municipality; in other cities, the mayor; and towns, the board of selectmen, unless the town has designated some other office. Regional School Districts are exempt from the Local Chief Executive Officer signature and certification requirement.

Please do NOT submit applications, design documents, plans, schematics, or drawings with this Form. This Form is NOT an application for funding. The Authority will not accept any applications or design documents, plans, schematics, or drawings prior to July 1, 2007 or such later date as may be determined by the Authority.

Please note that, in some cases, the Authority may need to clarify the contents of this Form with the city, town or regional school district. The Authority reserves the right to request and obtain additional, follow-up information from the city, town or regional school district.

This Form, as signed and certified, along with the local vote described herein, must be returned to:

Massachusetts School Building Authority
3 Center Plaza
Suite 430
Boston, MA 02108

Enrollment Projections

Please provide the following enrollment information for EACH school building within a district if this Statement of Interest Form is intended to describe conditions associated with Priority 2 (existing severe overcrowding), Priority 4 (future overcrowding) or Priority 6 (short term enrollment growth).

Existing Enrollment (FTE)

School Year	K	1	2	3	4	5	6	7	8	9	10	11	12
2006-07				**93**	**88**	**91**							

Projected Enrollments (FTE)

School Year	K	1	2	3	4	5	6	7	8	9	10	11	12
2007-08				**111**	**104**	**93**							
2008				**108**	**113**	**106**							
2009				**96**	**110**	**115**							
2010				**89**	**98**	**112**							
2011				**89**	**91**	**100**							
2012				**119**	**91**	**93**							
2013				**93**	**121**	**93**							
2014				**98**	**95**	**123**							
2015				**100**	**100**	**97**							
2016				**102**	**102**	**102**							

Demography and K-8 Enrollment Projections, December 2006, Donald Kennedy, NE School Development Council (NESDEC)
Presumed no accelerated growth.

Enrollment figures show that over the past 5 years, Stow's enrollment in K through grade 5 has increased an average of 16 students per year[1]. Enrollment studies[2] indicate that Stow will experience sustained enrollment increases for at least the next 10 years. These numbers are conservative when viewed in light of current development in Stow:

- Villages at Stow (40b development) will have estimated 96 units at build out
- Derby Woods have 31 units in plans and/or under construction
- A total of 146 units approved/and or under construction as of April 2007

Other studies have been done by NESDEC in recent years showing different numbers:

NESDEC April 2005: projected Prek-5 enrollment at 587 in 2016 without impact of accelerated growth[3]
NESDEC April 2005: projected Prek-5 enrollment at 720 in 2016 with impact of accelerated growth
NESDEC December 2006: projected Prek-5 enrollment at 615 in 2016 without impact of accelerated growth[4]

See Appendices for enrollment projections for all Nashoba Regional School District schools.

[1] New England School Development Council (NESDEC): 2005 data revised 11/8/06
[2] Ibid
[3] Stow (MA) Demography and K-8 Enrollment Projections, NESDEC April 2005
[4] Stow (MA) Demography and Prek-8 Enrollment Projections, NESDEC revised December 2006

Priority 1

☑ ***Replacement or renovation of a building which is structurally unsound or otherwise in a condition seriously jeopardizing the health and safety of school children, where no alternative exists.***

Please provide a detailed description of the perceived health and safety problems below. Attach copies of orders or citations from state and/or local building and/or health officials.

The **Center School** was built in 1954 with additions in 1957 and 1964. An apple barn that was part of the original farm, has been incorporated into the educational programs of the building as well. Center School currently houses grades 3-5. There are a number of components to the building that need replacement or renovation and could seriously jeopardize the health and safety of school children. The Town and District have no alternative space to address these concerns. The Center School was given a "3" rating on the Needs Assessment Survey by MSBA dated April 2006

Fire Code Hazards

- There are no sprinklers in the building, counter to existing fire code[5]
- Due to the age of the building and the fact that electrical needs have increased substantially since the time of construction, excessive numbers of extension cords are used to supplement the inadequate electrical and technological system.
- Stage/Platform/Cafeteria fire curtain and rigging are in poor condition[6]
- There is no fire road around the building making it difficult to plow around the emergency exits during winter months. Some of these exits, located along a wooded grade, cannot be plowed and must be excavated manually, causing a delay in evacuation readiness after snowstorms.
- Full fire alarm coverage of the building is inadequate.[7]

Security

- No internal locks on classroom doors. The faculty cannot "lockdown" the building and protect students in classrooms in the event of an emergency, a federal requirement. The lockdown procedure requires the staff member to use keys externally to lock the door from the hallway.
- Inadequate internal communication system – faculty are unable to communicate directly with the main office or outside building to report suspicious activity or persons in the building or a medical emergency.
- The "apple barn" building requires external access for 4 different program functions including music, band, science, and technology, increasing security risks.
- There is no internal communication between the "apple barn" and the main office.

[5] Center School Building Evaluation by Symmes Maini McKee Architects (SMMA) December 2006; Stow Fire & Rescue Building Inspection Report 8/30/06
[6] SMMA Evaluation December 2006
[7] Stow Fire & Rescue Report 8/30/06

Ceiling over the gymnasium and kitchen/cafeteria:

- A portion of the ceiling over the cafeteria collapsed in 2005, onto the seating area and the tables below.
- Wood gable ends at gymnasium/cafeteria are deteriorated and need to be replaced[8].

Asbestos related hazards:

- Many of the floors have asbestos-containing floor tile (VAT)
- The asbestos mastic used under the tiles, carpet, in the ceilings, and around pipes was professionally encapsulated in the late eighties, and is covered by ceiling tiles or cabinetry.[9]
- The 1954 boiler is expected to be insulated with asbestos[10]
- Potential for asbestos contamination is elevated whenever remodeling is needed on a small scale or when accidents occur (such as the recent ceiling collapse in the cafeteria).
- Due to the age of the building and construction practices during the time it was built, asbestos and PCB are sure to be present.[11]

Insufficient Ventilation System

- The classroom unit ventilators are left off during class time as they cause a tremendous noise distraction, resulting in little or no air ventilation and jeopardizing the health and wellness of students in the classrooms and increasing the risk of contagion.
- There is currently no ventilation air in the principal's office and the secretary's office
- The teachers' workroom and adjacent lunchroom (converted from a locker room) have insufficient ventilation, not up to current code[12]
- Combustion air duct in the boiler room is undersized and does not meet code[13]
- Toilet exhaust insufficient to remove odors[14]

Health Office

- The health office has room for only one student patient at a time.
- Students are treated in the main hallway near the entrance to the building until the nurse becomes available, providing no defense against contagion and no privacy.
- The bathroom for the health office (a converted janitor's closet), which also serves as a staff bathroom, is outside of the health office in the main corridor offering no protection from contagion and no privacy.
- The health-office bathroom is not handicapped accessible.

[8] Stow Elementary Schools Feasibility Study, DesignPartnership of Cambridge Inc: November 27, 2002; also Symmes Maini McKee (SMMA) Center School Evaluation Report December 2006
[9] Design Partnership November 2002
[10] Ibid
[11] Ibid; AHERA Inspection Report by Tighe & Bond Engineers, January 2005
[12] Ibid
[13] Design Partnership November 2002 and SMMA Evaluation December 2006
[14] SMMA Evaluation December 2006

General[15]

- The well is located under the existing structure in the boiler room and does not meet current standards.
- The septic systems are in Zone 1 of the well
- There are two boilers at The Center School. Both are operational, with one having been installed in 1985, and the other original to the building. This boiler contains a large crack and is now used as a back-up system.
- Insufficient site lighting, all of which is most likely original to the building. There is only one pole-mounted light near the entry drive and one near the play structure. All other site lighting is building-mounted.
- Dangerous bus/car traffic patterns - Student drop-off area provides space for only 5 buses, necessitating 2 drop-off sessions. Visitors to the school must directly cross drop-off area in order to access the school parking lot.
- None of the bathrooms are ADA compliant.
- Handicap accessibility is minimal and the building is not ADA compliant.

Please describe the measures the School District has taken to mitigate the problem(s) described above.

- The district and Town of Stow undertook a capital initiative to replace the gymnasium roof in 2006 – 2007 school year. The project has not been completed because of unforeseen increases in construction costs since the project was approved. The portion over the kitchen was completed in 2005. The rest of the roof has been deemed structurally sound by the Stow Building Inspector, although still in need of repair.
- Although there was significant maintenance to the heating system in 2004, the age of the system makes it difficult to service and forces frequent adjustments.
- The fire alarm system control panel and annunciator were replaced approximately 13 years ago (1994). The system is the zoned, hard-wired type, and is insufficient for the building. The existing wiring and initiating devices were reused for this system and they are original to the building. The Building does have heat detectors, but only battery operated smoke detectors in the bathrooms, independent of the electrical system.
- In the winter of 2006 the school system added buzzers and electronic door openers at the front door entrance for additional security.
- A small, independent student drop-off area was recently built on the lawn directly in front of the gymnasium, separating the parent pick-up and drop-off area from the bus area. The student entrance is not visible from this drop-off area

[15] Information in this section from SMMA Evaluation December 2006

Priority 2

☑ ***Elimination of existing severe overcrowding.***

Please describe the existing conditions that constitute severe overcrowding.

Enrollment

The District is comprised of Stow and two other towns, Lancaster and Bolton, both of whom have recently addressed the demands of current district programs and class size requirements. Both towns are in the initial stages of developing plans to meet increasing enrollment. It should be noted that according to our regional agreement, each town retains capital investment obligations for all school buildings serving the K –8 student population.

The Center School had 272 students in 2006, currently serves 285 students as of April 2007, and the projected enrollment for 2008 is 308. A shortage of space throughout the school, especially for tutorial, SPED and remedial uses, results in daily scheduling and program challenges. Stow is facing 146 units of new construction over the next two years, not included in current enrollment projections, highlighting the ongoing growth of this community.

There are eighteen classrooms in the Center School, five of which are used for support services (library, art, music, technology, and special education). The support spaces are smaller than the minimum standard suggested by the Massachusetts DOE and the MSBA prototype school of this size. The Center School is approximately 36,360 square feet of space. The MSBA prototype for an elementary school of 321 students should be approximately 54,473 square[16]. According to the MSBA prototype, the Center School is approximately 18,113 square feet too small. The school is significantly undersized in nearly all classroom areas.

- The core academic space does not support the student population.
- The music space does not support the chorus or band of 40+ students.
- The nursing station, which includes a bathroom converted from a janitor's closet, cannot properly serve the current enrollment.
- The health office has room for only one student/patient at a time. Other students have to wait in the main hallway near the entrance to the building until the nurse is available.
- Mandated medical screenings must take place outside of the nurse's office in the hallway near the main entrance, due to lack of space.
- The media center is roughly half the size of the Massachusetts Department of Education area standards. The library is a 900 square feet area that houses the book collection and is directly

[16] SMMA analysis of MSBA prototype requirements vs existing Center School space 1.17.07; all references in this section from this same analysis unless otherwise noted.

adjacent to the 900 sq. ft. computer lab (some of the library books are stored on shelves under the computers). There is no wall separating these 2 spaces, making it difficult to use either space without disturbing the other, although simultaneous classroom instruction has become a necessity due to lack of space elsewhere and is routinely done in this area.

- There are 2 small rooms, converted from storage closets, used for small group instruction, student assessment, time out space, and teacher planning space.
- SPED and remedial spaces are undersized. There is one classroom room which has been partitioned and serves multiple functions such as SPED, OT, and Guidance when needed.
- Dedicated OT space is minimal and does not have the overhead structural supports to allow for the occupational therapy swings. The occupational therapist works in the hallway or in the special education classroom when the activities won't disturb other students.
- Administration, teacher workroom, nurse, and storage areas are all significantly inadequate:
  - The secretary's office is less than 100 square feet.
  - The Principal and Assistant Principal share an office of less than 200 square feet, which also serves as the only conference room in the building for parent meetings.
  - An old locker room was converted to the teacher's work area, and the old shower stall now serves as the janitor's office.
  - There is no storage for audio/visual equipment, which is placed in the hallways during active class time and stored in classrooms at night.
- The school stage serves as the cafeteria space and is significantly undersized at 1400 sq/ft. The kitchen cannot prepare enough meals to accommodate the current student population. Meals are prepared at another school within the district, transported to Center and warmed in the kitchen. Three lunch periods are served daily and the cafeteria capacity is at the maximum during each lunch session.
- Starting with school year 2007-08, there may be a need to seat students in the gymnasium as well as the cafeteria during lunch in order to accommodate the increase in students. This involves students walking down stairs with their lunch trays.
- The gymnasium has no seating and limited standing room for viewing. Because it abuts the cafeteria / stage, the room cannot be used for approximately ninety minutes each day, while lunch is being served.
- There is only one dedicated storage closet for the entire school.
- Most areas of the school are not compliant with ADA barrier-free requirements.
- There are only two single-user toilet rooms for use by the staff of 46.

Please describe the measures the School District has taken to mitigate the problem(s) described above.

The District completes enrollment updates using NESDEC (New England School Development and Education Council) and reassigns space annually to accommodate incoming growth. However, many of the areas being utilized are inappropriate for their new uses.

- In 2002, Stow began to experience enrollment increases that had not been seen in prior years. There was an additional classroom required in Center in 2006-07, necessitating the conversion of a special education classroom to an additional third grade classroom.
- The "apple barn" -- a detached, former apple-storage barn which was part of the original farm site during the 1940's -- will house the music, science and technology programs as of September 2007. The building is 1000 square feet.

- A bathroom was added adjacent to the health office several years ago, converted from a janitor's closet. It is not handicapped accessible.
- An old locker room was converted to the teacher's work area and an old shower stall serves as the janitor's office.
- The one special education space was formerly a full sized classroom. A wall was added to this space to create an office for the guidance counselor.
- A former storage closet was converted to small group instruction space. The space is 81 sq/ft in size, and is at times used for IEP meetings when no other space is available.
- Converted storage space into program areas such as OT, PT and guidance.
- Converted a former locker room and shower stall into a teacher workroom.
- Currently use the boiler room for storage space.
- Eliminated the lawn in front of Center School and converted that space to a separate parking area/drop off point.
- Converted the "apple barn" building to accommodate the science curriculum and the music program.
- The OT, PT, and special education programs must share one space.
- The district increased class sizes in Stow, maximizing available space.
- Purchased outdoor buildings for storage.
- Supplies are ordered on demand instead of being on hand, due to lack of storage space.
- The Nashoba Regional School District has examined regionalizing some components of the elementary schools, but the investigation is in its preliminary stages and thus far the district has not received support for such a measure among the three towns.
- In 2005, the District investigated an existing building located in Bolton as a possible site for an elementary school for the town of Stow. However there were environmental concerns with the site, and housing Stow elementary school students in another town violates the current regional agreement.
- As part of the Stow elementary school "master plan" discussion, there have been conversations about using some space at the Hale Middle School in Stow to house the fifth grade. Such a plan, however, would be only a temporary solution since growth will cause a crowding situation at Hale Middle School by 2010 – 2011.

Priority 3

☐ ***Prevention of the loss of accreditation.***

Please provide a detailed description of the facility-related issues that are threatening accreditation.

There are no plans to seek elementary school accreditation for grades serviced at Center School.

Please describe the measures the School District has taken to mitigate the problem(s) described above.

Priority 4

☐ ***Prevention of severe overcrowding expected to result from increased enrollments.***

Please describe the conditions within the community and School District that are expected to result in increased enrollment.

N/A

Please describe the measures the School District has taken or is planning to take in the immediate future to mitigate the problem(s) described above.

Priority 5

☑ ***Replacement, renovation or modernization of the heating system in a schoolhouse to increase energy conservation and decrease energy related costs in the schoolhouse.***

Please provide a detailed description of the energy conservation measures that are needed and include an estimation of resultant energy savings as compared to the historic consumption.

There are two boilers at The Center School. One is operational, installed in 1985, and the other serves as a back-up system, and although still functional, contains a large crack. It is original to the building. This boiler, along with the remainder of the mechanical systems (including unit ventilators) are 50 years old, past their useful life expectancy and have been recommended for replacement[17]

In terms of energy use, Center School is the least efficient building in the district.

- In each classroom, inefficient, single-paned glass windows form the longest interior wall.
- The walls are cinderblock, with no insulation, allowing for a great deal of heat loss.
- When district officials met with Energy Management Associates in January 2006, they were told in their written report that Center was not a great candidate for retro-commissioning because of its age and lack of controlled systems
- The building has no central air conditioning system. Instead, individual 5000 BTU cooling units were installed in several classrooms over exterior doors during the 1990's. Due mostly to the single pane windows in all classrooms, these units are extremely inefficient and do not provide sufficient cooling. Condensation collects at the bottom of the doors, contributing to the loss of the exterior varnish, causing these doors to deteriorate.

Please describe the measures the School District has already taken to reduce energy consumption.

Despite efforts to control heat set points and lighting demand, the Center School had a 10.75% increase in usage between 2005 and 2006. The two Stow elementary schools were the only District schools that used more energy this past year than two years ago. The age and conditions of the systems at Center do not allow for the web-based HVAC monitoring system established for other district schools[18].

[17] SMMA Evaluation of Center School, December 2006

[18] This system would allow for remote adjustments to occur during "down" times when heat and electricity may not be needed, such as occurs at night or during weekends. After instituting this system, the district noticed savings of about 11% over the previous years usage in buildings where this monitoring system could be installed.

Priority 6

☐ ***Short term enrollment growth***

Please describe the conditions within the community and School District that are expected to result in increased enrollment and describe why these conditions are only expected to exist in the short term.

We do not see the space problems in Stow to be the result of short term enrollment growth.

Please describe the measures the School District has taken or is planning to take in the immediate future to mitigate the problem(s) described above.

Priority 7

☑ ***Replacement or addition to obsolete buildings in order to provide for a full range of programs consistent with state and approved local requirements.***

Please provide a detailed description of the programs not currently available due to facility constraints, the state or local requirement for such programs and the facility limitations precluding the programs from being offered.

Stow's elementary school students are not currently provided with the appropriate and adequate spaces to learn. Analysis from the Symmes Maini McKee Associates building evaluation (December 2006) indicates that the Center School is approximately 18,000 square feet smaller than the MSBA prototype elementary school.

- The Center School has inadequate space and facilities for the fifth-grade Science and Technology program due to lack of space.
- Beginning in 2007, the music classroom will be taken over for a grade four class. Music classes will now be housed in the "apple barn", and shared with the science lab.
- Mandated medical screenings have to take place outside of nurse's office, (in the hallway), due to lack of space. There are no handicap accessible bathrooms either in the Nurse' office, or in the rest of the school.
- Dedicated OT space is minimal and does not have the overhead structural supports to allow for the occupational therapy swings. The occupational therapist works in the hallway or in the special education classroom when the activities won't disturb other students.
- There is also a lack of support space for SPED, remedial instruction, reading and music.
- There is a lack of dedicated space for gifted and talented offerings.
- There is no space for Health instruction.
- The music space cannot support a moderate-sized band or chorus
- The art program is limited in storage/presentation space, contains one sink, and little area for students to work with multiple mediums.
- There are few opportunities for physical education program to be expanded due to a lack of equipment storage, the compressed schedule allowing for lunch sessions, and the wall of single pane windows along its exterior wall.
- Theater or drama play a very limited role in the curriculum since the stage serves as the cafeteria and is at one end of the gymnasium.
- The multi use gymnasium severely limits the ability to gather for assembly, guest speakers, programs, presentations to families, or school-wide instruction.
- The library is undersized and lacks enough space to be properly supplied or to conduct classes.
- Due to the proximity of the computer lab and the library, it is difficult to conduct two classes in this shared open area, although this is routinely done due to the lack of classroom space.

- Many library books are jammed in shelves under computer workstations in the shared media center/computer lab.
- Given the age of the building, there were no contingencies made for the addition of electrical or data boxes to the extent they are now required in order to support the curriculum (i.e. computers, printers, scanners, etc).
- No video or CATV system is available to further enhance the current curriculum.

Please describe the measures the School District has taken to mitigate the problem(s) described above.

- The District took steps to staff a technology and engineering position for the coming year and will allocate use of a building (the "apple barn") to address hands on technology and engineering standards. This space will be shared with the music program.
- The 2004 Improvements project added some power and data outlets, but there continues to be a deficiency in the number and placement of these outlets to support today's technological needs. The electrical system is now "maxed out" making it impossible to add more outlets.
- The need for one more grade four classroom will be met by vacating the Music Room during the 2007- 08 school year. However, that forces music to share the "apple barn" with science and technology classes as well. This building is a former barn that was converted more than 30 years ago to an office for the Superintendent of Schools. It then served as a pre school program and now it is used regularly as a classroom. It is 1000 square feet.
- A storage closet has been re-modeled to also serve as a meeting space and resource room. Parent/teacher conferences are often conducted in this room during the school day. The room continues to be used for storage as well.
- A "regular" classroom was converted to house the special education, OT, and PT student services. The OT and PT services are routinely offered in the hallway when students require additional services.
- The district converted a locker room into the teacher's workroom, and changed a shower room into additional support space.
- The boiler room is used for storage space.
- Eliminated the lawn in front of Center School and converted that space to a separate parking area/drop off point.
- We have kept class sizes larger in Stow than the rest of the District because of a lack of space.
- Outdoor storage sheds were purchased.
- Supplies are ordered on demand instead of being on hand, due to lack of storage space.
- The 2004 electrical upgrade added 4 outlets per classroom but has left exposed conduit piping in most classrooms.
- A back up generator was installed to support key school functions.

Priority 8

☐ ***Transition from court-ordered and approved racial balance school districts to walk-to, so-called, or other school districts.***

Please provide a copy of the court-ordered and board of education approved racial balance school districts plan.

Not currently applicable to Stow schools.

Please provide a copy of the redistricting plan.

AUTHORIZATION REQUIREMENTS

In the case of a city, **majority votes** of both (1) the City Council/Board of Aldermen **AND** (2) the School Committee, authorizing the Superintendent to submit this Statement of Interest Form to the Massachusetts School Building Authority, taken in accordance with the local charter, by-laws, or ordinances, are required. In the case of a town, **majority votes** of both (1) the Board of Selectmen or the equivalent governing body* **AND** (2) the School Committee, authorizing the Superintendent to submit this Statement of Interest Form to the Massachusetts School Building Authority, taken in accordance with the local charter, by-laws, and ordinances, are required. If the school district is a regional school district, a vote of the Regional School Committee authorizing the Superintendent to submit this Statement of Interest Form to the Massachusetts School Building Authority is required.

*A Town Meeting vote is not required to authorize the Superintendent to submit this Form.

Documentation of each vote must be submitted as follows: For the vote of the City Council/Board of Aldermen or Board of Selectmen/equivalent governing body, a copy of the text of the vote with a certification of the City/Town Clerk that the vote was duly recorded and the date of the vote. For the vote of the School Committee, Minutes of the School Committee meeting at which the vote was taken, signed by the Committee Chairperson.

Form of Vote required from both City Council/Board of Aldermen, Board of Selectmen/equivalent governing body AND the School Committee. If a regional school district, a vote of the Regional School Committee is required.

Resolved: Having convened in an open meeting on [Nashoba Regional School Committee: April 5, 2007; Stow Board of Selectmen April 10, 2007] the Stow Board of Selectmen and Nashoba Regional School Committee, in accordance with its charter, by-laws, and ordinances, has voted to authorize the Superintendent to submit to the Massachusetts School Building Authority the Statement of Interest Form dated April 10, 2007 for the **Center School** located at 403 Great Road, Stow, which describes and explains the following deficiencies and the priority category(s) for which an application may be submitted to the Massachusetts School Building Authority in the future

Priority 1 (Health & Safety): Lack of adequate emergency/fire and other safety systems; Asbestos hazards; poor air quality.

Priority 2 (Severe Overcrowding): Non-classroom space has been converted to cover population needs, leaving SPED and other services to be accommodated in sub-standard spaces;

Priority 5 (Energy Efficiency): Outdated, outmoded and inefficient systems and building;

Priority 7 (Inability to meet program needs): Majority of classrooms and support spaces are significantly below DOE standards for all current programs;

and hereby further specifically acknowledges that by submitting this Statement of Interest Form, the Massachusetts School Building Authority in no way guarantees the acceptance or the approval of an application, the awarding of a grant or any other funding commitment from the Massachusetts School Building Authority, or commits the City/Town/Regional School District to filing an application for funding with the Massachusetts School Building Authority.

CERTIFICATIONS

The undersigned hereby certifies that, to the best of his/her knowledge, information and belief, the statements and information contained in this Statement of Interest and attached hereto are true and accurate and that this Statement of Interest has been prepared under the direction of the district school committee and the undersigned is duly authorized to submit this Statement of Interest to the Massachusetts School Building Authority. The Undersigned also hereby acknowledges and agrees to provide the Massachusetts School Building Authority, upon request by the Authority, any additional information relating to this Statement of Interest that may be required by the Authority.

LOCAL CHIEF EXECUTIVE OFFICER	**DISTRICT SUPERINTENDENT**	**SCHOOL COMMITTEE CHAIR**
William J. Wrigley-	Michael L. Wood	Donald Adams
By _____ (signature)	By _____ (signature)	By _____ (signature)
Date _____	Date _____	Date _____

School District Nashoba Regional School District District Contact: Michael L. Wood
Name of School: Pompositticut Elementary School Date: April 10, 2007

Statement of Interest Form

The purpose of this Statement of Interest Form (the "Form") is to ascertain from cities, towns, and regional school districts whether they believe they have any deficiencies in their respective school facilities (1) that meet one or more of the statutory priorities set forth in M.G.L. c. 70B, § 8 **and** (2) for which they anticipate filing an application for funding with the Massachusetts School Building Authority (the "Authority"). This Form is **NOT** intended to obtain information about any plans or designs of any construction or renovation project that a city, town or regional school district may be considering, and no such information should be included in or submitted with this Form.

The Authority anticipates a multi-phase approach to the planning and submission of applications for funding. A critical element of this initial phase is for the city, town or regional school district, through this Statement of Interest Form, to clearly and concisely identify what they believe are deficiencies in a school facility. After July 1, 2007, the new school building assistance program will require that the Authority and the city, town or regional school district agree first on the problem necessitating a solution and then on the solution to the problem. Receipt of funding from the Authority will require a collaborative effort throughout all stages of a project, beginning with the identification of deficiencies in school facilities.

Pursuant to M.G.L. c. 70B, § 8, the Authority shall consider applications for school construction and renovation projects in accordance with the priorities listed below:

(1.) Replacement or renovation of a building which is structurally unsound or otherwise in a condition seriously jeopardizing the health and safety of school children, where no alternative exists, as determined in the judgment of the Authority;
(2.) Elimination of existing severe overcrowding, as determined in the judgment of the Authority;
(3.) Prevention of loss of accreditation, as determined in the judgment of the Authority;
(4.) Prevention of severe overcrowding expected to result from increased enrollments, which must be substantiated, as determined in the judgment of the Authority;
(5.) Replacement, renovation or modernization of the heating system in any schoolhouse to increase energy conservation and decrease energy related costs in the schoolhouse, as determined in the judgment of the Authority;
(6.) Short term enrollment growth, as determined in the judgment of the Authority;
(7.) Replacement or addition to obsolete buildings in order to provide a full range of programs consistent with state and approved local requirements, as determined in the judgment of the Authority; and
(8.) Transition from court-ordered and approved racial balance school districts to walk-to, so-called, or other school districts, as determined in the judgment of the Authority.

*This Form is **NOT** an application for funding. Submission of this Form in no way commits the Authority to accept an application, approve an application, provide a grant or any other type of funding, or places any other obligation or requirement upon the Authority.*

The application will be a separate document(s) that must be completed and submitted to the Authority for consideration for a grant pursuant to M.G.L. c. 70B and the Authority's regulations and policies. The Authority will not consider any project for funding without a properly filed application. The Authority will not accept any applications for funding until after July 1, 2007, or such later date as may be determined by the Authority.

Submission of this Form does not commit a city, town or regional school district to filing an application for funding with the Authority.

Instructions for submission of this Statement of Interest Form:

This Form must be completed by a city, town or regional school district and submitted to the Authority **BEFORE** filing an application with the Authority pursuant to M.G.L. c. 70B and the Authority's regulations and policies. This Form will be a prerequisite for presenting an application to the Authority.

The Authority expects that this Form can be completed at no cost to the city, town or regional school district. The Authority will **NOT** reimburse for any expenses that may be incurred in connection with the completion of this Form.

A separate Statement of Interest Form should be submitted for each school for which the city, town or regional school district may have an interest in applying to the Authority for funding. Please identify the priority category(s) for which you are expressing interest, provide a brief description of any deficiencies, and provide any readily available supporting documentation. More than one priority may be checked off for each school.

In the case of a city, **majority votes** of both (1) the City Council/Board of Aldermen **AND** (2) the School Committee, authorizing the Superintendent to submit this Statement of Interest Form to the Massachusetts School Building Authority, taken in accordance with the local charter, by-laws, or ordinances, are required. In the case of a town, **majority votes** of both (1) the Board of Selectmen or the equivalent governing body **AND** (2) the School Committee, authorizing the Superintendent to submit this Statement of Interest Form to the Massachusetts School Building Authority, taken in accordance with the local charter, by-laws, and ordinances, are required. If the school district is a regional school district, a vote of the Regional School Committee authorizing the Superintendent to submit this Statement of Interest Form to the Massachusetts School Building Authority is required. A form of each vote required is set forth on page 12 of this Form. Proper documentation of each vote must be submitted with this Form, as described on page 12.

Additionally, this Form must be **signed and certified** by (1) the Local Chief Executive Officer*, (2) the Chairperson of the School Committee, and (3) the Superintendent. Certification information can be found on page 13 of this Form.

* Pursuant to M.G.L. c. 4, § 7 and c. 31A, § 2, Local Chief Executive Officer means: in a city or town with a manager form of government, the manager of that municipality; in other cities, the mayor; and towns, the board of selectmen, unless the town has designated some other office. Regional School Districts are exempt from the Local Chief Executive Officer signature and certification requirement.

Please do NOT submit applications, design documents, plans, schematics, or drawings with this Form. This Form is NOT an application for funding. The Authority will not accept any applications or design documents, plans, schematics, or drawings prior to July 1, 2007 or such later date as may be determined by the Authority.

Please note that, in some cases, the Authority may need to clarify the contents of this Form with the city, town or regional school district. The Authority reserves the right to request and obtain additional, follow-up information from the city, town or regional school district.

This Form, as signed and certified, along with the local vote described herein, must be returned to:

Massachusetts School Building Authority
3 Center Plaza
Suite 430
Boston, MA 02108

Enrollment Projections

Please provide the following enrollment information for EACH school building within a district if this Statement of Interest Form is intended to describe conditions associated with Priority 2 (existing severe overcrowding), Priority 4 (future overcrowding) or Priority 6 (short term enrollment growth).

Existing Enrollment (FTE)

School Year	K	1	2	3	4	5	6	7	8	9	10	11	12
2006-07	92	108	110										

Projected Enrollments (FTE)

School Year	K	1	2	3	4	5	6	7	8	9	10	11	12
2007 - 08	85	95	107										
2008	85	88	95										
2009	116	88	88										
2010	89	119	88										
2011	94	92	118										
2012	96	97	92										
2013	99	99	97										
2014	94	102	99										
2015	96	97	101										
2016	96	99	97										

Demography and K-8 Enrollment Projections, December 2006, Donald Kennedy, NE School Development Council (NESDEC); Presumed no accelerated growth

Note: Pre-K students (integrated classroom, including special education) and Stow's are currently serviced in Bolton and Lancaster as there is no current space at Pompositticut. There are 17 students currently[1]; the 2005 NESDEC study projected pre-K enrollment would increase to 32 by 2016[2].

Enrollment figures show that over the past 5 years, Stow's enrollment in K through grade 5 has increased an average of 16 students per year[3]. Enrollment studies[4] indicate that Stow will experience sustained enrollment increases for at least the next 10 years. These numbers are conservative when viewed in light of current development in Stow:

- Villages at Stow (40b development) will have an estimated 96 units at build out
- Derby Woods has 31 units in plans and/or under construction
- A total of 146 units approved/and or under construction as of April 2007

[1] Preschool figures supplied by Nashoba School District Superintendent April 2007
[2] Stow (MA) Demography and K-8 Enrollment Projections, NESDEC April 2005
[3] New England School Development Council (NESDEC): 2005 data revised December 2006
[4] Ibid

Other studies have been done by NESDEC in recent years predicting enrollment:

NESDEC April 2005: projected Prek-5 enrollment at 587 in 2016 without impact of accelerated development[5]
NESDEC April 2005: projected Prek-5 enrollment at 720 in 2016 with impact of accelerated development
NESDEC December 2006: projected Prek-5 enrollment at 615 in 2016 without impact of accelerated growth[6]

See Appendices for enrollment projections for all Nashoba Regional School District schools.

[5] Stow (MA) Demography and Prek-8 Enrollment Projections, NESDEC December 2006
[6] Stow (MA) Demography and Prek-8 Enrollment Projections, NESDEC December 2006

Priority 1

☑ ***Replacement or renovation of a building which is structurally unsound or otherwise in a condition seriously jeopardizing the health and safety of school children, where no alternative exists.***

Please provide a detailed description of the perceived health and safety problems below. Attach copies of orders or citations from state and/or local building and/or health officials.

Pompositticut Elementary School was built in 1971 as an open concept school. The most notable perceived health and safety problems are:

- No sprinkler/fire suppression system
- Limited security due to open floor plan with multiple egress doors
- Not ADA code compliant for handicapped accessibility
- Degraded air quality[4]
- Combined traffic pattern for bus and vehicular traffic is dangerous and unsafe; limited fire lanes

Emergency Response and Fire Safety[7]

- The school was built prior to codes requiring sprinklers and therefore has none.
- The building previously had a complete fire lane around the perimeter, but due to the addition of modular classrooms, the continuous fire lane has been eliminated.
- Lack of a fire protection system and a limited on-site water supply are of particular concern for fire-fighting ability[8]
- Busses waiting in driveway at drop off /pick up time block access for emergency vehicles to enter school grounds.

School Security

- Open plan concept does not allow for any lockdown of classrooms
- No intercom or emergency telephone system can be easily added at classroom level
- Numerous classroom doors make school vulnerable to intruders

. Handicapped Accessibility

- Only one set of boy's and girl's bathrooms are ADA handicapped accessible.
- The health office bathroom (which is not ADA accessible) is located outside of the health office
- Except for the kindergarten door, there are no accessible entrances into the building

[7] Stow Fire & Rescue Building Inspection Report 8/30/06
[8] Stow Elementary Schools Feasibility Study by DesignPartnership of Cambridge (DPC) Inc November 2002

- Handicap accessibility point from parking lot is in center of bus loop. This point is blocked by busses at drop off and pick up times
- No barrier free drinking fountains[9]

Air Quality Concerns

- The open space design limits the healthy air exchange required in today's school buildings.
- Six hot spots identified where carbon dioxide levels were above eight hundred parts per million where health officials prefer levels under 600 ppm[10].
- Partial height partitions have been added which disrupt air flow.
- Difficult to manage students with healthcare plans that relate to airborne allergies.
- Vinyl floor tiles contain asbestos[11]

Student Safety

- No separation of bus and vehicular traffic due to limited road space
- Only sufficient parking for staff and faculty, leaving parents and visitors to park along the state highway (Rte 117)

Bathrooms

- Limited staff bathrooms and none are handicap accessible
- No bathrooms in kindergarten modular units

Please describe the measures the School District has taken to mitigate the problem(s) described above.

Mitigation is limited due to the open plan design. The original open concept school is considered obsolete by state educational standards[12] (Pompositticut School is one of the few remaining open plan facilities in the state). The front door now has a video camera access security system. Afternoon buses are split between the two elementary schools so that there are no more than 5 buses at Pompositticut at one time.

[9] Per code, there should be one fountain per 75 occupants. Stow Elementary Schools Feasibility Study by DPC November 2002
[10] Massachusetts Dept. of Health Emergency Response/ Indoor Air Quality Program Assessment September 2005
[11] Pompositticut Building Evaluation by Symmes Maini McKee Associates (SMMA), December 2006; AHERA Report by Tighe & Bond, January 2005
[12] 2002 DPC Feasibility Study

Priority 2

☑ ***Elimination of existing severe overcrowding.***

Please describe the existing conditions that constitute severe overcrowding.

The District is comprised of Stow and two other towns, Lancaster and Bolton, both of whom have recently addressed the demands of current district programs and class size requirements. Both towns are in the initial stages of developing plans to meet increasing enrollment. It should be noted that according to our regional agreement, each town retains capital investment obligations for all school buildings serving the K –8 student population.

As a 35-year old school, Pompositticut has not had sufficient space to accommodate the needs of the current enrollment or its programming needs for the last four years. By the present-day MSBA standards, Pompositticut, a 40,000 sq. ft facility with 310 students (this number does not include Stow's pre-K special education students in Bolton and Lancaster) currently attending, is significantly below MSBA prototype of 185 sq. ft. per student.

Given that Pompositticut is one third smaller than the MSBA prototype, the District believes the enrollment crisis to be a long-term problem requiring a long-term solution. According to DOE space standards and the MSBA prototype school model, the Pompositticut School is already more than 25,000 sq. ft. too small for the number of students it needs to serve[13].

Classroom size

- Thirteen of the seventeen classrooms are below MSBA standards and five are 15-25% smaller than MSBA standards
- Six classrooms remain in the open classroom area but cannot support current programming needs such as A/V and computer equipment. Program activities are restricted due to noise/traffic distractions of adjacent classrooms
- Mandated pre-K classroom is currently serviced in the Towns of Bolton and Lancaster as Stow cannot provide space; Bolton is experiencing space problems and Stow's program will need to move back into town within the next two years. There is no space available in Stow to accommodate these students
- Two double modular classroomsare undersized for program activities (all are 900 sq. ft. per classroom)
- Further modulars would reduce either the exterior play space or the limited parking area, or both, by at least 1,000 square feet per classroom modular
- Tutorial classes are held in an old janitor's closet

[13] Pompositticut Building Evaluation by SMMA, December 2006

Program Needs not met due to severe overcrowding

- The combined cafeteria/gymnasium at 3000 square feet is a substandard size for either use. It also serves as an assembly space further limiting its availability for other functions.
- The Library, which is less than 900 sq. ft., has one third the number of books recommended by state educational standards, due to lack of space for display and storage (less than 2000 books currently vs. the state standard of 20 books/student which would equal about 6000 books)
- Set in the open classroom area, the Library is continuously losing space to acutely needed classroom space
- The health office is 178 square feet, was partially converted from an old storage room, and does not have a dedicated bathroom
- Special education testing, meeting with parents about testing, IEP meeting space and reading specialists have to share a single 625 sq. ft. room
- Presently, there are three lunch rotations, a fourth to be added with expected increased enrollment in 2007-08.
- Gym equipment and cafeteria tables are stored in the entryway to the school (limiting egress); lack of storage space limits further purchase of equipment
- Sharing the cafeteria and gymnasium within one space makes space unusable for gym classes 2.5 hours each day.
- Lack of storage for shared resources for same grade teachers
- At 100 sq. ft., the occupational therapy and physical therapy space is significantly undersized and inadequate; some of the equipment can't fit into the current space, requiring some services to be provided in hallways
- Open classroom design limits privacy in all specialist areas

Please describe the measures the School District has taken to mitigate the problem(s) described above.

While still seeking a permanent solution, Stow did take measures to address overcrowding that still don't meet educational needs:

- Attached 2 temporary, modular buildings (4 classes total) which reduced playground space by almost 4,000 square feet
- Converted 6 "amphitheatre" spaces (enclosed meeting/assembly space) in the Pompositticut School into individual classrooms (725 square feet each).
- Shared space at Pompositticut among the OT, PT, and special education programs.
- Stow has had larger class sizes than other schools in the District due to lack of classroom space
- All day kindergarten enrollment was limited.
- The Stow preschool program is conducted in Bolton and Lancaster.
- Purchased outdoor buildings for storage.
- Lunch tables are stored in the hallways to increase available space in the gymnasium.
- Supplies are ordered on demand instead of being on hand, due to lack of storage space.

Priority 3

☐ ***Prevention of the loss of accreditation.***

Please provide a detailed description of the <u>facility-related</u> issues that are threatening accreditation.

N/A

Please describe the measures the School District has taken to mitigate the problem(s) described above.

Priority 4

☐ ***Prevention of severe overcrowding expected to result from increased enrollments.***

Please describe the conditions within the community and School District that are expected to result in increased enrollment.

N/A

Please describe the measures the School District has taken or is planning to take in the immediate future to mitigate the problem(s) described above.

Priority 5

☑ ***Replacement, renovation or modernization of the heating system in a schoolhouse to increase energy conservation and decrease energy related costs in the schoolhouse.***

Please provide a detailed description of the energy conservation measures that are needed and include an estimation of resultant energy savings as compared to the historic consumption.

By today's energy conservation standards, Pompositticut is an antiquated building. Its heating system is outmoded, past its 30-year cycle and needs constant maintenance. The boiler was partly re-built last year and needs constant attention from our maintenance staff. There is no air conditioning in key areas (computer lab, office) and the poor air circulation due to the open school design makes it hard to maintain ambient temperatures. In the winter, the boiler must run constantly to keep the school warm enough for classes.

Key failings are:

- Single-glazed 30-year-old windows
- High oil consumption rates
- Inefficient, outdated boiler past its 30-year lifecycle
- Inefficient, outmoded heating, and ventilation
- Air circulation degraded because of school's open school design
- Ventilation system is inefficient, noisy, retains carbon dioxide, and doesn't circulate fresh air
- Open school design creates large, poorly heated spaces

Please describe the measures the School District has already taken to reduce energy consumption.

The NRSD has instituted web based monitoring system for the HVAC system in every District building except Pompositticut Elementary School and The Center School, also in Stow. This system allows the District to monitor the systems remotely, maximizing energy conservation in relation to demand.

The District instituted an Energy Plan last year and overall had savings of approximately 11%. The two Stow elementary schools were the only ones that used more energy this past year than two years ago. Pompositticut's age limits energy savings to those that are mostly through human intervention (turning lights off, lowering heating system settings at night, etc.).

Priority 6

☐ ***Short term enrollment growth.***

Please describe the conditions within the community and School District that are expected to result in increased enrollment and describe why these conditions are only expected to exist in the short term.

N/A

Please describe the measures the School District has taken or is planning to take in the immediate future to mitigate the problem(s) described above.

Priority 7

☑ ***Replacement or addition to obsolete buildings in order to provide for a full range of programs consistent with state and approved local requirements.***

Please provide a detailed description of the programs not currently available due to facility constraints, the state or local requirement for such programs and the facility limitations precluding the programs from being offered.

The most notable program that Pompositticut School is unable to offer is early childhood education and care through our District Pre School. Stow's Pre-K program has been housed in Bolton and/or Lancaster since 1998 due to lack of appropriate program space, bathrooms or play space in Stow. Bolton has informed us of their own space constraints and we expect our pre-K students to return to Stow within the next two years.

Facility constraints to programming:

- No immediate access to water in all but two classrooms
- The Kindergarten classrooms range from 900 square feet to 1155 square feet
- The perimeter classrooms are 725 square feet
- Five classrooms are 15-25% below suggested MSBA guidelines for early childhood
- Limited storage space for age appropriate materials in classrooms
- Open school design creates noisy and distracting learning environment
- Combined Gym and Cafeteria space limits or eliminates opportunity for school presentations or assemblies.
- Undersized music space is not sound-proofed
- Wetland protection zone surrounding the building footprint limits outdoor PE and play space
- There is only one ADA compliant bathroom
- Very limited natural daylight in all classrooms

Increasing program requirements have reduced space needed for mandated educational/support programs and classrooms. As a result we have a number of programs that are functioning at substandard levels:

<u>Art</u>

- The room is less than 725 square feet;
- There is limited natural light, and there is no presentation area for finished pieces.
- There is limited water access to manage projects and cleanup

Library

- Undersized library space has one-third the number of books recommended for a school its size
- No space for teacher/resource library
- No space for reading/library program

Physical Education

- Lack of water drainage at Pompositticut site limits amount of space students can use during the day for many of the months of the year.
- Current gymnasium is 3100 sq. ft. and has low ceiling, equipment and chairs stored along one wall
- Gym doubles as the cafeteria taking it out of use approximately one third of the school day; it is also the only sizeable room for grade-wide presentations
- Undersized gym space limits types of activity

Student Health Services

- Nurse's office is 178 square feet
- Mandated medical screenings have to take place outside of nurse's office, (in the hallway)
- There are no handicap accessible bathrooms in the Nurse' office

Physical Therapy and Occupational Therapy

- The physical therapy room is a triangle, and at its widest point is about 10 feet across, and is shared with OT
- At 100 sq. ft., the occupational therapy and physical therapy space is significantly undersized and inadequate; some of the equipment can't fit into the current space, requiring some services to be provided in hallways
- Sharing the room is distracting for clients of practitioners as there is no viable visual barrier
- Confidentiality is compromised due to size of space.

Special Education

- No dedicated classroom space.
- The room available for small group instruction is shared by all of the special education aides, instructional assistants and the special education teacher.
- When achievement testing must be done, those aides and assistants have to juggle with the administration for available conference space

Other:

- Audio visual presentations hampered by existence of only one physical room (with walls) which is shared among all grades and with remedial reading program
- Learners with attention issues are severely challenged by lack of walls/doors and flow of people outside the classroom dividers
- No dedicated space for gifted and talented offerings, science and technology, health and foreign language instruction.

Please describe the measures the School District has taken to mitigate the problem(s) described above.

Our district has done its best to organize the space to meet the needs of our students, but with constraints of an open classroom building, the limited space for increasing educational standards and increasing enrollment we have not always succeeded. We have kept class sizes larger in Stow than the rest of the district because of a lack of space. We did not offer all day kindergarten initially because of a lack of space. We limit the number of large group / whole school presentation because of the lack of an auditorium and the limited availability of the gymnasium-cafeteria.

The preschool program is offered for Stow students in the two other District towns. The art teacher limits activities based on space availability. The Kindergarten, first and second grade teachers do not put on any plays or musicals which limits the learning styles for kinesthetic and musical learners.

To address storage we have purchased outdoor buildings, we store tables in the hallway to reduce the safety concern in our gymnasium and we order on demand instead of having supplies on hand.

Despite these attempts to manage efficiently and effectively, we still do not have space for our special education programs, our English language learners or for health services.

Priority 8

☐ ***Transition from court-ordered and approved racial balance school districts to walk-to, so-called, or other school districts.***

Please provide a copy of the court-ordered and board of education approved racial balance school districts plan.

This does not apply to the Nashoba Regional School District or the Town of Stow.

Please provide a copy of the redistricting plan.

AUTHORIZATION REQUIREMENTS

In the case of a city, **majority votes** of both (1) the City Council/Board of Aldermen **AND** (2) the School Committee, authorizing the Superintendent to submit this Statement of Interest Form to the Massachusetts School Building Authority, taken in accordance with the local charter, by-laws, or ordinances, are required. In the case of a town, **majority votes** of both (1) the Board of Selectmen or the equivalent governing body* **AND** (2) the School Committee, authorizing the Superintendent to submit this Statement of Interest Form to the Massachusetts School Building Authority, taken in accordance with the local charter, by-laws, and ordinances, are required. If the school district is a regional school district, a vote of the Regional School Committee authorizing the Superintendent to submit this Statement of Interest Form to the Massachusetts School Building Authority is required.

*A Town Meeting vote is not required to authorize the Superintendent to submit this Form.

Documentation of each vote must be submitted as follows: For the vote of the City Council/Board of Aldermen or Board of Selectmen/equivalent governing body, a copy of the text of the vote with a certification of the City/Town Clerk that the vote was duly recorded and the date of the vote. For the vote of the School Committee, Minutes of the School Committee meeting at which the vote was taken, signed by the Committee Chairperson.

Form of Vote required from both City Council/Board of Aldermen, Board of Selectmen/equivalent governing body AND the School Committee. If a regional school district, a vote of the Regional School Committee is required.

Resolved: Having convened in an open meeting on [Nashoba Regional School Committee: April 5, 2007; Stow Board of Selectmen April 10, 2007] the Stow Board of Selectmen and Nashoba Regional School Committee, in accordance with its charter, by-laws, and ordinances, has voted to authorize the Superintendent to submit to the Massachusetts School Building Authority the Statement of Interest Form dated April 10, 2007 for the **Pompositticut School** located at 511 Great Road, Stow, which describes and explains the following deficiencies and the priority category(s) for which an application may be submitted to the Massachusetts School Building Authority in the future

Priority 1 (Health & Safety): Lack of adequate emergency/fire and other safety systems; Not ADA compliant, poor air quality,;

Priority 2 (Severe Overcrowding): Classrooms are below suggested sizes for early childhood students; Modulares are being used and non-classroom space has been converted to cover population needs, leaving SPED and other services to be accommodated in sub-standard spaces;

Priority 5 (Energy Efficiency): Outdated, outmoded and inefficient systems and building;

Priority 7 (Inability to meet program needs): Majority of classrooms and support spaces are significantly below DOE standards for all current programs;

and hereby further specifically acknowledges that by submitting this Statement of Interest Form, the Massachusetts School Building Authority in no way guarantees the acceptance or the approval of an application, the awarding of a grant or any other funding commitment from the Massachusetts School Building Authority, or commits the City/Town/Regional School District to filing an application for funding with the Massachusetts School Building Authority.

CERTIFICATIONS

The undersigned hereby certifies that, to the best of his/her knowledge, information and belief, the statements and information contained in this Statement of Interest and attached hereto are true and accurate and that this Statement of Interest has been prepared under the direction of the district school committee and the undersigned is duly authorized to submit this Statement of Interest to the Massachusetts School Building Authority. The Undersigned also hereby acknowledges and agrees to provide the Massachusetts School Building Authority, upon request by the Authority, any additional information relating to this Statement of Interest that may be required by the Authority.

LOCAL CHIEF EXECUTIVE OFFICER	**DISTRICT SUPERINTENDENT**	**SCHOOLCOMMITTEE CHAIR**
William J. Wrigley	Michael L Wood	Donald Adams
By _____ (signature)	By _____ (signature)	By_____ (signature)
Date _____	Date _____	Date_____

Stow Master Plan Update

Appendix 9-15

Volume 2 of 2

Adopted by the Planning Board, November 7, 2010

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APPENDIX 9

Community Development Plan, 2004

TOWN OF STOW COMMUNITY DEVELOPMENT PLAN

For the Town of Stow Master Plan Committee

FINAL DRAFT March 26, 2004

Prepared by:

MAPC

Metropolitan Area Planning Council

With components from

Mullin Associates, Inc. and

Community Opportunities Group, Inc.

Funded under Executive Order 418 by the Massachusetts Department of Housing and Community Development, Massachusetts Department of Economic Development, Executive Office of Transportation and Construction, and Executive Office of Environmental Affairs

Credits and Acknowledgements

Town of Stow Master Plan Committee:

Donna Jacobs	Chair
Marcia Rising	Vice Chair, Board of Health
Gregory Jones	Selectmen
Virginia Leal	Conservation Commission
Ernie Dodd	Planning Board
Charles Kern	Finance Committee
Karen Kelleher	
Edward Lengyel	
George Peo	

MAPC Officers:

President:	William J. Mauro, Jr.,
Vice President:	Donald A. Walsh,
Secretary:	Grace S. Shepard
Treasurer:	Ginger Esty
Executive Director:	Marc D. Draisen,

MAPC Credits:

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Planners	Judy Alland
	Heidi Samokar
GIS	Allan Bishop
	Kevin Sears

Mullin Associates Credits:
John Mullin, Principal

Community Opportunities Group Credits:

Project Manager	Judi Barrett

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VISION STATEMENT

Vision for Stow[1]

Stow is a town that welcomes diversity, values a strong sense of community and views the protection of nature as a critical component of every day life. It seeks to accept its share of the region's residential growth within the town's special and unique community character. It perceives the need for balanced economic growth to include low scale office parks and retail activities, provided they can be accommodated within Stow's unique natural and built environment.

It views itself as a community where citizens can find housing that matches all stages of their lives. Moreover, its citizens will be physically linked through natural trails, streams, and walkways with the intent of creating the "connected community". Through its planning, it will undertake efforts to maintain the town's rural character, insure that the environment is protected, provide housing choices and seek balanced economic growth. The town, above all, aspires to insure that its citizens have the highest possible quality of life.

[1] A visioning session, led by Mullin Associates, was held at the Hale School in Stow on April 30, 2002. A summary of the input received at that meeting is included later in this report.

EXECUTIVE SUMMARY

The Town of Stow worked with the Metropolitan Area Planning Council, Mullin Associates and the Community Opportunities Group (COG) to undertake a Community Development Plan funded by the Massachusetts Department of Housing and Community Development, Massachusetts Department of Economic Development, Executive Office of Transportation and Construction, and Executive Office of Environmental Affairs under Executive Order 418. The intent of the planning effort was to begin the larger Stow Master Plan process through the CDP effort.

The Stow Community Development Plan includes information and recommendations pertaining to a community vision, natural resources, housing and economic development. The process included research by the consultants combined with a series of forums to present data, develop priorities and gather public input on the recommendations.

The resulting Community Development Plan includes a series of recommendations for land acquisitions, zoning changes, and municipal program establishment/changes. The full set of recommendations is found in the body of this report. Where there were potential conflicts between the discussions/recommendations from the various forums, the consultants developed proposals which were designed to address both issues (e.g.; an area proposed for both economic development and open space protection being proposed for development of natural resource based businesses with a substantial open space requirement as part of the development).

To the maximum extent possible, the recommendations are shown on EO418 Map 7, Final Community Development Plan. The abbreviated list of recommendations is as follows:

Natural Resource Element:

1) The priority goals for natural resource and open space protection are:

- Protect more open space with emphases on natural resources, agriculture, resource-based businesses and public recreation
- Protect the existing character/stone walls, trees, etc. including preserve and replace shade trees
- Protect groundwater quality, with an emphasis on addressing septic system failures

2) Means to accomplish Natural Resource goals:

a) Acquisitions of key parcels: The highest priority parcels for protection for either their recreation or natural resource protection are as follows.

- Crow Island / Track Road (Fee Title Acquisition)
- Pilot Grove Farm (Restriction, private ownership)

- Honey Pot Orchard (Restriction, private ownership)
- Stow Acres & Butternut Golf Courses (Restriction, private ownership)

b) Business promotion to maintain the viability of natural resource based businesses.

c) Retain and implement zoning, subdivision and other regulations which promote protection of key natural resources:

Housing Element

To meet the goal of encouraging more housing choices in Stow, the town should implement the following recommendations:

1) Establish a permanent Housing Partnership Committee.
2) Modify existing zoning regulations to allow accessory apartments in single-family homes or accessory structures over 10 years old,
3) Modify existing zoning regulations to facilitate single-family to multi-unit conversions for large residences built prior to 1950,
4) Amend the Zoning Bylaw to encourage mixed-use village development through overlay districts or by Transfer of Development Rights (TDR).
5) Replace existing regulations for Planned Conservation Development with a mandatory open space-residential development bylaw that applies to all divisions of land into five or more lots or developments of five or more units, and provide a modest density incentive to preserve exemplary open space or create a higher percentage of affordable housing units than required under the town's new Inclusionary Zoning Bylaw.
6) Modify the fee in-lieu-of provisions of the Inclusionary Zoning Bylaw (ATM 2003) to more accurately reflect the town's cost to provide affordable housing units.
7) Modify the Inclusionary Zoning Bylaw to provide for a percentage of homes affordable to "below-market" households, e.g., households with incomes between 81-110% of area median income.
8) Petition the General Court to create a Local Housing Trust Fund.
9) Commit a minimum percentage of each year's CPA revenue to affordable housing, e.g., 25%, in order to fund a Local Housing Program.
10) Integrate affordable housing into the town's next Open Space and Recreation Plan by identifying lands of conservation interest that would be suitable candidates for a mixed-income limited development project if the sites were acquired as open space.
11) Supplement the capacity of Stow Community Housing Corporation with a local development corporation created by petition to the General Court.
12) Modify the Comprehensive Permit Policy (December 2002).

13) Request that developers pay a reasonable fee to the town for peer review services when the Zoning Board of Appeals receives a comprehensive permit application.

14) Designate an individual officer of the town to negotiate with comprehensive permit applicants.

15) Submit a Planned Production Strategy to DHCD for approval under 760 CMR 31.07(d).

Economic Development Element:

1) Priority Goals:

Based on the input received at the Economic Development Forum and other meetings held with local residents, Stow appears to be most interested in

- Providing shopping and services to local residents;
- Revitalizing and improving the aesthetics of the community; and
- Increasing the non-residential tax base in town.

Ideas for economic development which received the broadest support related to support of the rural/agricultural economy (farms, orchards, golf) and redevelopment of the existing lower village into a more diversified, walkable village that provides more retail/service choices for local residents.

2) General Activities to implement the Economic Development goals:

a) Establish Town committee to work on coordination of tourism efforts between golf, orchards, etc.. Encourage establishment of Chamber of Commerce and Web Site or a Business Networking Group to provide feedback to town on business issues.

b) Work with Bose to determine how to meet needs of that business and its employees in a manner that will have least impact on residents of the Town, and while encouraging Stow's other Plan goals (e.g., coordinate hotel/inn efforts to meet tourism but also business goals, or promote zoning to provide retail/services for employees nearby Bose facility).

c) Examine rezoning some areas to meet the specific goals expressed in the Economic Development Discussions. This could result in several different business, commercial and industrial zoning districts, rather than one category of each at this time, in order to allow for specific uses in designated areas of the Town.

3) Economic Development Element: Location-specific zoning changes recommended based upon input at forums:

a) Lower Village: Promote redevelopment of the Lower Village for mixed use

b) Route 117 Industrial Zone (South of Bose to Athens Street): Retain and promote this area for expansion of office park.

c) White Pond Road area and Commercial Area along River: Change zoning from Commercial to Business; To promote natural resource-based/oriented businesses; maintain 50% +- open space requirement as part of development.

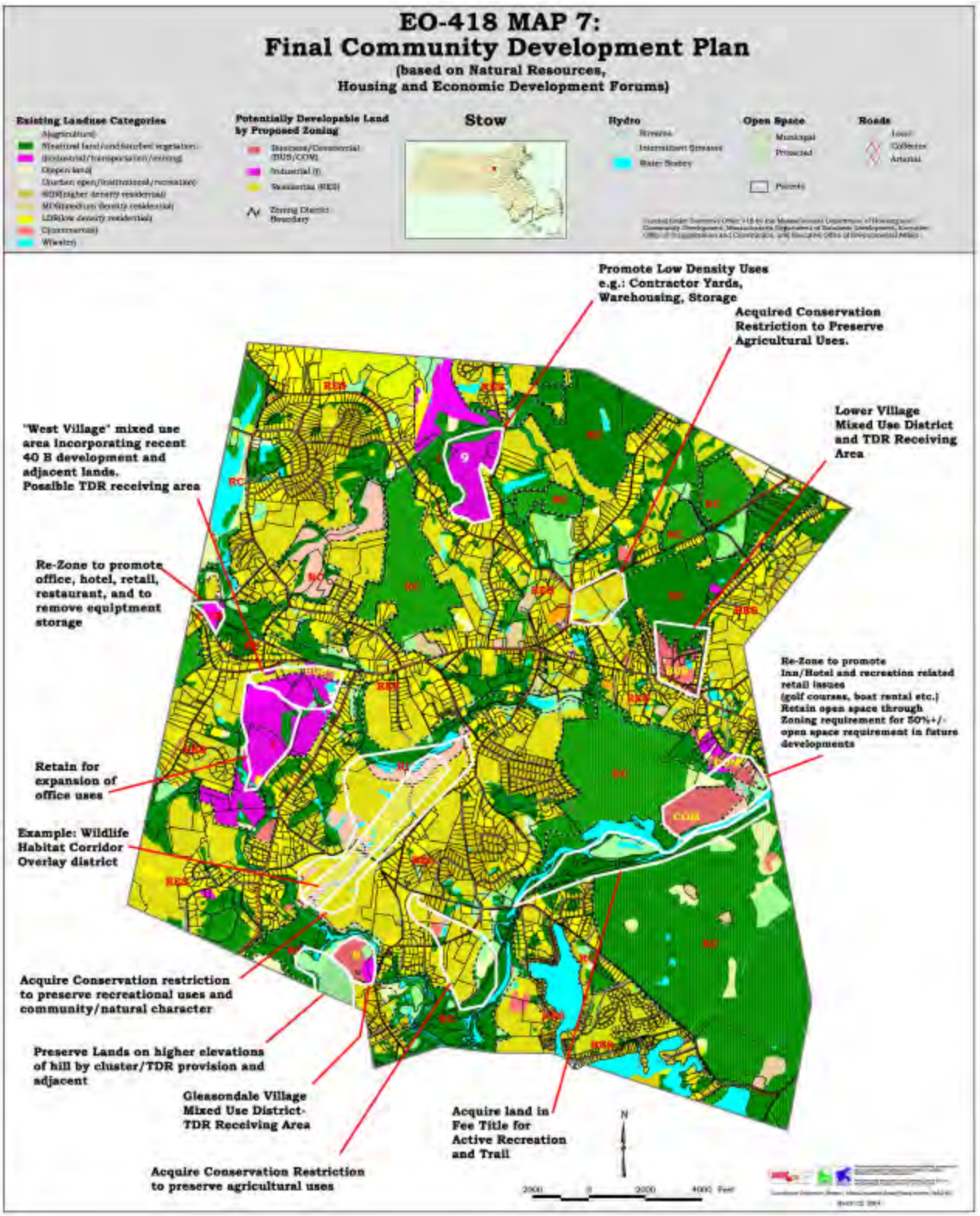
d) Airport Industrial Area (to the south and East of Airport): Promote lower intensity uses such as support facilities for cleaning or landscaping services/businesses, or small light industrial facilities (due to poor road access).

e) Gleasondale Village and Orchard Hill Industrial Zone: In conjunction with TDR proposal for Gleasondale, encourage redevelopment of Gleasondale Mill as a mixed use retail/office or (if possible) retail/residential space as the core of a mixed use area that can serve the needs of the additional nearby residential uses

f) Route 117-Business Zone at the Habitech 40B development site, and nearby Industrial and residential zoned areas: Consider inclusion of adjacent Industrial and Residentially zoned land in a mixed use zone to establish a "West Village"

g) Route 117-Far West (Commercially zoned lands at West border of Town: Leave as commercial zone, but re-write zoning to promote the specific desired land uses in conjunction with the offices currently there.

EO418 MAP 7: FINAL COMMUNITY DEVELOPMENT PLAN
(SEE ENLARGED VERSION IN APPENDIX)



COMMUNITY DEVELOPMENT PLAN AND ACTION RECOMMENDATIONS

Introduction to Stow Community Development Plan process

Under Executive Order 418, the Commonwealth of Massachusetts provided funds for communities to undertake a Community Development Plan (CDP) which would include elements pertaining to Visioning, Natural Resources, Housing, Economic Development and Transportation. Communities with existing local or regional plans addressing any of the elements could obtain "equivalent plan approval" which would enable the community to focus its planning efforts on only the remaining elements. The Town of Stow chose to undertake a Community Development Plan (CDP) as an initial component of its ongoing overall Master Plan update effort. The Town filed for and received approval for equivalent plan status for the Transportation element.

Working with Mullin Associates, Inc., Community Opportunities Group, Inc., and the Metropolitan Area Planning Council, the Stow Master Plan Committee organized forums for Visioning, Natural Resources, Housing, Economic Development and for a review of the Final Plan draft recommendations. Public input from these forums was the driving force behind the final Community Development Plan recommendations.

The recommendations below comprise the heart of the Community Development Plan. The net result of these recommendations is a proposal for changes from the default future of the Town of Stow (based on current zoning) to yield an alternative future which protects critical open space resources (both for quality of life and to maintain the town's rural economic base), provides for housing opportunities for individuals and families across a wide range of incomes and life stages, and maintains and expands upon the job opportunities for individuals across a wide range of incomes by maintaining a diverse economic base.

This first portion of the Stow report outlines the Action Recommendations resulting from the CDP Forums, meetings and analyses. The mapable components of these recommendations are shown on Map 7, the Final Community Development Plan Map, included in the map section of the appendix of this report.

The appendix of this Community Development Plan includes all background material presented to the Town during the various Community Development Plan forums, as well as the agendas and notes from the forums. Maps presented at and resulting from the input received at the forums for to each of the Community Development Plan elements are also included in the appendix. Finally, the Housing Choices Report completed by Community Opportunities Group is included in its entirety in the appendix.

Natural Resources Element and Recommendations:

The Community Development Plan Natural Resources forum was held on January 29, 2003 at the Hale School in Stow. [2]

Natural Resource Element: Themes
The priority goals for natural resource and open space protection (derived from input at the Natural Resources forum) are:

- Protect more open space (including the following categories that were separately listed as themes)
    - existing agricultural uses
    - wildlife corridor, linkages of open space with trails
- Protect the existing character/stone walls, trees, etc. including preserve and replace shade trees
- Protect groundwater quality, with an emphasis on addressing septic system failures

Many of the priorities expressed by residents relating to open space appear oriented towards protection of the natural resources and community character of Stow rather than towards provision of additional recreational uses. Two exceptions to this are the goal of completion of acquisition for the inter-municipal multiple use Assabet River Trail and the acquisition of land along the River. According to those participating in the forum, Crow Island/Track Road's high score in prioritization is related to the potential use of this site for active recreational uses (such as soccer fields and the rail trail connection) in addition to its natural resource characteristics.

Natural Resource Element: Priority Parcels
Most of the highest priority sites to be protected appear to be best accomplished through continuing private ownership with conservation restrictions, agricultural preservation restrictions, or alternative zoning being the primary means of protection. Properties to be protected for use in active recreation or the rail trail should be acquired in fee title.

The highest priority parcels for protection for either their recreation or natural resource protection are as follows. Specific recommendations for most appropriate means of protection/acquisition are after each parcel.

- Crow Island / Track Road (Fee Title Acquisition)
- Pilot Grove Farm (Restriction, private ownership)
- Honey Pot Orchard (Restriction, private ownership)
- Stow Acres & Butternut Golf Courses (Restriction, private ownership)

[2] A copy of the agenda, materials and maps presented, and notes of this meeting is in the Appendix of this report.

Additional properties were identified during the Natural Resource forum, which have qualities that the town would like to see protected into the future, but where support for formal acquisition was not as strong as for the above parcels. Note that these properties can be at least partially protected through other means (listed below), even if portions of the property are developed in the future. Note also that some of these properties were specifically recommended for development as part of the overall strategy for future residential and economic development. Where, in the final CDP, the following areas are proposed for future development, the proposals include an effort to protect some of the key features of the area.

- Orchard Hill
- Melone off White Pond Road
- Derby Woods/Hampshire Farm
- Carver Hill Orchard
- Land South of the Airport
- One Stack Farm
- Derby Orchard

Natural Resource Element: Means to accomplish Natural Resource goals:

1. Acquisitions of key parcels:

a) Use Community Preservation Act and other funds (State Self-help, municipal bonds etc.) to acquire key parcels to support open space and rural-economic land-based goals.

b) Assign Right-of-First-Refusal (ROFR) on Chapter 61 lands to non-profit land trust (or EDIC-type corporation to be established under Housing element recommendations) that can assist in appropriate protection and/or limited development of properties. [Examples include a) non-profit purchase of farm followed by town purchase of agricultural preservation restriction on farm, and subsequent non-profit resale to new farmer, or b) non-profit purchase followed by partial development of non-essential portion of property by non-profit, and town purchase of lower cost remainder of parcel].

2. Business promotion:

a) Actively promote the success of the businesses which currently own/operate the agricultural and recreational land based businesses in the Town: The golf courses and agricultural businesses should be supported and promoted to ensure that they will not need to sell property to meet expenses.

b) Promote use of Chapter 61 by business owners to lower taxes, promote economic viability of business, and to provide town the Right-of-First Refusal for any land sales (See also discussion under Economic Development Element actions).

3. Retain and implement zoning, subdivision and other regulations which promote protection of key natural resources:

a) Retain existing Recreation Conservation zoning.

b) Establish new Wildlife Habitat Corridor overlay zoning:
Regulatory requirement (in zoning) which requires that as land is developed, connectors between existing open space/natural corridors are maintained to ensure continued movement of wildlife. The zoning of the Town of Falmouth, Massachusetts, establishes a minimum 300' wild natural corridor that must be preserved when development occurs. This can be accomplished through donation of open space, cluster development, transfer of development rights, or a another bylaw provision which allows for lot reduction in these areas (but which is not a full cluster bylaw review). Examples of areas to be incorporated into this Overlay District are shown on the Stow CDP Final Plan map; additional area should be considered by the Town in its Master Plan process.

c) Establish regulations to promote appropriate style/density of development:
Establish bylaws designating that all development over 5 units shall be deemed a major development project that requires special permit review, and that these developments should a) include affordable units [per housing element recommendations], b) be designed to meet the goals of the community for those areas proposed for development [e.g., either to protect open space through cluster design in a rural scenic area, or to increase the density through TDR in a village setting]

d) Establish roadside protection alternative land development process:
   i) Change frontage requirements to 500' per lot (from 200' currently) for lots which front on major roads (to eliminate multiple driveways from strip Approval-Not-Required developments; this tends to promote more lots off of internal subdivision roads) As an alternative , via special permit, allow Zero-Lot-Frontage developments (e.g.; which place lots at the rear of the farm property parcel, with shared access easements to the road) which are designed to protect the scenic view/agricultural uses on the frontage.
   ii) Establish Scenic Roads regulations that require approval for removal of trees/walls (similar to Lincoln where the Board of Selectmen approve new access permits to roadways).

e) Establish Board of Health program to require ongoing pump-outs and maintenance of septic systems in "problem" areas. This will lengthen the lifespan of the existing systems an serve to better protect groundwater quality.

f) Establish regulations and program to enhance beauty of built environment:

i) Establish new regulations for landscaping/streetscape improvements as part of commercial developments (see Cecil Group plans for Lower Village funded by DHCD downtown program).

ii) Establish tree planting program in town (volunteers, students, youth groups) to maintain roadway and public realm trees.

g) Establish new Transfer of Development Rights (TDR) Zoning:
Transfer of Development rights programs allow the density of development in one area to be lowered by moving some or all of the allowed density on one site to another area where the density is allowed to increase beyond what is allowed by zoning. In simplest terms, it is a cluster subdivision using two non-contiguous parcels of land.

A TDR program requires designation of Sending Areas (from which development rights are removed) and Receiving Areas (to which development rights are added in the form of increased density). In Stow, any properties on the Town's Open Space and Recreation Plan or any properties within Wildlife Habitat Corridor Overlay areas could be designated as potential sending areas.

The major issue with TDR is the designation of receiving zones. Two possible alternative are specific sites or remainder of entire town (which could be used in combination). In order for TDR to work, there must be a market for the transferred rights, which generally means there must be a large area into which the rights can be transferred. This may be an issue in Stow, where there is little interest in substantial areas of increased density.

For the proposed Stow TDR Program, development in "remainder of entire town" category could be limited to 1.2 times the normal allowed density 1 unit per 65,340 Sq. ft. (to 1 unit per 54,450) so that a subdivision which would normally be 10 lots would be 12. Such an increase in density would not adversely impact ability for private water/septic, or the character of the subdivision.

Use of the "specific site" receiving zone alternative would target even higher densities for villages or other sites where the goal of the community is to increase density. In these areas, the density including Transferred Development Rights could be based more on water/septic limits but could be as high as 3-4 units per acre as part of mixed use village development or townhome development (or substantially higher if central water and/or sewage treatment is available). Note that the proposals being promoted to the State by the Commonwealth Housing Task Force, and by the Office of Commonwealth Development under the Commonwealth Capital Fund, would focus expenditures of State capital improvement funding to communities which establish higher-density Zoning Overlay Districts.

One specific site which appears to have broad support for increased density is Lower Village, where the increased density could be included in a mixed use redevelopment

of the area to increase pedestrian uses to support local business, make more of a village atmosphere, and provide an alternative to single-family home living. The town could support this type of development through a potential municipal well on the Kunelius property or through an agreement to obtain municipal water from Maynard (which has municipal water adjacent to the East of the Lower Village).

Another site for potential increased density as part of a mixed use development is the residential, business and industrially zoned area near Bose (including and adjacent to the areas proposed for high density development by Habitech). This site could possibly take advantage of the existing wells and on-site sewer plant servicing the Bose and Habitech developments.

A third potential area for increased density through TDR is the Gleasondale Village area. Included in this proposal is the Orchard Hill area currently zoned Industrial. This area also scored very high on the land protection scale. The challenge would be to allow development of portions of this site for dense development (perhaps townhouses) while protecting a large portion of the site (preferably at the upper elevations of the hill which are visible from the surrounding area).. The town could support this development through a potential municipal well on the Railroad Ave parcel or perhaps through an agreement to purchase water from the Town of Hudson (which has municipal water immediately adjacent).

Housing Element and Recommendations

Community Opportunities Group, Inc. (COG) the town's consultant for the Housing Element of the Community Development Plan, led a Housing Forum discussion on March 5, 2003 in Stow. Based on the input received at this forum, the final plan review forum, other meetings with the community and the data/analysis in the "Housing Choice" report incorporated later in the appendix of this EO418 Community Development Plan, COG developed the following list of Housing Element recommendations.

Housing Plan Recommendations
To encourage more housing choices in Stow, the town should implement the following recommendations:

1) Establish a permanent Housing Partnership Committee. The Committee's charge should include:
    a. Advise the Board of Selectmen, Planning Board and Zoning Board of Appeals on local housing policy.
    b. Conduct periodic needs assessments, on its own and in conjunction with regional housing and planning organizations.
    c. Disseminate information about housing needs in Stow and the surrounding region.
    d. Act as the point of contact for prospective comprehensive permit applicants.
    e. Conduct a technical review of site approval (project eligibility) applications filed by developers with MassHousing or DHCD prior to the submission of a comprehensive permit, and assist the Board of Selectmen with preparing written comments, if any.
    f. Advocate for realistic ways to increase the diversity of homes and the supply of affordable homeownership and rental housing units in Stow.
    g. Assist property owners and developers of small, locally sponsored projects with preparing "Local Initiative Program (LIP) Units Only" applications to DHCD so that eligible housing units may be added to the Chapter 40B Subsidized Housing Inventory.
    h. Advise the Community Preservation Committee (CPC) on realistic, effective ways to use Community Preservation Act revenue to create affordable housing opportunities in Stow.
2) Modify existing zoning regulations to allow accessory apartments in single-family homes or accessory structures over 10 years old, as follows:
    a. Allow accessory apartments as of right, subject to an affordable housing use restriction as a condition for issuing a certificate of occupancy. The Housing Partnership Committee should make a

model use restriction available to interested property owners and assure that the restriction meets Local Initiative Program (LIP) requirements.

b. Allow accessory apartments by special permit from the Planning Board in order to waive the affordable housing use restriction.

Accessory apartments meet a number of housing needs. Their importance should not be minimized simply because they are small housing units, developed incrementally at the discretion of homeowners. Stow needs housing diversity as much as it needs affordability.

3) Modify existing zoning regulations to facilitate single-family to multi-unit conversions for large residences built prior to 1950, as follows:

   a. Allow up to three units by right, subject to a site plan and design review by the Planning Board and an affordable housing use restriction for at least one unit.

   b. Allow up to four units by special permit from the Planning Board, including site plan and design review, subject to an affordable housing use restriction for at least one unit.

4) Amend the Zoning Bylaw to encourage mixed-use village development through overlay districts or by Transfer of Development Rights (TDR). In designated village zones:

   a. Encourage structures that include a mix of residential units and commercial space.

   b. Allow freestanding multi-family and over-55 development. The regulations should specify a minimum percentage of affordable units, and for multi-family developments of 15 units or more, the bylaw should specify a minimum percentage of units accessible to persons with disabilities.

   c. Modify the existing regulations for hammerhead (reduced frontage) lots by substituting affordable dwelling units for an increase in lot size, and add a new use, "infill residential uses," as the allowable use on hammerhead lots.

5) Replace existing regulations for Planned Conservation Development with a mandatory open space-residential development bylaw that applies to all divisions of land into five or more lots or developments of five or more units, and provide a modest density incentive to preserve exemplary open space or create a higher percentage of affordable housing units than required under the town's new Inclusionary Zoning Bylaw.

6) Modify the fee in-lieu-of provisions of the Inclusionary Zoning Bylaw (ATM 2003) to more accurately reflect the town's cost to provide affordable housing units. Since a majority of Stow's local initiative housing will be homeownership units created through conversion, acquisition and disposition

of existing structures, the inclusionary housing fee should reflect the gap between the affordable purchase price for a low- or moderate-income household and the town's median single-family home sale price. To assure that pricing strategy meets LIP guidelines, the household income used to define "affordable" should be adjusted to 90% of the low- and moderate-income limit that applies to Stow. The difference between the recommended "gap" analysis methodology and the formula in Stow's existing bylaw is as follows:

"Gap" Formula		**Zoning Formula**	
Household of Four, 80% Area Median Income	$62,650	Household of Four, 80% Area Median Income	$62,650
90% (LIP Adjusted)	$56,385	X3	$187,950
Affordable Purchase Price	$169,721		
Median Single-Family Home Sale Price (2002)	$385,000		
Developer's Fee	$215,279	Developer's Fee	$187,950

7) Modify the Inclusionary Zoning Bylaw to provide for a percentage of homes affordable to "below-market" households, e.g., households with incomes between 81-110% of area median income. These households are not served by any of the prevailing housing subsidy programs and since their incomes exceed the standard used for Chapter 40B eligibility, only a handful of communities include them in a local definition of "affordable housing." Stow's housing needs are not limited to homes for low- and moderate-income people.

8) Petition the General Court to create a Local Housing Trust Fund. The fund should allow local officials to pool their housing resources and allocate them to public or non-profit organizations without having to follow the real property procurement procedures of Chapter 30B.

9) Commit a minimum percentage of each year's CPA revenue to affordable housing, e.g., 25%, in order to fund a Local Housing Program.

10) Integrate affordable housing into the town's next Open Space and Recreation Plan by identifying lands of conservation interest that would be suitable candidates for a mixed-income limited development project if the sites were acquired as open space.

11) Supplement the capacity of Stow Community Housing Corporation with a local development corporation created by petition to the General Court.

12) Modify the Comprehensive Permit Policy (December 2002). Specifically:

    a. Emphasize acceptable density ranges for homeownership and rental developments over an upper-limit for project scale.

b. Provide more explicit architectural design guidelines.

c. Eliminate or modify the statement of preference for rental housing until such time as local officials reach agreement about Stow's interest in promoting low-income rental units. Through its Housing Partnership Committee, Stow may wish to encourage individual applicants to pursue rental development because there is ample evidence of rental housing need in Stow and the surrounding region. However, the existing policy suggests that the town has taken a position that may not be shared or supported by a majority of local officials.

13) Request that developers pay a reasonable fee to the town for peer review services when the Zoning Board of Appeals received a comprehensive permit application. Peer review consultants retained by and reporting directly to the Zoning Board of Appeals will most likely be perceived as independent and neutral.

a. The town should <u>always</u> retain a qualified consultant to analyze the development pro forma. The purpose of Chapter 40B is to remove regulatory barriers to low-income housing development. Developers may seek relief from local regulations that make affordable housing uneconomic to build, but they are not entitled to relief that exceeds what is required to make a project feasible. In turn, the town must be clear about its expectations for comprehensive permit developments. For example, it is almost always possible to reduce the density of a proposed development by increasing housing sale prices to the maximum that is theoretically affordable to a moderate-income household. However, if Stow wants to provide housing for a mix of incomes, increasing the sale price of homes in order to reduce density would seem to conflict with that goal. If lower density is more important than sale price and income targets, then a pro forma analysis will help the town negotiate successfully toward that end. In addition, an analysis by a qualified consultant will be crucial to Stow's credibility in a Housing Appeals Committee (HAC) proceeding.

b. The town should retain a registered architect and landscape architect to review the proposed site plan and elevations. Design quality and compatibility will be crucial to the success of affordable housing endeavors in Stow. Emphasizing aesthetics and site planning principles is as important as controlling density.

c. The town should retain qualified legal counsel to review the applicant's proposed affordable housing use restriction and recommend procedures to the Zoning Board of Appeals for assuring that all use restrictions are properly completed before they are recorded at the registry of deeds.

14) Designate an individual officer of the town to negotiate with comprehensive permit applicants.

15) Submit a Planned Production Strategy to DHCD for approval under 760 CMR 31.07(d).

Economic Development Element and Recommendations:

The Community Development Plan Economic Development forum was held on March 26, 2003 at the Hale School in Stow[3].

Economic Development Element: Priority Themes:
Based on the input received at the Economic Development Forum and other meetings held with local residents, Stow appears to be most interested in

- Providing shopping and services to local residents;
- Revitalizing and improving the aesthetics of the community; and
- Increasing the non-residential tax base in town.

Ideas for economic development which received the broadest support related to support of the rural/agricultural economy (farms, orchards, golf) and redevelopment of the existing lower village into a more diversified, walkable village that provides more retail/service choices for local residents.

Although providing jobs for Stow residents was not perceived as an important goal by those participating in the Economic Development forum, the net result of the forum discussions and the Economic Development recommendations is a strengthening of the retail base and an expansion of the industrial base of the town. As can be seen in the economic data presented at the forum (see appendix), the community already provides jobs with annual salaries across a wide range of skill levels and incomes. Implementation of the proposed Economic development recommendations will further enhance this broad range of economic opportunities for individuals.

Economic Development Element: Suggested Activities to implement the Economic Development goals:

1) Promote redevelopment of the Lower Village: Work with landowners in the Lower Village, and also abutting residential parcels west along 117, to determine interests in redevelopment. Promote redevelopment to include mixed use residential/retail. Town may need to provide municipal water (possibly through connection to Town of Maynard). Provide incentives to redevelopment in form of increases in density through TDR or through providing some other public benefit (e.g., pedestrian plaza, space for farmer's market, etc.). Expand existing Lower Village Committee and use committee to actively engage lower village landowners and business owners in redevelopment discussions. Also use committee to actively seek out specific businesses (bookstore, coffee shop, internet café, restaurant) to determine what those businesses look for in locations. Examine concepts from other communities with village overlay districts to determine components most appropriate for inclusion in Stow. For example, the Milton Village overlay district allows for 1 unit per 2000 square feet of land area as base density, but allows for potential for more units by bonuses for increased

[3] A copy of the agenda, economic data materials and maps presented, and notes of this meeting is in the Appendix of this report.

open space, increased parking, or historical architecture to 1 unit per 1000 square feet of land area. The Canton Center Overlay District is lower density (1 unit per 2000 square feet of land area maximum) and requires that all developments fronting on the Main Street include first floor retail, but that rear structures can be entirely residential, and that all developments must include affordable housing.

2) Establish Town committee to work on coordination of tourism efforts between golf, orchards, etc. Encourage establishment of Chamber of Commerce and Web Site or a Business Networking Group to provide feedback to town on business issues.

3) Work with Bose to determine how to meet needs of that business and its employees in a manner that will have least impact on residents of the Town, and while encouraging Stow's other Plan goals (e.g., coordinate hotel/inn efforts to meet tourism but also business goals, or promote zoning to provide retail/services for employees nearby Bose facility).

4) Examine rezoning some areas to meet the specific goals expressed in the Economic Development forum. This could result in several different business, commercial and industrial zoning districts, rather than one category of each at this time, in order to allow for specific uses in designated areas of the Town.

Economic Development Element: Location-specific zoning changes recommended based upon input at forums:

1) Lower Village

Promote redevelopment of the Lower Village, including:

- Rezone to have Village Overlay District for mixed use (retail/office/residential) with upper story/stories for residential uses.
- Establish minimum height of 2 stories and maximum height of 3 stories to promote mixed use and provide more land area for parking, pedestrian plaza Promote a series of smaller structures rather than single strip mall structure.
- Decrease parking requirements through use of "shared parking" table/calculations in zoning bylaw to enable redevelopment at higher density/lower parking in future.
- Promote (at least some) structures closer to roadway, with parking behind rather than in front.
- Promote off-street pedestrian and vehicular connections between lots necessary to limit traffic on Route 117
- Promote redesign and lowering of speed on Route 117 to promote pedestrian use/crossing. Work with MassHighway (under new Community Roads Program) to redesign that portion of Route 117 which goes through lower village to become more pedestrian friendly (e.g.; lower speed limits, better defined cross walks, narrower travel lanes to promote easier crossings, crosswalk bulb-outs,). Contact other communities that have had some success in addressing State-numbered routes through town centers (e.g., Route 109 reconstruction in the downtown area of the Town of Millis includes parking on both sides of the street, granite curbing,

pedestrian signals and 4 "neck-downs" or bulb-outs to facilitate safer pedestrian crossings).

- Make existing Town Green area into focal point for events: e.g., - farmers' market, art exhibits, to draw more shoppers to area.
- Address design issues: Lack of greenspace leads to an "ocean of asphalt" with no character. Establish design guidelines for landscaping.

2) *Route 117 Industrial Zone (South of Bose to Athens Street)*
   - Retain and promote this area for expansion of office park, with access off Hudson Street or Route 117.
   - Work with businesses in this area to promote flex-time to lessen morning and evening peak hour travel to facility.
   - Re-examine benefits of aquifer protection regulations in this area since this aquifer is reportedly contaminated; this could result in potential increase in floor area of industrial development in area.

3) *White Pond Road area and Commercial area along River (also including White Pond Road frontage areas currently in commercial/industrial uses)*
   - Change zoning from Commercial to Business. May need to retain some area for existing Industrial uses (perhaps in a Commercial II district)
   - Allow for hotel/inn which would could emphasize use of outdoor recreation facilities nearby (river, future bike trail, [Ideal: "Canyon Ranch of Stow"- a "health resort" emphasizing walking, biking, canoeing, seasonal outdoor activities such as cross country skiing, apple picking etc]
   - Work with Bose to determine needs for specific types/size of facilities that may be needed (to support tourism based use with business use)
   - To promote retention of existing golf course, maintain 50% +- open space requirement as part of development
   - Include rental of boating & biking equipment in zoning for this area
   - Also include golf school or other outdoor educational school (e.g.; "Outward Bound") as allowed use
   - Address issues noted by participants: Narrow road - poor access, through use of Town funds for design/reconstruction. Retain country road character and low speeds, but add pedestrian/bicycle safety facilities to enable connection to redeveloped Lower Village shops/amenities.

4) *Airport Industrial Area (to the south and East of Airport)*
   - Promote lower intensity uses such as support facilities for cleaning or landscaping services/businesses, or small light industrial facilities
   - Change zoning to add indoor sports facility (non-membership club) to list of allowed uses
   - Change zoning to allow for building materials storage, contractors yards, and other uses that require large land areas but generate low traffic

5) Gleasondale Village and Orchard Hill Industrial Zone

In conjunction with TDR proposal for Gleasondale, encourage redevelopment of Gleasondale Mill as a mixed use retail/office or (if possible) retail/residential space as the core of a mixed use area that can serve the needs of the existing and future additional nearby residential uses. Change zoning from Industrial to new mixed-use Village District for Mill and adjacent lower portions of Orchard Hill. Define district goals of district to:

- Promote mixed use re-development of existing mill structures for retail/residential or retail/incubator/office, with adjacent mix of retail/residential in new structures
- Retail use to include boat rental/river access
- Promote higher density residential development of lower elevations of adjacent hill,
- Promote preservation of higher elevations of hill as open space
- Promote shift of density of hill open space area to lower elevations, and also increase in density of lower elevations through transfer of development rights from other areas of town.

6) Route 117-Business Zone @ Proposed HABITECH site, and nearby Industrial and residential zoned areas.

- Retain business zoned area for commercial uses as part of negotiations with any 40B development of "Habitech" site.
- Work with Bose to determine needs of employees of its adjacent industrial facility. Promote shops/businesses that will serve needs of workers as well as community.
- Based on density proposed by Habitech, this business zone should be used to establish shops that will also serve the needs of local residents, promote walking/bicycle access to the area (including use by Bose employees)
- Based on input received, promote area for restaurant/pub, small medical, gift shop, bank or other small stores--Establish a "West Village"
- An issue raised was that the town should consider traffic impact of any development in this area
- Consider inclusion of adjacent Industrial and Residentially zoned land in a mixed use zone to establish a "West Village"

7) Route 117-Far West (Commercially zoned lands at West border of Town)

Leave as commercial zone, but re-write zoning to promote the following land uses in conjunction with the offices currently there:

- Small hotel with restaurant
- Small scale retail
- Indoor sports
- Taxi service

- Elimination of heavy equipment storage/contractor yard (move to airport industrial)

APPENDICES

Mullin Associates
Incorporated

A Summary of the Findings of the Planning Charrette
Stow, Massachusetts

May 2002

Introduction

Approximately 75 citizens shared thoughts and ideas on the future of planning in Stow at the Visioning Workshop held at the Hale School on April 30th, 2002. Participants worked in four small groups and discussed strengths and weaknesses of the community and then focused on one of four themes. These related to housing, open space and natural resources, economic development and transportation and circulation. This report represents a summary of these discussions.

Discussion on Strengths and Weaknesses of Stow

The first half of the discussion revolved around the assets and liabilities of the community. The following represents points raised by the four groups. Each group had the same charge and had to identify their top strengths and weaknesses.

Strengths

- Stow has a Conservation Trust—Preservation committee.
- Stow has a significant amount of open space (conservation land).
- Stow has conservation land comprising the Town Forest and Lake Boon.
- The Town enjoys a peaceful and quite atmosphere.
- Stow enjoys all the attributes of a rural environment.
- Stow is a country town with many working farms still in existence.
- Stow has an excellent school/education system.
- The Town's water is of high quality and there is a quantity of resources.
- Stow is considered a "First Choice" town.
- The Town is safe and secure.
- The Town has a shopping center.
- The Town has participatory and community-committed people.
- Stow's senior citizens are very active in the community.
- The population is enriched with a good amount of diversity.
- Stow has a variety of religious denominations.
- The Townspeople are socially connected.
- The low population diminishes the demands put on the Town.
- The Town services are of the highest quality.
- The utilization of the Town Hall is sufficiently met.
- There is some affordable housing within the Town.
- A few of the amenities that the Town offers are golf, a library, beautiful farmland and a lovely Town common, along with many other recreational opportunities.
- The Town has no traffic issues.
- There is architectural diversity to be viewed within the Town.
- There is an orchard in the Town (Pilot Grove Orchards).

Weaknesses

- The lack of permanent affordable housing (threat of 40B) requires attention.
- There is an imbalance of diversity for housing, uses and growth.
- There are not enough sidewalks, crosswalks and lights in the more densely populated areas.
- There is no Village component in the more densely populated areas.
- Fire hydrants are few and far between.
- A traffic problem is developing with too much traffic during rush hour.
- The speed limits are not enforced.
- There exists a lack of zoning strategies.
- There is no enforceable law against littering.
- There is a lack of businesses (non-polluting) for tax diversification.
- Industry is not prevalent in the Town.
- There is a lack of appropriate telecommunications, e.g.: High-speed Internet accesses.
- The salaries of the Town's people are very low.
- The Downtown area is unattractive.
- A vibrant active Town Center is missing.
- Few nice restaurants are available to dine at in Town.
- There are no places for people to congregate and gather together.
- No teen centers or children's activity centers exist.
- There is no urban planning taking place.
- There is a need for municipal services, such as Town water and sewer.
- There appears to be an apparent mistrust of Town government.
- The tax rate is not uniformly set.
- Waste management and site planning are not being addressed.
- The Town lacks a full-time Fire Department.
- There exists a characterless strip mall that is not in keeping with the rural setting.
- The Town is vulnerable for over development.
- There are no funding resources for education pursuits.
- The population is not diverse enough.
- The minority pool is minimal.
- There are not enough good school buildings.
- There exist too many golf courses.
- More cell tower locations need to be built.

The Four Themes

In the later half of the workshop, participants were asked to discuss thoughts and ideas on the four themes from the Master Plan. Each group picked one theme. The purpose of these discussions was to identify key values that could help fashion a vision statement for the Master Plan. Theme facilitators had prepared a set of questions to help guide the discussion. Each team, however, worked a little bit differently. Some spent much time trying to answer questions posed, others had a more free flowing discussion on values and some proposed tangible actions. The following summarizes the discussion for each group.

Transportation:

1. There should be more sidewalks and walkways
2. Fund Additional Police if justified
3. There is a need for electronic signs
4. Lower Village study to include traffic circulation and economic development options
5. There is a need to add taxes for safety improvement
6. Parking at Town Hall/Building
   —Relocate Fire Station back and use
   —Current location for parking
   —MiniMart
   —Gas Station (park)
7. There is a need to alter driving habits
8. There is a need for a shuttle service to the train station

Values

- The pedestrian safety/access in Stow is good
- The Town Center has better connections and safety
- Lower speed limits/slower pace is highly valued
- There is a need to limit truck traffic and limit trash pickup to one service
- Preservation of the rural character of Stow is highly valued
- Limiting road width with lining is valued by the citizens of Stow
- We should consider the population density in locating sidewalks/walkways in Lower Village

Housing

- We need variations in our housing
- There is a need for smaller houses and smaller lots
- There is a need for larger lot and medium to large houses as well
- There should be a heterogeneous mix of houses and people

- There is a need for local control on where the Community Preservation Committee purchases homes and minimize tear-downs
- Explore the need for co-housing
- More public disclosure is required
- We should make sure housing is available for Town employees
- We must align ourselves and our local housing partner (friendly Comprehensive Permit)
- The community needs to do its part by showing good faith and working toward affordable housing
- Explore Community Preservation Act for affordable housing options

Open Space/Natural Resources

The greatest threat to groundwater quality is failed septic systems. Should the Board of Health institute a program that requires septic tank pumping?

Yes, with the following considerations:

1. Need some control
2. Need to know the financial costs
3. Need to know the environmental costs
4. There is too much government involvement
5. Use existing defined criteria (Title V)
6. Can the program be enforceable?
7. There are too many variables between sites
8. Should use public education as an alternative

Are there sufficient recreational lands and facilities? If not, what is needed and how do we pay for it?

1. An interconnection is needed in the form of sidewalks and paths, which should be coordination with existing roads
2. There is a need of a good Recreation Department
3. We should preserve what we have
4. We should be impressed by what we have
5. What we have is good, but we need more
6. Payments should be through a combination of taxes and user fees
7. We must plan on a facility in conjunction with the next school we build
8. We must encourage better maps and use of existing lands
9. We must keep doing what we are doing with some tweaks
10. Look for grants, expansion to users from out of Town to help pay through user fees
11. There should be redevelopment of previously developed lands to create recreational opportunities for kids

What parcels should we focus on for protection? Should we re-visit the list of top priority parcels?

1. We should focus on the following Open Space Committee priorities:

—Carver Hill Orchard
—Pilot Grove
—Honey Pot Orchard
—McCassey Property (Orchard Hill)

2. More focus on Land Trusts is needed
3. Further study is needed
4. Set-back requirements should be assessed
5. We should focus on Forests
6. We should focus on Orchards
7. We should focus on Watersheds
8. We should focus on parcels with connectivity to others
9. We should focus on smaller green parcels and roadside trees

Would you support the use of Transfer of Development Rights as a technique for preserving open space and minimizing sprawl?

Support with conditions.
Yes = 10

Values

- Regulate the type of growth along Great Road
- It's the little things that give character.
- There is a need for BALANCED GROWTH

Economic Development

Problems for the local economy:

1. 3Com and Cisco in Boxboro
2. Our anti-business attitude is a hindrance to economic development
3. Our inability to support commercial business poses a problem for the local economy
4. There is a lack of highway access
5. There is no Internet access
6. The Cell Towers are perceived as a problem to the local economy
7. There is a need for strategic welcoming

Economic Target Area — Should Stow join Boxboro?

1. There is very little downside to this aspect
2. We should be able to get in and get out at will
3. It will be one more tool to attract business

Where should the commercial development be placed?

1. Gleasondale Mill
2. COMPAC
3. West 117—Hudson Road (water aquifer?)

4. Study market feasibility for economic development in Lower Village
5. The access to the airport is bad

Opportunities

1. We have land for development
2. The zoning is in place
3. There are fair roads
4. There are better economic conditions
5. Lower Village is an opportunity
6. There is complementing planning
7. There is a focus on existing zoned land
8. Tourism poses a great opportunity:
   —Golf
   —Lake
   —River
   —Orchards and Farms

Stow Natural Resources Forum Agenda

Facilitator: Metropolitan Area Planning Council
Forum date 1/29/03

1) Presentation of Buildout Analysis (EOEA funded)

2) Presentation of alternative buildout analysis (funded by EOEA and Sudbury Valley Trustees)

3) Presentation of Map #1 Current and Future Land Uses

4) Presentation of Map #2 Natural Resources

5) Presentation of Map #3 Water Resources

6) Review Land Protection Options/Alternatives

7) Discussion
    a) Discuss and refine Natural Resources goals from Visioning Session
    b) Brainstorm regarding goals for specific areas to be protected by zoning or other means.
    c) discuss and preliminarily identify areas for future housing and economic development, including varying densities/types

Funded by the Mass. Dept. of Housing and Community Development, Mass. Dept. of Economic Development, MassHighway, and Executive Office of Environmental Affairs

Open Space Protection Techniques

Draft 1/29/03 MAPC

The purpose of this outline is to make decision-makers and town residents aware of the many different ways to preserve and/or acquire open space and recreation land. Some of the methods and programs may have already been utilized by the Town, while other methods could be in the future.

A. STATE AND FEDERAL FUNDING PROGRAMS

The Massachusetts Self-Help Program – This program assists municipalities with the acquisition of land for conservation and passive outdoor recreation purposes. Depending upon a community's equalized valuation per capita decimal rank, the State will reimburse between 52% and 72% of the acquisition cost.

The Massachusetts Urban-Self-Help Program – The Urban-Self Help Program assists cities and urban towns with the acquisition, construction and/or renovation of parks. Depending upon a community's equalized valuation per capita decimal rank, the State will reimburse between 52% and 72% of the acquisition/construction/renovation cost. The maximum amount that can be received for any one project is $50,000.

Federal Land and Water Conservation Fund – This is a federal program administered by the State Division of Conservation Services for the acquisition and development or renovation of park, recreation and conservation land. The program reimburses 50% of the total cost of public outdoor recreation projects. Currently, there is a maximum award limit of $150,000.

Massachusetts Greenways and Trails Demonstration Grant Program – Administered by the Department of Environmental Management, this grant program is for the planning and construction of trails and greenways. The maximum grant awards are $3,000.

DEM Lake and Pond Grant Program - This program gives grants for the protection, restoration and enhancement of public lakes and ponds. The program takes a holistic approach to lake management, based on scientific principles.

TEA-21 Transportation Enhancement Funds – Can be used to fund acquisition of trails, scenic easements, pedestrian and bicycle facilities. Web site at http://www.state.ma.us/mhd/publications/other.htm.

Agricultural Preservation Restriction funds – Massachusetts Department of Food and Agriculture funds for purchase of development rights from active farmlands.

B. TOWN FUNDS

Communities often establish land acquisition accounts. Sources of funds used (or proposed) for these funds have included:

- Annual allocations from general operating funds
- Proceeds from the Sale of municipal properties
- Proceeds from the Sale of Tax Possession Land
- Community Preservation Act fund
- Local portion of Hotel/Motel rooms tax
- Cell Tower lease fees on municipal property
- Chapter 61 rollback taxes on lands removed from Chapter 61 program

Community Preservation Act- The enabling legislation allowing a local-option property tax surcharge dedicated to open space protection, affordable housing and historic preservation was signed into law on September 14, 2000 as the Community Preservation Act (CPA). The CPA is a new tool for communities to preserve open space, historic sites, and affordable housing. The Community Preservation Act is statewide enabling legislation that allows cities and towns to exercise control over local planning decisions by providing a new funding source which can be used to address three core community concerns:

- Acquisition and preservation of open space
- Creation and support of affordable housing
- Acquisition and preservation of historic buildings and landscapes

A minimum of 10% of the annual revenues of the fund must be used for each three core community concerns. The remaining 70% can be allocated for any combination of the allowed uses. This gives each community the opportunity to determine its priorities, plan for its future, and have the funds to make those plans happen.

The Town of Stow has chosen to adopt the Community Preservation Act.

C. OTHER LAND PRESERVATION TECHNIQUES

Massachusetts Chapter 61 Laws - The following three statutes provide a way for land owners to reduce taxes on eligible farm, recreation and forestland. These statutes require cities and towns to reduce property tax assessments on farm, forest and recreation lands, provided the owners make a commitment to keep their lands in that use. The statutes also give cities and towns the right of first refusal on these lands if such lands are sold for residential, commercial or industrial purposes.

- Chapter 61 (Forest Land) – Known as the "Forest Tax Law", properties of contiguous forest land of 10 acres or more can qualify for a 95% reduction in the property's assessment. To qualify, the State must approve a forest management plan for the property.

- Chapter 61A (Agricultural Land) - This classification is used for agricultural and horticultural lands. To qualify, a property owner must have five acres in farm use for at least two years. The owner must demonstrate a minimum yearly gross sales of farm products. Typically, a farm enrolled under this program will receive an 80% reduction in the assessed value of the property.

  Chapter 61B (Recreation Land) – This statute is designed for recreation lands such as golf courses with the provision that they be open to the public. The assessed value of the property is reduced by 75%.

Conservation Restrictions – A Conservation Restriction (CR) is a legally binding agreement between a landowner and a public agency or non-profit land trust where the landowner agrees to keep some or all of the land undeveloped and in its natural state. A Conservation Restriction is a good alternative when the acquisition of the property is not possible or necessary. CRs are useful when an undisturbed green belt is desired along a river or stream, to preserve a significant view, or to prevent development in an environmentally sensitive area.

A Conservation Restriction can reduce the landowner's federal income taxes, federal and state capital gains taxes, local property taxes, and estate and gift taxes. The tax savings are dependent on the value of the property being restricted. To qualify for these tax benefits, the property being restricted must have some bona fide conservation value. While public access to the restricted land is not required, it does help fulfill the requirement that the restriction provides a public benefit. A landowner that agrees to allow public access and does not charge a fee is not liable for injuries to persons or property (per Chapter 21, Section 17C of the Massachusetts General Laws
http://commpres.env.state.ma.us/content/cpa.asp

Work in conjunction with local or regional Conservation Land Trust,

- Assignee of Town's rights under Chapter 61 lands
  - Interim holder of Chapter 61 lands
  - "Limited developer" of Chapter 61 or other proposed conservation lands
- Negotiator/fundraiser for Town acquisitions
- Land trusts can often act more quickly than local governments in land acquisition

Use Best Practices to encourage development where you want it or to limit the impacts of development on the resources of the community:

a) Transfer of Development Rights program (Falmouth)
b) Retiring of development rights on another parcel in exchange for faster lot release within a development in a community with a rate of growth bylaw (Groton).
c) In a community with a rate of growth bylaw, faster lot release in exchange for cluster subdivision, faster still if cluster incorporates public open space. (Amherst)
d) Required Cluster or Open Space subdivision within specified areas of town for resource protection (Amherst, in Aquifer Protection and Farmland Protection Districts).

e) Great Estates Overlay Bylaw, which allows for innovative alternative design of development that will protect natural and historical resources, with bonus incentives for protection of historic structures (Ipswich)
f) Bylaws lowering septic flow rates and increasing the required amount of open space or pervious surface within developments in Aquifer Protection Districts (Holliston, Stow). Use in conjunction with Cluster bylaw to promote protection of large blocks of conservation lands.
g) Bylaws specifying a maximum amount of lot disturbance on large lots, and ban on underground sprinkler systems (Sharon: 30,000 sq. ft limit on 60,000 sq. ft. lots))
h) Wildlife Habitat Corridor Overlay District, to allow development but also require maintenance of habitat corridors (Falmouth). Options include low density development, cluster, or alternative special permit for smaller lot sizes.
i) Bylaws encouraging mixed use development such as apartments over retail in community centers (Canton Center Economic Opportunity District bylaw, Milton Villages PUD).
j) Tax and cost sharing between communities for Brownfields redevelopments (CMEDA for Worcester and surrounding communities, Telecom City – Medford, Malden, Everett)

Transfer of Development Rights

Based upon preliminary feedback from the Visioning Session, the Town of Stow appears interested in Transfer of Development Rights. Transfer of Development Rights (TDR) is most easily understood as an extension of traditional cluster subdivision.

Under traditional cluster, development is placed on smaller lots on part of the property, rather than being evenly distributed through a property.In the case of TDR, the development is moved from one Parcel to another parcel, rather than being spread evenly on both properties.

Transfer of Development Rights bylaws have been successfully used in the Town of Falmouth, where development has been increased on a parcel which had access to town water, and eliminated on a parcel in an environmentally sensitive location.

"Sending Zones" are the areas designated by the community to have lower density (or no) development under a TDR program. "Receiving Zones" are the areas where development density is designated to increase under the TDR program. As might be expected, Sending zones are easy to designate, and Receiving Zones are more difficult. Sending Zones are the areas the community would like to see protected. Receiving zones can be specific areas of a community where the community would like to see higher density development, or the sending zone could be the entire remainder of a community (on the basis that the burden should be spread throughout town instead of one area).

In either case, parameters must be set for maximum density in the receiving zones (which will determine the number of "TDR Rights" a developer is willing to purchase).

TDR works best where there is a strong market for the rights to increase density in the receiving zones, and where the rights cannot be used in the Sending zones. An example is in Maryland where the sending zone zoning was increased from 5 acres to 25 acres per residence, but 4 transferable rights were also retained by each 25-acre lot. This precluded

the use of the rights in the sending zones. There is also a very strong market for these rights in receiving areas, where multi-family structures are the predominant form of development.

Stow Natural Resources Forum Results

January 29, 2003

DRAFT Prepared by MAPC 2/3/03

Natural Resource Goals

The first task was to begin with the Natural Resource Goals from the Visioning Session, brainstorm any additional goals that were not raised at the Visioning, and then to prioritize (by each person voting for a maximum of 3 items) the importance of the items on the total list of Natural Resource goals

Protect groundwater quality, with an emphasis on addressing septic system failures. (8 votes)

Preserve and enhance Stow's existing recreational facilities. (1 vote)

Acquire / develop additional recreational facilities. (1 vote)

Protect more open space. (12 votes)

Protect the existing character/.stonewalls, trees, etc. including preserve & replace shade trees (17 votes)

Protect wildlife corridors, linkages of open space with trails (6 votes)

Protect Existing Agricultural Uses (9 votes)

Protect Surface Water Quality (0 votes)

Specific Locations to Protect

The second task was to develop a list (through brainstorming) of the areas within the town that should be protected for their natural resource/recreational purposes. For each area suggested, data from the Natural Resources or Water maps was added to the list, as well as the proponent's goals. Number of the parcels correspond to locations shown on the Map 4 Land Use Suitability Map, which will be provided for use as a base of discussions in the Housing and Economic Development Forums.

Priorities for parcels for protection were determined by voting, with each participant provided 4 "voting dots" to place by his/her priority parcel(s).

#1/19 on map, Carver Hill Orchard (4 Votes)

Zone II, may be vernal pools on part, adjacent to town forest, active agriculture

#2 on map, Pilot Grove (9 votes)
- High yield aquifer
- Zone II
- Active Agriculture
- Contiguous to Red Acre
- Character

#3 on map, Honey Pot Orchard (9 votes)
- Partial flood plain
- Rail trail link
- RC District/River frontage
- Active Agriculture

#4 on map, Orchard Hill (7 votes)
- Active agriculture
- Partial RC District
- Partial flood zone
- Double drumlin
- Wildlife corridor

#5 on map, Stow Acres & Butternut Golf Courses (8 votes)
- Medium yield aquifer
- Well site (small)
- High ground water
- High build-out potential

#6 on map, One Stack Farm (1 vote)
- Orchard, recreation, character

#7 on map, Derby Orchard (0 votes)
- Active agriculture.

#8 on map, Crow Island/Track Road (11 votes)
- Recreation/road-trail along river, habitat
- Medium yield aquifer, vernal pools, level terrain
- Link with wildlife refuge

#9 on map, South of airport (4 votes)
- Headwaters of heath hen meadow brook
- Portion in water resource protection district
- Vernal ponds
- Wildlife corridor

#10/17 on map, Melone Property, (7 votes)

Surrounded by high yield aquifer
Water recharge area
Adjacent to town forest, river
Wildlife corridor

#11 on map , Derby woods/Hampshire farm (5 votes)
Vernal pool
NHES biomap
Part in water resource protection district
Agreement for development
Indian site

Potential Areas for Housing or Economic Development

After identifying the priorities for natural resources/recreational lands for protection, the remaining task for the Natural Resources Forum participants was to develop a preliminary list of areas of the Town where alternative forms of development might be appropriate. The following is a listing of the sites proposed, along with any specific discussion that occurred. No voting was done to prioritize these parcels, but there was concurrence from the participants that these should all be forwarded for additional discussion during the Housing and Economic Development forums. Note that although there was concurrence that these SITES should be forwarded for further discussion, there was NO CONCURRENCE as to what the specific future uses should be (only that these areas were ones which participants felt could be used for other than their existing zoned uses). The number of the parcels correspond to locations shown on the Map 4 Land Use Suitability Map. Finally, a list of concepts was developed for forwarding to the Housing consultant.

#12. Habitech 40B site - Adjacent to businesses, village potential

#13. O'Grady - Potential school site
active agriculture
possible historical site?

#14. Lower village
potential for infill, redevelopment, aesthetic improvements
mixed use
aquifer (under active remediation)
Zone II

#15. West end of Rte. 117
adjacent to contaminated high-yield aquifer
protection district
gateway to town

#16. Redevelop Gleasondale Village
existing mill site, existing well site, Hudson's wells just across line

high yield aquifer, possible receiving district (TDR)

#10 / 17 Melones

#18 Cacciatore – currently agricultural.

#1/19 Carver Hill

Concepts to Forward to Housing Consultant

-Address sprawl (Lower Village & Gleasondale are the least sprawling of the alternatives for future development)

-Use Transfer of Development Rights (TDR) to mitigate sprawl

-Make areas destination areas (eg: Lower Village) that complement town character
eg-parking behind buildings, walkable, keep trees

- Higher density/mixed use in Lower Village

Agenda for Economic Development Forum
Town of Stow
Facilitated by MAPC 3/26/03

Purpose: The purpose of tonight's meeting is not to have MAPC "tell" Stow what is best in relation to Economic Development. The purpose is to have MAPC elicit and record input from the Town as to the residents' goals/objectives/desires for economic development. MAPC will provide some basic data to assist in informing these discussions.

Expectations: By the end of this meeting, participants will have had the opportunity to learn details about the current economic conditions of Stow, brainstorm input regarding the type/densities of businesses desired in Town, and prioritize alternatives.

Outcomes: With the input from tonight's meeting, MAPC will investigate alternative implementation tools and develop ideas for how Stow can achieve its goals for economic development. These concepts will be coordinated with Natural Resources, Housing and Transportation goals into a draft plan for future development of the Town, to be reviewed at a future meeting.

The format of the discussions will be:

Part I: Themes and Data

1) Review of Economic Development Themes voiced during the
    a) Visioning
    b) Natural Resources Forum
    c) Housing Forum
2) Review of Economic Development baseline data
3) Brainstorm of Additional Major Themes for Economic Development
4) Prioritize major economic development themes/topics

Part II: Uses and Density

1) What uses/land uses/businesses are desired/lacking in Stow (not location-specific)
2) What types of uses are not desired?
3) What densities would be acceptable? What is limit now, and what is limiting factor?

Part III: Location Specific proposals

Brainstorm: Participants identify locations for specific ideas discussed in Parts I and II above

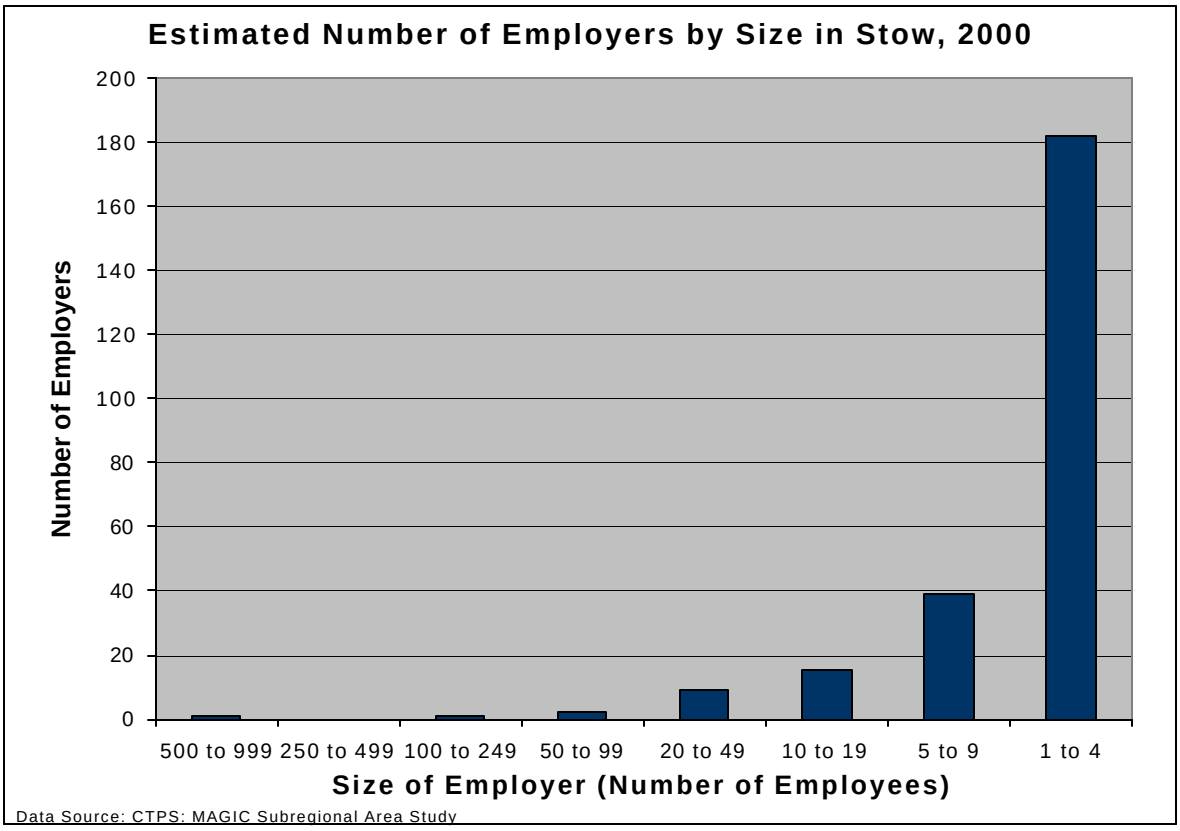
Part IV Straw poll

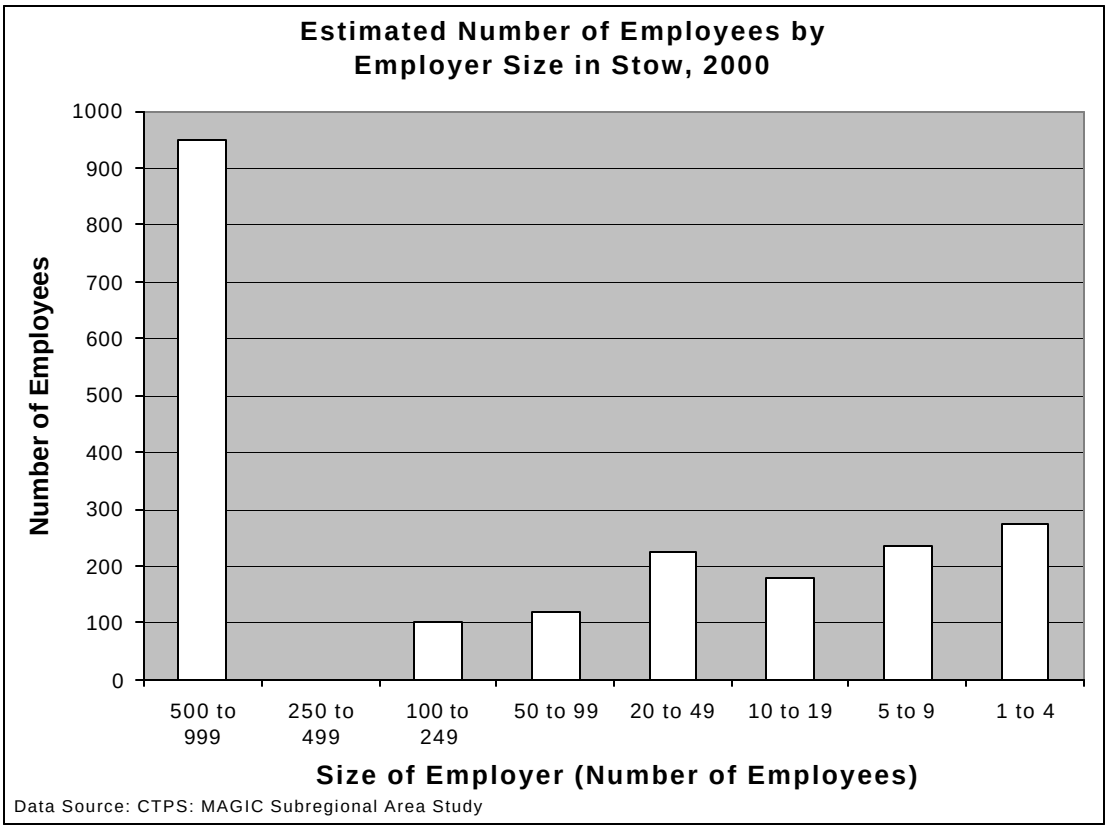
Poll of participants to determine support for concepts raised.

Funded by the Mass. Dept. of Housing and Community Development, Mass. Dept. of Economic Development, MassHighway, and Executive Office of Environmental Affairs

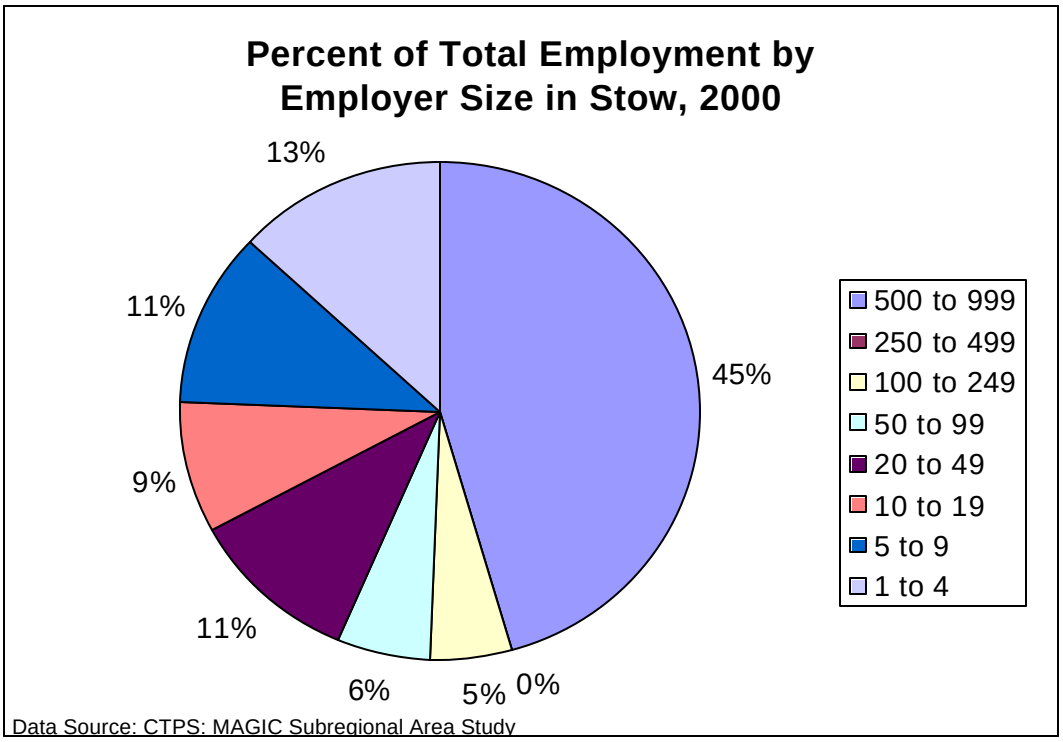
Stow Economic Development Forum Background Data
Data from PowerPoint Presentation presented at Stow Economic Development Forum
Prepared by MAPC
3/26/03

Section 1:
Data relating to Jobs and Employers in Stow



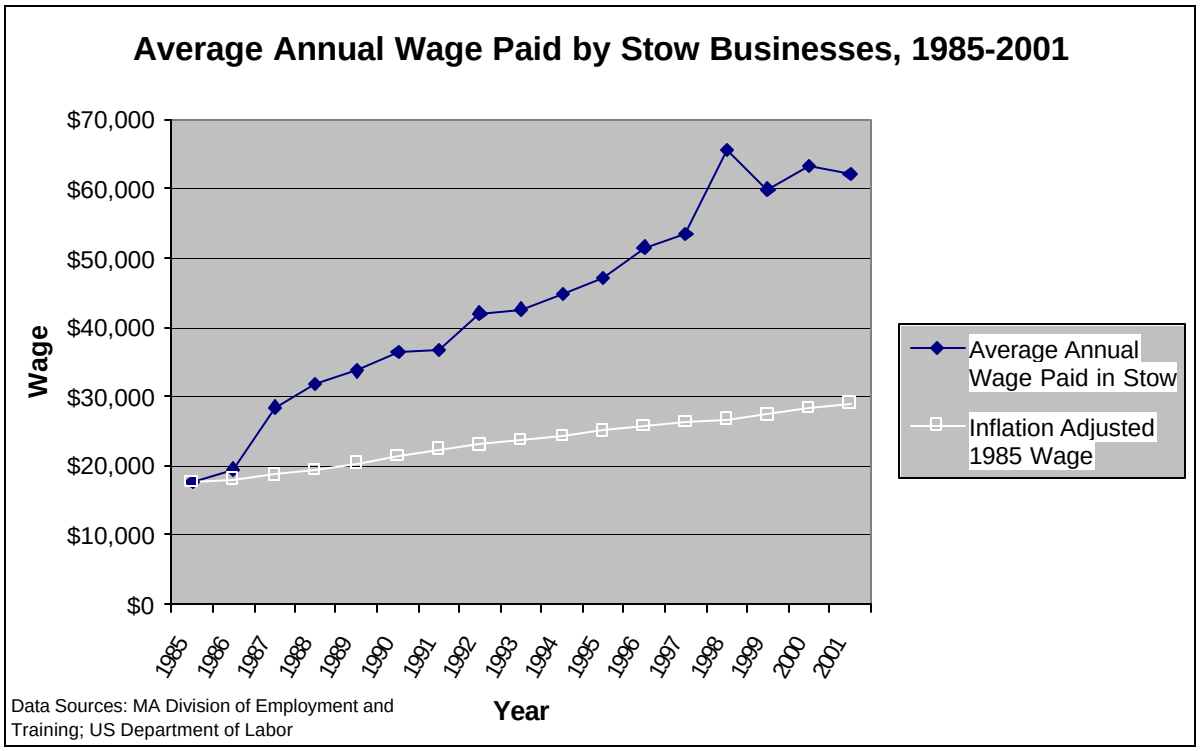


These first two slides indicate that the majority of businesses in Stow have less than 10 employees, there is one very large employer with more than 900 employees. Note that this data set from year 2000 is prior to the closure of the Hewlett Packard facility and its subsequent sale to Bose. Bose will re-open and expand the facility in the coming years, making for one even larger employer in Stow. The location of the proposed expanded Bose facility, in close proximity to a recently-approved higher density 40B housing development and some business uses, can help to anchor a proposed West Village mixed residential-commercial zone.



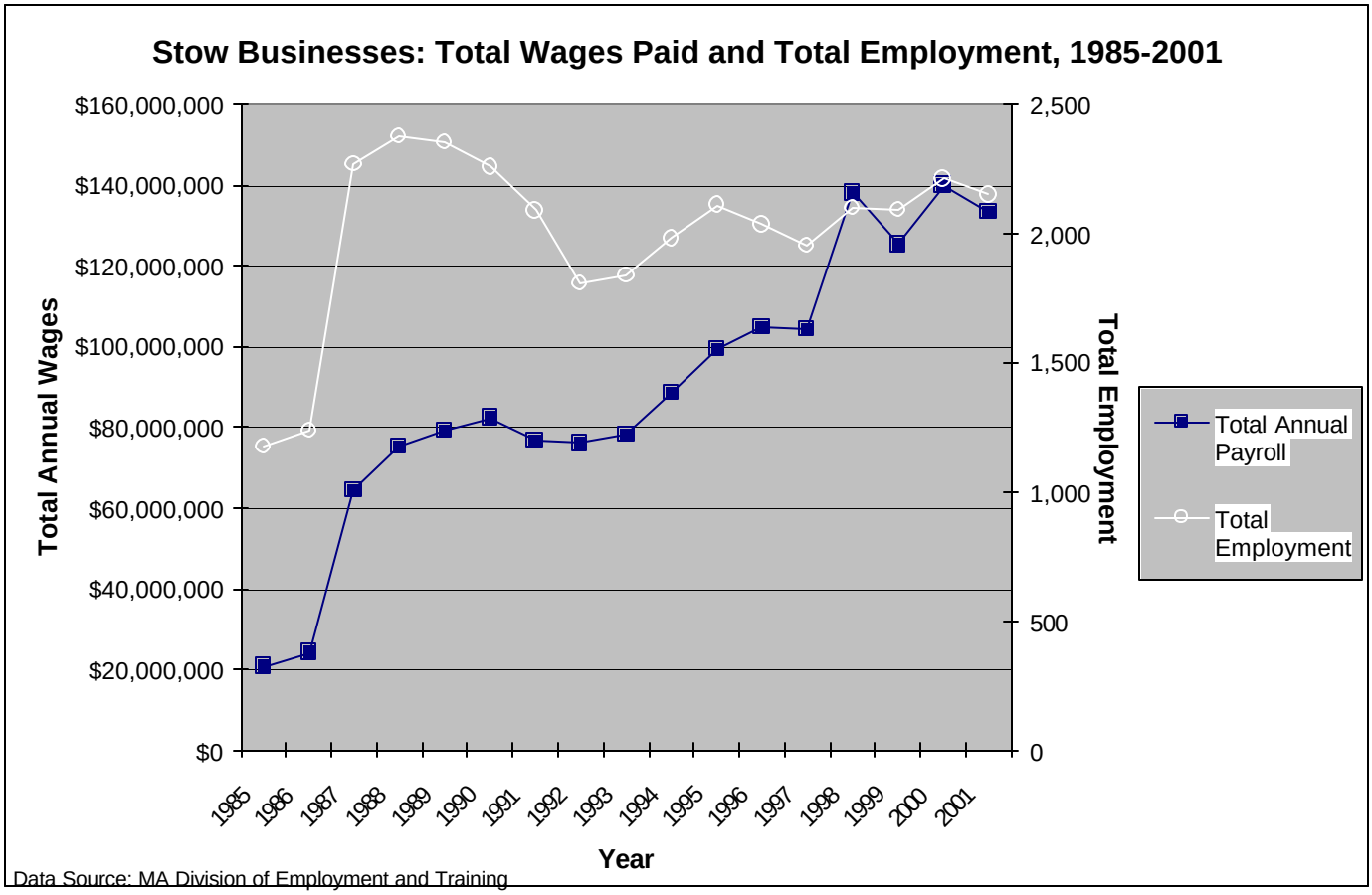
This chart emphasizes the influence of the one larger employer, where 45% of the total employees in Stow are at one facility. At the other end of the scale, note that 33% of employees in Stow work for companies with less than 20 employees.

Size Category: Employees per Firm	Number of Firms in Size Category	Estimated Numbers of Employees	Percent of Total Employment
500 to 999	1	950	45.6%
250 to 499	0	0	0.0%
100 to 249	1	100	4.8%
50 to 99	2	120	5.8%
20 to 49	9	225	10.8%
10 to 19	15	180	8.6%
5 to 9	39	234	11.2%
1 to 4	182	273	13.1%

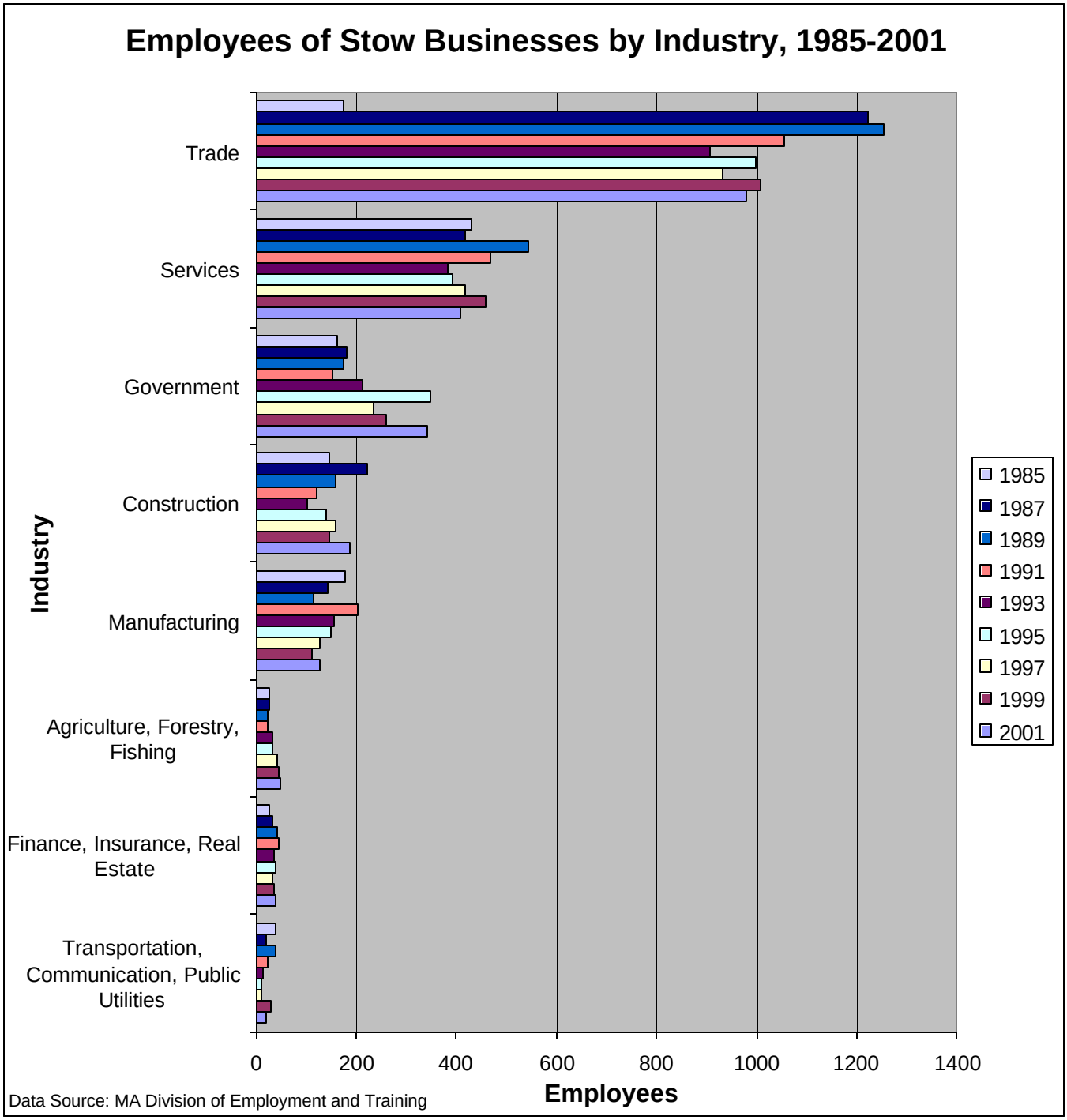


Average annual wage has increased substantially faster than inflation since 1985. This is probably due to the change of mix of jobs which occurred when the Digital Equipment Corporation (DEC) facility opened in the late 1980's, bringing in professional level jobs.

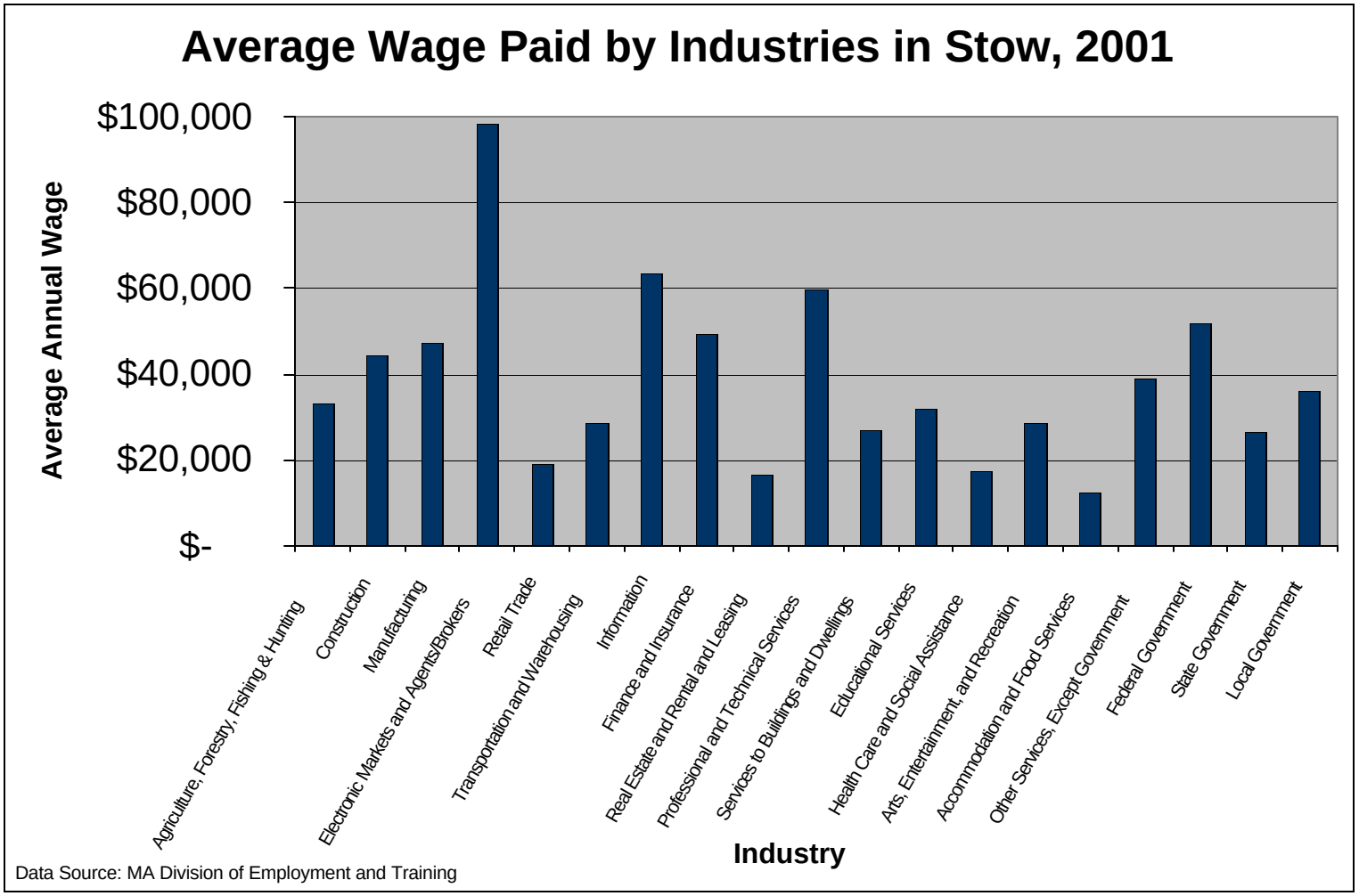
Year	Average Annual Wage	1985 Wage Adjusted for Inflation
1985	$17,638	$17,638
1986	$19,524	$17,966
1987	$28,432	$18,622
1988	$31,734	$19,392
1989	$33,724	$20,326
1990	$36,432	$21,425
1991	$36,759	$22,326
1992	$42,059	$22,998
1993	$42,539	$23,687
1994	$44,776	$24,293
1995	$47,072	$24,982
1996	$51,517	$25,719
1997	$53,338	$26,309
1998	$65,691	$26,719
1999	$59,940	$27,309
2000	$63,287	$28,233
2001	$62,042	$29,030



Note that the total annual payroll has increased at a faster rate than total employment. The large jump in both categories circa 1988 represents the opening of the DEC plant (now BOSE).

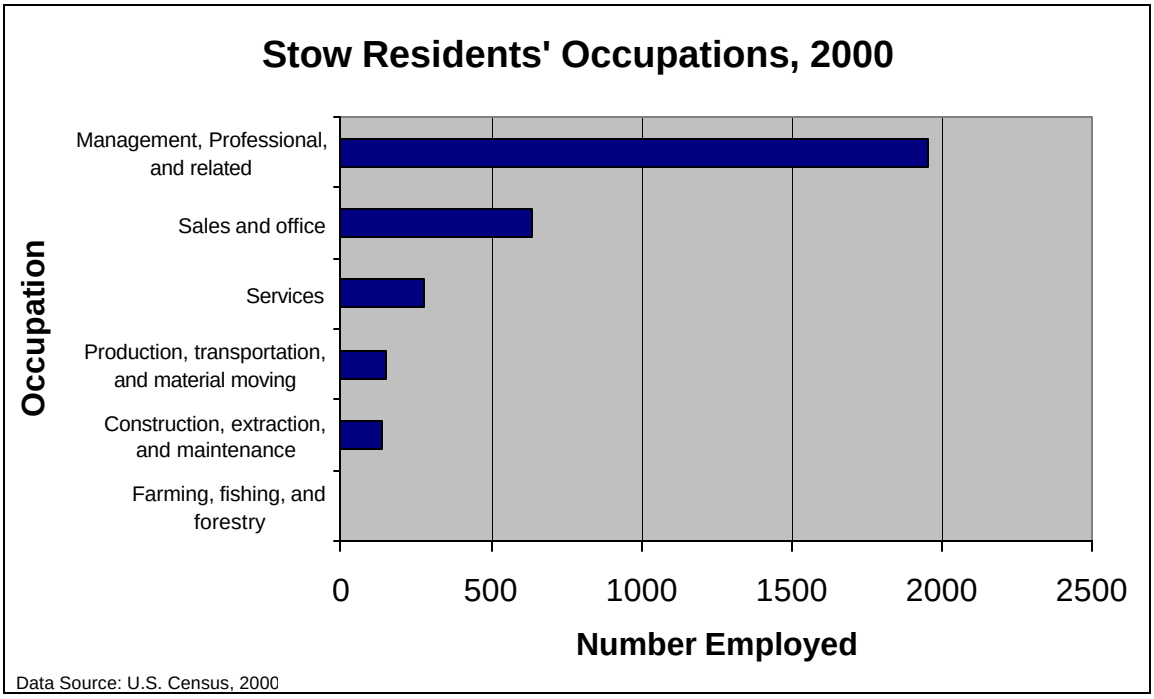


Most job categories declined during the recession of the early 1990's. The large increase in Trade category circa late 1980's represents opening of DEC facility. The number of Government employees increase is probably due to expansion of schools as the population of the community has grown. This chart shows that although Trade does dominate the employment picture, there are a wide range of opportunities available, including manufacturing and construction, which have held relatively steady over time.

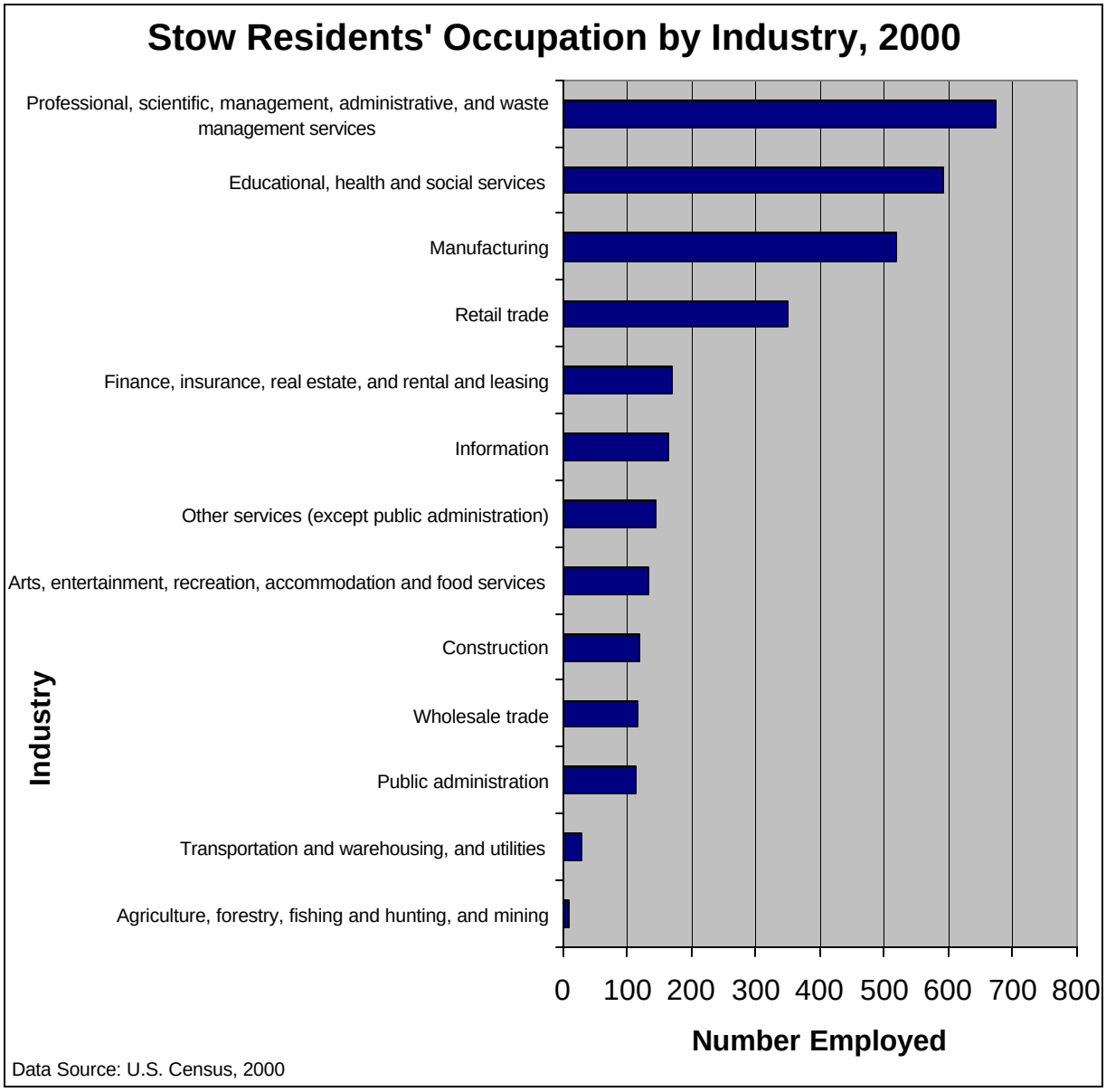


This chart illustrates the wide range of job types and income ranges of employers in the Town of Stow. The low average annual income of some of the lower wage job categories are probably pulled downward by the numbers of part time employees in these job categories. This chart does indicate that employers in the Town currently provide for job opportunities for individuals across a broad range of incomes.

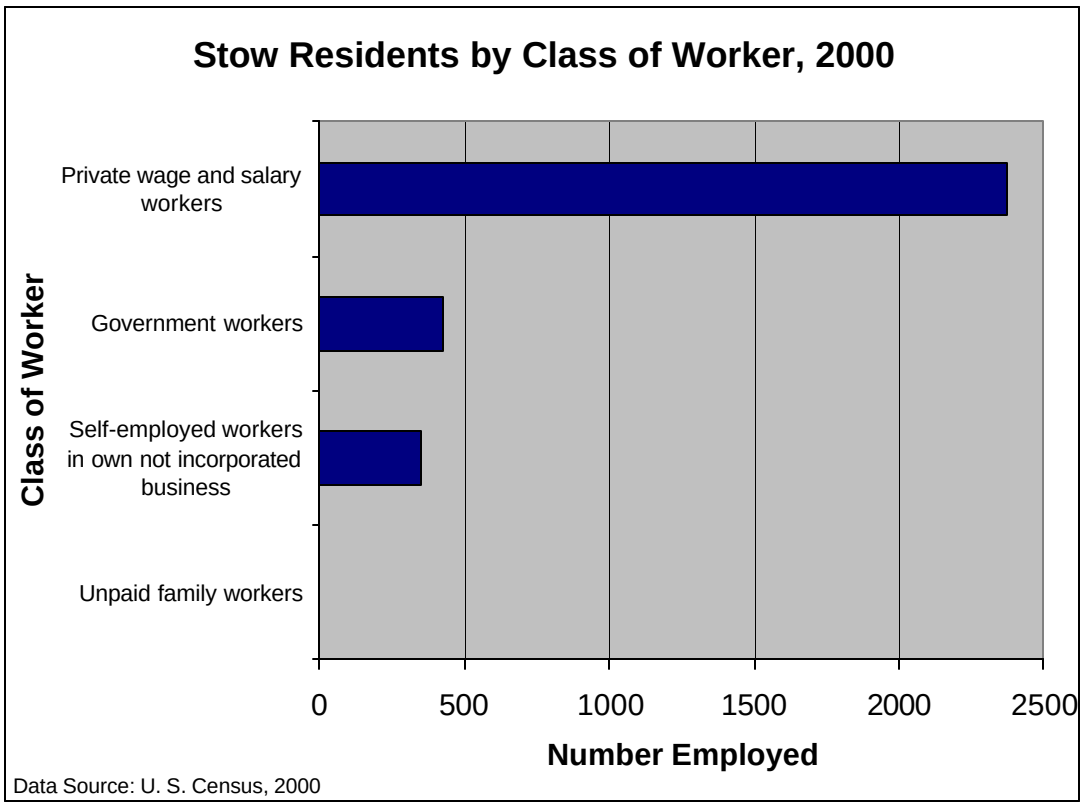
Section 2:
Data Relating to Employment of Residents

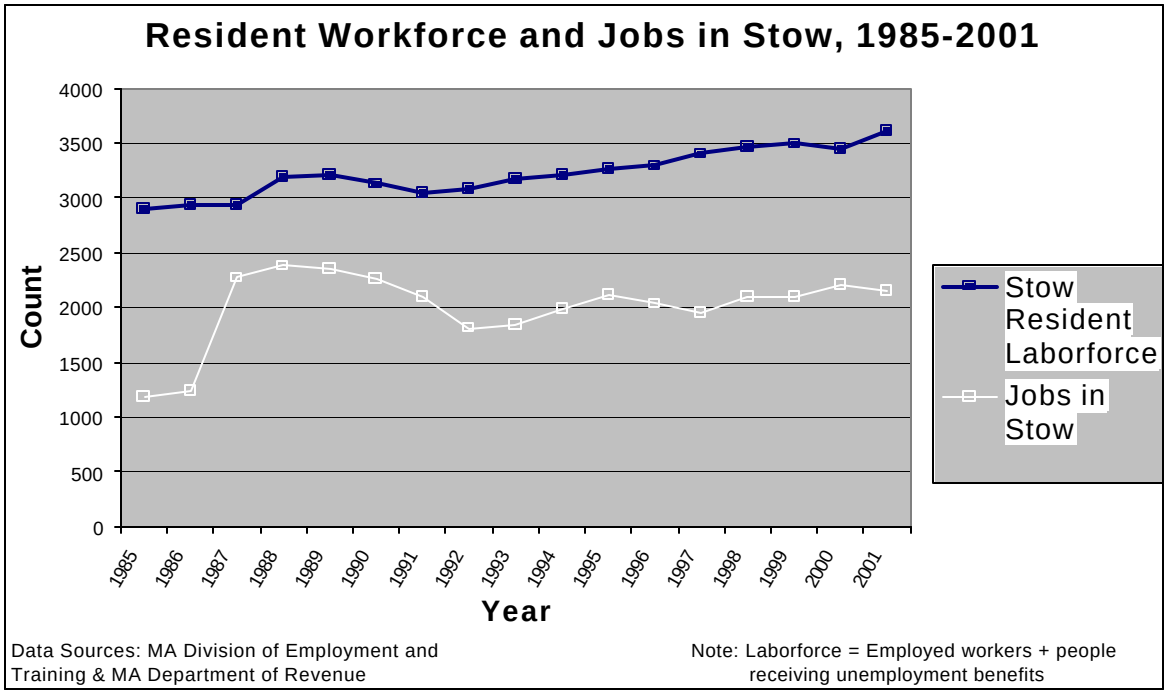


The high cost of housing in Stow has probably resulted in a skewing of this chart towards the higher wage occupations over time.

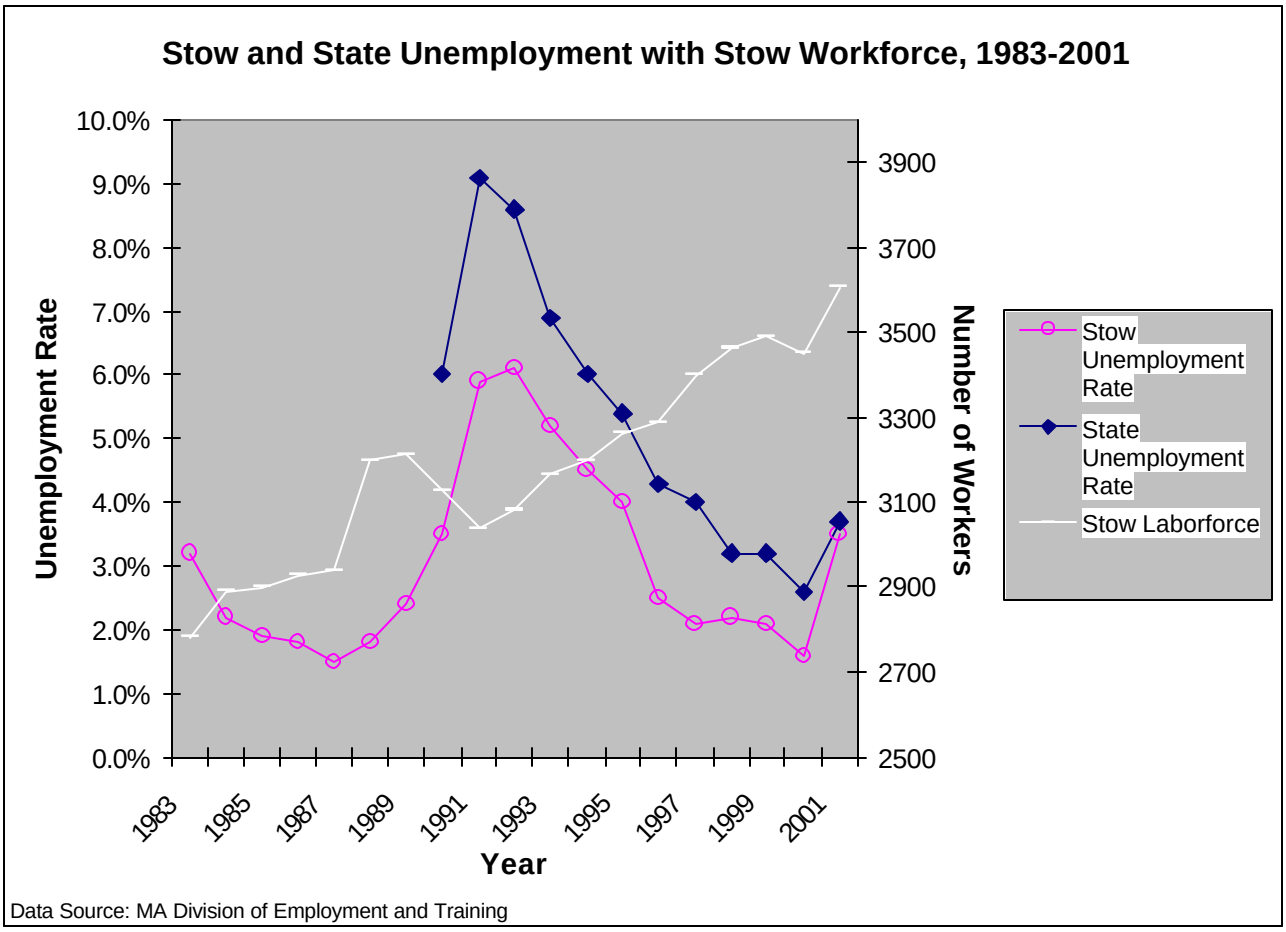


The cost of purchasing a house in Stow again probably skews this chart towards the higher paying professional jobs of the top categories. The large number of individuals employed in manufacturing is an indication of how jobs available in the surrounding communities have an impact on the employment of the residents



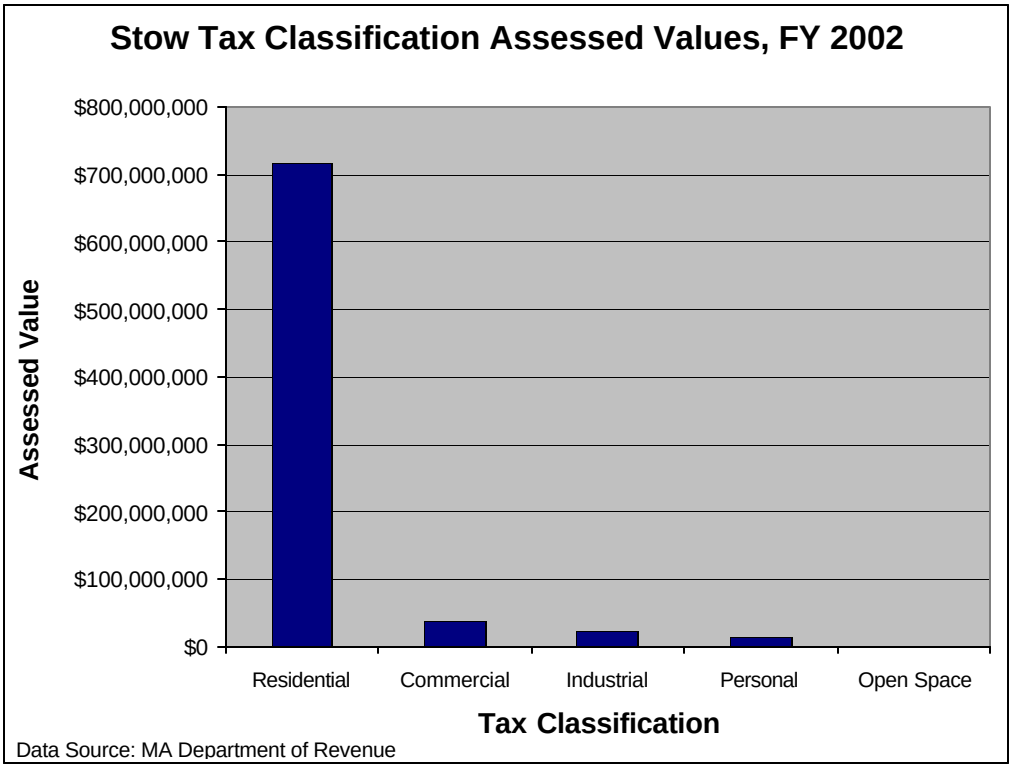


This slide emphasizes that Stow is a "bedroom community" that exports workers to other communities in the region for employment.

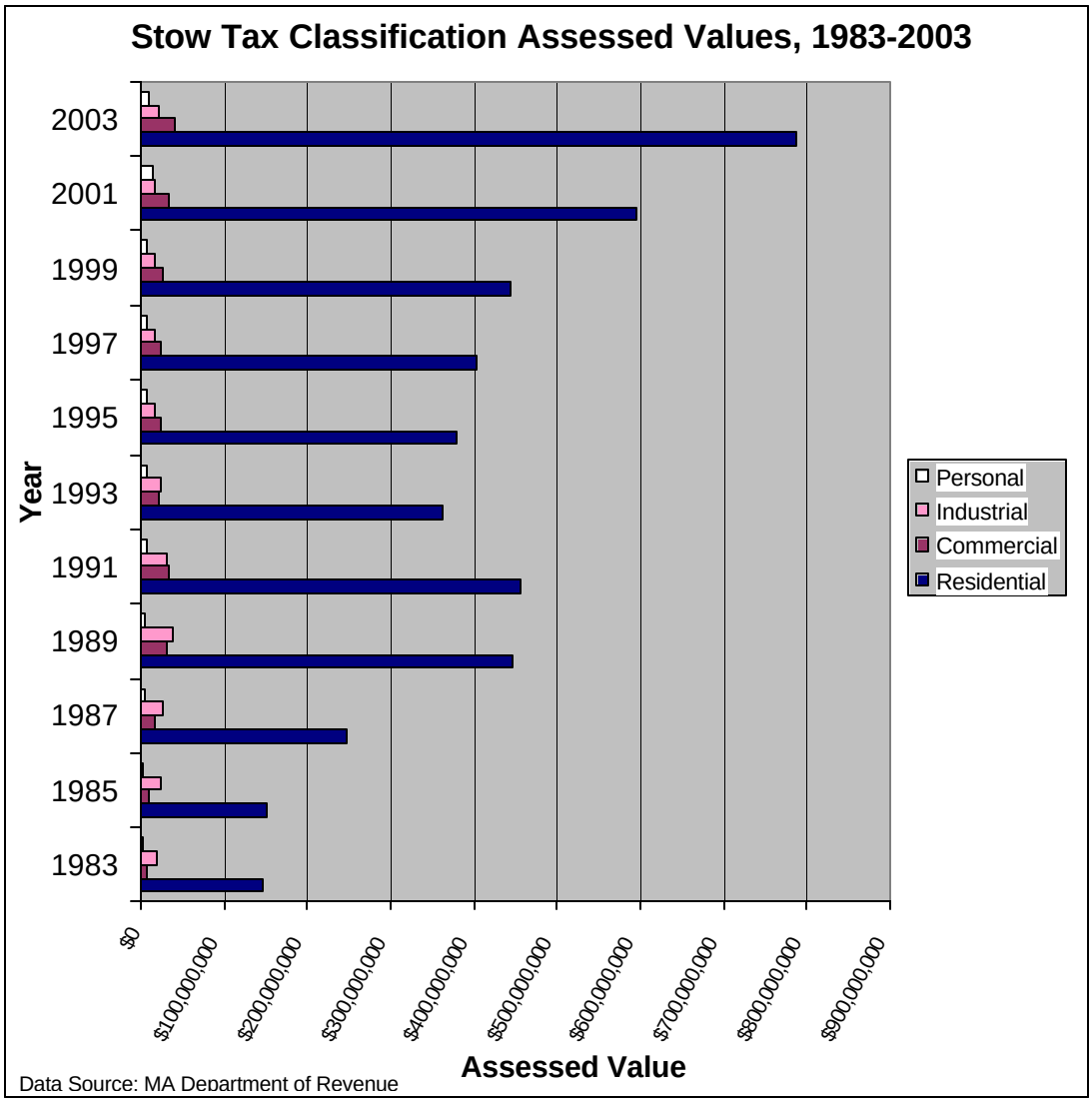


Historically, Stow's unemployment rate has mirrored, but has been generally lower than, the statewide rate.

Section 3:
Data relating to Tax Assessment for Stow



This slide emphasizes that the majority of the real estate assessed value in the Town of Stow is in the residential category. The residents participating in the various public forums indicated a strong interest in expanding the non-residential component of the tax base.



This chart indicates that although there has been some expansion in the commercial, industrial and personal tax base, the majority of the growth in the total assessed value has come from the residential component. This growth is both from the increase in the number of homes in the community, as well as the increase in value of the homes over time.

Results of Economic Development Forum

Town Of Stow 3/26/03

Prepared by MAPC 4/23/03

Purpose: The purpose of the Stow Economic Development Forum was stated as "the purpose is to have MAPC elicit and record input from the Town as to the residents' goals/objectives/desires for economic development". As part of this meeting, MAPC also provided some basic data to assist in informing these discussions.

Expectations: The stated expectation was that by the end of the meeting, participants would have had the opportunity to learn details about the current economic conditions of Stow, brainstorm input regarding the type/densities of businesses desired in Town, and prioritize alternatives.

Expected Outcomes: The Stated expected outcomes were that with the input from the Economic Development Forum, MAPC would investigate alternative implementation tools and develop ideas for how Stow can achieve its goals for economic development. These concepts will be coordinated with Natural Resources, Housing and Transportation goals into a draft plan for future development of the Town, to be reviewed at a future meeting.

Part I: Themes and Data

The residents present reviewed the themes derived by MAPC from the Visioning Session, the Natural Resources Forum and the Housing Forum. After the initial review of the list of possible themes, MAPC presented data pertaining to the current economic conditions in the Town of Stow. See Appendix A for the copies of the PowerPoint presentation.

After the presentation of the economic development data, the residents returned to the discussion of economic development themes. In response to a series of questions regarding why the community would be interested in further economic development, the MAPC staff provided the Town with the following four possible purposes of economic development. It was noted that each community would have different reasons for undertaking economic development, and that the themes for Stow would depend largely upon their purposes in undertaking such development.

In order to determine the broad goals of the residents present, each resident was allowed to vote for up to TWO purposes. The following indicates the list of the four goals, and the emphasis placed on these alternatives by the residents present at the Economic Development Forum:

4 REASONS FOR ECONOMIC DEVELOPMENT

11 votes) *to provide Shopping/ Services for local residents
1 vote) to provide jobs for local residents
10 votes) to increase the non-residential tax base of the community
11 votes) *to Revitalize/Improve aesthetics of the community

As can be seen in the votes above, the emphasis was on providing places for residents to shop locally, increasing the tax base, and improving the aesthetics of the commercial areas of the community.

Based upon the above discussion, the residents present returned to the discussion of themes for inclusion in the Economic Development report. After a brainstorming opportunity where a series of themes were added to the ones derived from the previous fora/visioning sessions, the residents present were asked to prioritize the themes. Each participant was given 6 "voting dots" to place on the list to signify their priorities. They were allowed to place the any or all of their dots on any item on the list, depending upon how important they felt each item was for economic development in Stow. The following lists the results of this activity.

# votes	**Economic Development Theme**
17 votes:	the community would like to see the farms and orchards stay in Stow
12 votes	Tourism poses a great opportunity (golf, lake , river, Orchard and farms) (Inns, Hotel, Boat rides, canoeing, B&B's [have 5])
11 votes	English Pub
9 votes	There is already too much traffic during rush hour/ how to resolve tension between local traffic and "in-a-hurry" traffic
9 votes	Niche market to differentiate from neighboring towns
6 votes	Having A Shopping Center in Stow is advantageous
5 votes	The Golf areas viewed as positive amenity for town
5 votes	There is a lack of an attractive, vibrant downtown with shops and restaurants
5 votes	Town should establish Village Overlay zones, including mixed use developments (and define what is expected/desired in village areas, and address septic issues)

5 votes	The Town should not necessarily approve Habitech "as is" just to get to 10%
4 votes	Support small businesses including home occupations
4 votes	Want services for residents
4 votes	Entertainment
3 votes	Types of business to capture high income residents
2 votes	Residents clear preference is for additional development in already-developed areas
2 votes	Hotel
2 votes	Septic/water constraints limit business opportunities
1 vote	There is a need for increased business connection via more cellular phone towers and high speed internet access to enhance local business
1 vote	Recycling – potential use as a business
1 vote	Access to some of the industrial areas is poor
0 votes	There is a small inadequate business/industrial tax base in town
0 votes	Encourage Arts, studios
0 votes	The existing characterless strip mall is not in keeping with the rural setting
0 votes	There is an anti-business attitude in Town and a lack of "strategic welcoming"
0 votes	Incubators are important, may be tax incentives needed to establish an incubator site (would not generate tax revenue at this site)
0 votes	Airport – reason for business
0 votes	Medical Services
0 votes	Incentive for new businesses

0 votes	Small town police and fire departments – a limitation for development?
0 votes	3Com and Cisco have located in Boxborough
0 votes	There is an inability to support commercial business
0 votes	Help to retain existing businesses

Part II: Uses and Density

The next series of discussions was designed to be oriented towards specifics of types of businesses/economic development that the community would like to see in town, and where that development should occur. In order to begin that discussion, the residents present were asked to list the types of businesses that were currently in Town. The following list illustrates the response:

HAVE NOW

- Elements for Tourism
  - Stables
  - Orchards
  - Trails
  - Farms
  - Golfing
  - B & B
  - Farm stand/Garden
- Hardware
- Insurance
- Grocery Store
- Country Store
- Fitness
- Gas Stations
- Bowling Alley
- Gift Shops
- Bose
- Radiant Technologies
- Astrocrane
- Bunce Ind.
- Pet Store
- Tailor
- Pizza
- Hair Salon
- Restaurant
- SPA/Therapy (Small Medical)
- Florist
- Sign/Framer
- Radio Shack
- Day Care
- Clock Restorer
- Airport
- Barbershop/Beauty Parlor
- Travel Agency
- Temp. Agency
- Martial Arts
- Hydrotest
- Auto Sales
- ET & L Construction

The residents were also given the opportunity to brainstorm a list of the businesses/commercial activities that they would not like to see in Town. They following is the list that resulted from this discussion:

DON'T WANT

Big Box Retail
"Dirty" Businesses
Fast Food Franchises
Adult Entertainment
Warehouse
Trucking
Rod & Gun Club
Trash Collection-Privatize instead
Heavy Water Users (Car Wash)

In the next series of discussions, the residents present were asked what businesses/commercial activities were not presently in town, but which they felt would be advantageous for the town to have, and which they felt that the town could support. After the full list was brainstormed, the residents were allowed to vote on the proposals. Each resident was allowed to vote as many times as they wished. The intent was not to determine which was most important to an individual, but which types of activities were supported by the majority of the residents present (as a sample of the community). The following list includes the votes.

DON'T HAVE BUT DO WANT

17 votes	Indoor Sport Center
17 votes	Good Restaurant
16 votes	Good Bakery
15 votes	Bookstore/ Internet Cafes/ Tea Shop
13 votes	the Paper Store-Cards & Gifts
12 votes	Bike Related Businesses
13 votes	Pub
11 votes	Commuter Bus
10 votes	Boating Rental
10 votes	Antique Stores
10 votes	Starbucks/ Coffee House
8 votes	Bandstand/Gazebo to bring folks into Town
8 votes	Internet Café
7 votes	Taxi
7 votes	Deli
7 votes	Small Hotel/ Conf. Center
6 votes	Electronic Boutique-Strawberries
5 votes	Skateboard Park
2 votes	Shoe Store
0 votes	Rod & Gun

The residents present were then asked to propose communities that they would like Stow to be more like, and why. The purpose is to determine the types and densities of economic development desired, and how it could fit into the housing, natural resources and other aspects of the town. The list is as follows:

WOULD LIKE TO BE LIKE
Downtown Concord & Lexington walk able
Downtown Bolton-character, centralized feel
Old Saybrook CT-Linear Community, Slow Traffic in Commercial

Part III: Location Specific proposals

Based the preceding discussions of the types of businesses that the residents would like to see in town, the next activity was designed to determine where in town the residents would like to see the specified business/commercial activities. The areas selected are shown on the Economic Development Map for the Town of Stow.

After all of the uses were brainstormed for all of the various existing/potential business areas in town, the lists were re-examined and an effort was made to determine which of the potential uses had support of more than 2/3 of the residents present. The purpose was to determine which activities might have sufficient support if re-zoning were necessary to institute zoning changes to allow specific uses within certain commercial zones but not in others. Those uses with approximately 2/3 support from the residents present are indicated by an asterisk (*) before the proposed use.

WHITE POND ROAD AREA (Near 10/17 on map, but also including White Pond Road Frontage areas currently in Commercial/Industrial uses)
*Boating & Biking rec. area
Small hotel
*Golf school
Issues noted by participants: Narrow road - poor access

LOWER VILLAGE (All areas near 14 on Map)
*Allow for Mixed use--upper story
*Shaw's biggest magnet; use as anchor
*Off-street connections between lots necessary to limit traffic
*Goal is to make area more Pedestrian friendly
*Event--farmers' market, to draw more shoppers to area
*Design issues: Lack of green-ocean of asphalt-no character
Landscaping would enhance, add shade trees

INDUSTRIAL ZONE (SOUTH OF BOSE TO ATHENS STREET, including all industrially zoned lands south of 12 and 13 on map)
*Expansion of office park, with access of Hudson Street or Route 117
issue raised regarding water and wetlands in this area

INDUSTRIAL AREA NORTH Including areas near 9 on map
*Services-small
cleaning
landscaping
light indust.
*Indoor sports
Vineyard

RESIDENTIAL ZONES
No changes were proposed to the residential zones, which currently allow for small home occupation businesses

GLEASONDALE VILLAGE and ORCHARD HILL INDUSTRIAL ZONE (area 4 on map)
*Incubator (The Mill)
*Artist live-work space (Mill)
*Vineyard
Orchard
Mining
Recreation (adj. to Hudson Rod & Gun)
Ski
Boat rental
Photographers landscape
Keep hill as is

COMPACT DEVELOPMENT ZONE
No changes were proposed in this zone, which is small and which has water problems

ROUTE 117-BUSINESS ZONE @ HABITECH (Commercially zoned land near 12 on map)
*Medical
*Pub
*Small Stores--gift ship
Establish a "West Village"
Bank (previous one on site was lost due to Consolidation of branches)
Council on Aging/Community Center
An issue raised was that the town should consider traffic impact of any development in this area

ROUTE 117-FAR WEST (Commercially zoned lands near 15 on map
*Indoor Sports
*Taxi service
*Good restaurant
*Small hotel

Additional ideas that were brought up during the Economic Development Forum:
Encourage Inter-Orchard Collaboration for tourism
Chamber of Commerce & Web Site
Business Networking Group

Agenda for Final Community Development Plan Forum
Town of Stow
Facilitated by MAPC and Community Opportunities Group
6/30/03

Purpose: The purpose of tonight's meeting is to review the results of the previous Community Development Plan forums to bring all participants up to the same level of knowledge regarding community input to date, to review the draft proposals for each of the Elements of the Community Development Plan based upon the community input and research by the Consultants, and to obtain feedback from forum participants in development of the final Community Development Plan.

Expectations: By the end of this meeting, participants will have had the opportunity to learn details about the community input and consultant research to date regarding each of the Plan elements, and provide reaction and direction to the consultants in development of the Final version of the Community Development Plan.

Outcomes: With the input from tonight's meeting, MAPC and COG will finalize a consolidated written version of the Stow Community Development Plan, including action steps that should be taken to achieve the goals outlined in the plan.

The format of the discussions will be:

Part I: Summary of Input from previous Forums

5) Visioning
6) Natural Resources
7) Housing
8) Economic Development

Part II: Review of Draft Recommendations relating to Plan Themes

1) Natural Resources
2) Housing
3) Economic Development

Part III: Feedback on building the Final Plan: A Straw poll

Poll of participants to determine support for concepts raised

Funded by the Mass. Dept. of Housing and Community Development, Mass. Dept. of Economic Development, MassHighway, and Executive Office of Environmental Affairs

Stow Community Development Plan

Draft write-up of
STRAW POLL from 6/30/03 Final Plan forum

Note that at the time of the straw poll, there were approximately 24 voting residents in the forum. It was explained to those present that the goal was to determine whether an issue would be supported by a 2/3 majority at town meeting. It was assumed for purposes of this straw poll that the forum participants comprised a representative sample of the town. Therefore, a yes vote of 16 or more indicates those items that are likely to receive support. However, votes close to 16 should not be discounted, due to the size of the group being polled.

Natural Resources Straw Poll Questions:

Potential means to accomplish these goals:

Acquisitions of key parcels:

- Use Community Preservation Act and other funds (State Self-help etc.) to acquire fee title or Conservation Restrictions on key parcels to support open space and rural-economic land-based goals.
    - Crow Island / Track Road (20+ yes votes, plurality)
    - Pilot Grove (20+ yes votes, plurality)
    - Honey Pot Orchard (16 yes votes, plurality)
    - Orchard Hill (2 yes votes, not a plurality)
    - Melone (10 yes votes, not a plurality)

It was noted that the although the majority of the highest priority sites to be protected appear to be best accomplished through continuing private ownership with Conservation Restrictions, Agricultural Preservation restrictions, or Alternative Zoning being the primary means of protection, the Crow Island/Track Road parcel received high priority because of the potential for active recreational fields as well as the multiple-use trail.

Details relating to specific means outlined above:

- *Establish Scenic Roads regulations* that require approval for removal of trees/walls (similar to Lincoln where Selectmen approve new access permits to roadways). (15 yes votes, VERY Close to plurality)

- *Establish new regulations* for landscaping/streetscape improvements as part of commercial developments (see Cecil Group plans for Lower Village funded by DHCD downtown program). (20 yes votes, plurality)

- *Change frontage requirements* to 500' per lot (from 200' currently) for lots which front on major roads (to eliminate multiple driveways from strip Form A developments; this tends to promote more lots off of internal subdivision roads) (13 yes votes, not a plurality)

- *Establish (Falmouth-Style) Wildlife Habitat Corridor Overlay District* (23 yes votes, plurality)

- *Promotion of appropriate style/density developments*: Establish bylaws designating that all development over 5 units shall be deemed a major development project that requires special permit review, with the intent of pushing for cluster developments in most areas (15 yes votes, VERY Close to plurality)

- *Promote Transfer of Development Rights.*

- For the proposed TDR Program, Development in "remainder of entire town" category could be limited to 1.2 times the normal allowed density 1 unit per 65,340 Sq. ft. (to 1 unit per 54,450) so that a subdivision which would normally be 10 lots would be 12. Such an increase in density would not adversely impact ability for private water/septic, or the character of the subdivision. (18 yes votes, plurality)
- "Specific site" alternative would target even higher densities for villages or other sites where the goal of the community is to increase density. In these areas, the density including Transferred Development Rights could be based more on water/septic limits but could be as high as 3-4 units per acre as part of mixed use village development or townhome development (or substantially higher if central water and/or Sewage treatment is available). (12 yes votes, not a plurality, but see below for votes on specific locations, which gained more support than the general concept of specific sites)

Specific Sites for TDR Receiving zones:

- Lower Village, (15 yes votes, VERY Close to plurality)

- Gleasondale Village area including portions of the Orchard Hill area currently zoned Industrial. (16 yes votes, plurality)

Economic Development Straw Poll Questions:

Location-specific zoning changes recommended based upon input at forums:

Promote redevelopment of the Lower Village (All areas near 14 on Map), INCLUDING:

1) Rezone to have Village Overlay District for mixed use (retail/office/residential).
2) Decrease parking requirements through use of "shared parking" to enable redevelopment.
3) Promote redesign and lowering of speed on 117 to promote pedestrian use/crossing
4) Allow for Mixed use--upper story
5) Establish Minimum Height of 2 stories and Maximum Height of 3 stories to promote mixed use and provide more land area for parking, pedestrian plaza Promote a series of smaller structures rather than single strip mall structure.
6) Promote (at least some) structures closer to Roadway, with parking behind rather than in front.
7) Promote Off-street pedestrian and vehicular connections between lots necessary to limit traffic on Route 117
8) Work with MassHighway (under new Community Roads Program) to redesign that portion of Route 117 which goes through lower village to become more pedestrian friendly (e.g.; lower speed limits, better defined cross walks, narrower travel lanes to promote easier crossings, crosswalk bulb-outs,)
9) Make existing Green area into focal point for events: e.g., -farmers' market, art exhibits, to draw more shoppers to area
10) Design issues: Lack of green-ocean of asphalt-no character. Establish design guidelines for landscaping
    (22 yes votes, plurality)

Route 117 INDUSTRIAL ZONE (SOUTH OF BOSE TO ATHENS STREET, including all industrially zoned lands south of 12 and 13 on map)

1) Retain and promote this area for Expansion of office park, with access off Hudson Street or Route 117.
   (13 yes votes, close to plurality)

WHITE POND ROAD AREA and Commercial Area along River (Near 10/17 on map, but also including White Pond Road Frontage areas currently in Commercial/Industrial uses)

- Change Zoning from Commercial to Business. May need to retain some area for existing Industrial uses (perhaps in a Commercial II district) Allow for Hotel/Inn which would could emphasize use of outdoor recreation facilities nearby

(20 yes votes, plurality)

AIRPORT INDUSTRIAL AREA Including areas near 9 on map

- Promote lower intensity uses such as support facilities for cleaning or landscaping services/businesses, or small light industrial facilities
- Change zoning to add Indoor sports facility (non-membership club) to list of allowed uses
- Change zoning to allow for building materials storage, contractors yards, and other uses that require large land areas but generate low traffic

(15 yes votes, VERY Close to plurality)

GLEASONDALE VILLAGE and ORCHARD HILL INDUSTRIAL ZONE (4 on map)

In conjunction with TDR proposal for Gleasondale, establish Gleasondale Mill area as a mixed use retail/office or (if possible) retail/residential space as the core of an area that can serve the needs of the additional nearby residential uses. Change Zoning from Industrial to Business, with Village Overlay District

Change zoning from Industrial to new Village District for Mill and adjacent lower portions of Hill. Define goals of district to:

- promote mixed use re-development of existing mill structures for retail/residential or retail/incubator/office, with adjacent mix of retail/residential in new structures (retail use to include boat rental/river access
- promote higher density residential development of lower elevations of adjacent hill, and preservation of higher elevations of hill as open space
- promote shift of density of hill open space to lower elevations, and also increase in density of lower elevations through transfer of development rights from other areas of town.

(14 yes votes, Close to plurality)

Housing Straw Poll Questions

1) Allow Accessory apartments by building permits, not requiring a special permit if agreement in place for either a) occupied by a member of the family OR b) rented to someone eligible for low or moderate income housing (23 Yes Votes, plurality)

2) Single Family conversion (within existing square footage of structure) to up to three units, with a covenant that 1 unit to be rented to someone eligible for low or moderate income affordable housing (13 yes votes, close to plurality)

3) Special legislation to waive property taxes for elderly in exchange for a Right-of-First Refusal to purchase the house later at a reduced price (with the intent that this structure would then be restricted an kept in the affordable housing market). (20 yes vote, plurality)

4) Use preparation of Open Space Plans for the town as an opportunity to also identify potential areas for future affordable housing (21 yes vote, plurality)

5) Directing the majority of new development to already established areas of town (17 yes vote, plurality)

6) Providing a density bonus in subdivisions if a developer agrees to provide more than the required number of affordable units in a development (14 yes votes, close to plurality)

MAP RESOURCES

Map 1 Current and Future land uses

Map 2: Current Land uses and Natural resources Information

Map 3: Water Resources / Impervious Cover Calculations

Map 4 Natural Resource Forum Priorities

Map 5: Housing – See accompanying Housing Choice Report

Map 6: Economic Development Forum Priorities

Map 7: Final Community Development Plan Action Recommendations

EO-418 MAP 1:
Existing Conditions and Future Land Use

Existing Landuse Categories
- A(agriculture)
- N(natural land/undisturbed vegetation)
- I(industrial/transportation/mining)
- O(open land)
- U(urban open/institutional/recreation)
- HDR(higher density residential)
- MDR(medium density residential)
- LDR(low density residential)
- C(commercial)
- W(water)

Potentially Developable Land by Current Zoning
- Business/Commercial (BUS/COM)
- Industrial (I)
- Residential (RES)
- Zoning District Boundary

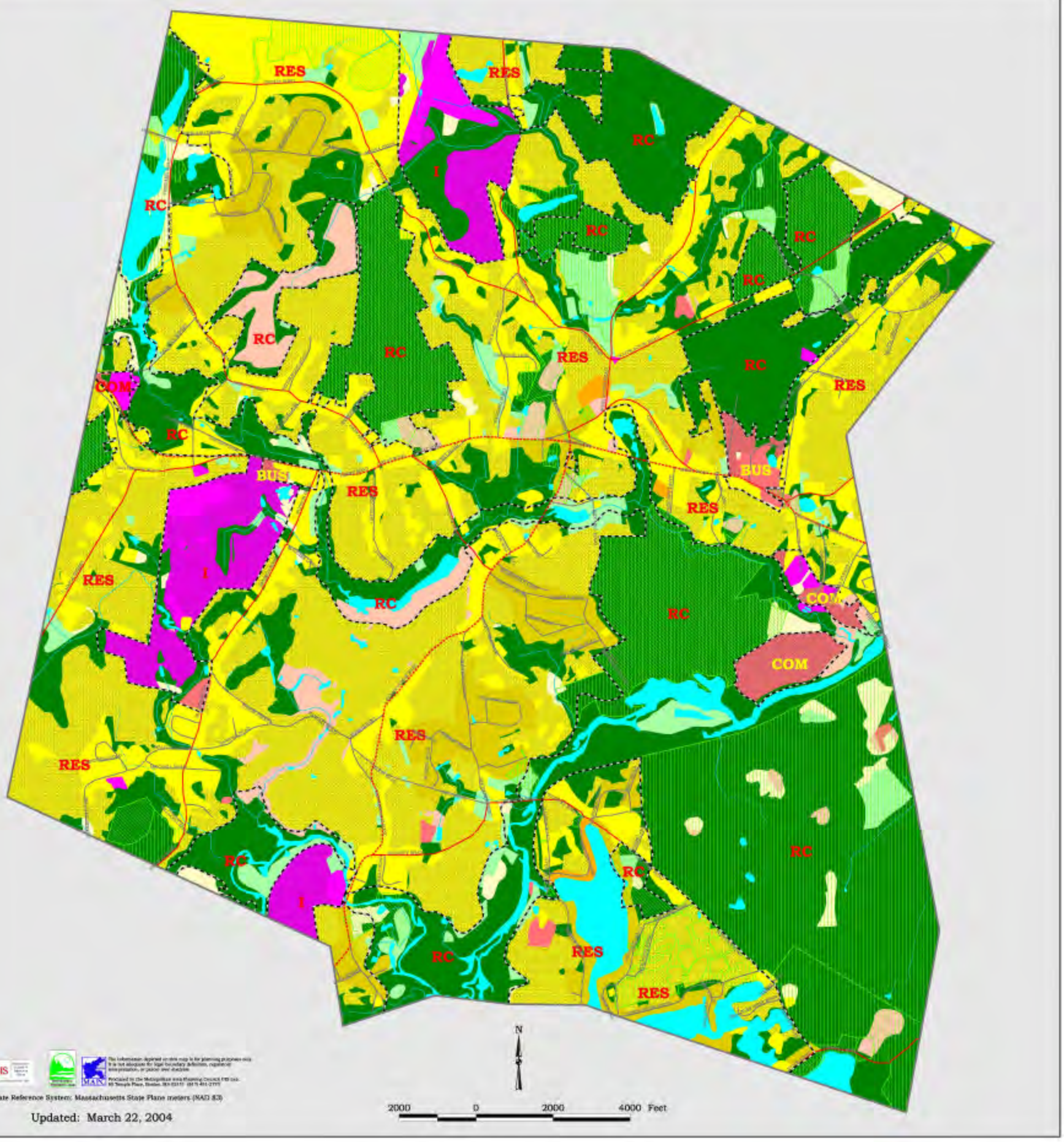
Stow

Hydro
- Streams
- Intermittent Streams
- Water Bodies

Open Space
- Municipal
- Protected

Roads
- Local
- Collector
- Arterial

Funded under Executive Order 418 by the Massachusetts Department of Housing and Community Development, Massachusetts Department of Economic Development, Executive Office of Transportation and Construction, and Executive Office of Environmental Affairs



EO-418 MAP 2:
Existing Natural Resources Identification
Stow

Land-Use Categories
- A(agriculture)
- N(natural land/undisturbed vegetation)
- I(industrial/transportation/mining)
- O(open land)
- U(urban open/institutional/recreation)
- HDR(higher density residential)
- MDR(medium density residential)
- LDR(low density residential)
- C(commercial)
- W(water)

Hydro
- Streams
- Intermittent Streams
- Water Bodies

Open Space
- Municipal
- Protected
- Resource Conservation Zoned

- NHESP 1999-2001 Massachusetts Certified Vernal Pools
- NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools
- NHESP 1999-2001 Estimated Habitats for Rare Wildlife: For Use with the MA Wetlands Protection Act Regulations (310 CMR 10).

*Shown on Map as vertical white lines.

Roads
- Local
- Collector
- Arterial

- Public Water Supply Point
- Interim Wellhead Protection Area
- Zone II
- NHESP 1999-2001 Priority Habitats of State-Listed Rare Species: NOT equivalent to 'Significant Habitat' as designated under the Massachusetts Endangered Species Act
- NHESP BioMap Supporting Natural Landscape
- NHESP BioMap Core Habitat
- Wetlands
- Sub-Basin Boundary (Concord Watershed)

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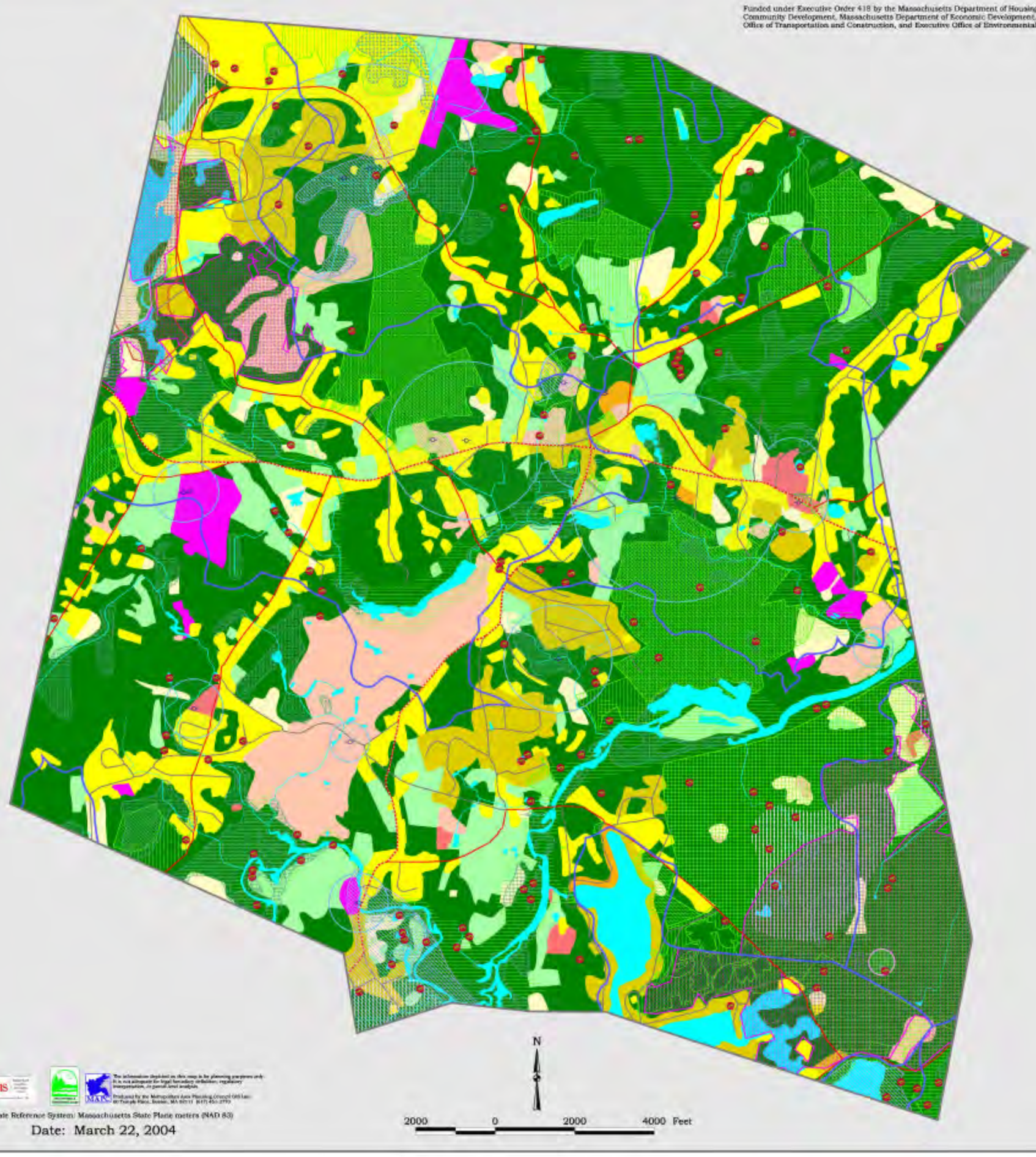

Coordinate Reference System: Massachusetts State Plane meters (NAD 83)

Date: March 22, 2004

EO-418 MAP 3:
Analysis of Water Supply Issues

- Sub-Basins
- Flood Zones
- Septic Failure Locations
- Public Water Supply Wells
- Ground Water Discharge Permits

Aquifers (Gallons/Minute)
- High Yield (>300 GPM)
- Medium Yield (100-300 GPM)

DEP Wellhead Protection Areas
- Zone I
- Zone II
- Interim Wellhead Protection Areas (IWPA) *
- Interim Wellhead Protection Areas for Community Wells (IWPACOM) **

N

2000 0 2000 4000 Feet

Roads
- Local
- Collector
- Arterial

Land Status
- Developed / Proposed
- Protected Land (Ownership / Regulation)

Surface Water Supply Protection Areas
- Zone A
- Zone B

Hydro
- Water Bodies
- Streams
- Intermittent Streams

Funded under Executive Order 418 by the Massachusetts Department of Housing and Community Development, Massachusetts Department of Economic Development, Executive Office of Transportation and Construction, and Executive Office of Environmental Affairs

* In the absence of an approved Zone II, DEP has adopted the Interim Wellhead Protection Area (IWPA) as the primary, protected recharge area for PWS groundwater sources. For PWS sources that pump less than 100,000 gallons per day (GPD), the IWPA radius is proportional to the pumping rate in gallons per minute (GPM). Pumping rate is determined by DEP DWP based on one of the following methods: DWP approved pumping rate, metered data or Title 5 flow rate. The formula used for calculating the PWS well point buffer radius in feet is:

Radius = (32 x pumping rate in GPM) + 400

** The DEP GIS Program currently maintains two statewide IWPA coverages (IWPA and IWPACOM) shared through MassGIS. Both are generated by buffering groundwater sources in the DEP Public Water Supply datalayer (PWS_ESRI).The IWPA coverage contains variable width IWPA buffers for BOTH approved community and non-community groundwater sources in the DEP PWS datalayer which do not have an approved Zone II. The IWPACOM coverage contains IWPAs ONLY for community PWS sources which do not have an approved Zone II.

Town of Stow: Summary Table:
Calculation of level of impervious surface by Watershed
Produced by MAPC 1/27/03

Watershed number designation	Total acreage of watershed	Square Miles in Watershed	Calculation of current impervious surface land cover	Calculation of future impervious percent land cover	Calculation of future impervious percentage assuming 10% limit to Water Resource Protection Area
14038	91	0.14	7.69%	10.99%	10.99%
14041	2572	4.04	7.42%	11.01%	11.38%
14046	3970	6.21	5.93%	10.58%	11.33%
14059	1875	2.93	7.10%	14.14%	11.87%
14061	80	0.12	2.05%	2.05%	2.05%
14734	640	1.00	5.94%	5.94%	5.94%
14738	93	0.15	3.87%	3.87%	3.87%
14741	1306	2.04	5.55%	11.19%	11.63%
14744	427	0.67	3.23%	3.23%	3.23%
14758	93	0.15	2.80%	3.03%	2.80%
14760	779	1.22	4.78%	5.71%	7.17%
14761	187	0.29	5.93%	11.73%	11.73%

Notes:
1) Groundwater Protection Model Bylaw from MAPC/DEP recommends a maximum of 10% impervious coverage within watershed contributing to municipal water supply
2) Center for Watershed Protection research indicates that watersheds below approximately 10-15% water high quality, from 10% - 25% the streams show signs of degradation in environmental characteristics, and above 25% impervious the streams have consistently poor water quality and low environmental quality for water dependent organisms

Coordinate Reference System: Massachusetts State Plane meters (NAD 83)

Date: March 22, 2004

EO-418 MAP 4:
Land-Use Suitability
(based on Natural Resources Forum)

Existing Landuse Categories
- A(agriculture)
- N(natural land/undisturbed vegetation)
- I(industrial/transportation/mining)
- O(open land)
- U(urban open/institutional/recreation)
- HDR(higher density residential)
- MDR(medium density residential)
- LDR(low density residential)
- C(commercial)
- W(water)

Potentially Developable Land by Current Zoning
- Business/Commercial (BUS/COM)
- Industrial (I)
- Residential (RES)
- Zoning District Boundary

Stow

Hydro
- Streams
- Intermittent Streams
- Water Bodies
- Areas to be Protected for Conservation Purposes
- #'s Areas for Additional Development

Open Space
- Municipal
- Protected

Roads
- Local
- Collector
- Arterial

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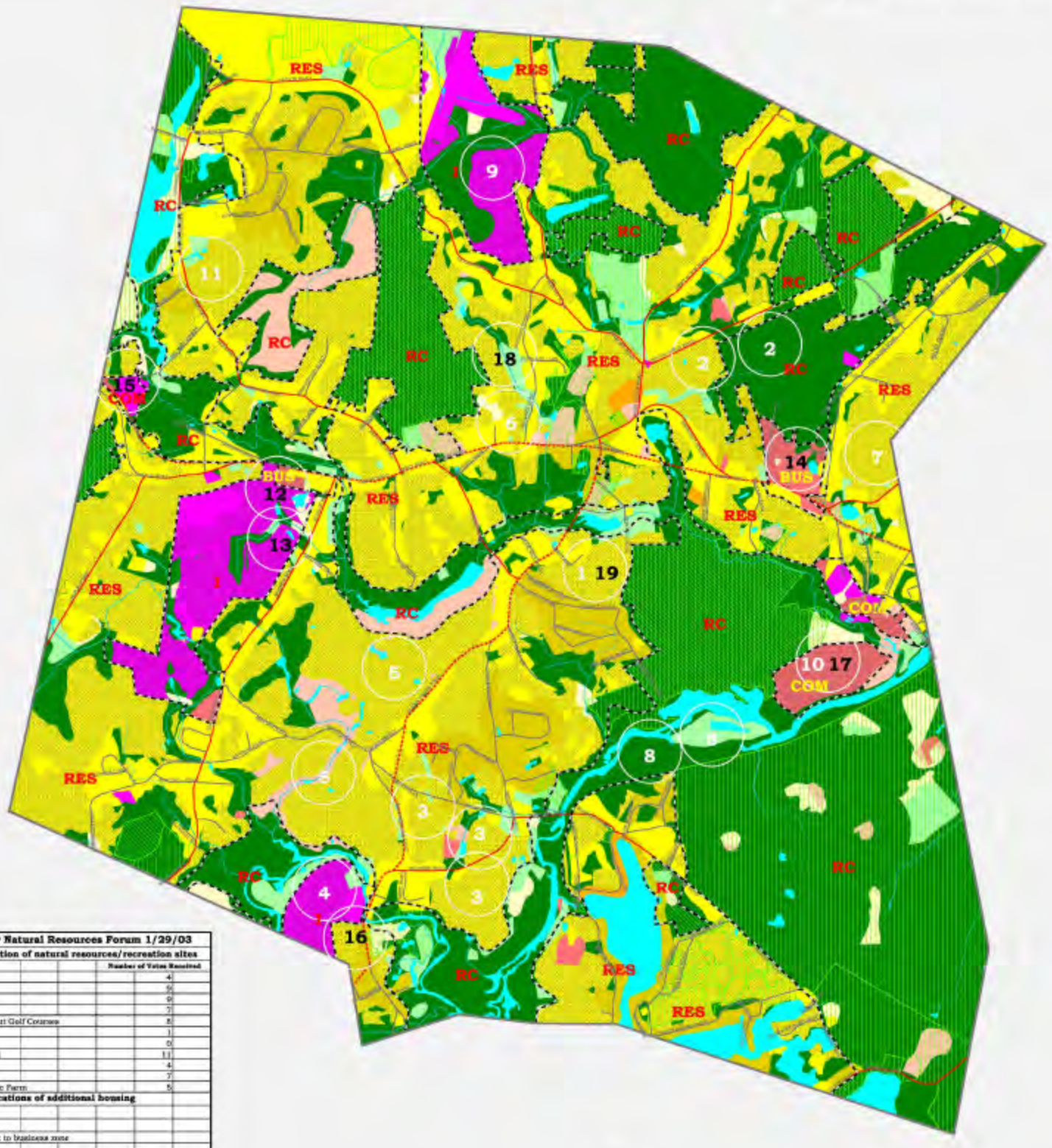

Sites discussed at Stow Natural Resources Forum 1/29/03		
Areas proposed for conservation of natural resources/recreation sites		
Number	**Property Name**	**Number of Votes Received**
1 and 19	Carver Hill Orchard	4
2	Pilot Grove	9
3	Honey Pot Orchard	9
4	Orchard Hill	7
5	Stow Acres and Butternut Golf Courses	8
6	One Stock Farm	1
7	Derby Orchard	0
8	Crow Island/Tracie Road	11
9	Land South of Airport	4
10 and 17	Meione	7
11	Derby Woods/Hampshire Farm	5
Areas suggested as potential locations of additional housing or economic development		
Number	**Property Name**	
12	Industrial Land adjacent to business zone	
13	O'Grady site	
14	Lower Village	
15	West End Route 117	
16	Gleasondale Village	
10 and 17	Meione	
18	Cacciatore	
1 and 19	Carver Hill Orchard	

Coordinate Reference System: Massachusetts State Plane meters (NAD 83)

March 22, 2004

N

2000 0 2000 4000 Feet

EO-418 MAP 6:
Economic Development Opportunities
Based on Economic Development Forum

Existing Landuse Categories
- A(agriculture)
- N(natural land/undisturbed vegetation)
- I(industrial/transportation/mining)
- O(open land)
- C(urban open/institutional/recreation)
- HDR(higher density residential)
- MDR(medium density residential)
- LDR(low density residential)
- C(commercial)
- W(water)

Potentially Developable Land by Current Zoning
- Business/Commercial (BUS/COM)
- Industrial (I)
- Residential (RES)
- Zoning District Boundary

Stow

Hydro
- Streams
- Intermittent Streams
- Water Bodies

Open Space
- Municipal
- Protected
- Parcels
- Areas to be Protected for Conservation Purposes
- Areas for Additional Development

Roads
- Local
- Collector
- Arterial

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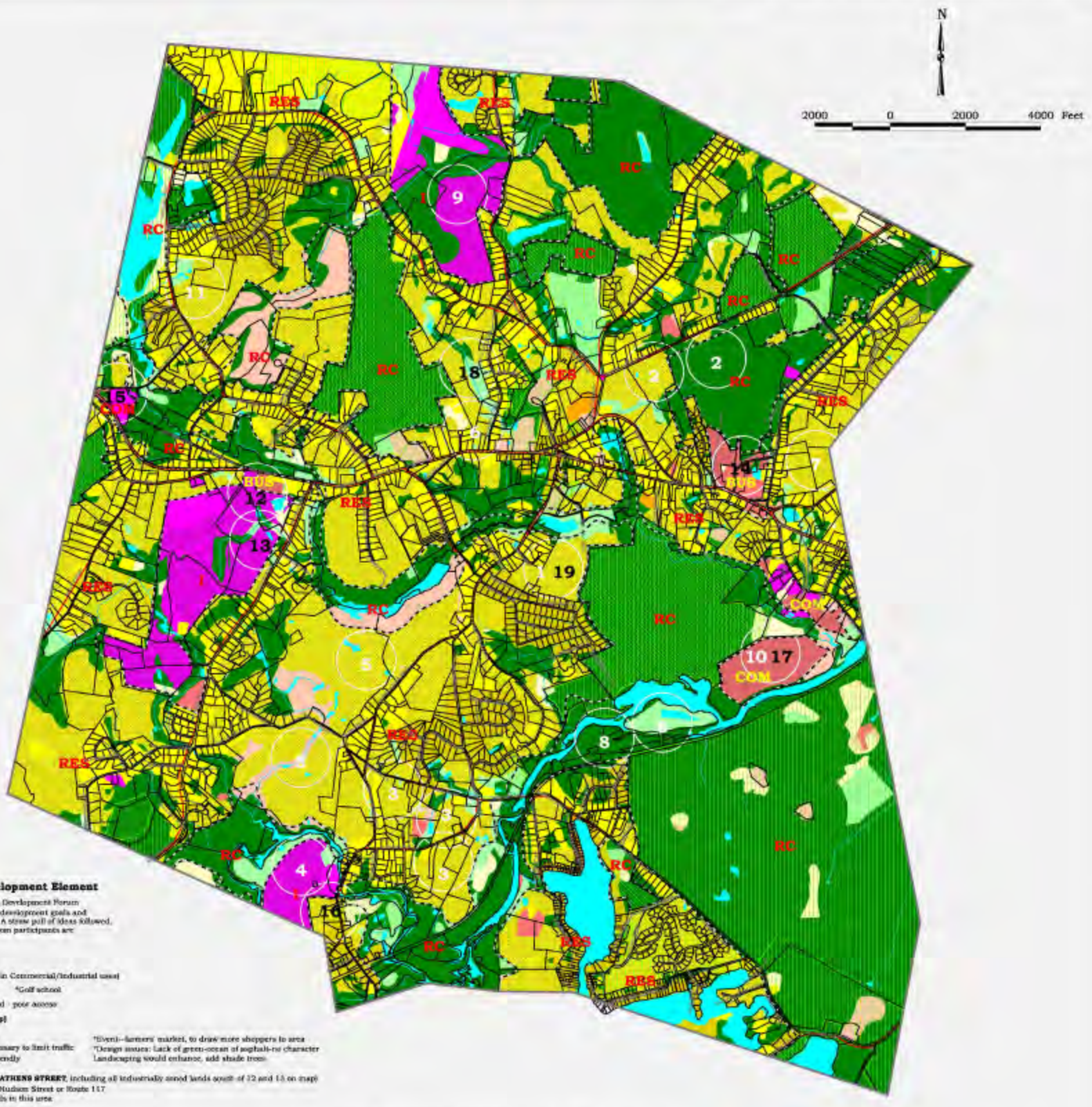

Town of Stow Economic Development Element

Location Specific proposals from Economic Development Forum
After extensive discussion of the economic development goals and various types of business desired in Town. A straw poll of ideas followed. Proposals with approximate 2/3 support from participants are marked with an asterisk (*).

WHITE POND ROAD AREA
(Near 10/17 on map, but also including White Pond Road Frontage areas currently in Commercial/Industrial uses)
- *Boating & fishing rec. area
- *Golf school

Issues noted by participants: Narrow road - poor access

LOWER VILLAGE (All areas near 14 on Map)
- *Allow for Mixed use--upper story
- *Show's biggest mistake; use as another
- *Off-street connections between lots necessary to limit traffic
- *Goal is to make area more Pedestrian friendly
- *Event--farmers' market, to draw more shoppers to area
- *Design issues: Lack of green--ocean of asphalt--no character Landscaping would enhance, add shade trees

INDUSTRIAL ZONE (SOUTH OF BOSE TO ATHENS STREET, including all industrially zoned lands south of 12 and 13 on map)
- *Expansion of office park, with access of Hudson Street or Route 117
- issue raised regarding water and wetlands in this area

INDUSTRIAL AREA NORTH
Including areas near 9 on map
- *Services-small – such as cleaning, landscaping, light industrial
- *Indoor sports

RESIDENTIAL ZONES
No changes were proposed to the residential zones, which currently allow for small home occupation businesses

GLEASONDALE VILLAGE /ORCHARD HILL INDUSTRIAL ZONE (area 4 on map)
- *Incubator (The Mill)
- *Vineyard
- Mining
- Boat rental
- Keep hill as is

COMPACT DEVELOPMENT ZONE
No changes were proposed in this zone, which is small and which has water problems

ROUTE 117-BUSINESS ZONE @ HAMTECH (Commercially zoned land near 13 on map)
- *Medical
- *Small Stores--gift shop
- *Pub
- Establish a "West Village"

Bank (previous one on site was lost due to Consolidation of branches)
Council on Aging/Community Center
An issue raised was that the town should consider traffic impact of any development in this area

ROUTE 117-FAR WEST (Commercially zoned lands near 15 on map
- *Indoor Sports
- *Good restaurant
- *Taxi service
- *Small hotel

Coordinate Reference System: Massachusetts State Plane meters (NAD 83)
March 22, 2004

EO-418 MAP 7:
Final Community Development Plan

(based on Natural Resources, Housing and Economic Development Forums)

Existing Landuse Categories
- A(agriculture)
- N(natural land/undisturbed vegetation)
- I(industrial/transportation/mining)
- O(open land)
- U(urban open/institutional/recreation)
- HDR(higher density residential)
- MDR(medium density residential)
- LDR(low density residential)
- C(commercial)
- W(water)

Potentially Developable Land by Proposed Zoning
- Business/Commercial (BUS/COM)
- Industrial (I)
- Residential (RES)
- Zoning District Boundary

Stow

Hydro
- Streams
- Intermittent Streams
- Water Bodies

Open Space
- Municipal
- Protected
- Parcels

Roads
- Local
- Collector
- Arterial

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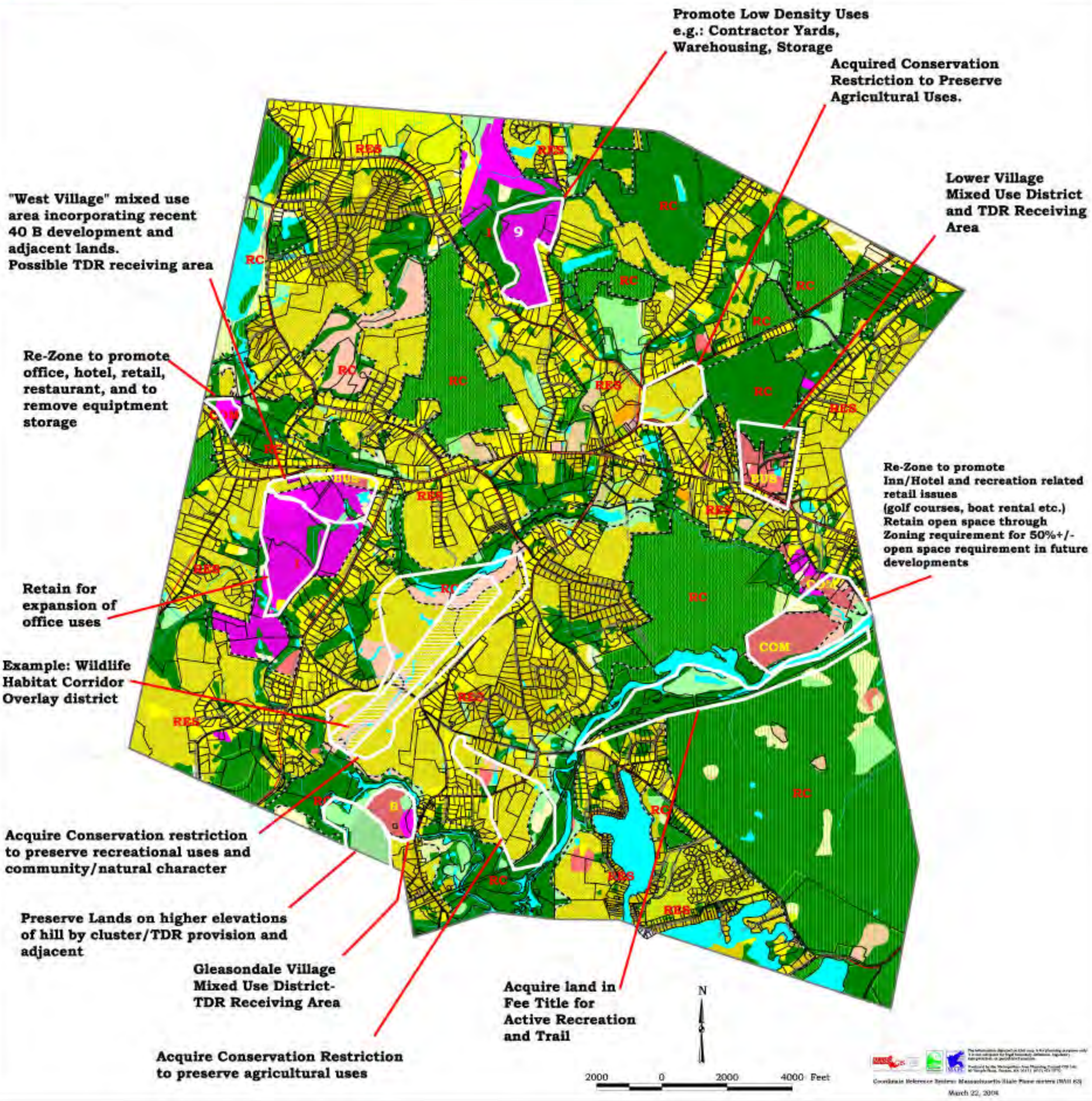


APPENDIX 10

"Housing Choice –

A Housing Plan for Stow"

2003

Housing Choice

A Housing Plan for Stow, Massachusetts

Prepared for:

Stow Housing Task Force
Stow Master Plan Committee
Metropolitan Area Planning Council

Prepared by:

Community Opportunities Group, Inc.
129 Kingston Street Third Floor
Boston, Massachusetts 02111

Table of Contents

I. Introduction

A community's physical evolution from hamlet to modern suburb is revealed in the styles, age and location of its homes. For most towns engaged in planning today, the recurring irony about housing is that residents think their communities already have too many homes. Concerned about losing open space and financing the cost of public schools, citizens and town officials seek ways to contain housing growth, yet in many cases the techniques they choose bring unintended – and unwanted – consequences. Among them: the eclipse of housing choice.

Housing Choice

"Housing choice" is not a euphemism for low- and moderate-income housing, elderly or "over-55" housing, starter homes, rooming houses or manufactured housing developments. It means variety in housing types, a range of prices and access to ownership and rental opportunities so that people have meaningful choices about where they will live. Stow seemed to embrace the central principles of housing choice when the Planning Board adopted Stow 2000, the town's master plan (1996). Specifically, the plan articulated three housing goals:

- Provide housing opportunities for those at the entry level of homeownership, "empty nesters," elder residents, and those requiring housing assistance and rental housing units.
- Ensure maintenance of the present housing mixture including single-, two-family and multi-family dwelling units.
- Encourage the elderly and handicapped to remain in Stow, preferably in their own homes.

Toward these ends, Stow 2000 called on the town to take several actions. Most of the master plan's housing recommendations focused on zoning techniques to diversify the types of new homes built in Stow, and to ease the process by which existing residences could be altered or converted to provide smaller dwelling units. Viewed in their entirety, the recommendations were forward-thinking yet conservative; although they promoted nothing radically new or different, they reflected the consciousness of town planners that market housing production did not always meet local needs. Consistent with Stow 2000, the town has taken some steps to create more housing choices. For example, voters approved an "Active Adult Neighborhood" bylaw, which allows homes for "over-55" households on industrially zoned land that has been undeveloped for many years. While the master plan was being written, town meeting also approved a "Planned Conservation Development" bylaw that encourages developers to preserve open space and design compact housing clusters, including a mix of attached housing units and traditional single-family homes.

The master plan was conspicuously silent about the use of comprehensive permits to increase the supply of affordable housing. Possibly Stow officials were reluctant to promote comprehensive permits out of concern that the floodgates might open, and possibly Stow, like many towns, wanted to solve its own housing problems without interference from the state. The reality is that few communities can marshal enough political support to zone for affordability. Even those that manage to adopt affordable housing bylaws usually stop short of writing regulations that make it feasible to build homes affordable to low-income people. This year, several Massachusetts suburbs, including Stow, adopted "inclusionary" zoning bylaws in order to gain some control over affordable housing production. "Inclusionary" means what its name suggests: the inclusion of affordable homes in new residential development. Since Massachusetts has so little experience

with inclusionary bylaws, it is not clear that suburban efforts to regulate affordable housing development will succeed. Against the backdrop of these new zoning initiatives, a 30-year-old law that many towns resent remains in effect: the Anti-Snob Zoning Act of 1969 (G.L. c.40, Sections 20-23), or by it less offensive name, " the comprehensive permit law."

Stow recently completed a very contentious comprehensive permit process that ended with the approval of a 96-unit homeownership development known as The Village at Stow. The process put local housing advocates, town officials, neighborhoods residents and a developer at odds, and in the end no one was happy. A similar outcome most likely awaits Cloudland Farm, a second comprehensive permit that will be filed soon. Chapter 40B regulations allow developers to apply for a permit to build as many as 150 housing units in a town of Stow's size. To large or rapidly growing communities, a 150-unit housing development would probably seem large but manageable; in Stow, it is utterly out of character with the scale of established neighborhoods, and it is nearly 50% of the total number of homes built in Stow during the past decade.

Most small towns are in no position to absorb the impacts of development at the scale that Chapter 40B allows, but most small towns also have done little to address affordable housing needs on their own. Instead, they typically use zoning and Title V to limit growth rather than as agents to guide development. Only a few have zoned to require a mix of residential use types or affordable housing. For the most part, suburban zoning bylaws work to impede growth by restricting allowed residential uses to single-family homes on large lots, usually the largest possible lot that local officials think the courts will uphold. In addition, they zone stretches of land along a main road for commerce, and curtail the amount of development that can occur with very low building coverage ratios, deep setbacks and enormous parking requirements. When all else fails, they zone land to make it unmarketable, such as an industrial district on land far from a major highway. The practice of locating industrial districts, dumps and multi-family housing (when allowed at all) close to the town line is strikingly common throughout the state. So, too, is the loss of town qualities that residents usually call "assets" or "values" at visioning meetings: historic villages and civic buildings, close neighborhoods, farms and open space, places to shop and congregate, and safe places to walk, bicycle or ride horses.

Stow residents clearly cherish all that their town has to offer. They also lament its weaknesses, yet addressing many of the problems they described at a forum on 30 April 2002 requires a fundamental change in the way Stow regulates land use. A small, attractive suburb with vestiges of its rural past, Stow has large tracts of open space, retained elements of historic village form, and fine, valuable homes. Many years ago, Stow adopted zoning to protect its farms and natural beauty, largely through large-lot residential development. Like other communities that seek to plan for their future, Stow faces difficult housing policy choices that relate to all other aspects of managing growth and change. A community influences the make-up of its population by the choices it makes to regulate housing growth, and Stow is no exception. Since 63% of Stow's land is zoned for residential development, housing is a critical public policy issue for the town.

Key Findings

The housing needs analysis

1) Stow's housing stock is strikingly uniform. In nearly all cases, new homes built in Stow consist of large, architecturally homogenous single-family residences on large house lots.

2) Homes in Stow are unaffordable to 45% of its own households, 56% of the region's, and 71% of households throughout the Boston metropolitan area.

3) There is a severe shortage of rental housing in Stow and neighboring communities, and virtually no housing accessible to persons with disabilities.

4) Stow's established development pattern makes inefficient use of land. Regulations to control growth have often fragmented the town's open space while driving up housing costs and making other forms of housing uneconomic.

5) Stow's zoning policies stop short of encouraging the preservation of village density and form even though the master plan's land use element emphasizes the importance of village development.

6) Many local officials and residents object to Chapter 40B developments, yet they say they want Stow to have more affordable housing. The town is conflicted, just as most communities are conflicted about housing affordability. Stow needs to take affordable housing seriously, using tools and strategies that go beyond inclusionary zoning and CPA revenue to fill existing housing gaps and meet future needs.

Housing Plan Recommendations

To encourage more housing choices in Stow, the town should implement the following recommendations:

1) Establish a permanent Housing Partnership Committee. The Committee's charge should include:

   a) Advise the Board of Selectmen, Planning Board and Zoning Board of Appeals on local housing policy.

   b) Conduct periodic needs assessments, on its own and in conjunction with regional housing and planning organizations.

   c) Disseminate information about housing needs in Stow and the surrounding region.

   d) Act as the point of contact for prospective comprehensive permit applicants.

   e) Conduct a technical review of site approval (project eligibility) applications filed by developers with MassHousing or DHCD prior to the submission of a comprehensive permit, and assist the Board of Selectmen with preparing written comments, if any.

   f) Advocate for realistic ways to increase the diversity of homes and the supply of affordable homeownership and rental housing units in Stow.

   g) Assist property owners and developers of small, locally sponsored projects with preparing "Local Initiative Program (LIP) Units Only" applications to DHCD so that eligible housing units may be added to the Chapter 40B Subsidized Housing Inventory.

   h) Advise the Community Preservation Committee (CPC) on realistic, effective ways to use Community Preservation Act revenue to create affordable housing opportunities in Stow.

2) Modify existing zoning regulations to allow accessory apartments in single-family homes or accessory structures over 10 years old, as follows:

   a) Allow accessory apartments as of right, subject to an affordable housing use restriction as a condition for issuing a certificate of occupancy. The Housing Partnership Committee should make a model use restriction available to interested property owners and assure that the restriction meets Local Initiative Program (LIP) requirements.

   b) Allow accessory apartments by special permit from the Planning Board in order to waive the affordable housing use restriction.

   Accessory apartments meet a number of housing needs. Their importance should not be minimized simply because they are small housing units, developed incrementally at the discretion of homeowners. Stow needs housing diversity as much as it needs affordability.

3) Modify existing zoning regulations to facilitate single-family to multi-unit conversions for large residences built prior to 1950, as follows:

   a) Allow up to three units by right, subject to a site plan and design review by the Planning Board and an affordable housing use restriction for at least one unit.

   b) Allow up to four units by special permit from the Planning Board, including site plan and design review, subject to an affordable housing use restriction for at least one unit.

4) Amend the Zoning Bylaw to encourage mixed-use village development through overlay districts or by Transfer of Development Rights (TDR). In designated village zones:

   a) Encourage structures that include a mix of residential units and commercial space.

   b) Allow freestanding multi-family and over-55 development. The regulations should specify a minimum percentage of affordable units, and for multi-family developments of 15 units or more, the bylaw should specify a minimum percentage of units accessible to persons with disabilities.

   c) Modify the existing regulations for hammerhead (reduced frontage) lots by substituting affordable dwelling units for an increase in lot size, and add a new use, "infill residential uses," as the allowable use on hammerhead lots.

5) Replace existing regulations for Planned Conservation Development with a mandatory open space-residential development bylaw that applies to all divisions of land into five or more lots or developments of five or more units, and provide a modest density incentive to preserve exemplary open space or create a higher percentage of affordable housing units than required under the town's new Inclusionary Zoning Bylaw.

6) Modify the fee in-lieu-of provisions of the Inclusionary Zoning Bylaw (ATM 2003) to more accurately reflect the town's cost to provide affordable housing units. Since a majority of Stow's local initiative housing will be homeownership units created through conversion, acquisition and disposition of existing structures, the inclusionary housing fee should reflect the gap between the affordable purchase price for a low- or moderate-income household and the town's median single-family home sale price. To assure that pricing strategy meets LIP guidelines, the household income used to define "affordable" should be adjusted to 90% of the low- and moderate-income limit that applies to Stow. The difference between the

recommended "gap" analysis methodology and the formula in Stow's existing bylaw is as follows:

"Gap" Formula		Zoning Formula	
Household of Four, 80% Area Median Income	$62,650	Household of Four, 80% Area Median Income	$62,650
90% (LIP Adjusted)	$56,385	X3	$187,950
Affordable Purchase Price	$169,721		
Median Single-Family Home Sale Price (2002)	$385,000		
Developer's Fee	$215,279	Developer's Fee	$187,950

7) Modify the Inclusionary Zoning Bylaw to provide for a percentage of homes affordable to "below-market" households, e.g., households with incomes between 81-110% of area median income. These households are not served by <u>any</u> of the prevailing housing subsidy programs and since their incomes exceed the standard used for Chapter 40B eligibility, only a handful of communities include them in a local definition of "affordable housing." Stow's housing needs are not limited to homes for low- and moderate-income people.

8) Petition the General Court to create a Local Housing Trust Fund. The fund should allow local officials to pool their housing resources and allocate them to public or non-profit organizations without having to follow the real property procurement procedures of Chapter 30B.

9) Commit a minimum percentage of each year's CPA revenue to affordable housing, e.g., 25%, in order to fund a Local Housing Program.

10) Integrate affordable housing into the town's next Open Space and Recreation Plan by identifying lands of conservation interest that would be suitable candidates for a mixed-income limited development project if the sites were acquired as open space.

11) Supplement the capacity of Stow Community Housing Corporation with a local development corporation created by petition to the General Court.

12) Modify the Comprehensive Permit Policy (December 2002). Specifically:

    a) Emphasize acceptable density ranges for homeownership and rental developments over an upper-limit for project scale.

    b) Provide more explicit architectural design guidelines.

    c) Eliminate or modify the statement of preference for rental housing until such time as local officials reach agreement about Stow's interest in promoting low-income rental units. Through its Housing Partnership Committee, Stow may wish to encourage individual applicants to pursue rental development because there is ample evidence of rental housing need in Stow and the surrounding region. However, the existing policy suggests that the town has taken a position that may not be shared or supported by a majority of local officials.

13) Request that developers pay a reasonable fee to the town for peer review services when the Zoning Board of Appeals received a comprehensive permit application. Peer review consultants retained by and reporting directly to the Zoning Board of Appeals will most likely be perceived as independent and neutral.

    a) The town should always retain a qualified consultant to analyze the development pro forma. The purpose of Chapter 40B is to remove regulatory barriers to low-income housing development. Developers may seek relief from local regulations that make affordable housing uneconomic to build, but they are not entitled to relief that exceeds what is required to make a project feasible. In turn, the town must be clear about its expectations for comprehensive permit developments. For example, it is almost always possible to reduce the density of a proposed development by increasing housing sale prices to the maximum that is theoretically affordable to a moderate-income household. However, if Stow wants to provide housing for a mix of incomes, increasing the sale price of homes in order to reduce density would seem to conflict with that goal. If lower density is more important than sale price and income targets, then a pro forma analysis will help the town negotiate successfully toward that end. In addition, an analysis by a qualified consultant will be crucial to Stow's credibility in a Housing Appeals Committee (HAC) proceeding.

    b) The town should retain a registered architect and landscape architect to review the proposed site plan and elevations. Design quality and compatibility will be crucial to the success of affordable housing endeavors in Stow. Emphasizing aesthetics and site planning principles is as important as controlling density.

    c) The town should retain qualified legal counsel to review the applicant's proposed affordable housing use restriction and recommend procedures to the Zoning Board of Appeals for assuring that all use restrictions are properly completed before they are recorded at the registry of deeds.

14) Designate an individual officer of the town to negotiate with comprehensive permit applicants.

15) Submit a Planned Production Strategy to DHCD for approval under 760 CMR 31.07(d).

II. Housing Production Plan

Priority Needs

The Housing Production Plan addresses five categories of need.[1] Below is a summary discussion of each major category and a rationale for their inclusion in the Housing Production Plan.

Rental Housing Needs

Compared to the Boston Metropolitan Statistical Area (Boston PMSA),[2] Stow's inventory of rental housing differs in three noteworthy respects. First, rental units constitute a much lower percentage of all housing units. Second, single-family homes provide a much higher percentage of renter-occupied housing and as a result, many rental opportunities in Stow today are vulnerable to homeownership conversion. (In fact, Stow has fewer renter-occupied units today than was the case in 1990.) Third, virtually all of the housing developed for renters in Stow was built under comprehensive permits and this contributes to an average multi-family rent that is quite a bit lower the average PMSA-wide rent. However, the average rent for single-family homes – a plurality of all rental stock in Stow – is nearly equal to that of single-family homes throughout the PMSA. In April 2000, Stow's overall housing vacancy rate of 1.5% was lower than the PMSA's vacancy rate (2.6%), yet unlike the PMSA as a whole, Stow had no vacant rental units.[3]

Comparison Data: Rental Units and Average Rents by Type of Structure

	Stow	Boston PMSA	Average Rent		Ratio PMSA/Stow Rents
Total Housing Inventory	2,128	1,377,707			
Total Rental Units	271	542,734	$705	$812	1.15
Rental Units by Type of Structure					
1, detached or attached	129	58,595	$816	$851	1.04
2 to 4	100	222,846	$686	$843	1.23
5 to 19	42	126,448	$407	$776	1.91
20 to 49	0	54,625	N/A	$803	N/A
50 or more	0	79,127	N/A	$763	N/A
Mobile home	0	1,033	N/A	$555	N/A
Boat, RV, van, etc.	0	60	N/A	$352	N/A
% Rental	12.7%	39.4%			
% Single-Family	47.6%	10.8%			

Source: Census 2000, Summary File 3, Tables H1, H7, H32, H66.

[1] See Section III, Analysis of Needs.

[2] The Boston PMSA includes all of Suffolk and Middlesex Counties, most of Norfolk and Essex Counties, portions of Bristol, Plymouth and Worcester Counties, and two towns in NH.

[3] Vacancy rate excludes seasonal and vacation homes.

A number of rental housing barriers exist in Stow and they help to explain why the town has a shortage of rental units at all market levels. Stow's lack of public water and sewer service makes developing higher-density housing more difficult and expensive, and density is key to rental feasibility. Like most suburbs, Stow does not allow higher-density development and to the extent that attached or common-wall units are allowed, they require a special permit. As a result, developments that could be built with a package treatment facility and thereby comply with Title V are not possible under Stow's existing zoning scheme. Local regulatory constraints mean that developers have no choice but to use Chapter 40B as the vehicle to develop rental housing, a condition that assures controversy because residents and town officials dislike the loss of local control and the density that come with comprehensive permits. The same condition makes it extremely difficult to provide rental housing affordable to a range of household incomes.

Chapter 40B is a notoriously poor tool for serving households that need "below-market" rents, i.e., for households with incomes too high to qualify for a Chapter 40B unit and too low to afford prevailing market rents. Throughout Massachusetts, some of the highest percentages of cost-burdened renters live in suburbs that absorbed new Chapter 40B rental developments during the 1990s.[4] In part, this trend reflects the structure of Chapter 40B rental housing, for new developments typically reserve 25% of the units for low-income renters and make 75% available for "market" occupancy, yet often, the unrestricted units are priced at the high end of the market. In addition, low-income units are not always affordable to the households that actually occupy them. Stow's regionally low multi-family rents also attest to developer dependence on comprehensive permits, but for a different reason: all of the units in its two rental developments – Plantation Apartments and Pilot Grove – were built to meet low- and moderate-income housing needs. Regardless, the percentage of low-income renters paying more than 30% of their monthly income on rent and utilities is very high in Stow and throughout the Boston area.

Comparison Data: Renter Income and Housing Cost Burden

	Stow		Boston PMSA	
Median Household Income (Total)	$96,290		$55,183	
Median Income Renter Households	$39,632		$35,023	
Ratio Total Median to Renter Median	2.43		1.58	
% Renters < $35,000/year	44.6%		50.0%	
Total Renter-Occupied Units	271		541,719	
Household Income Range		% Cost Burdened		% Cost Burdened
Less than $10,000	30	100%	85,872	62%
$10,000 to $19,999	67	46%	80,313	68%
$20,000 to $34,999	24	50%	104,564	59%
$35,000 to $49,999	54	22%	86,963	25%
$50,000 to $74,999	81	0%	93,114	9%
$75,000 to $99,999	0	N/A	46,165	2%
$100,000 or more	15	0%	44,728	1%

Source: Census 2000, Summary File 3, Tables P53, H73, HCT12.

[4] A "cost burdened" household pays more than 30% of its gross monthly income for rent and utilities or the combined cost of a mortgage, taxes and insurance.

Homeownership Needs

Housing units in a recently approved comprehensive permit development, The Village at Stow, and units in a proposed development known as Cloudland Farm, will help to address existing local and regional needs for moderate-income homeownership units. If the homes retain their affordability over time, they should satisfy Stow's "fair-share" obligation for Chapter 40B homeownership units for many years. Depending on the actual sale price of the market (unrestricted) homes, these two developments may also help to address regional needs for housing that is affordable to middle-income households. The town faces several challenges, however.

If the Chapter 40B homeownership units are priced too high – literally at the maximum affordable to a household at 80% of area median income – the pool of mortgage-qualified, moderate-income homebuyers will be limited by design. Still, the initial sales period may be less problematic than resale. When the first buyers decide to sell their homes, the affordable housing use restriction on their property requires them to make the home available to income-eligible homebuyers for a specific period of time. If a qualified buyer cannot be found, the homeowner is allowed to sell the unit at market value. The resulting "windfall" must be paid to the state (DHCD) for reinvestment in new affordable housing development.[5] Under current DHCD policy, the affordable units in an approved comprehensive permit remain on the Chapter 40B Subsidized Housing Inventory even when they lose their affordability upon resale. DHCD's hold-harmless policy is fair to communities, but it does not address the problem of lost housing affordability – a problem that has affected many cities and towns across the state. In addition, waiving zoning rules for developments that provide affordable housing only in the short run raises serious public policy issues.

Neither The Village at Stow nor Cloudland is designed for "empty nester" and elderly homebuyer markets. As approved by the Zoning Board of Appeals, the Village at Stow should be very attractive to young families: childless couples, and couples or single parents with children. Though some officials fear a negative fiscal impact on schools, residents at the Village at Stow will be demographically similar to most households already living in Stow. It seems reasonably certain that the Village at Stow and Cloudland will address family housing needs, which leaves Stow with the challenge of addressing housing for senior and young citizens: populations inadequately served by the market or existing Chapter 40B activity. Housing cost burden affects older householders in Stow far more than is the case regionally, a condition that seems to correlate with the town's disproportionately low percentage of elderly households. Of course, housing cost is not the only factor that makes homes attractive to and suitable for elderly occupants and it is not the only barrier for young individuals, either. Small housing units in relatively maintenance-free, managed

[5] The initial moderate-income buyers pay a discounted price for their Chapter 40B homeownership unit. The discount is the difference between the unit's market value and the price paid by the buyers. Upon resale, the initial buyers may not sell the unit for more than the discount they received. Example: if the initial buyers paid a discounted price equal to 75% of their home's market value, then upon resale, they are limited to a sale price that is 75% of the unit's appraised value at that point in time. When an income-eligible buyer cannot be found, the initial buyers may sell the unit at market value. The portion of the actual sale price that exceeds their discount is the "windfall" that must be repaid to the state.

developments meet needs that detached single-family homes cannot meet. Except for homes developed under Stow's "Active Adult Neighborhood Overlay District" bylaw, the town does not have effective regulatory mechanisms to create housing for those who do not want the cost or maintenance burdens of a single-family home. Unfortunately, Stow's approach to land use regulation contributes to the fiscal impacts that residents loathe and at the same time makes the community less affordable to all households – with or without children.

Comparison Data: Homeowner Income, Age and Percent Cost Burden

	Stow		Boston PMSA	
Median Household Income (Total)	$96,290		$55,183	
Median Homeowner Income	$101,740		$71,766	
Ratio Total Median to Homeowner Median	0.95		0.77	
Total Owner-Occupied Units	1,699		587,230	
Household Income Range		% Cost Burdened		% Cost Burdened
Less than $10,000	22	63.6%	15,303	78.8%
$10,000 to $19,999	65	81.5%	28,646	73.8%
$20,000 to $34,999	103	40.8%	54,293	45.4%
$35,000 to $49,999	92	32.6%	64,805	42.4%
$50,000 to $74,999	226	45.1%	122,016	26.8%
$75,000 to $99,999	288	31.9%	103,860	11.2%
$100,000 to $149,999	569	5.6%	111,692	5.8%
$150,000 or more	334	3.0%	86,615	1.8%
Age of Homeowner		% Cost Burdened		% Cost Burdened
15-24	17	0.0%	1,753	37.8%
25-34	194	35.1%	55,286	26.4%
35-44	517	25.7%	145,722	25.3%
45-54	453	24.1%	146,585	20.9%
55-64	268	16.8%	97,768	19.8%
65-74	181	11.0%	77,019	24.1%
75+	69	0.0%	63,097	26.9%

Source: Census 2000, Summary File 3, Tables P53, H96, H97, HCT12.

Long-Term Goals and Five-Year Production Targets

Housing Need	Long-Term Goal	Calendar Year 2003	2004	2005	2006	2007	5-Year Plan Target
Low- and moderate-income rental units							
Elderly	20						0
Family	40	0	9	2	1	1	17
Individual	10	0	4	2	1	1	4
Disability	10					6	6
Middle-income rental units							
Family	75	0	27				37
Individual	15		10				0
Homeownership units							
Moderate-income family	25	24	20				44
Middle-income family	75	24	24	39	30	20	137
Moderate-income elderly	10			2		2	4
Middle-income elderly	25			2		2	4
Total	305	48	94	43	32	28	245
# Chapter 40B units	205	24	70	6	2	10	112
% Chapter 40B units	67.2%	50.0%	35.1%	9.3%	6.3%	28.6%	45.7%

Notes to Table. (1) % Chapter 40B units reflects DHCD policies currently in effect: all units in a comprehensive permit rental development, and all affordable units in a homeownership development, qualify for listing on the Subsidized Housing Inventory. (2) Village at Stow approval of 96 units, 24 affordable, is presumed to be consistent with local need because the number of new Chapter 40B units exceeds .75 of 1% of Stow's total housing inventory. The Production Plan begins with Village at Stow. (3) Units estimated for approval in CY 2004 exceed the 1.5% threshold for two years of "consistent with local need" under 760 CMR 31.07(1)(i) ["Planned Production"]. (4) Units in an approved comprehensive permit will remain on the Subsidized Housing Inventory for 12 months. If building permits have not been issued 12 months after the approval date, the units will be removed from the Inventory. The Chapter 40B Task Force has recommended that DHCD have flexibility to make case-by-case determinations before removing approved units from the Inventory. (5) Table assumes Village at Stow will be constructed under the 96-unit comprehensive permit approved by the Zoning Board of Appeals, and that Cloudland Farm will be approved for a combination of rental and homeownership units, somewhere between 100-130 units total.

Five-Year Production Targets: Resources and Participants

Principle/Need	Long-Term Goal	Five-Year Plan Goal	Resources/Participants/Potential Strategies
Low- and moderate-income rental units			
Senior	20	0	Work with SCHC to develop HUD-202 elderly rental housing.
Family	40	13	Cloudland Farm or an alternative comprehensive permit; modified single-family conversion bylaw, CPA-assisted units; work with SCHC to create a small LIHTC or HOME-assisted development on town-owned land.
Individual	10	8	Cloudland Farm; modified accessory apartment bylaw; CPA revenue.
Disability	10	6	Work with Stow Housing Authority, Mass. DMH/DMR to develop 6 units of housing for persons with disabilities.
Middle-income rental units			
Family	75	27	Cloudland Farm; alternative comprehensive permit sponsored by SCHC, town.
Individual	15	10	Cloudland Farm; alternative comprehensive permit sponsored by SCHC, town.
Homeownership units			
Moderate-income family	25	44	Village at Stow; Cloudland Farm; CPA-assisted acquisition/disposition projects.
Middle-income family	75	137	Village at Stow; Cloudland Farm; limited development/open space projects.
Moderate-income elderly	10	4	CPA-assisted acquisition/disposition projects; AAN developments.
Middle-income elderly	25	4	Negotiate with AAN developers to reserve % of units for below-market sales.

III. Analysis of Needs

Population Trends

Stow is a small, affluent community in one of the state's most rapidly growing regions – and also one of its wealthiest. Most of Stow's 5,902 residents live comfortably, as suggested by the town's high median household income of $96,290 and the quality, condition and value of its homes. Owing to Stow's small-town charm, prestige and long-standing preference for single-family residential development, a majority of its households are traditional families and an unusually high percentage of them have children under 18.[6] Not surprisingly, Stow households are somewhat larger than their counterparts statewide: 2.82 compared to 2.51 persons per household. Table 1 presents basic household characteristics for Stow, Middlesex County and the Commonwealth.

Table 1: Comparative Household Characteristics

	Stow	Middlesex County	Massachusetts
Population	5,902	1,465,396	6,349,097
Households	2,082	561,220	2,443,580
Families	1,678	361,076	1,576,696
Percent Families	80.6%	64.3%	64.5%
Average Household Size	2.82	2.52	2.51
Households w/ Children < 18	896	180,054	748,865
Percent Households w/ Children <18	43.0%	32.1%	30.6%

Source: Bureau of the Census, Summary File 1, Table DP-1.

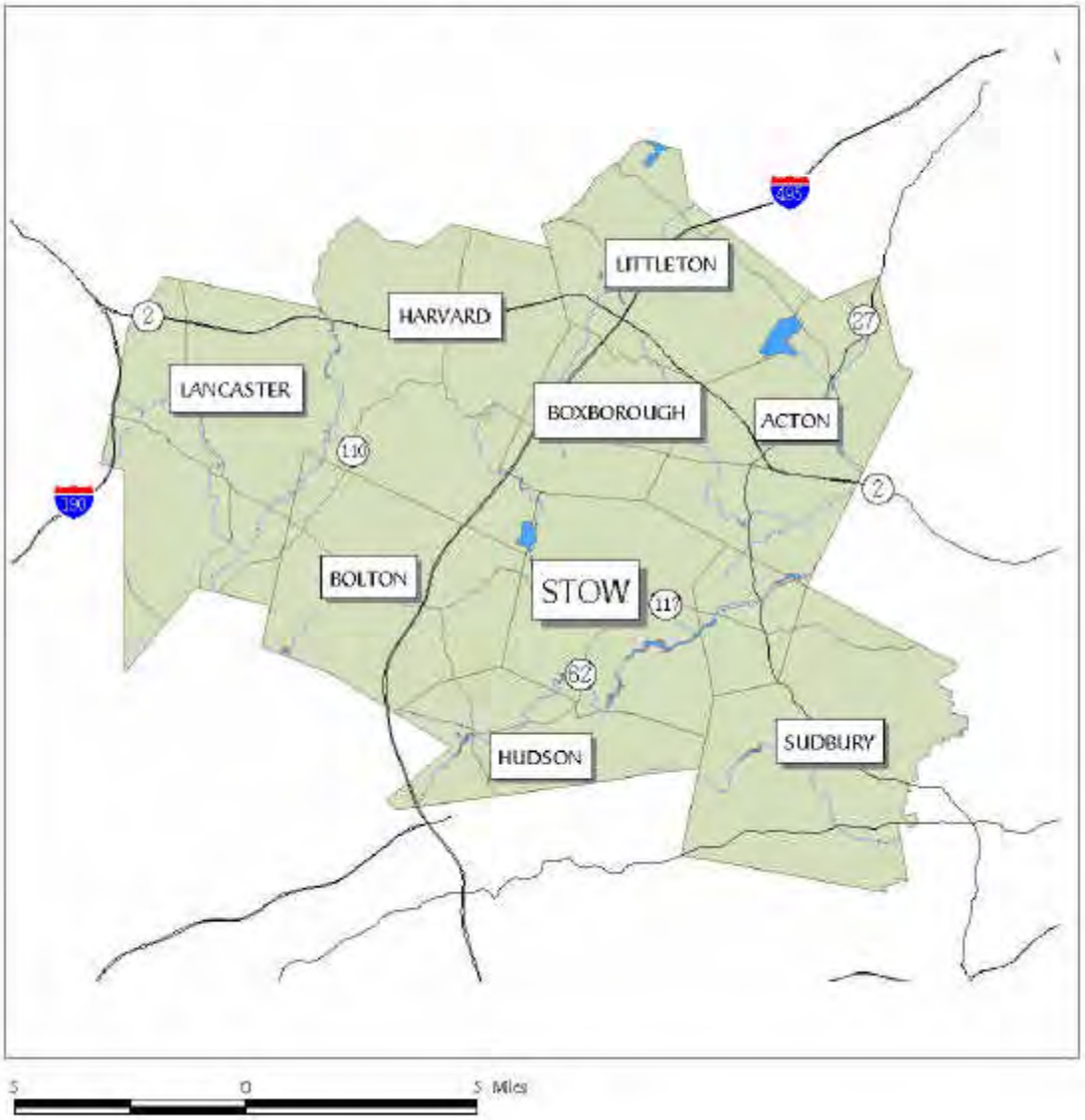
Slightly more than 16% of all households in town include at least one elderly person, and about 5% of Stow's senior citizens live with a son or daughter and grandchildren.[7] The elderly (65 and over) constitute 8.2% of Stow's population. Like most residents of Stow, the vast majority of elders are homeowners; unlike most residents, about 70% of Stow's elderly households have lived in town for at least 20 years. More than 42% of the town's homeowners bought their present home between 1990-2000, mainly after 1995. For every new home built during the 1990s, Stow gained nearly three new households as older residences were recycled in the market, a housing turnover rate slightly lower than average for the regional area depicted in Fig 1.[8]

[6] As used throughout this report, "family" refers to a household of persons related by blood or marriage. "Household" refers to all persons occupying the same housing unit. It includes families and non-family households, e.g., a household of one person, or two ore more unrelated persons.

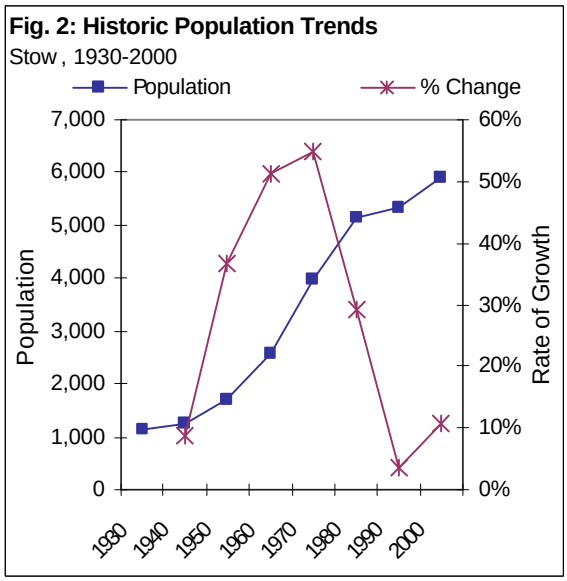
[7] Bureau of the Census, Census 2000, Summary File 3, Table DP-2, Middlesex County Census Tract 3231 (Stow).

[8] Census 2000, Summary File 3, Tables H-36, H-38.

Fig. 1
Town of Stow
& Regional Housing Market Study Area



Population Growth



During the past decade, the population of Stow increased by 10.8%: higher than the statewide growth rate of 5.5% but much lower than that of many surrounding towns.[9] Figure 2 shows that Stow experienced 20 years of rapid, sustained population growth after 1950, a period that coincides with the completion of two major regional highways, suburban development throughout Eastern Massachusetts, and clearly, the post-war baby boom. Like most communities, Stow has grown in a cyclical pattern, responding to trends that originated far beyond its own borders. The town continued to gain population after 1970, but its growth rate dropped sharply even though it absorbed more new homes during the 1970s than in any previous or subsequent decade. The recent reversal of Stow's declining growth rate is attributable not only to housing starts that occurred during the 1990s, but also the re-sale of older homes. Table 2 compares Stow's 1940-2000 population history to sub-regional and state trends.

Table 2: Comparison Population Statistics

Geography	1940	1960	1980	1990	2000	% Change 1990-2000
Acton	2,701	7,238	17,544	17,872	20,331	13.8%
Bolton	775	1,264	2,530	3,134	4,148	32.4%
Boxborough	376	744	3,126	3,343	4,868	45.6%
Harvard*	1,790	2,563	3,744	4,662	5,230	12.2%
Hudson	8,042	9,666	16,408	17,233	18,113	5.1%
Lancaster*	2,963	3,958	5,034	6,289	6,211	-1.2%
Littleton	1,651	5,109	6,970	7,051	8,184	16.1%
Maynard	6,812	7,695	9,590	10,325	10,433	1.0%
STOW	1,243	2,573	5,144	5,328	5,902	10.8%
Sudbury	1,754	7,447	14,027	14,358	16,841	17.3%
Total	28,107	48,257	84,117	89,595	100,261	11.9%
Middlesex County	971,390	1,238,742	1,367,034	1,398,468	1,465,396	4.8%
Massachusetts	4,690,514	5,689,377	6,016,425	6,016,425	6,349,097	5.5%

Sources: MISER, "Population of Massachusetts Cities, Towns and Counties: Census Counts and Estimates, 1930-2000," in EXCEL [pop30-90, currest.xls]; Census 2000, Summary File 1. Harvard and Lancaster population for 2000 excludes inmates of correctional facilities. Harvard population counts from 1950-1990 exclude military personnel and families stationed at Fort Devens.

[9] 1990 Census of Population and Housing and Census 2000, Summary File 1, Table DP-1, Census Tract 3231.

Population and Age

As the town grew over the past decade, the age make-up of its population changed as well. The elderly as a percentage of the state's population dropped minimally from 13.6% in 1990 to 13.5% in 2000, but the opposite occurred in Stow, where elders made up 6.9% of the population in 1990 and 8.2% in 2000. In absolute terms, Stow's elderly population increased by 115 people or 31.1%, mainly among persons between 65-74, yet the same age group declined statewide by 7%. The high rate of growth among senior citizens in Stow contributes to the difference in median age between the town (38.8 years) and the state as a whole (36.5 years). However, Stow's experience differs in at least one other significant way. The in-migration of families during the 1990s led to a 17% increase in Stow's under-18 population, though the state's rose by only 10.9%. In addition, under-18 population growth statewide occurred among persons between 5-17 years of age while the pre-school population declined 3.7%, but in Stow, the pre-school population increased by 21% between 1990-2000, as shown in Table 3.

Table 3: Change in Age of Stow Population, 1990-2000

Age Cohort	1990	2000	% Change	Age Cohort	1990	2000	% Change
Under 5	419	510	21.7%	Age 45-54	842	1,039	23.4%
Age 5-17	1,004	1,157	15.2%	Age 55-64	418	660	57.9%
Age 18-24	420	246	-41.4%	Age 65-74	204	287	40.7%
Age 25-34	731	575	-21.3%	Over 75	166	198	19.3%
Age 35-44	1,124	1,230	9.4%				
Total Population	5,328	5,902	10.8%				
% Population <18				% Population >65			
Stow	26.7%	28.2%		Stow	6.9%	8.2%	
Massachusetts	22.5%	23.6%		Massachusetts	13.6%	13.5%	

Source: Bureau of the Census, 1990 Census of Population and Housing, Census 2000, Summary File 1.

Race, Ethnicity and National Origin

Stow residents are primarily white (95.5%) and of Irish, English, or Italian descent. Among racial minority groups, the Asian population is Stow's largest (2.0%) and it is comprised mainly of Asian Indian, Chinese and Korean persons. Slightly more than one percent of Stow's current population is Hispanic.[10]

Labor Force, Education & Employment

Stow's very high labor force participation rate of 75% and its higher-than-average share of families with two working parents shed light on the economic position of its households. As a group, local residents have high-paying jobs commensurate with their educational achievement: primarily managers and professionals, employed in manufacturing, research and development, science and technology, the health professions, education, and financial services, with 62% of the town's

[10] Census 2000, Summary File 1, Table DP-1; Summary File 3, Table DP 2.

over-25 population holding college, professional or graduate degrees. Like other affluent towns, Stow has a higher percentage of people working all or a portion of their week at home (5.8%) than elsewhere in the Commonwealth (3.1%),[11] and a much higher percentage of local residents (11%) are self-employed, compared to the state (6.4%). In addition, the town's unemployment rate typically runs much lower than the statewide or Metro-West regional unemployment rate, even during the recession of the early 1990s.[12] Except for the self-employed with a home occupation, business or professional office in town, most residents of Stow do not work locally. On average, they commute slightly more than one-half hour to work each day, mainly by car, to larger employment centers elsewhere in Middlesex County or to Boston.

Available data indicate that last year, Stow's 202 business, farm, government and non-profit establishments employed a total of 2,151 people and paid an average annual wage of $62,042 per year, placing Stow among the state's top ten municipalities for wage competitiveness.[13] However, while the town offers a number of high-paying jobs, the modest size of Stow's employment base translates into about .67 jobs per person in the labor force. In addition, the strength of Stow's average annual wage belies important information about the structure and composition of the local economy: information that reinforces the necessity of non-local employment for most of the town's primary wage earners. "Average" means that the generally high salaries paid by manufacturing, government and some professional service employers – about 22% of Stow's total employment base – mask the lower wages paid by retail trade and personal services establishments. About 60% of all local employment is comprised of full- and part-time trade or service jobs.[14]

Income and Wealth

Virtually every key indicator of local wealth gives proof to Stow's affluent reputation. Recent federal census data show that the town's median household income of $96,290 places Stow in the top 20 of all 351 communities in Massachusetts, a status the town has enjoyed for at least two decades.[15] A number of towns near Stow also rank very high on the Commonwealth's roster of wealthy communities, including Sudbury, Harvard, Acton and Boxborough, as shown in Table 4.

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[11] The percentage of persons working at home, either in home occupations or as tele-commuters, is most likely higher than suggested by decennial census data.

[12] Massachusetts Department of Employment and Training (DET), [database online], "Local Area Unemployment Series" (LAUS), 1983-2000.

[13] DET, ES-202.

[14] DET, "Annual Employment and Wage Summary for 2001: Massachusetts," 2082-2094.

[15] Census 2000, Summary File 3, Table DP-3; Boston Globe, 21 May 2002, citing 20-year decennial census data series and untitled press kit supplied by Bureau of the Census to New England media establishments, in EXCEL, "intoma14.xls," <http://www.boston.com> [cited 21 May 2002].

Table 4: Comparison Household Income and Wealth Data

	Median Household Income ($)	State Rank	Total Households	% Household Income >$200,000	Average Single-Family Home Value (FY02)	Ratio Local Tax Bill to State Median (FY02)
Acton	91,624	21	7,469	11.4%	380,802	2.23
Bolton	102,798	10	1,427	13.0%	335,096	2.09
Boxborough	87,618	28	1,867	11.5%	362,751	2.18
Harvard	107,934	8	1,817	16.6%	423,453	1.92
Hudson	58,549	141	6,984	2.3%	225,755	1.01
Lancaster	60,752	123	2,070	3.5%	218,092	1.28
Littleton	71,384	63	2,960	5.9%	236,809	1.21
Maynard	60,812	122	4,278	0.7%	200,783	1.38
STOW	96,290	17	2,089	7.0%	346,305	1.98
Sudbury	118,579	5	5,523	24.5%	432,961	2.87
Boston CMSA	52,699					
Massachusetts	50,502					

Sources: Census 2000, Summary File 3, Tables QT-P32, QT-P33; Mass. Department of Revenue (DOR), Municipal Data Bank. "CMSA" means "Consolidated Metropolitan Statistical Area," a large region consisting of two or more metropolitan areas. The Boston CMSA includes the areas surrounding Boston, Lawrence and Worcester, and extends from Massachusetts into Connecticut, New Hampshire and Maine. Data cited above pertain only to the CMSA's Massachusetts portion.

The upper-income position of most households in Stow directly reflects their sources of income and the educational backgrounds, occupations and size of the town's labor force. More than 90% of Stow's households have earned income, i.e., wage and salary income from employment, and not surprisingly, their mean annual earnings far surpass the mean earnings of households across the Commonwealth: $106,037 in Stow, $68,437 for the state as a whole. Stow's adult population is prepared by education and training to compete for the best of jobs, a characteristic that applies equally to men and women. Among married-couple families, which constitute 72.2% of the town's households, more than 60% of all wives work full- or part-time and the percentage of working women increases significantly for those with school-age or college-age children. Moreover, despite the persistence of a gendered income gap nationwide, employed women in Stow earn more per year than women elsewhere in Massachusetts: $40,911 locally and $32,059 across the state. The difference in male earnings is even more dramatic, for the median earned income of employed men in Stow ($75,758) is 1.76 times that of all men across the state ($43,048).[16] Finally, Stow residents enjoy not only high incomes, but also high property values. The average single-family home value in Stow ranks 45th in Massachusetts and this year, local

[16] Census 2000, Summary File 1, Table QT-10; Summary File 3, Tables QT-P26, DP-3. Mean earnings data apply to men and women employed full-time in 1999. Statewide, married-couple families constitute 49% of all households.

homeowners will pay the state's 33rd highest average single-family tax bill.[17] Not surprisingly, Stow's equalized valuation (EQV) per capita falls in the top quartile for the state as a whole.[18]

Household Characteristics by Age Group and Neighborhood

Although Stow's households clearly enjoy a high standard of living, its population is not as homogenous as community-wide statistics may suggest. About 23% of all households in Stow have incomes below the region-wide median,[19] and while the incidence of moderate-income households increases significantly among persons over 65, the elderly alone do not account for economic differences that exist among Stow households. Incomes vary across town, and the differences seemingly correlate with other population characteristics: length of residency, age, household size and composition, housing tenure and the age and value of residential property.

For federal census purposes, all of Stow lies within one Middlesex County census tract that is subdivided into the five census block groups shown in Fig. 3. Geographic boundaries drawn by the Census Bureau most likely do not match local sensibilities about the meaning of "neighborhood," but they support a comparison analysis of growth and change across the town. Four of the block groups are populated while the fifth (Block Group 9) consists entirely of land owned by the U.S. Fish and Wildlife Service in the southeast corner of Stow. The smallest of the remaining four block groups (3) includes two of Stow's villages – Stow Center and Lower Village – while the largest (4) contains the villages of Gleasondale and Lake Boon. Another large area tracked by the Census Bureau, block group 5, extends generally west from Boxboro and Hudson Roads while the northeastern section adjacent to Acton and Maynard constitutes block group 1.

Since it covers a comparatively small area with two historic villages, block group 3 has the town's highest population density per mi^2 (570 people). Though block group 3 contains 19% of Stow's entire housing inventory, it has only 17% of the town-wide population. Not surprisingly, block group 3 also has a higher proportion of elderly households (20.8%), a higher percentage of renters (28.4%), and a much higher percentage of residents who moved to Stow 20 or more years ago (43.2%) than any other part of town. However, nearly 38% of its homeowners moved into their present house during the last half of the 1990s, the highest homeowner move-in rate of

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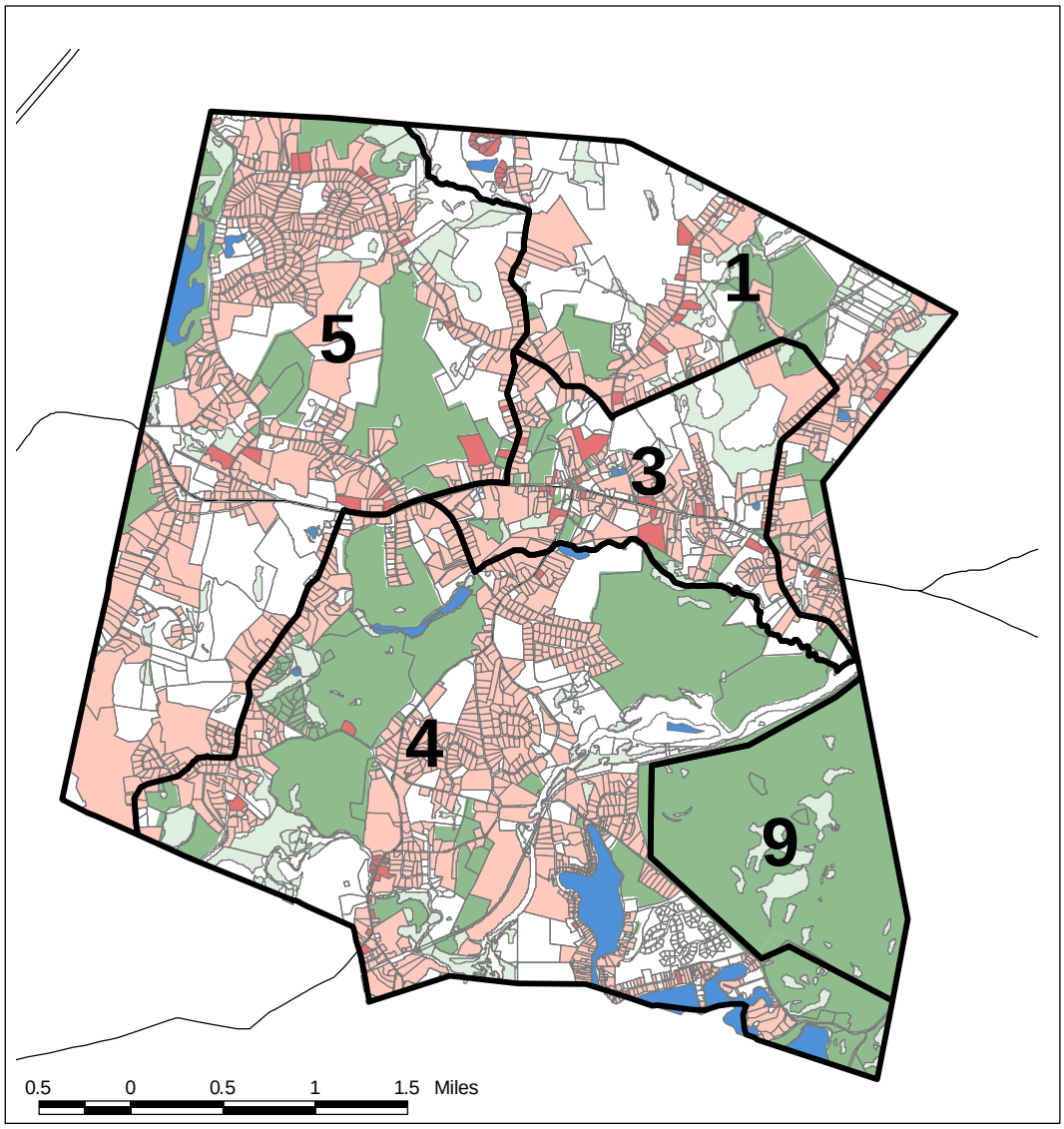
[17] Mass. Department of Revenue, Municipal Data Bank [database online], "bill03.xls," [cited 14 December 2002]. Stow's home value and tax bill ranks are based on currently reported data for 279 cities and towns.

[18] Source: Municipal Data Bank [on-line database], in EXCEL, "eqv02.xls," [cited 18 October 2002]. FY02 Equalized Valuations (EQV) have been proposed by DOR but are not yet approved by the legislature. The above-cited statistics are *estimates* that reflect DOR's proposed FY02 EQV's for all cities and towns in the Commonwealth, divided by decennial census population counts. While somewhat lower than that of a few neighboring communities, Stow's EQV per capita of $136,413 is nonetheless at the mid-point for demographically similar suburbs. Significantly, 28% of all land in Stow is non-taxable and 26% is differentially assessed for its forestry, farm and recreational use, i.e., under Chapter 61, 61-A and 61-B agreements.

[19] "Region-wide" refers to the Boston PMSA, and 23% represents the percentage of Stow households with incomes at or below $65,500, the median household income for the region as of April 2000.

Fig. 3
Census Block Groups
Distribution of Existing Residential Development & Open Space



Stow's four developed block groups. Relative to the town as a whole, more new single-family home development has occurred in block group 4 (central-south) than other sections of town, a trend that will likely continue as growth extends outward from Stow's traditional village areas.

The distribution of household incomes in Stow attests to unique demographic characteristics that exist at the neighborhood level and across age groups, and undeniably, between Stow and the state as a whole. For example, Stow's youngest householders – persons under 25 – have extraordinarily high incomes compared to other young citizens across the Commonwealth, and while householders age 45-54 constitute the highest-income group statewide, this is not the case in Stow, where in all census block groups, the median income of householders age 35-44 consistently exceeds the median for the town as a whole (see Table 5). The geographic and age group distribution of Stow's highest-income households, i.e., households with annual incomes over $200,000, also sheds light on internal differences across the town. Though the town-wide percent of very-high-income households, 7%, is quite a bit lower than in several communities nearby, in Stow, their proportional share of aggregate household income is very high: nearly 25%. These distinctions are noticeably evident by census block group as shown in Table 5, but also by age of householder, as suggested in comparison Figures 4-5.

Fig. 4: Income Characteristics by Age of Householder in Stow

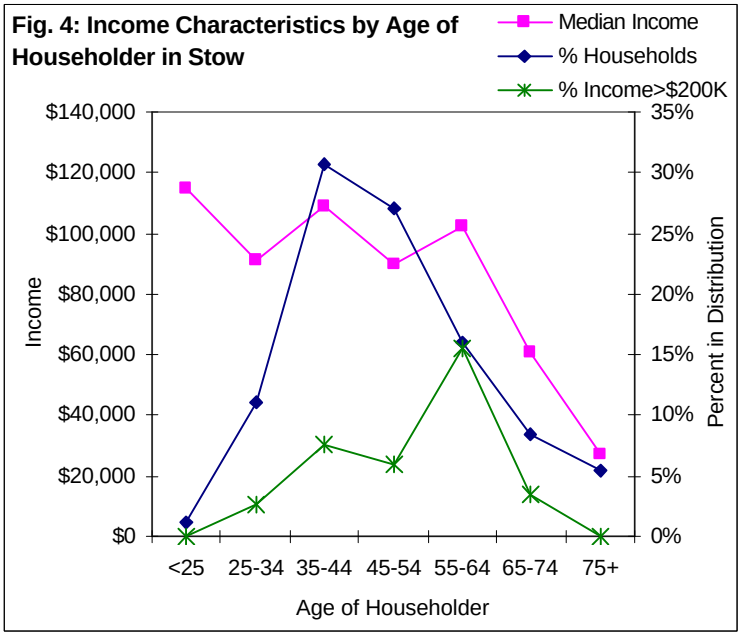


Fig. 5: Income Characteristics by Age of Householder in Massachusetts

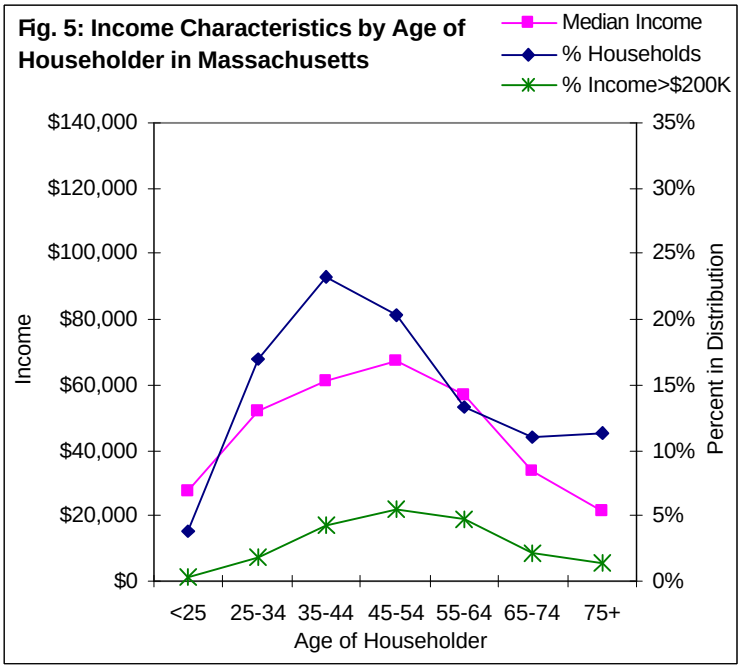


Table 5: Census Block Group Comparison Data

	Census Block Group, Tract 3231			
Characteristic	1	3	4	5
Total Area (in mi^2)	2.8	1.8	6.6	5.3
Population Characteristics				
Population	742	1,016	2,335	1,809
Households	256	398	845	583
% Family Households	80.3%	69.6%	81.0%	87.2%
% Families w/ Children <18	51.9%	58.1%	52.1%	52.9%
Average Household Size	2.71	2.55	2.85	3.00
% Homeowners in Stow >20 Yrs	35.3%	43.2%	31.6%	29.7%
Income Characteristics				
Median Household Income	$ 88,990	$ 88,703	$ 93,429	$ 103,237
Aggregate Household Income	$ 24,620,400	$ 39,875,900	$ 87,560,000	$ 75,338,000
Households w/ Income >$200,000				
% Households	0.0%	2.6%	8.6%	10.4%
% Aggregate Household Income	0.0%	25.1%	21.8%	32.7%

Source: Bureau of the Census, Summary File 3, Tables P-1, P-9, P-54, P-55, QT-10.

Housing Characteristics

Stow's homes are large, attractive and well maintained. While the pattern and density of residential land use differ somewhat across the town, Stow's housing stock is largely homogenous, comprised almost exclusively of detached single-family homes. As a result, most households are both families and homeowners. Approximately 90% of the town's 2,128 housing units are owner-occupied with an average of 2.95 persons per household. For many residents, their home is a cherished and valuable asset. About one-third of Stow's homeowners purchased their present house between 1995-2000 and paid an average of $363,000 for it, after the market rebounded from the recession of the early 1990s.[20] Like other communities nearby, Stow has a highly competitive housing market and during the past decade, the median single-family sale price nearly doubled.[21] Despite the high cost of a home in Stow, houses for sale move quickly, as evidenced by the town's extremely low owner-occupied vacancy rate of .3%.[22] When the last decennial census was taken in April 2000, there were 18 single-family homes on the market in Stow with a median asking price of $290,900.[23]

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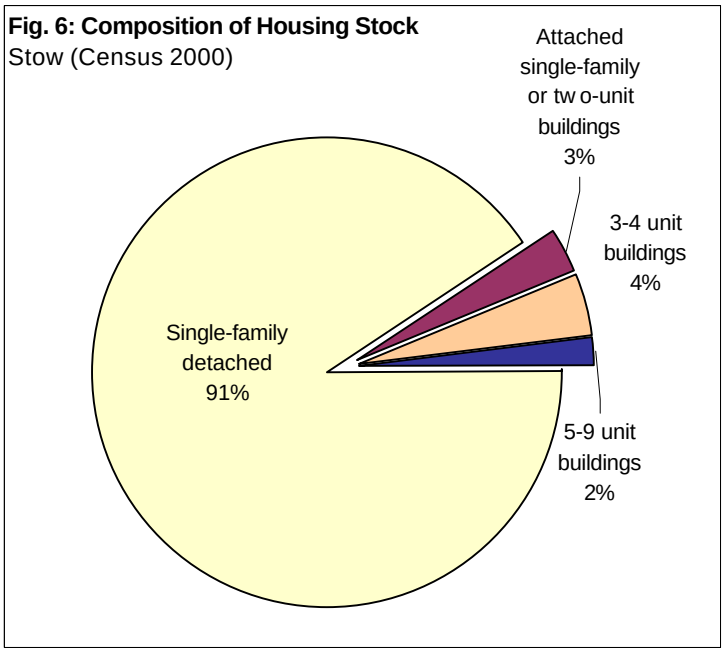
[20] Stow Assessor's Office, "FY03 Parcel Data," in EXCEL format [barrett.xls], 9 November 2002, and Census 2000, Summary File 3, Table QT-H7: Stow.

[21] Banker & Tradesman "Free Market Statistics," [database on-line], Boston, Massachusetts, available at <http://www.thewarrengroup.com/html>, INTERNET [accessed December 2002].

[22] Census 2000, Summary File 1, Table DP-1: Stow.

[23] Census 2000, Summary File 3, Table QT-H6: Stow.

Housing Stock



Stow's housing stock is comprised overwhelmingly of single-family homes, but the exceptions shed light on Stow's visual and social character a century ago. Figure 6 depicts the distribution of housing units in various types of residential buildings and shows that common-wall or attached units constitute about 9% of all homes in Stow. However, the data mask some important features of these units, namely their age and relationship to the town's physical evolution. For example, 43 two-family homes are scattered about the villages and in some of the town's outlying neighborhoods, and a limited number of three- and four-family residences can be seen in Gleasondale, along Route 117 and on West Acton Road. Virtually all of these homes pre-date the zoning bylaw, most having been built between 1860-1920. About ten homes in Stow are actually mixed-use buildings, i.e., a dwelling unit and commercial space in one structure, located mainly along Route 117, and they, too, are quite old. Small clusters of condominium units were just built near Boxborough, and Stow also has two small multi-family housing developments, both built in the early 1990s.

Since single-family homes are so prevalent in Stow, their characteristics and the diversity that exists among them have character-defining importance for the entire town. New and older 20th century homes differ somewhat in terms of size, amenities, value and lot size. The most recent additions to Stow's housing inventory contain an average 2,752 ft^2 of living area, with 4-5 bedrooms and 2.5 or more bathrooms, and they occupy parcels of about 2.12 acres. In contrast, homes built between the wars (1920-1945) average 1,455 ft^2 of living area, 2-3 bedrooms, and lots of about 1.01 acres. The spread in property values is also significant. The average assessment for new homes is $488,508, yet the 149 houses built during the 1930s and 1940s are assessed, on average, at $284,000. In contrast, single-family homes that pre-date 1900 are more like new houses in terms of size and value. Historic property assessments of $350,000-$425,000 are fairly common in Stow, yet often, the assessments are driven more by the value of land than by the house. The average ratio of land to building value among Stow's oldest homes is 1.13, but for recently built homes it is .86 (see Fig. 7). To some extent, the higher proportional value of land is a surrogate for the larger average lot area (2.5 acres) that typifies historic single-family houses in Stow. However, the more significant difference can be found in the value of the improvements – namely, the home itself. As suggested by Figure 8, the average building value of new homes is 1.5 times that of homes built prior to 1900, but 2.3 times the building value of homes constructed between the wars.

Though the vast majority of single-family residences occupy conventional house lots along the town's main roadways, Stow has a noteworthy collection of about 41 homes on large tracts of land. Agricultural, forested and recreational open space, accounting for about one-fourth of all land in Stow,[24] typically includes one or more residences and often, a business. In terms of architectural style and use, nearly all of the homes are single-family dwelling units, yet in several ways they differ from other single-family homes.

Fig. 7: Ratio of Land to Building Value by Age of Single-Family Homes

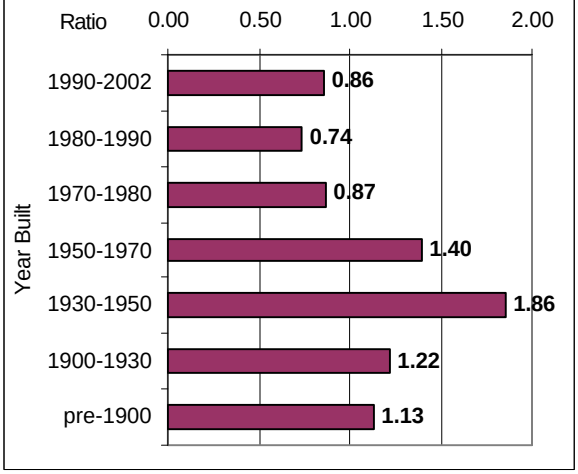
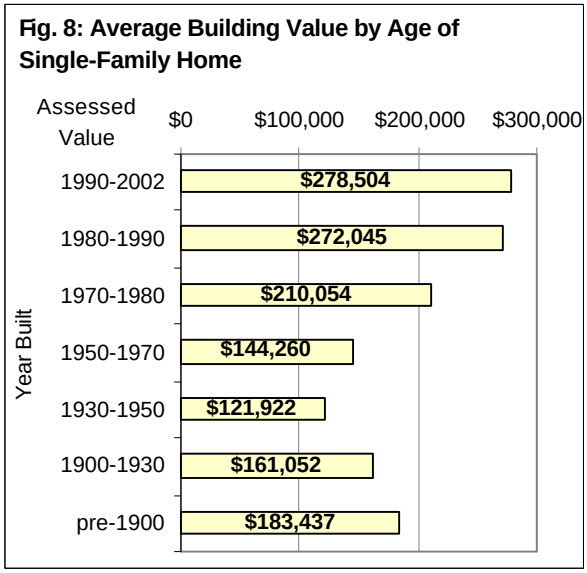


Fig. 8: Average Building Value by Age of Single-Family Home



First, the residence usually intertwines with an operation that depends on an income-producing use of land, e.g., an orchard, a tree farm or a commercial recreation facility. As a result, the acreage associated with each residence usually exceeds the amount of land owned by a typical single-family homeowner. In Stow, the ratio is about 44 acres of land for a farm home to one acre for a conventionally developed home. Second, the property may be a family holding and when controlled by the same family for several generations, it often develops incrementally as small portions are transferred to adult children for their own house lots. Evidence of this practice can be seen in the parcel configuration of some farm and forestry properties in Stow today. Third, the homes on these properties tend to be larger, with an average living area of 2,637 ft^2. They are also older, for the median year built among farm, forest and recreation area homes is 1940 while among standard single-family homes, it is 1970. Occasionally, the remnants of former farms or family estates endure in much smaller holdings that retain more than one residential building, such as a single-family home and a turn-of-the-century carriage house or an apartment in the loft or rear of a barn. Stow has at least 18 of these properties, located mainly in outlying sections of town as would be expected given their original use. Together, they account for approximately 40 housing units.[25]

[24] For purposes of this description, "open space" refers to land under Chapter 61, 61-A and 61-B agreements in Stow. Collectively, the properties encompass 2,820 acres of land.

[25] Stow Assessor's Office, FY03 Parcel Data; calculations derived by author.

The nominal inventory of multi-family housing in Stow helps to explain two salient features of the town: its strikingly low rental vacancy rate of .7%, and the prevalence of single-family homes in the renter-occupied housing inventory.[26] Nearly 40% of all units occupied by tenants are single-family homes, located randomly throughout the town. The remaining units are in older two-, three or four-unit buildings or in two small rental housing developments near Lower Village. About 13% of all renters living in Stow have occupied the same dwelling unit for 20 or more years. Since so much of the town's rental housing overlaps with the supply of single-family homes, rental units are somewhat larger in Stow than in the state as a whole, though its average renter household size is smaller: 1.94 persons per household locally compared to 2.17 for Massachusetts overall.

Housing Market

Most of the state's high-growth communities are nestled between Boston's two circumferential highways, Route 128 and I-495, and on Cape Cod and the Islands. Stow is among the "I-495 Corridor" towns that has experienced rapid population change since the mid-1980s, owing to the outward movement of economic growth throughout Eastern Massachusetts. They are small, predominantly family-oriented communities that retain vestiges of their rural past: traditional town centers surrounded by agricultural and scenic open space, with a few satellite village nodes in outlying areas – villages that could never be replicated under the zoning adopted by virtually all of these towns. Suburbanization has altered their historic development pattern by introducing homes along old, winding roads and, in some towns more than others, by opening the back land to new development with modern subdivision streets. Despite the high cost of living in Stow's corner of the Commonwealth, most of these communities have been pressed to house new families at a pace that surpasses the rate of new-home production.

Homebuyers

Like natural resources, housing markets do not recognize municipal boundaries. Market choices are made on the basis of household income – what a buyer can afford – and depending on the composition of regional markets, such factors as the quality of public schools, commute distance and convenient highway access narrow the field. Ultimately, homebuyers may investigate homes for sale in a small area, i.e., a cluster of towns that seem more or less equal in terms of their advantages. The preferences of homebuyers, developers and the communities themselves, by the choices they make to zone land, converge to shape housing demand and supply characteristics at local and sub-regional levels.

Stow forms a sub-regional market with neighboring Acton, Boxborough, Harvard and Bolton, which attract demographically similar home seekers and offer a comparable range of housing prices, with Stow's on the lower end of the continuum and Harvard's on the highest (see Figures 9 and 10). These communities share an overlapping supply and demand relationship even though they differ in numerous ways. Together, they bring four qualities to the housing market: a housing inventory unified by spacious single-family homes, scenic open space, high-quality school and town services, and prestige. A majority of their new homebuyers are upper-income families who have, or will have, school-age children, as the Department of Education recognized in a

[26] Census 2000, Summary File 3, Table DP-1, Stow.

recent study of statewide school enrollment growth during the 1990s.[27]

To some extent, market conditions in Stow and other towns nearby can be traced to a complex weave of federal and state policies: interstate highways that opened once-rural areas to new growth, housing policies that siphoned investment away from cities, and public finance policies that sway municipalities to attract business growth in exchange for the promise of tax revenue. The sub-region's current residents may lament recent rates of population and housing growth, but few people in these communities remember when Boxborough was home to a mere 376 citizens (1930). The completion of Route 2 (1950) caused Acton's population to skyrocket by 168% over the course of two decades, only to increase by another 142% between 1960-1980, the era that produced I-495. Stow, Boxborough and Bolton were similarly affected, and on the eve of the 1980 federal census, all five towns had seen an explosive 20-year period of sustained residential development – a period that produced about44% of today's owner-occupied housing units, as shown in Table 6.

Fig. 9: Composition of Sub-Region Households

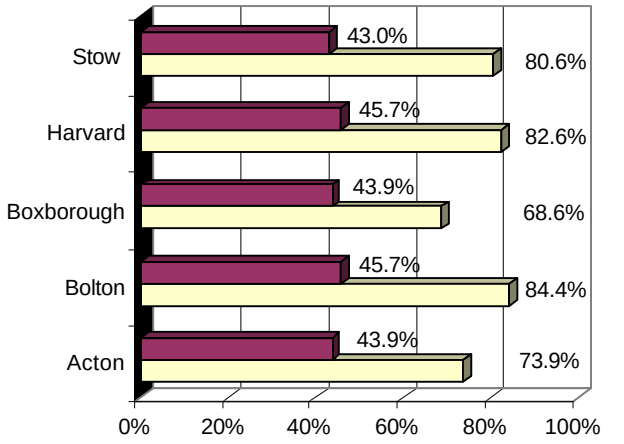
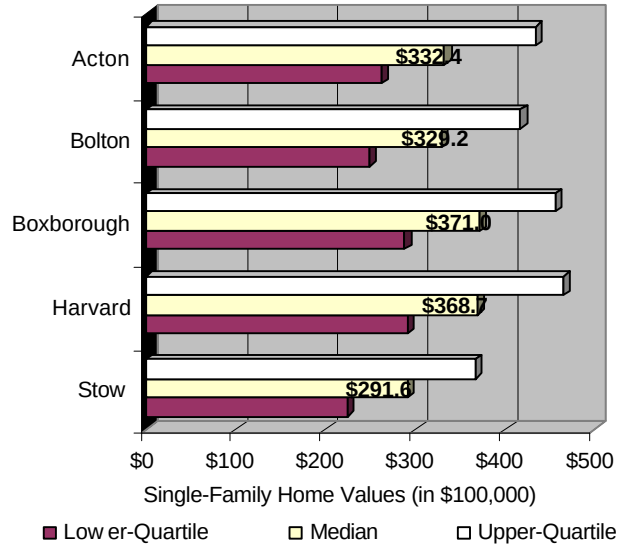


Fig. 10: Sub-Region Continuum of Home Values



[27] Massachusetts Department of Education, "Foundation Enrollments in Massachusetts Cities and Towns, 1993-1999," in EXCEL [founden_app.xls], INTERNET at <http://state.ma.us/doe> [updated 4 January 2000; cited 28 January 2000].

Table 6: Sub-Regional Age of Housing Stock

Year Built All Housing Units	Acton	Boxborough	STOW	Bolton	Harvard	Sub-Region
1990-2000	916	452	315	395	208	2,286
1980-1989	872	246	277	239	359	1,993
1970-1979	2,141	750	501	277	415	4,084
1960-1969	1,818	207	291	200	259	2,775
1950-1959	881	121	255	60	224	1,541
1940-1949	184	18	107	33	36	378
1939 or earlier	868	112	382	272	394	2,028
Total	7,680	1,906	2,128	1,476	1,895	15,085
% Built 1960-1980	51.5%	50.2%	37.2%	32.3%	35.6%	45.5%
Owner-Occupied Units						
1990-2000	798	445	298	386	188	2,115
1980-1989	632	124	198	220	343	1,517
1970-1979	1396	432	443	261	397	2,929
1960-1969	1453	133	248	178	240	2,252
1950-1959	771	77	206	52	210	1,316
1940-1949	111	18	88	33	19	269
1939 or earlier	539	78	330	200	241	1,388
Total	5700	1307	1811	1330	1638	11,786
% Built 1960-1980	50.0%	43.2%	38.2%	33.0%	38.9%	44.0%

Source: Bureau of the Census, Census 2000, Summary File 3, Tables H-34, H-35.

Long before the 1990s sparked a new wave of demand for homes throughout the state, the seeds of present-day conflicts about housing were planted in Stow and neighboring towns. Zoning bylaws written to limit growth and protect town character gave rise to a low-density development pattern with large single-family homes, making the amount of land consumed per dwelling unit very high, expensive and visible. As the youngest of the "Baby Boomers" began to form new households a decade ago, they sought suburban housing: most of them had been suburban children, and a large percentage of the state's highest-paying jobs are in suburban locations. In Massachusetts, the housing pipeline was poorly equipped to handle the resulting demand for homes: the state's 8.7% growth in households between 1990-2000 was met by only a 6% increase in housing units. Table 7 shows that the same trend occurred throughout Stow's market area, for the rate of household growth consistently exceeded the rate of housing unit growth. In three of the five communities, the rate of household growth also surpassed the rate of population growth. Households – not population – create housing demand.

Table 7: Population, Household and Housing Unit Growth, 1990-2000

	Acton	Boxborough	STOW	Bolton	Harvard	Sub-Region
Population						
1990	17,872	3,343	5,328	3,134	4,662	34,339
2000	20,331	4,868	5,902	4,148	5,230	40,479
% Change	13.8%	45.6%	10.8%	32.4%	12.2%	17.9%
Households						
1990	6,600	1,363	1,793	1,052	1,573	12,381
2000	7,495	1,853	2,082	1,424	1,808	14,662
% Change	13.6%	36.0%	16.1%	35.4%	14.9%	18.4%
Housing Units						
1990	6,891	1,485	1,853	1,097	1,681	13,007
2000	7,680	1,906	2,128	1,476	1,911	15,101
% Change	11.4%	28.4%	14.8%	34.5%	13.7%	16.1%

Source: Bureau of the Census, 1990 Census of Population and Housing, Census 2000, Summary File 1, Table DP-1.

Stow's extraordinarily low homeownership vacancy rate suggests that properties for sale move quickly and that the level of market demand surpasses the available supply of homes. Throughout the 1990s, the median sale price of single-family homes increased by 71%. Like the neighboring towns in its sub-region, Stow is largely a "buy-up" market: a prestigious community that attracts second-time homebuyers. For most of these people, "buy-up" means a new or larger house that needs little improvement; occasionally, Stow has offered older, more affordably priced homes that increase significantly in value with investment in renovations, an addition or modernization. For every new single-family home permit issued in Stow during the 1990s, there have been 6-7 permits issued for substantial home improvement projects: expansions, second-story additions, and major investments in remodeling.[28] Both new-home construction and re-investment in residential properties have contributed to the 61.2% increase in Stow's single-family home values since 1999.[29] For Stow homeowners, the median monthly cost of a mortgage payment, taxes and insurance is $1,825, although homeownership costs vary across town. In the south and west sections of Stow where most of the town's new homes have been built (block groups 4 and 5), the median monthly expenditure for owner-occupied housing is about $1,900.[30]

Rental Market

The geography of Stow's rental market area differs from its homebuyer area. A prospective renter has fewer choices than homebuyers because the supply of rental housing is so scarce,

[28] Stow Annual Town Reports, 1990-2000. See Reports of Building Inspector. Data compiled by author.

[29] Mass. Department of Revenue, Municipal Data Bank [database online] "Average Single-Family Tax Bill," in EXCEL file format as "bill98.xls" sequentially through "bill03.xls," available at <http://www.massdor.gov/>, INTERNET [cited January 2002; January 2003].

[30] Census 2000, Summary File 3, Table H-91.

whether in Stow or elsewhere in the Commonwealth. In addition, the rental housing inventories in some towns are comprised of many age-restricted units, such as elderly housing owned by housing authorities or private investors, which means that portions of the rental inventory are unavailable to a larger market of tenants. As a result, persons seeking rental housing are typically required to search across a larger area than is the case for homebuyers – not only to find a vacant rental unit, but also a unit they can afford. Furthermore, the needs of prospective tenants vary considerably: young citizens looking to establish their independence, families relocating from other parts of the county, who may want a short-term rental while they search for home to buy, senior citizens who no longer want the burden or expense of homeownership, and households that cannot afford to buy a home or simply prefer to rent. Accordingly, some renters need longer-term living arrangements while others may be tenants for less than a year. The substantially different circumstances of renters complicate the meaning of "rental housing market," for the demand side is not at all homogenous. As for the supply side, at least four conditions exist in Stow and nine nearby towns with overlapping market characteristics: the supply is small, expensive in relation to renter incomes, older than the supply of homeownership units, and in many cases vulnerable to homeownership conversion.

By policy, Stow and most towns nearby discourage or prohibit multi-family housing development through one or more land use controls, e.g., confining allowed residential uses to detached single-family homes, restricting density to one dwelling unit per acre (or more), or allowing attached housing units at a density high enough to attract some condominium development but not high enough to attract rental development. Given these and other constraints on multi-family housing, it is not surprising to find that single-family homes contribute nearly 20% of all renter-occupied units in the ten-town area, reaching as high as 80% in Bolton. Moreover, the renter-occupied inventory is generally old. While many of these communities absorbed significant residential growth during the 1990s, rental units constituted only a fraction of the housing pipeline. Throughout the area, 5.5% of all renter-occupied housing was built between 1990-2000 while 58% pre-dates 1970. The ten communities contain a total of about 7,600 rental units, or nearly 21% of their combined housing stock. Together, Acton and Hudson account for more than 50% of these units while Stow, Harvard and Bolton have less than 8%, yet though they contain 16.5% of the region's owner-occupied homes.[31] Table 8 summarizes basic rental housing characteristics in Stow's region.

Stow's rental housing inventory consists of about 270 units that were fully occupied when the last federal census was taken in April 2000.[32] The 3.8% rental vacancy rate that existed in Stow a decade ago has been eclipsed by intense market pressure, a condition found throughout the state. Nearly 40% of all renter-occupied units in Stow are single-family homes while a majority of the other units are in two multi-family developments built in the late 1980s. Stow also has a small complement of rental units in older mixed-use buildings and two- or three-family homes. The character of Stow's rental housing stock differs quite a bit from that of neighboring Acton, where several apartment complexes built between 1960-1980 provide 59% of the town's entire rental

[31] Census 2000, Summary File 3, Table H-7.

[32] Of the town's 46 vacant units, only 18 were for sale on April 1, 2000. The remaining vacant units are seasonal or vacation homes and a few were not available for occupancy, i.e., classified by the Census Bureau as "other vacant."

housing inventory, or Hudson, which has a mix of apartments from the same era along with a considerable supply of much older rental housing stock, much like Maynard. Nonetheless, the ten-town area provides a continuum of rental housing in terms of type, quality, access to community and transportation services, and price.

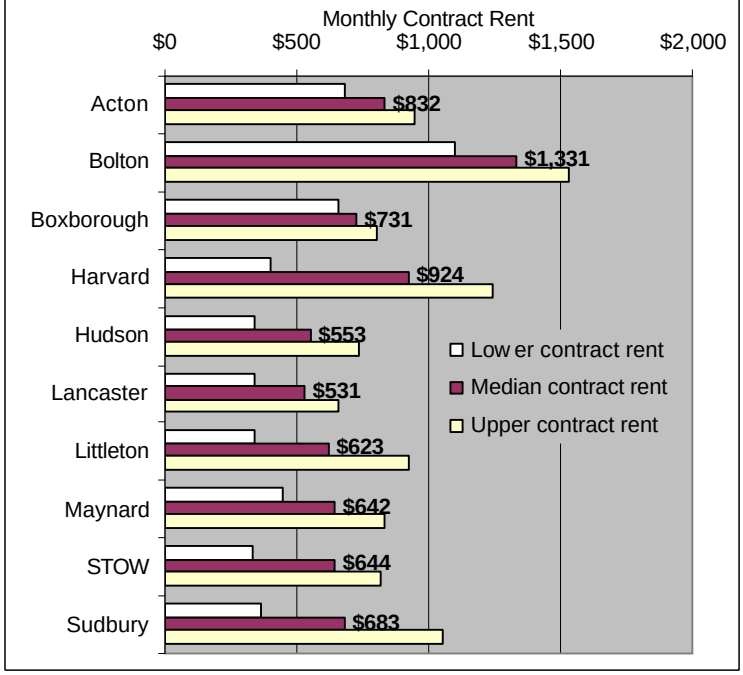
Table 8: Age and Composition of Study Area's Rental Housing Stock

		Year Built					
	Renter-Occupied Units	1990-2000	1980-1990	1970-1980	Pre-1970	% Single-Family Homes	% Apartment Buildings of 5+ Units
Acton	1,795	83	225	692	795	10.0%	70.3%
Bolton	94	6	0	16	72	80.9%	0.0%
Boxborough	546	7	108	290	141	9.7%	81.1%
Harvard	171	20	7	12	132	57.9%	11.7%
Hudson	2,031	148	353	314	1,216	13.4%	50.9%
Lancaster	431	18	18	42	353	32.3%	29.0%
Littleton	499	29	97	69	304	29.7%	36.7%
Maynard	1,290	16	118	178	978	16.3%	35.6%
STOW	271	17	79	40	135	39.1%	15.5%
Sudbury	444	72	67	68	237	47.7%	30.6%

Source: Census 2000, Summary File 3, Tables H-7, H-32, H-36.

Rental units recycle more rapidly than homeownership units, such that in Stow, the median move-in year for tenants is 1997 while for homeowners, it is 1989. Throughout the market study area, renters generally relocate in 24- to 30-month cycles, based on the average ratio of households that moved into their present apartments during the mid-1990s to those who moved in during the early 1990s and remained for the rest of the decade. However, long-term tenancies are found in every community, notably Bolton, where nearly 40% of the town's renters have occupied the same dwelling unit for more than 20 years. In fact, the percentage of long-term renters in Bolton surpasses that of long-term homeowners. Table 9 supplies a summary-level profile of renter households in the study area.

Fig. 11: Range of Rents Paid by Study-Area Tenants



Renter household circumstances and housing needs differ from town to town, but a seemingly universal condition for tenants in Stow's region is the relatively high cost of housing in relation to income. Measured by monthly rents alone, i.e., excluding utility costs not included in rent, tenants pay anywhere from an average of about $550 per month for units in Hudson and Lancaster to a staggering $1,300 average monthly rent in Bolton (see Fig. 11). To some extent, the variation in rental prices reflects the size and type of rental structure, unit sizes, and the percentage of rental housing stock that is subsidized by federal or state sources. In Acton where there is very little subsidized rental housing, contract rents run an average of $850 for comparatively small apartments, e.g. a median of 3.6 rooms per rental unit. On a price-per-room basis, Acton and Bolton offer the most expensive rental housing and Lancaster, the lowest, with Stow at the mid-point for the ten-town area. These data represent rents as of April 1, 2000, but while rental charges have undoubtedly increased since then, the order-of-magnitude relationship between rents in each community (Fig. 12) has most likely remained the same.

Fig. 12: Average Rental Costs Measured on a Per-Room Basis (2000)

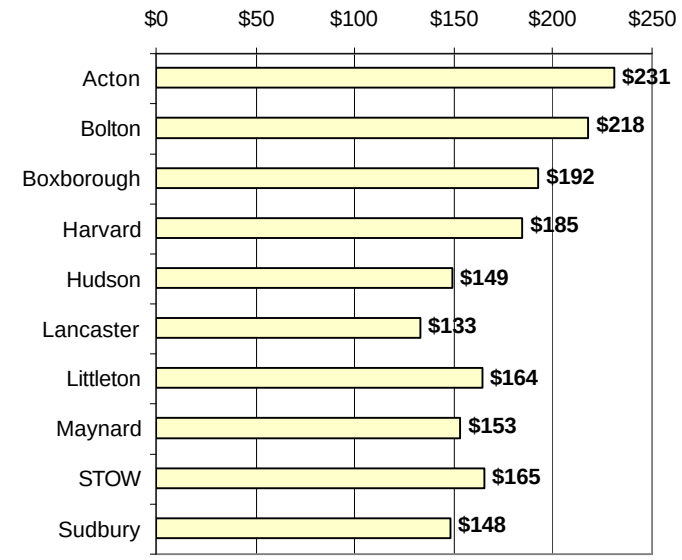


Table 9: Household Characteristics of Study-Area Renters

	Renter-Occupied Units	% Family Households	Average Size Renter Household	Median Renter Household Income	Median Move-In Year	% Long-Term Tenants[33]
Acton	1,795	38.6%	1.73	$ 47,259	1998	2.3%
Bolton	94	44.7%	1.70	$ 44,318	1997	39.4%
Boxborough	546	40.5%	1.71	$ 52,778	1998	1.1%
Harvard	171	45.6%	2.03	$ 45,179	1998	11.1%
Hudson	2,031	47.0%	1.93	$ 32,893	1996	6.4%
Lancaster	431	48.3%	2.18	$ 41,118	1997	1.9%
Littleton	499	34.1%	1.74	$ 31,595	1997	4.6%
Maynard	1,290	39.8%	1.89	$ 30,833	1997	5.4%
STOW	271	54.2%	1.42	$ 39,632	1996	4.4%
Sudbury	444	52.7%	2.61	$ 34,583	1997	6.5%

Source: Census 2000, Summary File 3, Tables H-7, H-18, H-34, H-39, HCT-12.

[33] "Long-term tenant" includes tenants who moved into their present apartment prior to 1980.

Prospective renters – those in search of an apartment– face low odds of finding moderately priced housing in Stow's market area. In April 2000, there were only 180 vacant apartments for rent in the ten-town region, though none in Stow or neighboring Sudbury. More than 30% of the units were on the market for rents of $1,000 or more per month, with the highest-price units in Acton, Bolton and Harvard and the lowest in Maynard. However, for both existing and soon-to-be renters, the issue is not only monthly rents charged by landlords, but also the added cost of utilities. Depending on the type of housing unit and whether it is subsidized, utility costs add anywhere from $35 to $95 per month to the base rent paid by the region's renter households. Table 10 compares total rental housing costs to renter incomes, and provides a breakdown of apartments for rent and the median rent asked in each community.

Table 10: Renter Incomes and Rental Housing Costs

	Renter-Occupied Units	Median Renter Household Income	Median Gross Rent	Gross Rent as % Median Household Income	Vacant Units for Rent	Median Rent Asked for Vacant Units
Acton	1,795	$ 47,259	$867	22.0%	51	$891
Bolton	94	$ 44,318	$1,331	36.0%	4	$1,125
Boxborough	546	$ 52,778	$786	17.9%	20	$856
Harvard	171	$ 45,179	$964	25.6%	4	$2,000
Hudson	2,031	$ 32,893	$632	23.1%	20	$1,023
Lancaster	431	$ 41,118	$609	17.8%	2	$525
Littleton	499	$ 31,595	$680	25.8%	11	$525
Maynard	1,290	$ 30,833	$730	28.4%	68	$196
STOW	271	$ 39,632	$739	22.4%	0	$0
Sudbury	444	$ 34,583	$756	26.2%	0	$0

Source: Census 2000, Summary File 3, Tables H-7, H-19, H-56, H-60.

Housing Affordability

Chapter 40B

Though Stow has some lower-cost homes, they do not meet the definition of an affordable housing unit under state law. In Massachusetts and most states across the country, the term "affordable housing" means homes made affordable to lower-income households by a deed restriction or covenant that restricts sale prices and rents as the units are vacated, sold or leased to new tenants. Stow has 117 units of housing that qualify as "affordable" under Chapter 40B,[34] a law that is highly controversial in most communities because it overrides local zoning regulations

[34] Department of Housing and Community Development (DHCD), Chapter 40B Subsidized Housing Inventory [database online], available at <http://www.mass.gov/dhcd.html> INTERNET, [updated April 2002; cited April, August 2002].

that make low- and moderate-income housing economically infeasible to build. The device that overrides local zoning is known as a comprehensive permit.

Enacted in 1969, Chapter 40B establishes a legal presumption of unmet housing needs when less than 10% of a community's year-round housing stock is affordable to households at or below 80% of median family income. Generally, communities that do not meet the 10% threshold must issue a comprehensive permit unless there is an unusual or compelling basis to deny one. Developers, in turn, may ask the state's Housing Appeals Committee (HAC) to overturn a local Zoning Board of Appeals decision. In most cases they negotiate a compromise with town officials, but HAC's less frequent overrides have left a lasting impression on communities and form the basis for most of the opposition from local governments today.

Stow's inventory of low- and moderate-income housing includes 110 apartments, including 50 age-restricted, and seven homeownership units. These 117 units equal 5.55% of Stow's year-round homes. Across the Commonwealth, 8.45% of all houses and apartments meet the statutory definition of "low- and moderate-income housing units," yet only 27 of the state's 351 communities have produced enough subsidized housing to satisfy the 10% goal. Though cities top the list for affordable housing production, a few towns also exceed 10%. Table 11 shows that subsidized housing as a percentage of all year-round homes in Stow and neighboring communities varies quite a bit. Across the ten-town region, there are 1,457 Chapter 40B units or 4.56% for the area as a whole. Hudson tops the list for number of Chapter 40B units and Littleton, for percentage, though among the region's most affluent communities, Stow ranks first for its percentage of subsidized housing units. In Massachusetts suburbs, the average percentage of Chapter 40B units is 2.77%.[35]

Table 11: Subsidized Housing Inventory, Stow Regional Communities

	Year-Round Homes	Total Development Units 2001	Chapter 40B Units	% Subsidized 2000 Base
Acton	7,645	182	158	2.07%
Bolton	1,472	28	14	0.95%
Boxborough	1,900	48	12	0.63%
Harvard	2,156	33	33	1.53%
Hudson	7,144	497	477	6.68%
Lancaster	2,103	74	74	3.52%
Littleton	3,018	240	240	7.95%
Maynard	4,398	332	332	7.55%
STOW	2,108	135	117	5.55%
Sudbury	5,582	250	214	3.83%
Combined	31,944	1,569	1,457	4.56%

Source: DHCD Chapter 40B Inventory (2002).

[35] Affordable housing percentages derived from DHCD Subsidized Housing Inventory; "suburban communities" refers to 53 towns defined as suburbs in Department of Revenue "Kind of Community" classification system.

Other Measures of Affordability

The legislature's intent in enacting Chapter 40B was to assure a "fair-share" distribution of low-income housing across the state, but housing policy analysts do not define affordable housing need on the basis of a fixed 10% standard. The national definition of housing affordability assumes that a home is affordable to its owners if their monthly housing costs – a mortgage payment, property taxes, and house insurance – are equal to or less than 30% of their monthly gross income. Similarly, an apartment is considered affordable to tenants if they pay 30% of their gross monthly income, or less, for rent and utilities. Under these criteria, "affordable housing need" exists when households pay more than 30% of their gross income for housing costs. In housing industry parlance, they are classified as "housing-cost burdened." According to recent federal census data, 23.4% of all homeowners in the Boston metropolitan area and 22.1% in Stow qualify as housing-cost burdened. The condition is more pronounced among renter households, for 36.9% of Boston-area tenants pay more than 30% of their monthly income for rent and utilities, compared to 31.4% in Stow.[36] Table 12 reports the incidence of rental housing cost burden in Stow and other communities nearby, particularly among elderly and renters with very little income.

Table 12: Incidence of Rental Housing Cost Burden, Stow and Region

	Renter Households	% Cost Burdened	Elderly Renters	% Cost Burdened	Very Low-Income Renters	% Cost Burdened
Acton	1,795	29.5%	197	46.2%	644	74.1%
Bolton	94	16.9%	10	0.0%	10	0.0%
Boxborough	546	19.7%	14	0.0%	134	64.2%
Harvard	171	30.3%	26	26.9%	79	43.0%
Hudson	2,031	29.5%	465	41.3%	1045	51.8%
Lancaster	431	24.7%	108	30.6%	199	52.8%
Littleton	499	35.5%	151	43.0%	267	57.7%
Maynard	1,290	37.3%	275	42.2%	734	61.2%
STOW	271	31.4%	60	41.7%	121	60.3%
Sudbury	444	41.2%	135	52.6%	224	69.2%

Source: Census 2000, Summary File 3, Tables H-71, H-73.

In a competitive real estate market like Stow's, the cost of housing creates a significant challenge for lower-income households. The measure of "low-income" varies by household size and region. By federal definition, a low- or moderate-income household has annual income equal to or less than 80% of the area median income, adjusted for household size. Each year, the U.S. Department of Housing and Urban Development (HUD) publishes income eligibility guidelines for various housing assistance programs. Recent HUD statistics show that about 18% of Stow's population is low- or moderate-income – up from 11.5% a decade ago.[37]

[36] Census 2000, Summary File 3, Tables DP-4 and H-84.

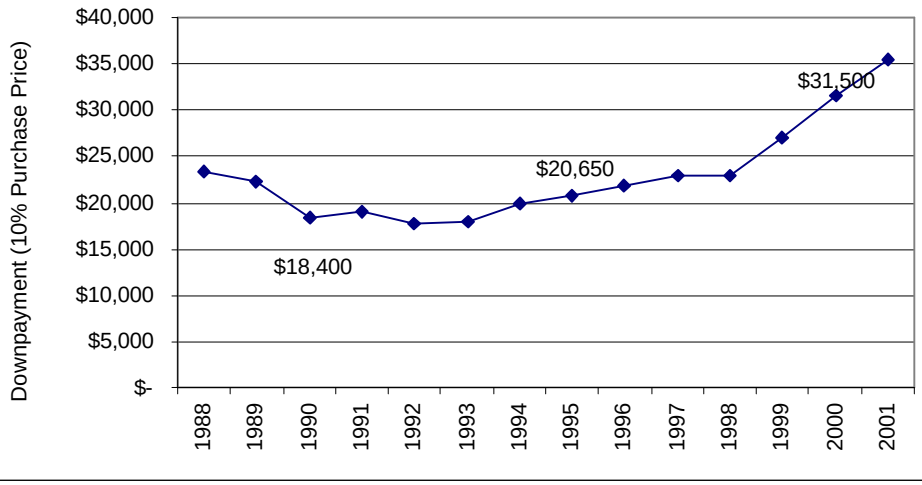
[37] Standard Census 2000 data tables do not measure low- and moderate-income households. HUD works with the Census Bureau to estimate each community's low- and moderate-income population by cross-tabulating household size and income cohorts. A conservative estimate can

Affordability Gap

Almost everyone in the United States aspires to own a home, and since the 1930s federal housing policies have effectively subsidized homeownership – through income tax deductions for mortgage interest and real estate taxes, federal home mortgage insurance, and more recently, low-interest loans and grants that help moderate-income people transition from renter to homeowner. Often, home-seekers have more resources than a mortgage lender requires, such as equity to invest from the sale of a previous home or a gift or loan from family members. However, households with only their savings to put toward a downpayment find homebuying more difficult. First, while saving to purchase a home they must also pay rent, and because apartments are so scarce, market rents have become very expensive. Second, since the purchase price of a house usually determines the downpayment amount, first-time homebuyers end up saving toward a moving target, as suggested in Fig 13: the sale price of homes in a very tight real estate market.

Under conventional loan underwriting standards, homebuyers at Stow's median household income of $96,290 can afford a purchase price of about $299,905.[38] For them, the town's median single-family home sale price of $354,000 (2001) translates into an "affordability gap" of $54,095 – meaning the difference between the sale price and the purchase price they can afford. A sale price of $354,000 is also high enough to preclude 45% of Stow's present households from

Fig. 13: Savings Required for a 10% Downpayment in Stow
1988-2001



be made today from the number of households with incomes below the one-person household tier (meaning the lowest tier) in HUD's income guidelines for 2000. In the Boston metro area, 31.6% of all households earned $35,000 or less, and in Stow, 14.4%, as of April 2000. Stow's average household size is 2.82 persons and in 2000, 17.9% of its households had incomes below HUD's three-person income limit of $45,200. However, 17.9% exaggerates the percentage of low-income households in Stow because most households with incomes below $45,200 also had fewer than three people.

[38] Purchase price assumes a 10% downpayment and a 30-year mortgage at 7.5% interest.

purchasing a house in town if they were first-time homebuyers today, and about 71% of all households throughout the Boston PMSA. Though condominiums sometimes supply a more affordable housing opportunity than single-family homes, in Stow this is not the case. The town's median condominium sale price of $463,499 (2001) would be affordable to about 27% of its present households if they were first-time homebuyers.

Table 13 estimates the affordability gap at a regional scale, though in actuality, the data in Table 13 reinforce the "buy-up" nature of the housing market in Stow and most of the surrounding region. The data also suggest that in comparison to other affluent communities, Stow's slightly lower housing turnover rate during the 1990s may have helped to keep down the pace at which single-family home prices escalated. Though year-end home sale price statistics for 2002 are not available for all ten communities, it is noteworthy that in Stow, the median single-family home sale price increased by 58% between 1998-2002 – far surpassing the percentage increase in Acton, Boxborough and Harvard, yet slightly lower than that of Bolton.

Table 13: Estimated Housing Affordability Gap in Stow & Region

	Median Household Income	Affordable Purchase Price	Median Single-Family Sale Price (2001)	Affordability Gap
Acton	$ 91,624	$285,373	$ 420,000	-$134,627
Bolton	$ 102,798	$320,175	$ 482,500	-$162,325
Boxborough	$ 87,618	$272,896	$ 497,500	-$224,604
Harvard	$ 107,934	$336,172	$ 525,000	-$188,828
Hudson	$ 58,549	$182,357	$ 250,000	-$67,643
Lancaster	$ 60,752	$189,219	$ 207,500	-$18,281
Littleton	$ 71,384	$222,333	$ 270,000	-$47,667
Maynard	$ 60,812	$189,405	$ 251,250	-$61,845
STOW	$ 96,290	$299,905	$ 354,000	-$54,095
Sudbury	$ 118,579	$369,327	$ 537,250	-$167,923

Sources: *Banker & Tradesman* [database online]; Census 2000, Summary File 3, Table P-53.

Residential Development Trends

Like other Massachusetts suburbs, Stow regulates residential land use through zoning policies that encourage single-family homes and subject other types of housing to a more complicated system of permitting. About 63% of the town is zoned for single-family home development, which can occur as of right on parcels that meet the minimum lot area requirement of 1.5 acres and the minimum frontage requirement of 200 feet. Stow also provides for duplexes and accessory apartments by special permit from the Planning Board, and throughout the Residential District, a mixed residential use known as "Planned Conservation Development" (PCD) may be carried out on parcels of 10 or more acres, also by special permit from the Planning Board. According to Stow's Zoning Bylaw, PCD's may include a mix of single-family and multi-family dwelling units, subject to a multi-family cap of 25%. In exchange for providing a substantial amount of protected open space, developers seeking PCD approval are allowed to follow design standards that differ from the requirements for conventional developments: smaller lots, less frontage, varied

setbacks. More recently, Stow adopted an "Active Adult Neighborhood District" bylaw, which lays regulations for age-restricted housing development over most of the town's industrially zoned land. Regardless of these alternatives, the vast majority of new growth in Stow has consisted of detached single-family homes and during the 1990s, most of them were built on lots that exceeded the 1.5-acre minimum.[39] Since 1970, two years after Stow adopted its first zoning bylaw, low-density residential development has absorbed increasingly large amounts of the town's land, as shown in Table 14.

Table 14: Land Use Change in Stow, 1971-99

	Acres of Land in Use		
	1971	1985	1999
Agricultural Uses	1,363.39	1,152.12	877.73
Forest	6,841.04	6,523.82	6,066.92
Wetlands & Water	928.07	923.10	919.63
Recreation & Other Public Uses	502.65	603.45	737.57
Multi-Family Residential	0.00	3.36	13.71
Single-Family Residential	1,385.55	1,870.72	2,374.36
Commercial	28.25	52.62	60.74
Industrial	11.57	32.64	41.30
Open Land, Mining, Other	468.33	330.69	400.55
Transportation, e.g., highways & ramps	15.51	51.83	51.83
Total Acres	11,544.36	11,544.36	11,544.36
Major Use Categories in Percent			
Agricultural	11.8%	10.0%	7.6%
Forest	59.3%	56.5%	52.6%
Residential	12.0%	16.2%	20.7%
Commercial & Industrial	0.3%	0.7%	0.9%

Source: MassGIS [database online], "lus286ph.dbf," in d-Base format; data conversions and calculations by author.

Zoning and the market work as mutually reinforcing agents toward a particular development outcome, and this relationship can be seen in Stow. In most cases, the relative ease of developing what town regulations allow acts as a greater incentive than the potential for more efficient land use and better design in developments that require a special permit. Even when developers use the special permit tools available to them, however, they build to the single-family home market – in part because homes in Stow sell quickly, and also because the high cost of land dictates the construction of a large residence that can command a premium sale price. Between 1995-2001, the Stow Planning Board approved 16 subdivisions with a total of 169 house lots and endorsed 30 "Approval Not Required" or ANR plans for 56 lots. Though lot area data are unavailable for the ANR plans, the subdivisions parcelized 444 acres for an average lot size of 3.3 acres. One – Pond View Estates off Boxborough Road– produced common-wall housing, but the remaining subdivisions were developed as single-family home neighborhoods, including those which used the PCD provisions of Stow's zoning bylaw. Between 1991-2001, Stow issued building permits

[39] Assessor's Office, FY02 Parcel Data; statistics compiled by author.

for nearly 310 single-family residences, along with another 34 last year.[40] Attesting to the impact of high land costs and market preference on housing affordability in affluent towns like Stow, the town's newest homes (i.e., built since 1997) carry a median assessment of $501,800, 75% of which is driven by building value. Whether in conventional or PCD subdivisions, the median value of a recently developed house lot is $174,550.[41] It is little wonder that residential development has contributed so significantly to each year's "new growth" tax levy in Stow, as suggested by Fig. 15.

Fig. 14: Single-Family Building Permits
1991-2002

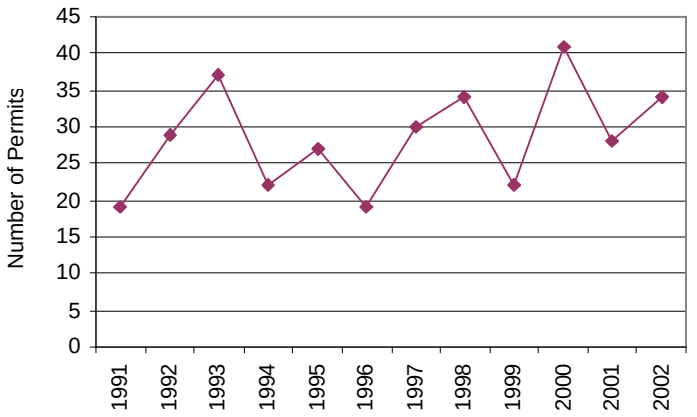
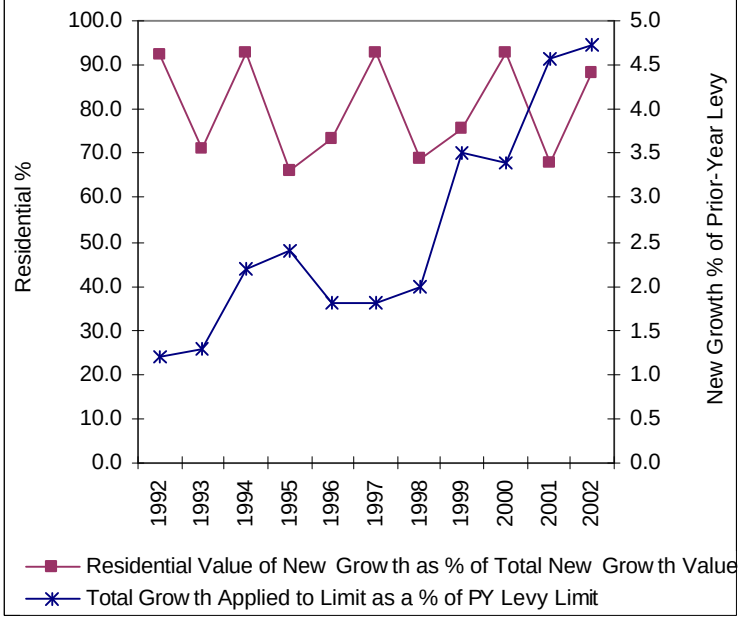


Fig. 15: Residential Growth as % of All New Growth



Residential Build-Out, Land Use and Chapter 40B

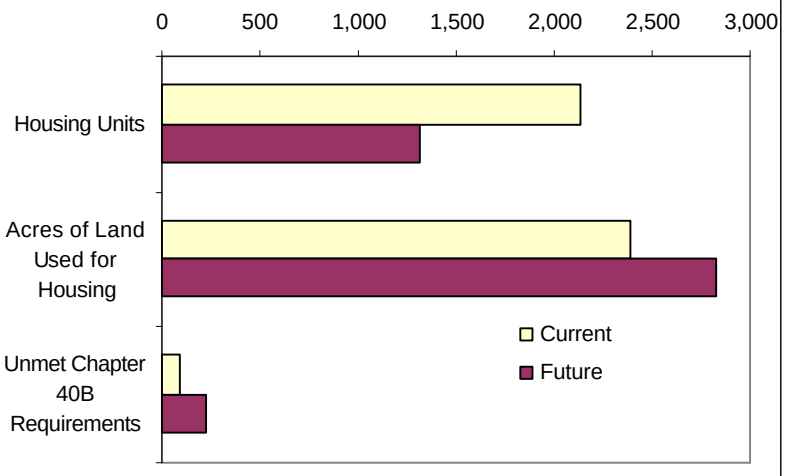
Two years ago, the Metropolitan Area Planning Council (MAPC) evaluated Stow's future development potential as part of a statewide program sponsored by the Executive Office of Environmental Affairs (EOEA). MAPC concluded that Stow has about 2,822 acres of developable land in the Residence District and that under current zoning, the land could support as many as 1,319 single-family homes. Ironically, MAPC's build-out estimate would culminate in a reversal of Stow's historic development pattern – a reversal foreshadowed by current land use trends – because the ratio of land consumed per dwelling unit would nearly double, from an average of 1.12 acres by each of today's homes to 2.14 acres by each home built tomorrow, as

[40] Building permit data for 1991-2001 supplied by Karen Kelleher, Stow Planning Coordinator. For 2002, source: MISER, [database online] "Residential Building Permits Issued January-November 2002," in EXCEL [ytd2002_11.xls].

[41] Stow Assessor's Office, "FY02 Parcel Data."

shown in Fig. 16. As growth continues to spread across outlying parts of town, Stow seems destined not only to lose the distinguishable quality of its villages but also to extend its propensity for very high residential land costs.

Fig. 16: Stow's Development Future
Potential Consequences of Current Zoning



	Unmet Chapter 40B Requirements	Acres of Land Used for Housing	Housing Units
Current	94	2,388	2,128
Future	226	2,822	1,319

Though many of the build-out studies include estimates of additional multi-family units and single-family homes, MAPC made no multi-family prediction for Stow because the town's Zoning Bylaw allows multi-family development only by special permit. Consistent with the build-out methodology that was used across the Commonwealth, MAPC also made no provision for new housing units developed under Chapter 40B. As Stow continues to approve market-rate single-family homes on relatively generous house lots and high-end condominiums such as those on Hickory Lane and Welden Lane or in the Meeting House at Stow, the town accrues an unmet liability for Chapter 40B units. Using Census 2000 as a base, Stow's low-income housing inventory is 94 units short of the 10% threshold set by Chapter 40B. If the town were to build out to an additional 1,319 single-family homes with no provision for affordable housing development, the shortfall would increase to 226 units.

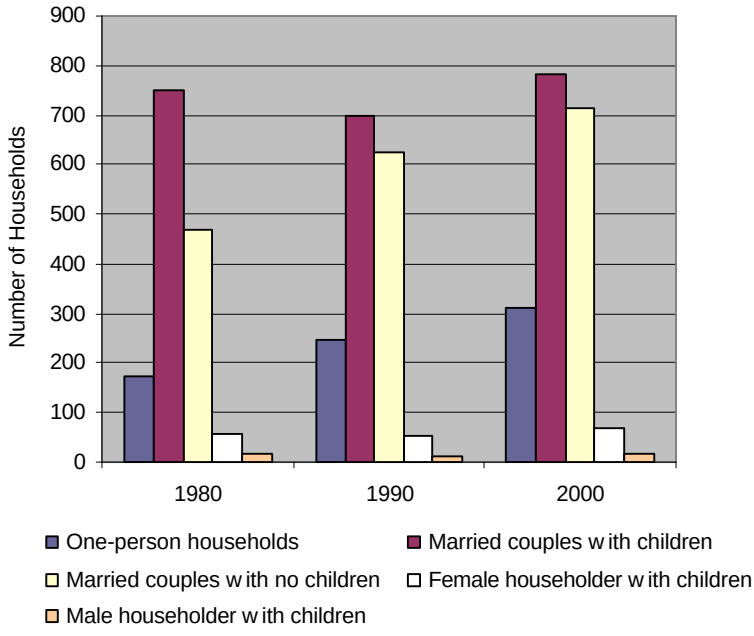
To accommodate these 226 units, however, Stow may absorb as many as 903 *additional* homes, i.e., separate from the town's estimated build-out under current zoning. Chapter 40B requires developments to include at least 25% low- and moderate-income housing units, or at least one affordable unit for every three market-rate units. To encourage rental production, the state allows communities to count as Chapter 40B units *all* of the apartments in a comprehensive permit rental development regardless of whether the apartments rent at low-, moderate- or market-rate levels. For homebuyer developments, Chapter 40B recognizes only the affordable units. Since the market-rate homes do not count as Chapter 40B units, they effectively expand the year-round housing base that is used to calculate a community's percentage of Chapter 40B units. The impact of this policy can be seen in Stow's small first-time homeownership development on Elm Ridge Road: DHCD's Chapter 40B Subsidized Housing Inventory includes

the seven first-time homebuyer units, which are subject to an affordable housing deed restriction. The remaining 18 homes are classified as "total development units," not Chapter 40B units.[42]

Implications for Housing Needs in Stow

By choice, Stow is poised to attract affluent family households. To control the total amount of residential development, the town relies on large-lot zoning and policies that favor single-family homes. Though these techniques have and will continue to limit the number of dwelling units in town, they create significant challenges to meeting Stow's other housing goals. With so many new single-family residences sized to attract families, it is not surprising that since 1990, Stow has absorbed a 12% increase in married couples with children – or a 14.2% increase in *all* family households with children.[43]

Fig. 17: Stow's Changing Household Composition



More striking, however, are the higher rates of growth among one-person households and couples without children – populations that Stow seems ill equipped to house in the long run. For example, while the addition of high-end condominium and assisted living units are fiscally beneficial for Stow, they may provide limited benefits to the town's aging population. Housing affordability is a significant issue for senior citizens: the median household income among households headed by persons over 65 is about half the median household income of families headed by persons between 35-44 years of age, yet for the most part, Stow's elderly residents have incomes that exceed the limits for subsidized senior housing. As a result, many of them can neither afford the cost of a market condominium in Stow nor qualify for a unit at Plantation Apartments.

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[42] "Total development units" measures all of the housing units included in approved comprehensive permits. The only units that DHCD considers when calculating a community's percentage of low- and moderate-income housing are those classified as "Chapter 40B units."

[43] The Stow Master Plan (1996) notes similar trends in a comparison of 1980-1990 household statistics *(Stow 2000*, 74). Significantly, the number of married couples with children had declined by 7% between 1980-1990. Census 2000 shows that the number of married couples with children recovered during the 1990s, though not to 1980 proportions. In Stow today, there are 1.1 couples with children for every couple without children – in contrast to 1.6 two decades ago.

The high incidence of housing cost burden among householders between 45-54 years of age in Stow is also a concern, and it cannot be explained easily by available data. Statistically, this age group divides married couples with children under 18 from married couples with adult children. Despite the town's continual gain in married couples without children under 18 (which includes couples with no children at all), the sustainability of this trend should be questioned. One-fourth of Stow's 45-54 year old homeowners are housing cost burdened today.[44] Given their foreseeable decline in household income over the next 10 years, it is not at all clear how Stow intends to retain its present generation of middle-aged people.

A third consideration involves housing choice for renters and persons with disabilities. Although the Zoning Bylaw includes a mechanism to develop multi-family housing units (PCD), Stow regulations do not provide for the level of density that could make multi-family rental housing feasible. Density holds the key to housing affordability, but in Stow and comparable communities, many residents see density as antithetical to their interests. To some extent, homebuyers choose a town like Stow because it is a prestigious place to live. They buy not only a house, but also the town's ambience: plenty of open space, large residences, attractive country roads and quaint villages that literally cannot be replaced. Stow's zoning is a blueprint for the kind of homes that have been built in town for many years – housing for homeowners. As evidence of the Zoning Bylaw's inability to attract rental investment, the only recent rental developments in Stow have occurred as a direct result of comprehensive permits. Significantly, both Pilot Grove and Plantation Apartments are subject to affordable housing use restrictions that expire in about 20 years. Moreover, except for Plantation Apartments and a recently developed assisted living facility on Route 117, the town has no accessible housing. It is no wonder that Stow's percentage of persons with severe physical disabilities (3%) is so much lower than that of the region (10%): the town has so little suitable housing.

Stow recently endured a very difficult, contentious comprehensive permit review (The Village at Stow) and most likely faces a second (Cloudland Farm). In the spring, town meeting adopted an "inclusionary" bylaw that obligates developers to provide affordable homes in new developments with six or more units. As a result, Stow has joined a growing number of Massachusetts communities that seek to gain zoning control over the development of affordable housing. Although the Attorney General has approved inclusionary zoning in its present form, the uncertain legal status of these bylaws puts communities at risk of having their work undone by the courts. In addition, the adoption of inclusionary zoning does not shield any community from comprehensive permits. Under current DHCD regulations, an inclusionary zoning bylaw will protect against large comprehensive permit applications only if it actually produces affordable housing units – by the actions of developers or by the community itself, using fees generated by developments that triggered the bylaw, along with CPA revenue or other sources.

Finally, Stow does not have effective regulations to preserve its historic mix of single-family homes. Major expansions or alterations to existing homes and demolition-rebuild projects attract new investment to the community. However, as these activities cause older homes to appreciate in value, they also remove lower-cost housing from the market. There are approximately 75 single-family homes in Stow with building values below $65,500 – relatively small residences built, on average, between 1945-1950. Strategies to secure the affordability of these homes may

[44] Census 2000, Summary File 3, Table H-96.

help Stow establish a base of Chapter 40B-eligible units for lower-income homebuyers or renters, avoid the environmental costs of new development, and preserve the range of architectural traditions that pre-date modern conventional subdivisions.

APPENDIX 11

Mixed Use Zoning Project - 2005

AGREEMENT

FOR

PROFESSIONAL SERVICES

BY AND BETWEEN

THE TOWNS OF BEDFORD and STOW, MASSACHUSETTS

AND

METROPOLITAN AREA PLANNING COUNCIL

This Agreement made and entered into as of the _____ day of June 2005, by and between the TOWN OF BEDFORD , a Massachusetts municipal corporation with its principal office located at Town Hall, 10 Mudge Way, Bedford, Massachusetts 01730, and TOWN OF STOW , a Massachusetts municipal corporation with its principal office located at Town Hall, 380 Great Road, Stow, Massachusetts 01775-2127, hereinafter referred to as the Municipalities and the **METROPOLITAN AREA PLANNING COUNCIL**, a public body politic and corporate established pursuant to the provisions of Chapter 40B, Sections 24 through 29 of the Massachusetts General Laws, with its principal office at 60 Temple Place, Boston, Massachusetts, 02111, hereinafter referred to as MAPC.

WITNESSETH that the parties have agreed as follows:

ARTICLE I
Scope of Services

MAPC will work with the Municipalities to undertake a planning study which will be paid for using the Priority Development Fund program under a contract between the Municipalities and MassHousing. Said funds are provided to the Municipalities under a Priority Development Fund grant. . Said services are described in the "Scope of Services" that is attached hereto and incorporated herein as Exhibit A.

ARTICLE II
Revisions in the Work to be Performed

No revisions to the work scope may be made without the written approval of MAPC, the Municipalities and MassHousing.

ARTICLE III
Time of Performance

The above services shall be completed on or before June 30, 2006, unless otherwise agreed to by all parties.
In the event of such an extension, all other terms and conditions of this Agreement, except the dates of commencement and completion of performance, shall remain in full force and effect between the parties unless modified by the writing authorizing such extension.

ARTICLE IV
Payment for Services

In no event shall the total maximum amount payable to MAPC for all services provided hereunder with funds from the Priority Development Grant exceed the sum of $24,990, This amount shall include all personnel expenses and costs incurred by MAPC, including but not limited to fringe benefits, such as pension, taxes, insurance costs and overhead. Note that the approved scope also includes a column for additional work to be paid for with funds from the MAPC MAGIC subregion in the amount of $12,800; the Municipalities are not responsible for payment for this portion of the project using PDF funds. This additional work will rather be paid for with funds allocated by the MAGIC subregion.

Invoices shall be submitted by MAPC on a monthly basis to the Municipalities and, upon Municipalities's approval, shall be forwarded to MassHousing by the Town of Bedford, acting as fiscal agent for the Municipalities. The Town of Bedfordwill pay MAPC promptly upon receipt of funds from MassHousing.

ARTICLE V
Default; Termination; Remedies

A. Events of Default.

The following shall constitute events of default under this Agreement:

1. Either party has made any material misrepresentation; or

2. Either party fails to perform any of its obligations under this Agreement,

3. Any other acts specifically and expressly stated in this Agreement as constituting a basis for termination of this Agreement.

B. Termination upon Default.

In the event of a default either party may, at its option, terminate this Agreement immediately by written notice of termination. Notwithstanding the above, in the event of a default either party may give notice in writing of a default, which notice shall set forth the nature of the default and shall set a date, by which either party shall cure the default. If either party fails to cure the default within the time as may be required by the notice, either party may, at its option terminate the Agreement.

C. Termination for Convenience.

1. Notwithstanding any language to the contrary within the body of this Agreement, either party may terminate this Agreement, without cause at any time, effective upon the termination date stated in the notice of termination.

2. If the Agreement is terminated under this subsection, MAPC shall be compensated for services performed and expenses incurred prior to the effective date of termination. In no event shall MAPC be entitled to be paid for any services performed after the effective date of termination.

D. Obligations upon Termination.

Upon termination of this Agreement with or without cause by the Municipalities , MAPC shall immediately, unless otherwise directed by the Municipalities:

1. Cease performance upon the stated termination date;

2. Surrender to the Municipalities MAPC's work product, whatever its state of completion; and

3. Return all tools, equipment, documents, correspondence, drawings, plans, models, or any other items whatsoever belonging to or supplied by the Municipalities;

4. Any termination shall not effect or terminate any of the rights or remedies of either party then existing, or which may accrue because of any default.

5. No remedy referred to in this subsection is intended to be exclusive, but shall be cumulative, and in addition to any other remedy referred to above or otherwise available to either party at law or in equity.

ARTICLE VI
Ownership of Material, Work Products

The Municipalities will have unlimited access to all work papers, data, reports, questionnaires and other material prepared, produced or collected by MAPC under this Agreement. All rights to

products developed through this contract remain vested in the public sector and available to others without copyright or other requirement beyond the cost of reproduction.

ARTICLE VII
Assignability

MAPC shall not assign or transfer its respective interest in this Agreement without the written consent of the Municipalities..

ARTICLE VIII
Severability Provision

If any provisions of this Agreement shall be determined to be unlawful or invalid, the validity of the remainder shall not thereby be affected unless the intent of this Agreement is substantially changed.

ARTICLE IX
Governing Law

This Agreement is entered into pursuant to Chapter 40B, Section 29 of the General Laws and shall be governed by, construed and enforced in accordance with the laws of the Commonwealth of Massachusetts. MAPC shall comply with all applicable federal, state and local laws and regulations.

ARTICLE X
General Provisions

A. Complete Agreement. This Agreement supersedes all prior agreements and understandings between the parties and may not be changed unless mutually agreed upon in writing by both parties.

B. Condition of Enforceability against the Municipalities This Agreement is only binding upon, and enforceable against, the Municipalities if: (1) the Agreement is signed by the Town Manager or Chair of the Board of Selectmen; and (2) funding is appropriated for this Agreement or otherwise made available to the Municipalities.

C. Taxes. Purchases incurred by MAPC are exempt from Federal Excise Taxes and Massachusetts Sales Tax, and prices must exclude any such taxes. Tax Exemption Certificates will be furnished upon request.

D. Independent Contractor. MAPC is an independent contractor and is not an employee, agent or representative of the Municipalities

E. Discrimination. It is understood and agreed that it shall be a material breach of this Agreement for MAPC to engage in any practice which shall violate any provision of G.L. c. 151B, relative to discrimination in hiring, discharge, compensation or terms, conditions or

privileges of employment because of race, color, religious creed, national origin, sex, sexual orientation, age, or ancestry.

F. Notice. The parties shall give notice in writing by one of the following methods: (i) hand-delivery; (ii) telegram;(iii) certified mail, return receipt requested; or (iv) federal express, express mail, or any other nationally recognized overnight delivery service,

1. To MAPC at the address set forth herein

2. To the Municipalities addressed to the Chair of the Board of Selectmen at the address set forth herein with a copy to the Town Manager and/or designated contact of the Municipalities.

Notice shall be effective on the earlier of (i) the day of actual receipt, or (ii) one day after tender of delivery.

G. Captions. The captions of the sections in this Agreement are for convenience and reference only and in no way define, limit or affect the scope or substance of any section of this Agreement.

ARTICLE XI
Representations and Certifications of MAPC

MAPC hereby represents and certifies:

A. Organization. MAPC is a public body politic and with full power and authority to consummate the transactions contemplated hereby.

B. Authority. This Agreement has been duly executed and delivered on behalf of MAPC by its authorized signatory and in full compliance with the authority granted by its organizational documents and its votes or resolutions, which authority has not been amended, modified or rescinded as of the date hereof.

C. Non-Collusion. This Agreement was made without collusion or fraud with any other person and was in all respects bona fide and fair. As used in this paragraph, the word, "person," shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity.

D. Tax and Contributions Compliance. MAPC is in full compliance with all laws of the Commonwealth of Massachusetts relating to taxes and to contributions and payments in lieu of taxes. MAPC's federal tax identification number is: 042472296.

E. Conflict of Interest. MAPC certifies that no official or employee of the Municipalities has a financial interest in this Agreement or in the expected profits to arise there from, unless

there has been compliance with the provisions of G. L. c. 43, § 27 (Interest in Public Contracts by Public Employees), and G. L. c. 268A, § 20 (Conflict of Interest).

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized officers, respectively, on the day and year first written above.

TOWN OF BEDFORD, MASSACHUSETTS

BY: _____

METROPOLITAN AREA PLANNING COUNCIL

BY: _____

TOWN OF STOW, MASSACHUSETTS

BY: _____

Exhibit A

Scope of Services – Award letterMr. Gordon Feltman, Clerk
Board of Selectmen
Town of Bedford
10 Mudge Way
Bedford, MA 01730

Mr. John Clayton, Jr., Chairman
Board of Selectmen
Town of Stow
380 Great Road
Stow, MA 01775

Dear Mr. Feltman and Mr. Clayton:

We have received and reviewed your application for the Priority Development Fund (PDF): Planning Assistance for Housing Production. Your application consisted of the development of mixed-use bylaws as overlays districts or changes to underlying zoning. We are pleased to provide the Towns of Bedford and Stow with planning assistance up to $25,000 to develop four bylaws for Depot Park and North Road in Bedford and, Lower Village and Gleasondale in Stow. These bylaws will be submitted for Town Meeting approval both in Bedford and Stow.

We are pleased to see that this project will be consistent with the Principles of Sustainable Development.

Your application has been approved subject to the fulfillment of the following scope of services and conditions listed below. This scope includes funds and actions from three entities: The Priority Development Fund, MAPC/MAGIC sub-region and the towns.

	Scope of Services:	**PDF**	**MAGIC**
1	Site visits and review of zoning by-laws	$ 5,000	
2	Obtain comment from towns' officials. Write up results	$ 2,000	
3	Prepare visual preference slide show, survey, handouts and presentation plan.		$ 4,800
4	Meet Planning Boards to identify preferences and prepare for process. Follow-up includes research on preferred zones and report on findings.	$ 3,200	
5	Collect sample by-laws; research affordable housing alternatives, prepare generic materials.		$ 4,000
6	Prepare draft zoning bylaws (4)	$ 4,000	
7	Legal Review of template and drafts. Advise on affordable housing.	Towns	

	Scope of Service (continues)	PDF	MAGIC
8	Meet with Planning Boards to review draft. Planning Boards responsible for placing drafts in the board meeting package	$ 2,600	
9	Prepare second draft zoning bylaws (4)	$ 2,000	
10	Meet with Planning Boards to review second draft zoning bylaws	$ 2,000	
11	Prepare final draft zoning bylaws (4)	$ 2,000	
12	Prepares articles for Town Meeting warrant, legal descriptions & maps.	Towns	
13	Develop basic outreach materials to promote bylaws, including power-point and easy-to-understand written summary of what bylaws do and why they are important. Town prepares additional materials	Towns	2,500
14	Planning Boards presents bylaws at public hearings. Communicates information on desired amendments to consultant.	Towns	
15	Prepare any amendments as directed by the Planning Board.	$ 1,000	
16	Planning Board presents bylaws to Town Meeting	Towns	
17	Subsequent preparation of generic presentation derived from Power-point.		1,500
18	Additional meetings, research, and/or writing @ 5%.	$ 1,190	
	Total	**$24,990**	**$12,800**

This assistance is dependent upon an executed contract between the Towns of Bedford and Stow and MassHousing. The Department of Housing and Community Development will review and approve the expenses associated with the scope of services.

Please note that if the town was considering a vendor from the E.O.418 Master Service Agreement, that MSA will expire June 30, 2005. DHCD will not be extending this agreement. Therefore, if the town utilizes the E.O. 418 vendors, all 418 approved vendors must finalize work by the June 30, 2005 or must follow the M.G.L. Chapter 30B procurement process. Any contract executed as part of the E.O. 418 Master Service Agreement must have the termination date of June 30, 2005.

We look forward to working with the Towns of Bedford and Stow in the development of the mixed-use bylaw. Please contact Miryam Bobadilla at 617-573-1356 for further assistance.

Sincerely,

Jane Wallis Gumble
Director
Department of Housing and
Community Development

Thomas R. Gleason
Executive Director
MassHousing

cc: Senator Susan C. Fargo
Senator Pamela P. Resor
Representative Charles A. Murphy
Representative Patricia A Walrath
Sandra Hackman, Chair, Bedford Planning Board
Richard Joly, Town Planner, Bedford
Donna Jacobs, MetroWest Growth Management Committee
Robert Ruzzo, MassHousing
Miryam Bobadilla, DHCD

APPENDIX 12

Visual Preference Survey – 2005

Mixed Use Zoning Project
Town of Stow

RESULTS OF MEETING #2
November 3, 2005

Metropolitan Area Planning Council

Summary of results:

For Gleasondale Mill Area:

Photos selected by majority as desirable:

#’s 3, 9, 17, 20

All images selected:

- Predominantly large re-used mill structures
- All have architectural details
- All have good pedestrian amenities/access and most have obvious public spaces

Note that above list does not include #23, a large redeveloped mill in Chelsea without site amenities.

Other photos with 1/3 support included large-scale structures (#’s 4, 5, 6, 7, 13) with architectural/site details and amenities.

Summary of results:

For Gleasondale Street Area:

Photos selected by majority as desirable:

#'s 3, 8, 15, 18, 24, 25 and 26

All images selected:

- Appear to be older pre-existing structures,
- Are either house-scale or actual houses with additions, apparently converted to mixed use structures.
- 2 ½ to 3 stories.
- Historic style with architectural detailing; sometimes connected structures.
- Photos tend to show good pedestrian access or amenities.
- Larger structures have dormers of gables to break up roof lines.

Summary of results:

For Lower Village Area:

Photos selected by majority as desirable:

#'s 3, 6, 8, 10, 12, 15, 24, 25, and 26

All images selected consist of :

- Mix of older structures and new construction
- Many older house-scale structures converted to mixed use
- 2 ½ to 3 stories
- Historic houses or new structures with styles of historic houses.
- Structures with Architectural details

Similar to Gleasondale Street selections, except a) drop out one smaller structure and b) add in two larger-scale structures or complexes of structures.

Additional comments from participants at Visual Preference discussion:

There needs to be more discussion related to water and septic issues, as well as market issues, and how they may limit redevelopment

Challenge: How to make the areas commercially attractive for redevelopment, but also include an affordable housing component

Example 1

VOTES
Gleasondale Mill 6
Gleasondale Street 5
Lower Village 6

Example 2

VOTES
Gleasondale Mill 3
Gleasondale Street 4
Lower Village 5

Example 3

VOTES
Gleasondale Mill 11
Gleasondale Street 10
Lower Village 16

Comments:
Right size
Re-use of Victorian style – preserved shape and size
Mature trees lessen appearance and soften size
Like mix of uses and amenities
Not for Mill – better for street-front – better to maintain mill structure original design

Example 4

VOTES
Gleasondale Mill 8
Gleasondale Street 2
Lower Village 6

Comments:
Overpowering for Village;
Does not fit architectural style of village
Good for mill – not too big for mill area
Like more subtle signage

Example 5

VOTES
Gleasondale Mill 7
Gleasondale Street 0
Lower Village 0

Example 6

VOTES
Gleasondale Mill 8
Gleasondale Street 5
Lower Village 10

Comments:
Like Front porch overhang
Simple; proportions good
Like materials and ease of access
Dormers too large but roof-line and slope correct

Example 7

VOTES
Gleasondale Mill 8
Gleasondale Street 2
Lower Village 2

Comments:
Too big
Not bad scale for Mill area
Out of character for Stow
Likes that it accommodates outside uses

Example 8

VOTES
Gleasondale Mill 6
Gleasondale Street 12
Lower Village 14

Comments:
Like subtle signage, diversity of heights, undulation of rooflines, chimneys
Awning make pedestrian-friendly
Nice scale for street
Diversity in architectural styles (old and new)
Pedestrian scale/massing of buildings important
2-stories yet elevations and window treatments are varied

Example 9

VOTES
Gleasondale Mill 14
Gleasondale Street 1
Lower Village 2

Comments:
Needs better landscaping and bigger trees

Example 10

VOTES
Gleasondale Mill 1
Gleasondale Street 3
Lower Village 11

Comments:
Camouflage size with shapes
Only OK in right context –
Upper Limit of size for Lower Village (some say too large)
Would fit better on a park, but others say Buildings should be used to define the street, not be set back.
These structures are not pedestrian oriented

Example 11

VOTES
Gleasondale Mill 1
Gleasondale Street 1
Lower Village 1

Example 12

VOTES
Gleasondale Mill 0
Gleasondale Street 8
Lower Village 10

Comments:
Does not fit northern climate – made more ugly with 3rd floor, which does not fit architecturally
Like the mix of uses

Example 13

VOTES
Gleasondale Mill 7
Gleasondale Street 2
Lower Village 0

Example 14

VOTES
Gleasondale Mill 1
Gleasondale Street 4
Lower Village 6

Example 15

VOTES
Gleasondale Mill 5
Gleasondale Street 15
Lower Village 15

Comments:
Looks like it belongs in Gleasondale
Porch ties it together
Nostalgic – Very new England
Like dormer
Negative: how to preserve without making ugly to meet codes

Example 16

VOTES
Gleasondale Mill 1
Gleasondale Street 6
Lower Village 5

Comments:
Could be charming with architectural help – front addition bad

Example 17

VOTES
Gleasondale Mill 14
Gleasondale Street 1
Lower Village 0

Comments:

Good re-use of mill
Like walking space and landscape – brick preferable to asphalt
Don’t like new center section
Needs a chimney

Example 18

VOTES
Gleasondale Mill 0
Gleasondale Street 13
Lower Village 9

Comments:
One of the structures is in the wrong place – unplanned
Area between could be used to make transition
Different styles OK, but styles could complement one another better
Like easy access from street and sidewalk

Example 19

VOTES
Gleasondale Mill 0
Gleasondale Street 4
Lower Village 7

Comments:
Liked structure in general except very square addition on front

Example 20

VOTES
Gleasondale Mill 12
Gleasondale Street 2
Lower Village 5

Comments:
Middle 4-story too high
Scale good for mill area
Like complementing but mixed exteriors
Needs plaza and street furniture

Example 21

VOTES

Gleasondale Mill 5

Gleasondale Street 0

Lower Village 0

Example 22

VOTES
Gleasondale Mill 5
Gleasondale Street 5
Lower Village 5

Comments:
Likes that it is broken up rather than just one large structure

Example 23

VOTES
Gleasondale Mill 4
Gleasondale Street 0
Lower Village 0

Example 24

VOTES
Gleasondale Mill 0
Gleasondale Street 11
Lower Village 11

Comments:
Interesting
Not good if a single building, but ok with others around it – need to make it look clustered and cohesive
Like skylights
Like that it looks like a house and avoids strip-mall-look

Example 25

VOTES
Gleasondale Mill 5
Gleasondale Street 13
Lower Village 15

Comments:
Colonial but varied roofline makes it look smaller
Detailed façade treatment goes around corner – not just on front
Does not look big – porch and roof-line create scale

Example 26

VOTES
Gleasondale Mill 3
Gleasondale Street 15
Lower Village 12

Comments:
Buildings relate because of color, even if different styles
Like plaza area between structures and next to road

APPENDIX 13

Land Use Task Force Final Report – 2009

Land Use Task Force
Town of Stow, Mass.

Final Report

July, 2009

The Board of Selectmen established the Land Use Task Force in 2008 to "conduct a thorough analysis of land in Stow and report back to Town Meeting." We are a research and education body. Our purpose is to gather information, get the facts straight, and describe the possibilities and liabilities of various options in the future. That said, the Land Use Task Force is comprised of citizens with a variety of perspectives on land use issues and needs in Stow.

Over the last 16 months, our work included an analysis of town-owned land, including parcels with no restrictions and those held by the Conservation Commission. We developed a process for the town to use for responding effectively to land coming out of Chapter 61 restrictions and reviewed it with Town Council and the Board of Selectmen. Finally, we developed a list of needs and uses for future town land and defined priorities for these uses under different scenarios.

The result of this committee's work is included in this report. This report was first presented in outline form to the 2009 Annual Town Meeting. The report closes with recommendations for the town's approach to various land use decisions in the future. An appendix contains various supporting and related documents.

It is our sincere wish that the efforts of this committee will lead to an improved understanding of land resources, land restrictions and needs for everyone in the town. As voters in Stow, we all need to understand what the likely and realistic options are when considering future land decisions for various town needs.

Rick Lent, Chairman
Michael Kopczynski
Kathy Sferra
Dorothy Spaulding
Kathleen Willis
Jason Robart, BOS liaison

Contents

Introduction to Town-Owned Land Section

In the Fall of 2008, the Land-Use Task Force held a Public Forum on Town-Owned Land. The goal of the forum was to identify Town-owned land to educate the participants on the two categories of these lands.

The first category, unprotected Town-owned land contains:

- Parcels that were purchased by the Town.
- Parcels that have been donated to the Town (some restricted for specific purposes and some with no restriction).
- Parcels taken by the Town for unpaid back taxes.

The second category, protected or conserved Town-owned land contains:

- Parcels that are extraordinary difficult to convert to other uses and their conversion would require addition approval from local and/or State and/or Federal Agencies.

Town-Owned Unprotected Land

As part of its charge, the Land Use Task Force completed a comprehensive analysis of Town-owned land. This land can be divided into two categories, unprotected or general municipal land and conservation or protected land.

The inventory of unprotected land consists of 48 parcels totaling approximately 150 acres. These lands have been acquired by the Town in various ways:

- Purchased outright
- Taken for unpaid back taxes
- Donated with restrictions
- Donated without restrictions
- From developers as part of the permitting process with the Planning Board (generally storm water management areas).

The Land Use Task Force evaluated each unprotected parcel for its potential to be developed to meet Town needs. We excluded from our evaluation parcels that are restricted to a specific use, e.g. cemetery, recreation fields or fully developed, e.g. Police Station.

GIS mapping was used to examine the floodplains, topography, wetlands, etc. of 48 parcels. Of these 48 parcels, 42 are 4 acres or less and 6 are greater than 4 acres in size. Many parcels were screened from further consideration as it was clear that they had no development potential, due to various constraints (lack of frontage, size, slopes and wetlands).

The Land Use Task Force conducted site visits to 13 parcels identified as having potential for municipal needs. As a result of these site visits, 5 parcels were eliminated from further consideration and 6 parcels were identified as having limited potential for a small municipal use, such as affordable housing. It is recommended that these 6 parcels be further evaluated by the Stow Municipal Affordable Housing Trust. These six parcels include the following:

R04-0170 1.9 acres Harvard Road
U08-0120 0.30 acres Gleasondale Road
U01-0410 1.3 acres Sudbury Road
U10-0140 0.6 acres Crescent Street
R06-0690 0.9 acres Harvard Road
R06-0710 0.9 acres Harvard Road

The two largest parcels were further evaluated by an Engineering Consultant to determine their potential. The first parcel, Map R-9 – Parcel 92 consists of 11 acres; the Westerly portion of Pompositticut School land with access onto Harvard Road. This parcel lies within a Natural Heritage Endangered Species Program (NHESP) – priority habitat for State-Protected Rare Species. It is unknown at this time which species this habitat polygon encompasses or the habitat requirements and further consultation with NHESP would be required to determine this. Although an NHESP designation does not preclude work and possibly development of this parcel, it could be a limiting factor and additional permitting (beyond the local level) would be required. In addition, the parcel contains wetlands, and a professional wetland delineation would be required to determine the extent of wetlands on the site. An adjacent privately owned parcel might be able to be acquired and added to the

parcel to increase the developable area. The extent of the permissible development will depend on successful resolution of these wetland and rare species issues.

The second large parcel, Map U-7 – Parcel 34-2, consists of 28 acres, known as the Kane property. This parcel is bordered to the north and east by the Assabet River and to the west and south by residential lots on Gleasondale Road. The access points to this parcel have site constraints and uses of this parcel are limited by extensive floodplain and wetland areas. An alternative access to the parcel via the abutting property to the south, Parcel 34, could potentially avoid some of the wetlands and floodplain issues, if an easement could be obtained which would gain access to the upland portion of the parcel. Uses requiring construction of a building, parking and septic system are not feasible due to the limited upland area with present access through the floodplain. The soils and proximity to the Assabet River (recharge) would make this parcel a potential site for a public water supply. It is recommended that due to this parcel's proximity to the mill in Gleasondale, its historic land use should be reviewed, if considered for a drinking water supply. The DEP permitting process would require substantial testing to assure that drinking water qualities could be met. Some limited recreational uses may be possible on this parcel. See Site Feasibility Study by PLACES Site Consultants, Inc., dated November 19, 2008, for a more detailed description of these two parcels.

Town-Owned Land Under Conservation Protection

The Town of Stow currently has approximately 1200 acres of land that are owned by the Town and under the care, custody and control of the Stow Conservation Commission, also known as "conservation land." This land has been acquired by the town in a variety of ways. Some of the ways that land becomes conservation land include:

- Land purchased by Town Meeting for conservation purposes using a variety of funding sources including Community Preservation Funds, State and Federal Grant funds, or municipal bonding;

- Land purchased by the Conservation Commission using funds in the Town's Conservation Fund;

- Land donated as a charitable gift by a conservation-minded landowner, or by a developer as part of the municipal permitting process; and

- Town owned land (for example, land taken for back taxes) that is subsequently transferred to the control of the Conservation Commission by the Board of Selectmen and Town Meeting.

The Land Use Task Force had as one of the items in its charge to look at the Town's conservation land holdings and determine whether some of this land might be available to meet the Town's long term needs for land for a wide variety of municipal uses. In order to carry out this charge, the Land Use Task Force gathered relevant documents including Mass. General Laws Chapter 40, Section 8C and Section 15A, Article 97 of the Massachusetts Constitution, the Commonwealth's Article 97 policy, and a 1973 Opinion of the Attorney General on the use of conservation land for other purposes. The LUTF also consulted with Town Counsel and sponsored a forum at which Town Counsel reviewed the requirements for the use of conservation land for other purposes. Much of the information presented in this report comes from that forum, and a DVD of the forum has been made available as an Appendix to this report.

Findings on Conservation Land

- There are strong legal protections for conservation land in Massachusetts. All land controlled by the Conservation Commission is subject to Article 97 of the Massachusetts Constitution. Article 97 reads in part:

  The people shall have the right to clean air and water, freedom from excessive and unnecessary noise, and the natural, scenic, historic, and esthetic qualities of their environment; and the protection of the people in their right to the conservation, development and utilization of the agricultural, mineral, forest, water, air, and other natural resources is hereby declared to be a public purpose….In the furtherance of the foregoing powers, the general court shall have the power to provide for the taking, upon payment of just compensation therefor, or for the acquisition by purchase or otherwise, of lands and easements or such other interests therein as may be deemed necessary to accomplish these purposes. Lands and easements taken or acquired for such purposes shall not be used for other purposes or otherwise disposed of except by laws enacted by a two-thirds vote, taken by yeas and nays, of each branch of the general court.

- Taken together, Article 97 and MGL Chapter 40 specify that the use of conservation land for other purposes requires approval by the Conservation Commission, a 2/3 vote of Town Meeting, a 2/3 vote of each branch of the Legislature and approval by the Governor.

- Use of conservation land for other purposes is called a "disposition" of conservation land. A "disposition" includes any transfer or conveyance of ownership or other interests (e.g. easement, lease, deed), change in physical or legal control, or a change of use.

- The requirements of Article 97 are minimum requirements that apply to all parcels that are held as conservation land. In addition, depending on how a parcel was acquired, there may be *additional* requirements to use the parcel for another purpose.

    - A change in use of land acquired through the permitting process will also likely require approval by the permitting board(s) and a formal modification of the decision that set aside the land. It is likely that a public hearing would be required prior to modification of the decision by the permitting board (s) and residents of the development (along with the public) would be given an opportunity to provide input on this change of use.

    - A change in use of land acquired with state or federal grant funds will also trigger requirements of the grant – for example, it is standard procedure for the town to sign a grant agreement when it receives "Self Help" funds that specifies that the town understands that use of the grant-funded land for another purpose will necessitate the provision of replacement land of equal or greater fair market value and conservation utility; in addition, the town is required to demonstrate that there is no feasible alternative, and state MEPA review and approval by the Secretary of Environment and Energy for the Commonwealth is required. Many of the town's largest holdings – Captain Sargent, Marble Hill, Flagg Hill, and Gardner Hill were acquired with assistance from state and federal funds.

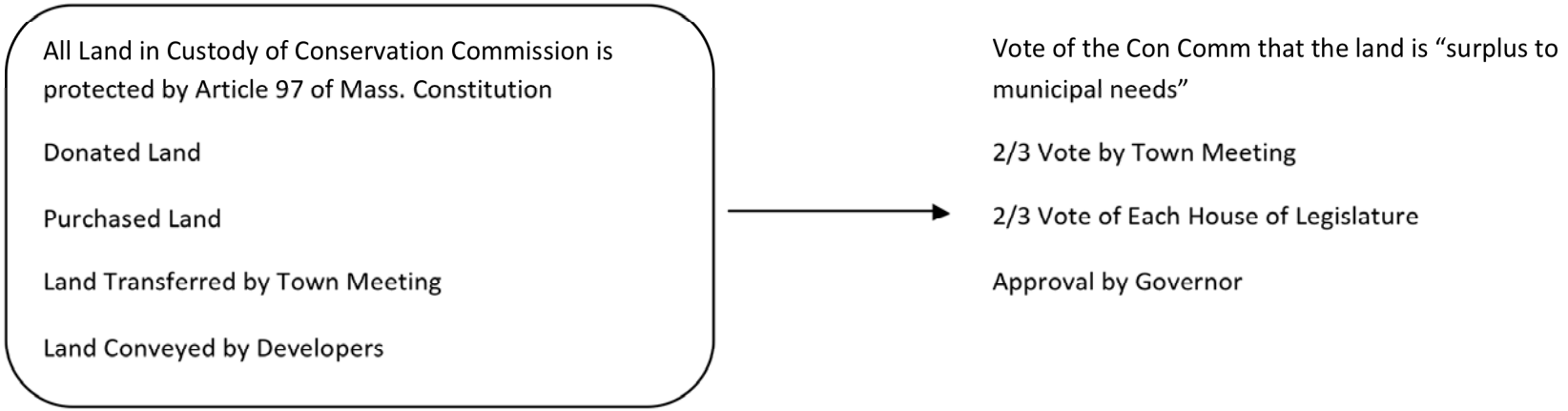
    - Any land that is subject to either a deed restriction or Conservation Restriction will require a release of the restriction by the holder of the restriction. Release or amendment of conservation restrictions will also require approval by the state Executive Office of Environment and Energy.

    - Depending on the wording of the deed there may be charitable trust issues that will need to be reviewed by Town Counsel and/or the Attorney General.

- In the Appendix to this report is information from the recently completed Stow Open Space and Recreation Plan that includes detail on many of the parcels of conservation land in Stow and what restrictions apply to these parcels, based on information that was available to the Stow Open Space Committee.

- In summary, the use of town-owned conservation land for other purposes, while not impossible, is exceedingly difficult and time-consuming, and made purposefully so by a variety of legal mechanisms that are designed to assure that, once conserved, land will remain dedicated to this purpose. In a town such as Stow, it will be difficult to demonstrate that there are no feasible alternatives to the use of conservation land in most cases, given the large amount of open land still available in town.

Disposition of Conservation Land



IN ADDITION ONE OR MORE OF THE FOLLOWING MAY APPLY:

Land Conveyed by Developers as part of permit process →	Likely to ALSO require modification of permits by Planning/Conservation/Zoning
Land Acquired with Self Help Funds →	Requires provision of replacement land of equal or greater FMV and conservation value, alternatives analysis, and Review by MEPA, and Approval by Secretary of Environmental Affairs
Land encumbered by deed restriction →	Requires release of restriction; may be charitable trust issues
Land subject to Conservation Restriction held by 3rd Party →	Amendment/Release of Restriction by 3rd Party Required
Land subject to Reverter Clause →	Approval/Relinquishment of Reverter by Donor

An Article 97 land disposition is defined as: a) any transfer or conveyance of ownership or other interests; b) any change in physical or legal control; and c) any change in use, in and to Article 97 land or interests in Article 97 land owned or held by the Commonwealth or its political subdivisions, whether by deed, easement, lease or any other instrument effectuating such transfer, conveyance or change. A revocable permit or license is not considered a disposition as long as no interest in real property is transferred to the permittee or licensee, and no change in control or use that is in conflict with the controlling agency's mission, as determined by the controlling agency, occurs thereby.

Process for Land Coming Out of Chapter 61 Protection

A key issue for the Town has historically been how to decide promptly whether to exercise or assign its rights of first refusal of Chapter 61 lands when they become available. With guidance from our liaison to the Board of Selectmen, it was decided that producing a guideline or schedule for the Town to follow would simplify and expedite the decision process and be the most productive means to address Chapter 61 lands.

Note: The initial charge to the Land Use Task Force from the Board of Selectmen included instructions to complete a comprehensive analysis of all lands in the town of Stow. The analysis was to include information regarding ownership, physical characteristics, maps, appraisals, surveys, deeds and any restrictions on the property. This analysis was quite appropriate for town-owned land and a survey of these lands is included elsewhere in this report. However, after initial research it became clear to the members of the Task Force that completing the same level of scrutiny for privately-held parcels presented some issues that were not easy to resolve. First, the sheer number of parcels that either contain greater than 5 acres or are classified under Chapter 61 programs makes it difficult to complete a thorough analysis. Second, without physical access to the parcels, the group would be limited to inferring information about topographical and environmental features from maps and state GIS data. Lastly and most significantly, private landowners could object to such information about their lands being compiled and distributed in a public document. For these reasons, the Task Force members decided to change our focus on privately-held lands to focus on the Chapter 61 process alone.

Background on the Chapter 61 Programs

Most landowners classify their lands in Chapters 61 (Forestland), 61A (Agricultural) and 61B (Open Space) to manage their land appropriately and take advantage of reduced property taxes. As development increases in suburban towns such as Stow, taxes rise to cover the costs of expanded town services. Without the protection of the Chapter 61 programs, increased taxes could force some landowners to sell their property. Thus many of the remaining undeveloped parcels in Stow are a direct result of the reduced annual property tax bills these programs allow. In exchange for this tax relief, the landowner agrees to offer the Town the opportunity to buy the land or assign its right of first refusal to a conservation group when the land is proposed to be sold for development to residential, commercial or industrial purposes or converted by the landowner to these uses. The landowner must give notice of intent to sell or convert in a specific manner defined by statute. After proper notice is given, the town has the right to match a *bona fide* offer to purchase the land within a 120-day option period, or in the case of conversion, to purchase the land at full and fair market value to be determined by an impartial appraisal.

Chapter 61 provisions differ from conservation restrictions and should not be confused with permanently protected land. Chapter 61 classification runs for a ten-year period and allow for voluntary removal of property from the program at any time, though the owner may be subject to a penalty tax if a change of use is involved. At the end of ten years, the owner may either file an application for recertification or withdraw the property from classification. If withdrawal is chosen, the landowner does not pay any penalties unless the land is converted from forestry to another use. Neither does a landowner pay any penalties if he or she withdraws and then convert the land to another use covered by one of the other two Chapter 61 classifications—61A or 61B. The right of first refusal by the Town extends a full year after the property leaves the Chapter program

Town of Stow Chapter 61 Process and Guidelines

The purpose of the guidelines proposed by the LUTF (and accepted by the Board of Selectmen at their meeting in November 2008) is to make sure that potential Town stakeholders have enough clear, factual information about parcels to determine early in the process whether there may be interest in acquiring the land for one or more municipal uses. If interest is present, a working group will be formed to investigate the possibilities and prepare one or more proposals for presentation in public hearings and consideration at a Town Meeting. The hope is that by clearly defining the necessary steps and timelines, the working group will be able to make best use of the short 120 day period to give full consideration to potential land uses and funding options. The key features of the plan are:

- outlining the requirements for proper notice to the Town
- clear definition of when the 120-day option period begins and ends
- formation of a standing Study/Evaluation group on call to begin Chapter 61 land evaluation when notice is given
- definition of a process to involve the public and interested groups in the evaluation and decisions

The guideline and a flow chart of the process adopted by the Board of Selectmen is included in its entirety with this report.

Town of Stow
Chapter 61 Review Process Guidelines

Whereas the Town of Stow ("Town") encourages owners of open lands used for forestry, farming or recreation to enroll their property in the Chapter 61, 61A and 61B preferential tax programs in order to help maintain these lands in their current use, but in doing so, forgoes tax revenue that would otherwise be generated by these lands; and

Whereas owners of land enrolled in these programs are required to grant the Town a 120-day assignable right of first refusal in the event that these lands are proposed to be sold or converted for other uses; and

Whereas the Town has the ability to exercise its right of first refusal on land sold for, or converted to, another use within one year of leaving Chapter 61, 61A and 61B; and

Whereas the Town has ongoing needs for land for municipal purposes including conservation land and finds it in the Town's best interest to give full consideration to the opportunity presented by withdrawal of land from these programs, to gather information from relevant boards and staff, and to determine whether the Town should exercise or assign its right of first refusal;

Whereas the Town has formed a "Study/Evaluation Group", composed of the professional staff of the Stow Planning Board, Stow Board of Selectmen, Stow Conservation Commission, Board of Assesors, Stow Board of Health, and the Chairs or designees Stow Open Space Committee and Stow Agricultural Commission (to assist the Town in evaluating parcels and completing the right of first refusal process.

Therefore the Board of Selectmen adopts these Chapter 61 Guidelines to set forth a clear process by which the Town will review and respond to notices of conversion and sale of lands in Chapters 61, 61A and 61B and determine whether to exercise, assign or waive its right of first refusal on these lands. These guidelines and procedures are adopted solely for the purposes of coordinating local review. Failure to adhere to these guidelines and procedures shall not affect any rights that the Town has under MGL Chapters 61, 61A and 61B, nor shall they affect any rights of the landowner.

Note: For the purposes of this document, the following items that are required by statute are noted in italic type. This is not an exact replication of the wording of the statute. Other items are adopted as part of this set of guidelines. The statute should always be consulted for exact wording.

A. Right of First Refusal

Within 120 days of the landowner's mailing (not receipt) of a proper notice, the Town must either:

1. *Act to exercise its option to purchase (to meet a bona fide purchase offer or, in the case of intended conversion by the landowner, an option to purchase at full and fair market value), recorded at the Registry of Deeds and by certified mail notification to the landowner,*
2. *Assign its rights to a non-profit conservation organization or the Commonwealth or any of its political subdivisions, recorded at the Registry of Deeds, or*
3. *Notify the property owner that it does not intend to exercise its right of first refusal.*
4. *Failure to record either the notice of exercise (and notification of the landowner) or the notice of assignment within 120 days is considered conclusive evidence that the Town will not exercise its right of first refusal.*

B. Requirements for Notice by Property Owner

1. *The 120-day right of first refusal time period begins with a notice of the landowner's intent to sell or convert a parcel for commercial, industrial or residential use. This notice must be sent by certified mail or hand delivered to the Town of Stow Board of Selectmen, in addition to the Planning Board, Board of Assessors and Conservation Commission, and to the State Forester. This notice must include the following:*

    a. *A statement of intent to sell or convert,*

    b. A statement of proposed use of the land,

    c. The location and acreage of land as shown on a map drawn at the scale of the Town's Assessor's maps

    d. The name, address and telephone number of the landowner,

    e. In the case of an intent to sell, a certified copy of an executed purchase and sale agreement specifying the purchase price and all terms and conditions of the proposed sale, which is limited only to the property classified under the Chapter, and must be a bona fide offer,

    f. The purchase and sale agreement must be a bona fide offer, defined as a good faith offer not dependent upon potential changes to current zoning or conditions or contingencies relating to the potential for, or the potential extent of, subdivision of the property for residential use or the potential for, or the potential extent of, development of the property for industrial or commercial use, made by a party unaffiliated with the landowner for a fixed consideration payable upon delivery of the deed,

    g. Any additional agreements or a statement of any additional consideration for any contiguous land under the same ownership, and not classified under the Chapter, but sold or to be sold contemporaneously with the proposed sale,

    h. A notarized affidavit that the landowner has mailed or delivered the notice will be conclusive evidence that the notice has been mailed in the manner and at the time specified,

    i. *In the case of an intent to convert the land to other use, the landowner must also notify the Town of the landowner's attorney, if any.*

C. Procedure for Review of Notices and Evaluation of Properties

1. Within three days of receipt of a proper Notice from a landowner, the Board of Selectmen's office will ascertain that Notice, with the required information, was also properly transmitted to the Planning Board, Board of Assessors and Conservation Commission. Within this same period, copies of the Notice will be provided by the Board of Selectmen's Office to members of the Study/Evaluation Group and to the Town Clerk, the Community Preservation Committee, Historic Commission, Stow Municipal Affordable Housing Trust, Stow Conservation Trust, and any other relevant boards and town officials. A cover letter shall indicate the date of a Joint Boards meeting to be scheduled within three weeks of the receipt of the Notice. The Board of Selectmen's office will provide a copy of the Notice and relevant information to Town Counsel for review.

2. The Board of Selectmen's office will also determine the final day of the 120-day period in consultation with Town Counsel and attempt to seek confirmation from the landowner or his/her representative regarding this date.

3. The Board of Selectmen will consult with Town Counsel to review the notice, including the purchase and sale agreement, and determine whether the purchase and sale agreement is deemed a bona fide offer and whether the Town is being given the same opportunity as the buyer with regard to the terms of the agreement. Ideally this determination will be made within five (5) days of receipt of the Notice.

4. *If the Notice is determined to be insufficient, the Board of Selectmen will immediately, but, in no event, in no* later *than 30 days from receipt of the Notice, transmit a letter* via certified mail *notifying the landowner in writing that the proper notice has not been given and informing him/her that the 120-day* time period pursuant to the statute *has not begun.* A copy of this letter will be provided to the Planning Board, Board of Assessors and Conservation Commission and other boards/officials in Paragraph C(1). Unless or until there is agreement with the landowner that the notice is deficient or the offer is not bona fide, the Town's review process should continue.

5. The Board of Selectmen shall request that the Study/Evaluation Committee gather information on the property to determine its recreational, agricultural, forestry and/or conservation values and provide a preliminary report to the Board of Selectmen and Town Administrator within five (5) working days. An analysis of the location of the property relative to other protected lands shall be performed along with an environmental assessment. A determination will be made whether the property contains any unique geological or other environmental features, important soils, a drinking water source, or historical attributes. Zoning and subdivision control regulations will be examined to assess the impact of the potential development on town services.

6. The Board of Selectmen shall hold a Joint Boards meeting, inviting all relevant municipal boards and committees. At that meeting, the information gathered by the Study/Evaluation Committee shall be presented and all boards and committees shall be given the opportunity to present any additional information that may be relevant to the parcel and indicate their potential interest in pursuing exercise of the Town's right of first refusal and the potential of the property to meet the town's needs for land.

7. At the conclusion of the Joint Boards meeting, the Board of Selectmen shall determine whether or not there is interest in proceeding with further evaluation of the property. At that time, if there is no interest, the Board may execute a waiver of the Town's right of first refusal (see D.3 below)l. If there is interest in further evaluation, the Board shall request that the Town Administrator appoint a Working Group to conduct further evaluation of the property and bring one or more proposals for the use of the property and the funding for the acquisition to the Board of Selectmen. The membership of the Working Group will likely include members of the Study/Evaluation group but shall be as broad as needed to include all parties with an interest in pursuing acquisition of the property. The working group shall complete any necessary evaluations of the land's suitability for intended uses. The group may request funds to cover costs of the evaluations from public or private sources as they deem necessary.

8. At the conclusion, of the Joint Boards meeting, The Board of Selectmen shall meet and if they decide to continue the process., they shall also schedule and give notice of a public hearing for the purpose of receiving comments on the importance of the property to the Town, its conservation significance and/or potential for use to serve municipal needs and for receiving a report from the Working Group. Ideally, the public hearing will be scheduled by Day 60 of the review process. In those cases where there is a proposed conversion of the land but no sale, the determination of sale price may take as long as 90 days, at which point the public hearing will be scheduled (see section C (7)). *Notice of the hearing is required to be given in accordance with M.G.L. Ch. 39, Section 23B (Open Meeting Law)*. The Board of Selectmen will also notify the Planning Board, Conservation Commission, Open Space Committee and Board of Assessors, and (the other boards and organizations listed in paragraph C (1)). *The option to exercise the right of first refusal may only occur after a public hearing* and an affirmative vote of the Board of Selectmen.

   At the public hearing, the Board of Selectmen will afford interested boards, organizations and individuals the right to comment. If there continues to be interest in pursuing acquisition of the property for municipal uses or in assigning the right of first refusal to a non-profit conservation organization or to the Commonwealth or one of its political subdivisions, the Board of Selectmen may continue the public hearing as needed to allow time to present a more specific proposal for consideration by the Board.

9. *If the landowner is converting the property, and the Town is interested in* exercising an *option to purchase the land at fair market value, the Town will hire a qualified independent appraiser, and obtain the appraisal within 30 days of receiving the notice to convert. If the landowner contests the appraisal, the landowner may hire a qualified independent appraiser and obtain an appraisal within 60 days of the notice to convert. If the Town and the landowner cannot agree on an appraised value, then the two parties will jointly hire a third appraiser and obtain an appraisal within 90 days of the notice to convert. The price of the third appraisal will prevail if there is a sale, but at anytime the landowner may withdraw his or her notice to convert. Upon agreement of a* sales price*, the Town will have 120 days to exercise its option.*

D. Decision by the Town of Stow

Based on input at the public hearing and further research as warranted, the Board of Selectmen will close the hearing and determine whether to pursue the opportunity to exercise the right of first refusal and for what purposes. The Board of Selectmen must choose one of four courses of action:

1. If the Board of Selectmen agrees to bring the option to exercise to a Town Meeting vote, the Board of Selectmen shall:

   - *Schedule a Town Meeting for the purpose of appropriating funds to purchase the property, place a warrant article on the town warrant for this purpose, and schedule a debt exclusion vote (if necessary) for the purpose of authorizing expenditure of funds. The town meeting must be scheduled within the statutory 120-day period, unless an extension of this deadline is agreed to in writing between the parties.*
   - Record the notice to exercise the option at the Registry of Deeds as part of an affidavit of a notary public during the 120-day period.
   - Notify the landowner by certified mail during the 120-day period, at the address specified in the landowner's notice, of the Town's intent to exercise its option.
   - The Town must take title to *the property must occur within 90 days of the Town's decision to exercise its right of first refusal, unless otherwise* extended by written agreement *of the parties.*

2. If the Board of Selectmen desires to assign its right of first refusal to a qualified land trust/conservation agency, the Board of Selectmen shall:

   - *At a public hearing during the 120-day period, vote to assign its right of refusal to the non-profit organization, setting forth any terms and conditions of the assignment. [Note: the non-profit conservation organization or the Commonwealth or any of its political subdivisions must conserve at least 70% of the property in a use consistent with one of the three Chapters, (*forestry, agriculture or recreation*) or no less a percentage conserved than proposed by the developer whose offer gave rise to the assignment, whichever is greater, but may be permitted to undertake a limited development on the balance of the property. The Board of Selectmen may place conditions on this use; for example the number of lots in the limited development can be specified.]*
   - *Record the notice to exercise at the Registry of Deeds as part of an affidavit of a notary public during the 120-day period.*
   - *Notify the landowner by certified mail during the 120-day period, at the address specified in the landowner's notice, of the Town's intent to assign its option to a non-profit conservation organization, stating the name and address of the non-profit organization and the terms and conditions of the assignment.*
   - The assignee must take title to the property *within 90 days of the Town's decision to assign its right of first refusal, unless otherwise* extended by written agreement of the parties.

3. If the Town decides to forgo its right of first refusal, the Board of Selectmen should:

   - Examine wisdom of recording a limited waiver of its rights at the Registry of Deeds. Any waiver of the Town's rights should be specific to the proposed purchase terms so that if the sale falls through and a new proposal comes forth, the 120-day clock will begin again.
   - The Town shall use as much of the 120-day period as is necessary to properly evaluate the property and the potential of exercising or assigning the right of first refusal. It is possible that the Town may decide that it cannot afford to purchase the property, but any such choice should be thoroughly discussed and researched before making such a

determination. Where there is consensus on the absence of conservation value or where the Town has negotiated a signed agreement with the landowner and/or developer that meets the municipal needs with regard to the property, the town may choose not to exercise its right. Any such negotiations, however, should occur in consultation with the boards/committees entitled to notice by statute.

4. *The Town can fail to act within the required 120-day period (and any extensions thereof), in which case the Town will be deemed to have failed to exercise its right of first refusal.*

Analysis of Needs and Priorities for Town Land Use

Another major area of our work was to provide an analysis of the priorities of various potential land uses. To do this, we had to define a set of likely town uses or needs for land.

We considered the following potential uses (in alphabetical order):

- Affordable housing
- Agricultural
- Community center/senior center
- Fire/Police/Highway
- Library
- Municipal parking
- Open space
- Recreation
- Schools
- Town offices
- Well/septic

Process for Creating a Prioritized List to Guide Future Land Use Decisions

The challenge of this part of our work was that this had to be done without considering specific pieces of land, although the size, characteristics and location of any piece of land will have a significant influence on its suitability for any particular use. Specifically, we found that priorities would be influenced by the nature of the parcel (land location, size and characteristics (flat, wet, agricultural, etc.), and by timing. Under timing, there are certain priority needs that will change over time as the town moves towards build-out, for example, land for well/septic. However, we want to emphasize, that this prioritization of potential town land needs is not intended to replace the town's Master Plan.

In determining priority needs for town land use, the committee:

- Used different scenarios to assess priorities/sequence of needs
- Reviewed priority needs with various town boards and departments.
- Reviewed results of previous efforts (MLUC) and Open Space and Recreation Plan
    - Considered Master Plan survey responses

Results

High priority land uses:

- Agricultural

- Affordable housing (tie)
- Community Center (tie)
- Open space

These four uses rose to the top of the priority list as we sought to preserve the town's character while supporting evolving needs as we move toward build out. Stow's history as a community that embraces agriculture and the preservation of open space, coupled with an ability to attract residents from all walks of life have been and will continue to be important characteristics for the Town.

While the reality is that any of these priorities will be influenced by the nature of the parcel of land , these uses should take priority as the Town evaluates land use and/or acquisition decisions in the future.

Only certain land will ever be suited to agricultural use. This makes it particularly important to preserve or re-purpose such land for this use. This could be done by acquiring an agricultural restriction on land use, enabling the property to remain in private hands. In a few cases it may make sense for the town to acquire the land and lease it for agricultural use.

Land needed for affordable housing and community center were tied in our committee's rankings. Whether a given parcel is eligible for affordable housing or a community center is likely to depend on parcel size and location. Land for affordable housing can be scattered around town and in fairly small parcels. Some form of community center or senior center is clearly desired as the town grows. It will likely need a medium to large, flat and buildable lot, but it could be located in many areas of town.
Land for open space can be almost any size and any condition depending on how it relates to other land in town.

Medium priority land uses:

- Municipal parking (tie)
- Town offices (tie)
- Well/septic
- School

These medium priority potential land uses come in direct proportion to Town growth. As the Town grows in size, the need for additional Town services (and the subsequent need for additional administration staff) the need for additional Town office space, enhanced Town infrastructure and additional capacity on our schools will become pressing. Parcel size, cost and location, however, will influence suitability of land for these uses.

Land needed for municipal parking and town offices were tied in our rankings. Land for parking is only relevant for a certain location so it is highly specific should the opportunity arise.

Land for well/septic is needed depending on how the Master Plan develops and how we develop certain areas of town. Only certain kinds of land can be put to this use.

Land for a school receives attention on this list in spite of the fact that we are currently building a school. This is because eventually another school will be needed and a school requires a large parcel with relatively specific conditions. Land suitable for a future school may be the single most difficult piece of property to find given requirements for location and the large parcel necessary. Increased cost of land in the future, particularly buildable land, may severely restrict the town's options for a school building. The town should look to opportunities to secure such a parcel. One such opportunity could come in conjunction with some future large residential development when negotiations with the developer could set aside a portion of the total area under development for a future school site.

Low priority land uses (at present):

- Library
- Recreation (tie)
- Public safety: Fire/Police/Highway (tie)

While land may be needed for these uses in time, for the next several years, the needs here appear to be low compared to others.. Specifically:

- We are completing a new set of fields on the old Snow property
- Representatives for library and public safety expressed a view that near term needs could be addressed through improvements on their present sites.

Land needed for recreation and public safety were tied in our rankings.

General Recommendations

First Recommendation: Maintain a long range, systemic vision when facing land use decisions.
There will be many land use decisions facing the town in the next few years. Decisions should not be done only on a project specific basis, but rather by putting all decisions within the context of the long-range strategic vision for the Town. In the near term, we strongly encourage the Board of Selectmen and other interested parties to consider both the soon-to-be released Master Plan and the information on priority needs from this committee as the town moves toward build-out. In particular, the town will need to be prepared to respond to changes in large currently underdeveloped parcels and should begin to evaluate their potential to meet town needs while considering their contribution to Stow's rural character.

Second Recommendation: Use of Chapter 61 Guidelines
The Task Force recommends strongly that the Town continue to follow the guidelines accepted by the Board of Selectmen in 2008 for consideration of exercise or assignment of Chapter 61 lands.

Third Recommendation: The Town should establish a dedicated fund comprised of Chapter 61 taxes for Municipal Land Acquisition.
As was outlined in another section of this report, Chapter 61 landowners commit to keeping their land as farmland, forestland or open space for a specified period of time in exchange for reduction in property taxes. If a landowner changes the use of the land in classification to one not covered by one of the three Chapter programs within that time frame, certain penalty taxes may apply. Conveyance taxes are meant to levy a significant financial penalty for lands removed from classification in the early years of an agreement. Roll-back taxes are imposed later and look back over five years from the time of conversion. They represent the difference between what the landowner paid in taxes under the program and what would have been paid had the land been taxed at its fair market value, plus interest.

Currently, when these taxes apply, they are paid to the Town and go into its General Fund. A growing number of towns in the Commonwealth have created dedicated funds where some or all of these taxes are placed and held separate from general funds. Some towns dedicate all the funds to special uses, for example acquisition or management of conservation lands. It is worth noting that establishing this type of fund requires special legislation from the Commonwealth.

The Land Use Task Force recommends that the Town of Stow create a special fund for conveyance and roll-back taxes. This fund should be dedicated to acquisition of land for one or more of the eleven municipal purposes as outlined earlier in this report, or other municipal needs that may arise. We suggest that the Board of Selectmen instruct the Town Administrator to research and prepare a proposal with input from Town departments and boards. Issues to be considered are whether all or a part of these taxes be placed in the fund, and whether the funds should be used at the discretion of the Selectmen or any portion be restricted to specific uses.

Fourth Recommendation: Investigation of Housing on Town Parcels
In the course of examining town-owned parcels, two sizable parcels and six small parcels were identified that have potential to be developed into one or two units of affordable housing. Most would require some variance from established zoning, acquisition of adjacent parcels that are currently privately-owned, or re-purposing of land that is controlled by another town department. Besides being a productive use of currently underused property, dispersing

affordable housing in smaller developments across the town is consistent with affordable housing strategies developed by Stow. LUTF encourages the groups advocating housing in town to explore these parcels fully in advance of consideration of any new acquisitions.

Fifth Recommendation: Evaluating Two Existing Town-Owned Parcels
Before purchasing additional land for one of the eleven Municipal needs identified within this report; the following two parcels should be evaluated for their ability to meet these needs.

> Map R9-Parcel 92 The westerly portion of the Pompositticut School parcel with access from Harvard Road.
>
> Map U7&U8-Parcel 34-2 The former Kane land on Gleasondale Road.

A Site Feasibility Study providing additional information on these two parcels is contained within this report.

Sixth Recommendation: Negotiating with Developers
There should be a formal and ongoing representation of municipal needs in development negotiations. This may be accomplished in part through the review process suggested in Recommendation #7. Other processes have been used in the past (e.g., Villages of Stow Negotiating Committee). The Board of Selectman should continue to work with the Planning Board, Zoning Board of Appeals and Conservation Commission to explore additional ways to advance how we negotiate with developers.

Seventh Recommendation: Working with Town Boards and Committees on Land Needs
The Planning Board of the Town Of Stow should adopt the sample form developed by this Committee to solicit input from various Town Boards and Committees when a parcel of land is proposed for development. The purpose of this form is to ensure that all Boards and Committees consider Municipal land needs that might be appropriate for any given parcel prior to the Public Hearing process.

A sample of this form is contained in the Appendix of this report.

The Zoning Board of Appeals of the Town of Stow should develop a similar form to solicit the same information from Town Boards and Committees with regard to 40B Applications.

Town-owned Land Inventory

Parcel Information - Location/Acreage/Ownership								Characteristics				Potential Uses							Adj Land?	Comments
Map and Lot	Acres		Location	Owner	Book	Page	Date Acquired	Topo	Wet	Ag Soil	Road Access	Potential for Use: 1=likely; 2=unsure; 3=doubtful; 4=none	Town Bldg	Recreation	Housing	Well/Septic	Mixed Uses	OS Priority?		
R04-0170	1.9		HARVARD RD	TOWN	West Schol Parking	11784	500	0	Hilly	N	Y	Y	1			X				Check ownership of adjacent lot at corner - undeveloped, potential to combine?	Visited, appears to be some potential for additional development of backland, perhaps as housing
U07-0340-0020	21.3		GLEASONDALE RD	TOWN	Kane Well Land	22772	447	19921228	Flat	P	?	Y	1	X	X	X	X	X	X	Look at with Doherty, adjacent -- appears to have a lot of potential; possible town purchase, abandoned house	Attempted to visit, challenging to access from road due to vegetation coverage (poison ivy); appears to have potential for development
U08-0120	0.3		GLEASONDALE RD	TOWN	SCHOOL LOT	0	0	0	Flat	N	Y	Y	1	?		X				N	This parcel is small but appears to have potential for housing
ID Pending	6.0		OLD BOLTON RD	TOWN	Rear, Snow Property								1	X	X	X	X	X	X		Use for farming for short term per town meeting vote
U01-0410	1.3		SUDBURY RD	TOWN	Pine Point	10253	407	0	Hilly	N	N	Y	1.5			X				N	Visited, topography is challenging, but may have some potential for housing
U10-0140	0.6		40 CRESCENT ST	TOWN	STORAGE BLDG.	0	0	0	Hilly	N	N	Y	1.5	X		X					Visited, the site has potential for reuse, the rear is steep, but has potential for housing, small sr. ctr, fire?; who has control of this parcel

R06-0690	0.9	7	HARVARD RD	TOWN OF STOW		20965	298	19910116	Flat	P	N	Y	2			X				parcels either side	Visited; these parcels could benefit from further exploration re potential for housing; appear to be upland in a deep bowl
R06-0710	0.9	5	HARVARD RD	TOWN OF STOW		25204	41	19950301	Flat	P	N	Y	2			X				parcels either side	See Comments on R06-69
R06-69a	0.9	6	HARVARD RD	TOWN OF STOW		45994	52	20050831					2								Added since last meeting; check parcel number - duplicate
R06-015	1.0	21	8 ELIOT DRIVE	TOWN OF STOW		44092	568	20041115					3							Parcel R06-14 is for sale	Difficult to assess. Neighbors have placed leaves and debris on lot; there are some wetlands to the rear. Rough assessment is low potential for development
R06-016	1.4	22	14 ELIOT DRIVE	TOWN OF STOW		44092	569	20041115					3								Same as 8 Eliot
R09-0920	17.9		511 GREAT RD	TOWN	POMPISITTICUTT SCHOOL	10716	####	19640101	Flat	P	P	Y	Pending more info							R09-09	Needs professional wetland delination to understand limitations
U10-0090	3.0		16 CRESCENT ST	TOWN	FIRE STATION	0	0	0	Hilly	N	Y	Y	1	x		x	x				Some excess land; about 2.5 acres; school may be thinking of using part; fire dept needs for expansion
R03-0260	0.0		MAPLE ST	TOWN	KETTLE MONUMENT	0	0	0	Flat	N	?	Y	4							N	No excess land
R04-0400	0.3		HARVARD RD	TOWN	WEST SIDE SCHOOL	11784	500	0	Hilly	N	Y	Y	4							N	No excess land
R05-0180	1.3	54	CONANT DR	TOWN OF STOW		22598	228	19921110	Flat	Y	N	Y	4							N	Wet
R05-0190	1.2	53	CONANT DR	TOWN OF STOW		20773	87	19900918	Flat	Y	N	Y	4							N	Wet
R05-0200	1.0	52	CONANT DR	TOWN OF STOW		20773	88	19900918	Flat	Y	N	Y	4							N	Wet
R05-0210	1.0	51	CONANT DR	TOWN OF STOW		20965	299	19910116	Flat	Y	N	Y	4							N	Wet
R05-0230	1.1	50	CONANT DR	TOWN OF STOW		20965	300	19910116	Flat	Y	N	Y	4							N	Wet

R09-92A	11.0		GREAT RD	TOWN	School Field				Flat	Y	?	?	2							Y	Restricted for educational use?
R16-0010	5.2		BROOKSIDE AV	TOWN	BROOKSIDE CEMETERY	0	0	0	Flat	N	N	Y	4							N	No excess land
R17-0190	15.2		55 HARTLEY RD	TOWN	HALE SCHOOL	10590	65	0	Hilly	N	N	Y	4							N	No excess land
R21-042A	10.5		SOUTH ACTON RD	TOWN	HIGHWAY DEPT/Town Garage	12008	236	0	Hilly	P	N	Y	4							N	Some marginal land in back; reserve any room for Hwy use/expansion
R22-0010-0010	3.0	OT	BOX MILL RD	TOWN	BROOKSIDE CEMETERY EXT	29477	6	19981204	Flat	N	N	Y	might look at adj. Parcels for cemetary expansion or other town use.							R22-20-1A; Erbs, 1.4 acres; Also R22-1A, Derby	Visited, land is currently being prepped for use as cemetary
R22-0020-0040	2.1		BOX MILL RD	TOWN	BROOKSIDE CEMETERY EXT	12725	50	0	Flat	N	N	Y	4								No excess land
R-24 00023A	0.4	A	BARTON RD	TOWN	Assabet River Lot	45979	147	20050830	Flat	N	?	Y	4							N	Rec interested for boat launch, likely best use
R29-0020	1.9		GREAT RD	TOWN	LOWER VILLAGE CEMETERY	0	0	0	Flat	N	?	Y	4							N	No excess land
R30-0010	0.8		GREAT RD	TOWN	LOWER COMMON	0	0	0	Flat	N	?	Y	4							N	No excess land
R30-0010	0.2		GREAT RD	TOWN	LOWER COMMON	0	0	0	Flat	N	?	Y	4							N	No excess land
R30-016A	0.1		SAMUEL PRESCOTT D	TOWN OF STOW		30519	347	19990809	Flat	N	?	Y	4							N	No potential, road ROW
R30-0790	2.4		OFF MILITIA CR	TOWN OF STOW		33418	361	20010808	Flat	Y	Y	N	4							N	Too wet to be useful
R30-15A			GREAT RD										4								No potential
R31-0470	4.0		FARM RD	TOWN OF STOW		32005	583	20001107	Flat	Y	N	Y	4							N	Too wet to be useful
R31-048C	2.0		OFF MILITIA CR	TOWN OF STOW		32005	582	20001107	Flat	Y	Y	Y	4							N	Too wet to be useful
U01-0510	1.0		BARTON RD	TOWN	LAKE BOONE DAM	10194	35	0	Flat				4								No excess land
U01-0550	0.1		BARTON RD	TOWN	BOONE MONUMENT	0	0	0					4								No excess land
U09-0440	14.6		403 GREAT RD	TOWN	CENTER SCHOOL	8193	85	0	Flat	P	Y	Y	4							N	No excess land
U10-0040	0.1		375 GREAT RD	TOWN	Town Hall	0	0	0	Flat	N	?	Y	4								No excess land
U10-0150	1.2		CRESCENT ST	TOWN	HILLSIDE CEMETERY	0	0	0	Hilly	N	N	Y	4							N	No excess land
U10-0330	0.3		19 CRESCENT ST	TOWN	RANDALL MEMORIAL LIBRARY	0	0	0	Hilly	N	?	Y	4							N	No excess land
U10-0390	1.7		305 GREAT RD	TOWN	POLICE STATION	21394	374	19910904	Hilly	P	?	Y	4							N	No excess land

Town-owned Land Inventory

U10-0400	0.6		GREAT RD	TOWN OF STOW		18165	385	19910624	Flat	Y	?	Y	4							N	Too wet to be useful
U10-0620	1.1		BROOKSIDE AV	TOWN	BROOKSIDE CEMETERY EXT	7930	82	0	Flat	N	N	Y	4								No excess land
U10-0680	4.3		380 GREAT RD	TOWN	STOW TOWN OFFICE BLDG	680	131	19630019	Hilly	Y	?	Y	4								TM has voted to use an excess land for parking, remainder is restricted for conservation
U10-0690	0.3		GREAT RD	TOWN	CENTER COMMON	0	0	0	Flat	N	?	Y	4							N	No excess land
U10-0690	0.1		GREAT RD	TOWN	CENTER COMMON	0	0	0	Flat	N	?	Y	4							N	No excess land
	147.4																				

ROGER K. KANE and SHIRLEY M. KANE

of Hudson, Middlesex County, Massachusetts

in consideration of Nominal Consideration

grant to THE INHABITANTS OF THE TOWN OF STOW, a municipal corporation with a principal place of business at the Town Building, Stow, Massachusetts

with quitclaim covenants

the land in Stow, Middlesex County, Massachusetts on the Easterly side of Gleasondale Road shown as Lot #2 on a Plan of Land entitled "Compiled Plan of Land in Stow, Mass., Owned by Alden H. Kane and Roger K. Kane, Scale 1" = 100', Feb. 25, 1976, Plan by Veo and Associates, Inc., Hudson, Mass." which plan is recorded in theMiddlesex South District Registry of Deeds as Plan No. 602 of 1976 in Book 12992, Page 530 to which plan reference is made for a more particular description.

Lot #2 contains, according to said plan, 28.75 acres.

Being the same premises conveyed to the Grantors by deed dated June 10, 1992 and recorded in the Middlesex South District Registry of Deeds in Book 22814, Page 016.

The consideration is nominal less than One Hundred ($100.00) Dollars, no revenue stamps are required.

See certified copy of Town Meeting Article accepting this deed as a gift to the Town.

ADDRESS OF PROPERTY: Gleasondale Road, Stow, MA
ADDRESS OF GRANTEE: Town of Stow, P.O. Box 261, Stow, MA 01775

Executed as a sealed instrument this 16th day of December 1992

Roger K. Kane
ROGER K. KANE

Shirley M. Kane
SHIRLEY M. KANE

The Commonwealth of Massachusetts

Middlesex, ss. December 16, 1992

Then personally appeared the above named ROGER K. KANE and SHIRLEY M. KANE

and acknowledged the foregoing instrument to be their free act and deed.

Before me, Joseph L. McQuade
Joseph L. McQuade Notary Public

My commission expires December 11, 1998

Stow: Forever Green

Preserving the Stow we Know

Stow Open Space and Recreation Plan

June 2008

Web Link:
http://www.stow-ma.gov/pages/StowMA_BComm/StowMA_OpenSpace/2008%20Stow%20OSRP%20-%20large%20version/

Also see Master Plan Appendix 7

November 19, 2008

Stow Land Use Task Force
380 Great Road
Stow, MA 01775

Re: Site Feasibility Study
Harvard Road Site
Gleasondale Road Site
Places Project No. 618

Dear Committee Members:

Thank you for this opportunity to work with you on the review of town owned properties for potential municipal uses.

PLACES Site Consultants has reviewed available information and conducted on-site inspections for the two sites located on Gleasondale Road (Route 62) and Harvard Road. The inspections were limited to visual observation – no soil testing, wetlands delineation, or other surveys were performed.

Harvard Road Property – Parcel 92

This study reviewed the westerly portion of the property as the east half of the parcel has been developed as the Pompositticut School and athletic fields. The westerly portion is separated from the activity at the Pompositticut School by a wetland area. Access to this part of the site is via an access strip onto Harvard Road and it is bordered by residential lots on Harvard Road and Great Road.

NHESP- The major limitation on the use of this parcel is the presence of a Natural Heritage Endangered Species Program (NHESP) Massachusetts Priority Habitats for State-Protected Rare Species. It is unknown at this time which species this habitat polygon encompasses or the required habitat requirements. According to the NHESP website, additional permitting is required to work within the area of the polygon but it is not a total prohibition for work. It has been our experience that the presence of this polygon severely limits the potential uses of the property unless the habitat is clearly not appropriate habitat for the species of concern. (As an example, a gravel pit is not suitable habitat for salamander species but does provide nesting sites for some turtle species).

The Stow Conservation Commission does not know the species involved – NHESP typically does not want the information available to the public to protect the species. Pat Perry indicated that there are some vernal pools in the Marble Hill area but there are no recent filings which would have identified the species.

SOILS - The soil maps indicate that the access to Harvard road is extremely stony Ridgebury fine sandy loam but the rest of the site is Scarboro mucky fine sandy loam, a soil typically associated with wetlands.

510 King St., Suite 9, Littleton, MA 01460
(978) 486-0334 Fax: (978) 486-0447
places.littleton@verizon.net

694 Main Street, Suite 3, Holden, MA 01520
(508) 829-0333 Fax: (508) 829-0904
places @verizon.net

WETLANDS- This office did not walk this property to view the extent of the wetlands due to the other outstanding issues with the NHESP habitat.

POTENTIAL USES- Generally the typical municipal uses such as offices, parking areas, septic systems and recreational facilities which require extensive land alterations are not viable for many of the species shown in NHESP habitat areas. A low impact use such as passive recreation or public water supply (temporary alterations) may be possible if compatible with the requirements of the particular species. This site is not identified as a DEP potential aquifer so any water supply would most likely be a deep rock well of unknown potential yield.

It is our recommendation that if the town wants to pursue the use of this site, NHESP be contacted to find out the species of concern and evaluate the site for areas with unsuitable habitat.

Gleasondale Road Property – Kane Site – Parcel 32-2

The 28 acre site is bordered to the north and east by the Assabet River and to the west and south by residential lots. The site has two access points to Gleasondale Road on the west side of the site with residential lots between the assess points. Both access points have site constraints which will impact the site.

ACCESS - The northern access point is lined with guardrail and has a steep grade entering the site, dropping roughly 20 feet in elevation before the site flattens out. An old three-sided foundation made of large stones acts as a retaining wall for the road. Developing an access from this location may be difficult due to the impact of fill to create a reasonable grade into the site, impacting both the abutting properties and the flood plain. While access may not be impossible with the use of retaining walls and creating compensatory flood storage areas, it may be cost prohibitive.

The southern access point is to the immediate north where Gleasondale Road curves to the west and Marlborough Street continues due south. The southern access is also lined by guardrail but only drops 3 to 4 feet in elevation before flattening out. Wetlands and flood plain isolate this access from the larger, more buildable portion of the lot. It is estimated that, using the data from Mass GIS, the length of wetland crossing would be approximately 50-75'. Under the Massachusetts Wetlands Protection Act, the Conservation Commission may allow an alteration up to 5,000 s.f., which may be sufficient for a crossing. This site may qualify as a "limited project" to gain access to a buildable upland area but would require further deed research to determine if the previous owner had created the hardship through parcel division. Field delineation of the actual edge of Bordering Vegetative Wetlands (BVW) is needed to evaluate the viability of a crossing.

The one other alternative for access is via the abutting property to the south. Parcel 34 on the Assessor's map has a house located in the rear portion of their property and if an easement could be obtained, could potentially avoid some of the wetlands and flood plain issues to gain access to the upland portion of the study site.

TOPOGRAPHY - The topography of the site is relatively flat leaving most of the property within the 100 year flood plain and potential wetlands. The ecology consists of mostly red maples and honeysuckle shrubs, with areas of sphagnum moss. The red maples are about 18 inches in diameter except for a rectangular area where they are only 2 – 3 inches. The rectangular area may have been a playing field of agricultural field at one time. In the center of the site there are wetlands, shown as potential vernal pools

with standing water and signs of beaver activity (tree damage). There was also an elevated area of white pines and low bush blueberry that had possible evidence of gravel excavation in the past. The wetland area to the north of the site was obvious flood plain with scattered debris/trash from the previous flooding events.

SOILS - The soil types found on site are Windsor loamy sand and Deerfield loamy sand with ponded Freetown muck along the river. Normally sandy soils are ideal for sewage disposal systems. In this case, much of the land is in the flood plain or in the buffer zone to the BVW, limiting the horizontal area available for a sewage disposal system.

FLOOD PLAIN , WETLANDS and RIVERFRONT- Use of this site is limited by the extensive floodplain and wetland areas. Structures are prohibited in the Flood Plain unless it can be shown that there is a mapping error. Based on general visual observations, it does not appear that the mapping has any obvious errors. The DEP Priority Resource Map shows this site as being “Protected Open Space” which may limit its potential uses via deed restrictions or Conservation Restrictions.

The Bordering Vegetated Wetlands (BVW) wetlands are extensive and generally abut the Assabet River as well as an isolated area previously described as it impacts the site access. In addition to the wetlands, the site is contained within the Riverfront Area which is the zone 200’ from the bank of the river. The Wetlands Protection Act protects the Riverfront area, but allows use of 2500 s.f. or 10% of the riverfront area, whichever is greater. For this site, it appears that the majority of the riverfront area is also BVW based on the Mass GIS maps, and therefore has no significant impact on the use of the property.

The BVW and Riverfront area would need to be field delineated prior to any use of this property as our assessment was based on the GIS maps and visual observations.

ZONING: The front portion of this site is zoned Residential, with the back portion zoned Recreation-Conservation. Buildings and structures are allowed within the RC zone, only as an accessory use to a recreational use and are subject to a 100’ setback from the zone line, severely limiting the footprint of useable area due to the other constraints (flood plain and wetlands).

Uses in the Residential District would include residential, agricultural, bed and breakfast, child care facility. With special permits from the ZBA additional uses include schools, playgrounds, non-commercial recreation, veterinary hospitals, stables, and nursing homes and with special permits from the Planning Board duplex residences, cross-country skiing and golf courses are allowed.

Approximately 0.66 acres of contiguous non-flood plain land is located in the Residential District. This 0.66 acres of land is isolated by the 100 year flood plain which precludes a residential use as the lot would not meet the zoning requirements for a building lot. This land area is insufficient for any of the allowed uses with the exception of playgrounds, and recreational uses.

POTENTIAL USES - Uses requiring construction of a building, parking and septic system are not feasible due to the limited upland area with access through the flood plain. Other uses, where access during flooding events is not critical, such as recreational uses, may be possible with resolution of the access. The lateral extent of useable land will be limited by the floodplain.

The soils and proximity to the Assabet River (recharge) for this site would make this site a potential site for public water supply. The DEP Priority Resource map shows this site as being a medium yield aquifer. This office is unaware of any contamination of this site but with the proximity to the mills in Gleasondale,

the historic land use should be reviewed if considered for a drinking water supply. If this site were pursued for a source of public drinking water, the DEP permitting process would require substantial testing to assure that drinking water quality standards could be met.

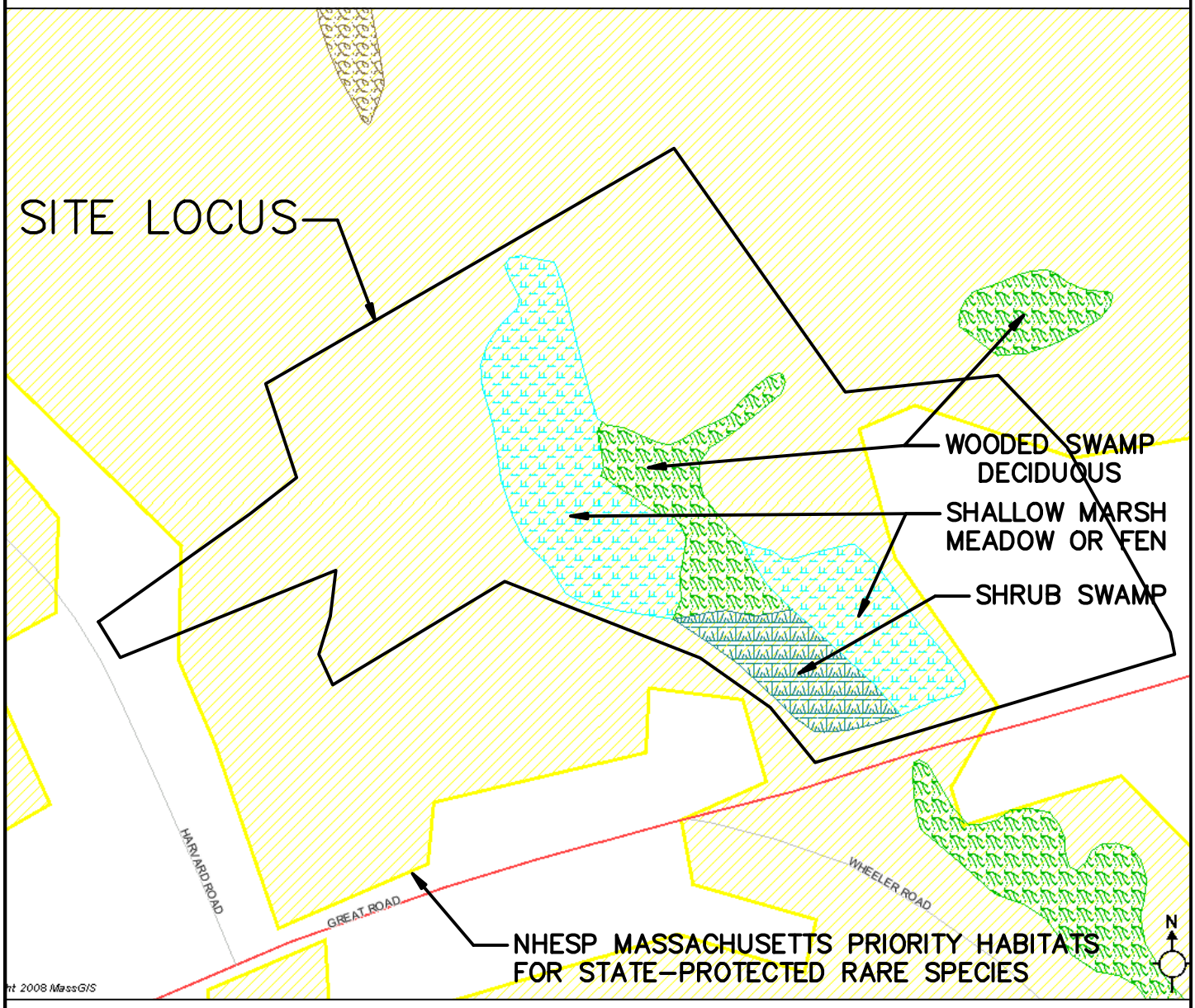
Summary

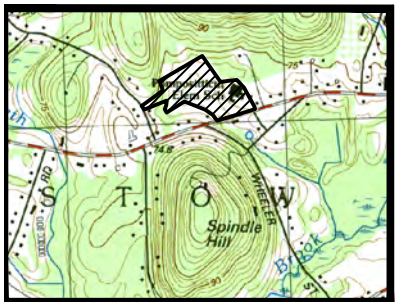
In summary, both parcels have limited use potential due to environmental constraints. Any expansion of use on the Harvard Road site, either in conjunction with the Pompositticut School or the vacant portion of the property will need to address the NHESP habitat issues prior to any land planning for the site. Use of the Gleasondale site is limited by the wetlands and floodplain which impacts the access to buildable dry land on the interior of the site.

Please contact this office should you have any follow-up questions once you have reviewed this report. Thank you.

Very truly yours,
PLACES Site Consultants, Inc.
BY:

Susan C. Sullivan, P.E.
Project Manager





PLACES
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510 KING STREET, SUITE 9
LITTLETON, MA 01460
978.486.0334 Fax 978.486.0447
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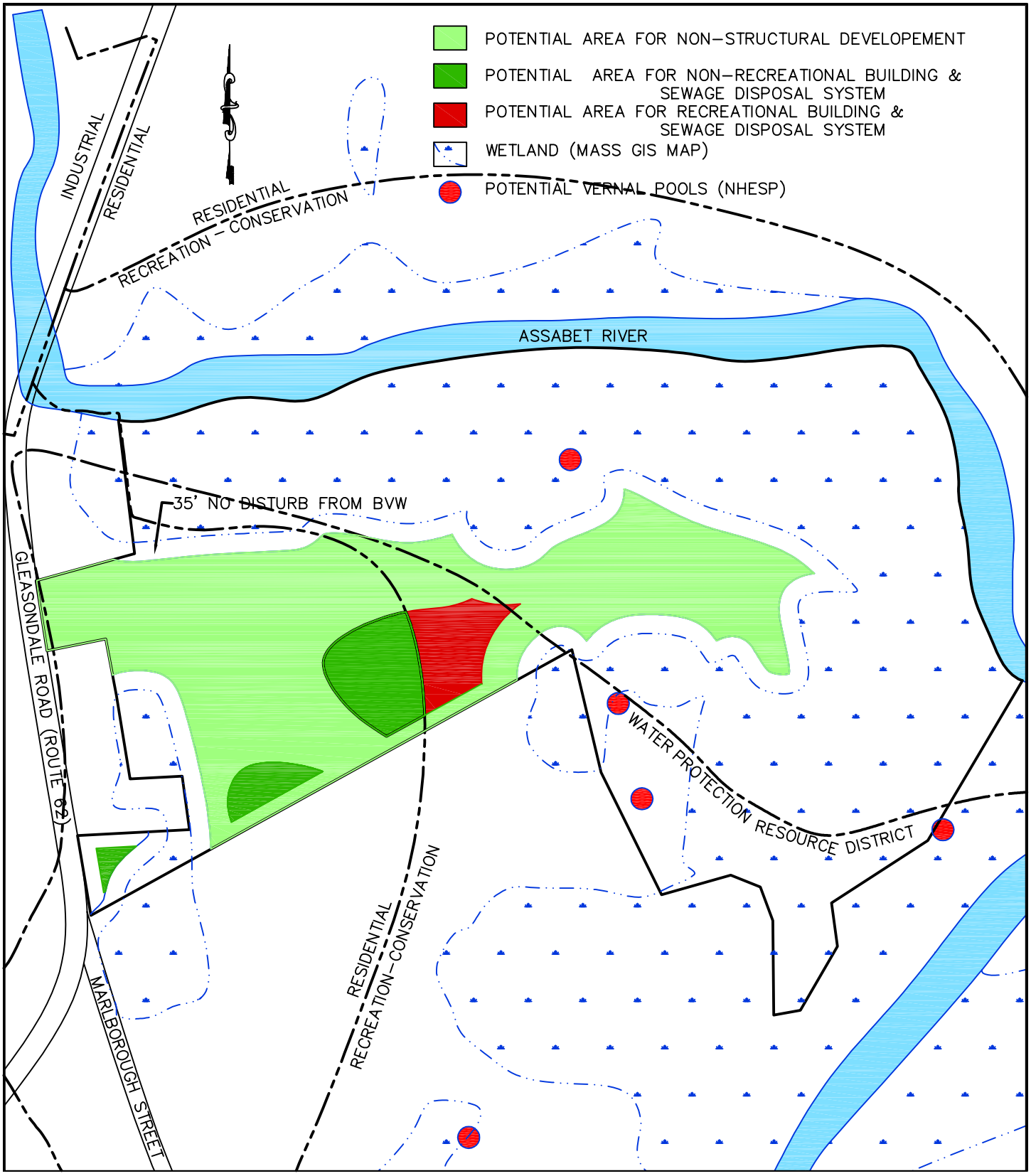
places.littleton@verizon.net

STOW FEASIBILITY STUDY
PARCEL #92

STOW MASSACHUSETTS

Project No.	Sheet Title:
618	WETLAND DELINEATION & NHESP BOUNDERY

Scale:	Date:	Chk'd By:	Drawn By:
1"=250'	11/20/08	SCS	JBK



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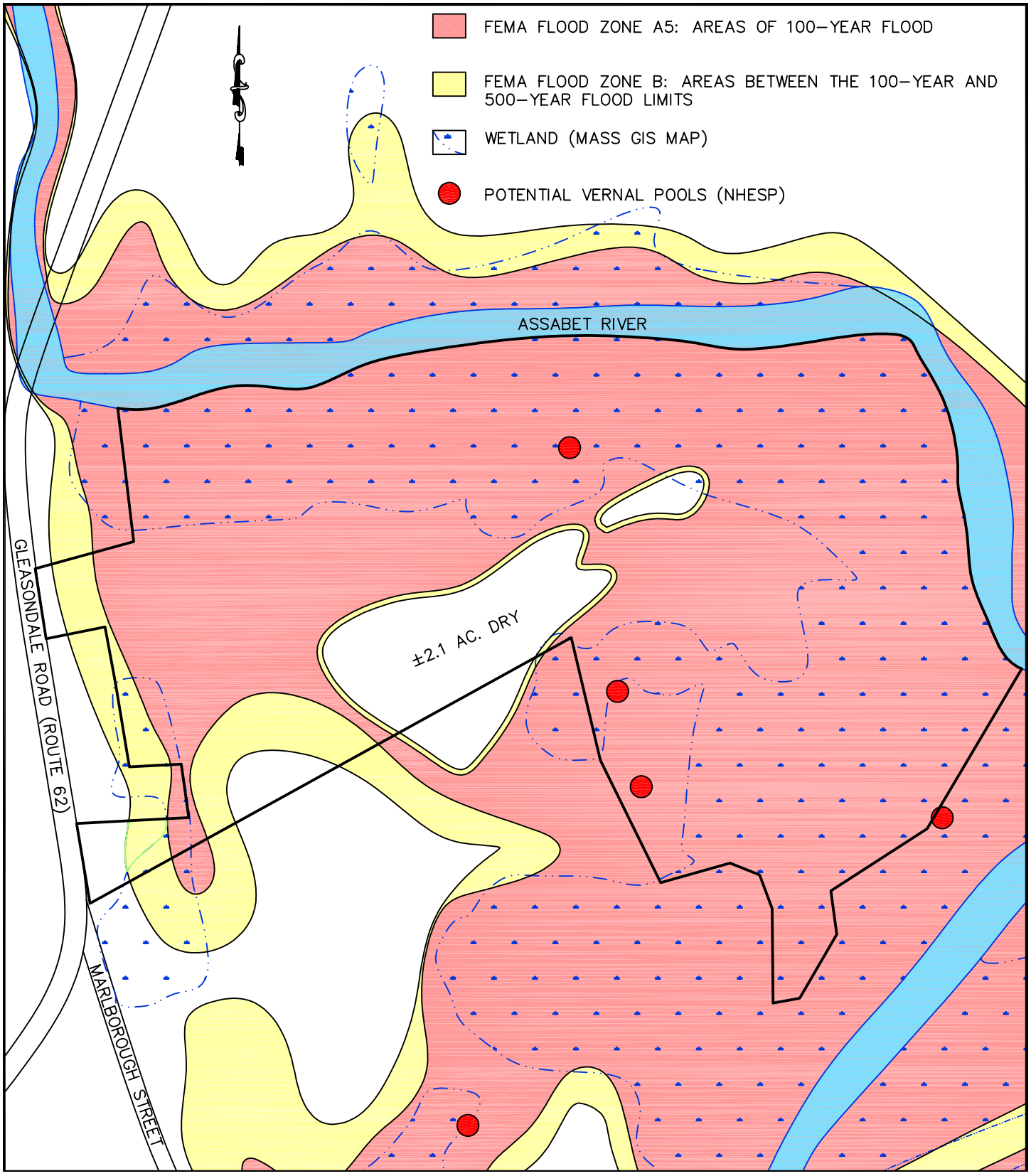
STOW FEASIBILITY STUDY
PARCEL #32-2

STOW MASSACHUSETTS

Project No.	Sheet Title:			
618	USABLE SPACE			
Scale: 1"=250'	Date: 11/20/08	Chk'd By: SCS	Drawn By: JBK	



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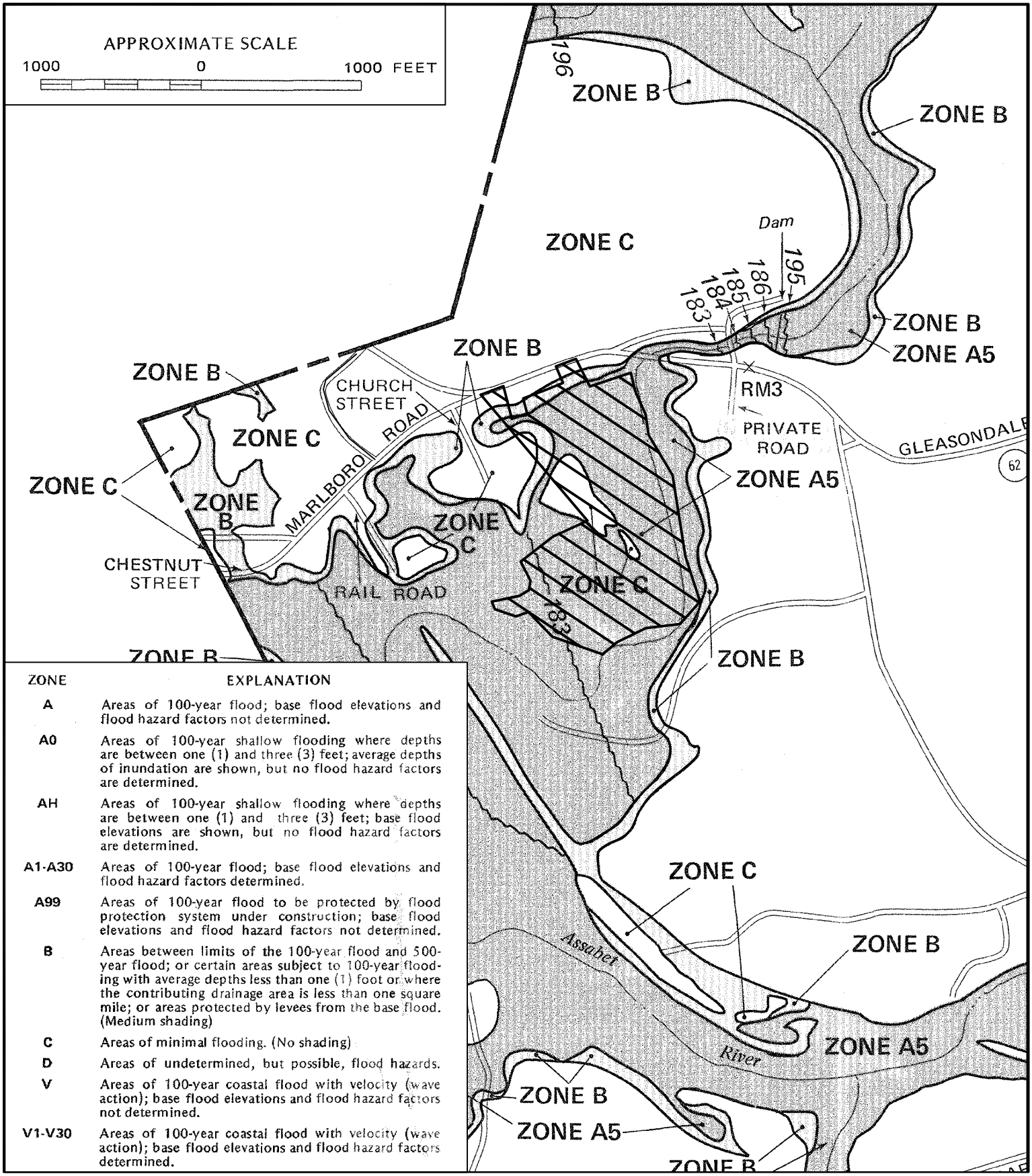
STOW FEASIBILITY STUDY
PARCEL #32-2

STOW MASSACHUSETTS

Project No.	Sheet Title:			
618	USABLE SPACE			
Scale: 1"=250'	Date: 11/20/08	Chk'd By: SCS	Drawn By: JBK	



ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

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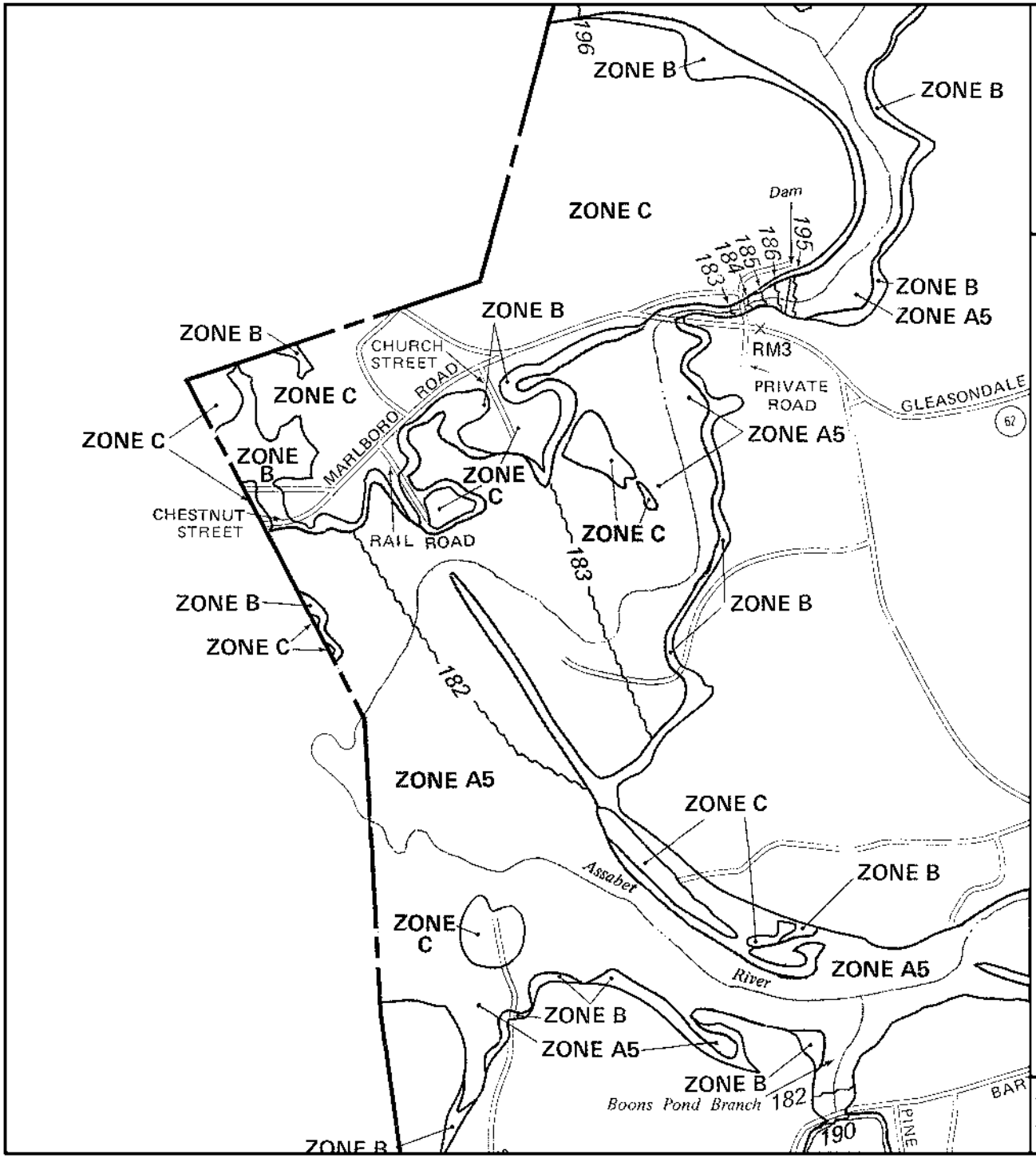
STOW FEASIBILITY STUDY
PARCEL #32-2

STOW MASSACHUSETTS

Project No.	Sheet Title:
618	FIRM FLOOD INSURANCE RATE MAP

Scale:	Date:	Chk'd By:	Drawn By:
NTS	11/20/08	SCS	JBK



APPROXIMATE SCALE

1000 0 1000 FEET

KEY TO MAP

- 500-Year Flood Boundary
- 100-Year Flood Boundary
- Zone Designations* With Date of Identification e.g., 12/2/74
- 100-Year Flood Boundary
- 500-Year Flood Boundary

ZONE B / ZONE B

- Base Flood Elevation Line With Elevation In Feet** — 513
- Base Flood Elevation in Feet Where Uniform Within Zone** (EL 987)
- Elevation Reference Mark RM7×
- River Mile •M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
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C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Properties classified under Chapter 61, 61A, 61B
FY 09

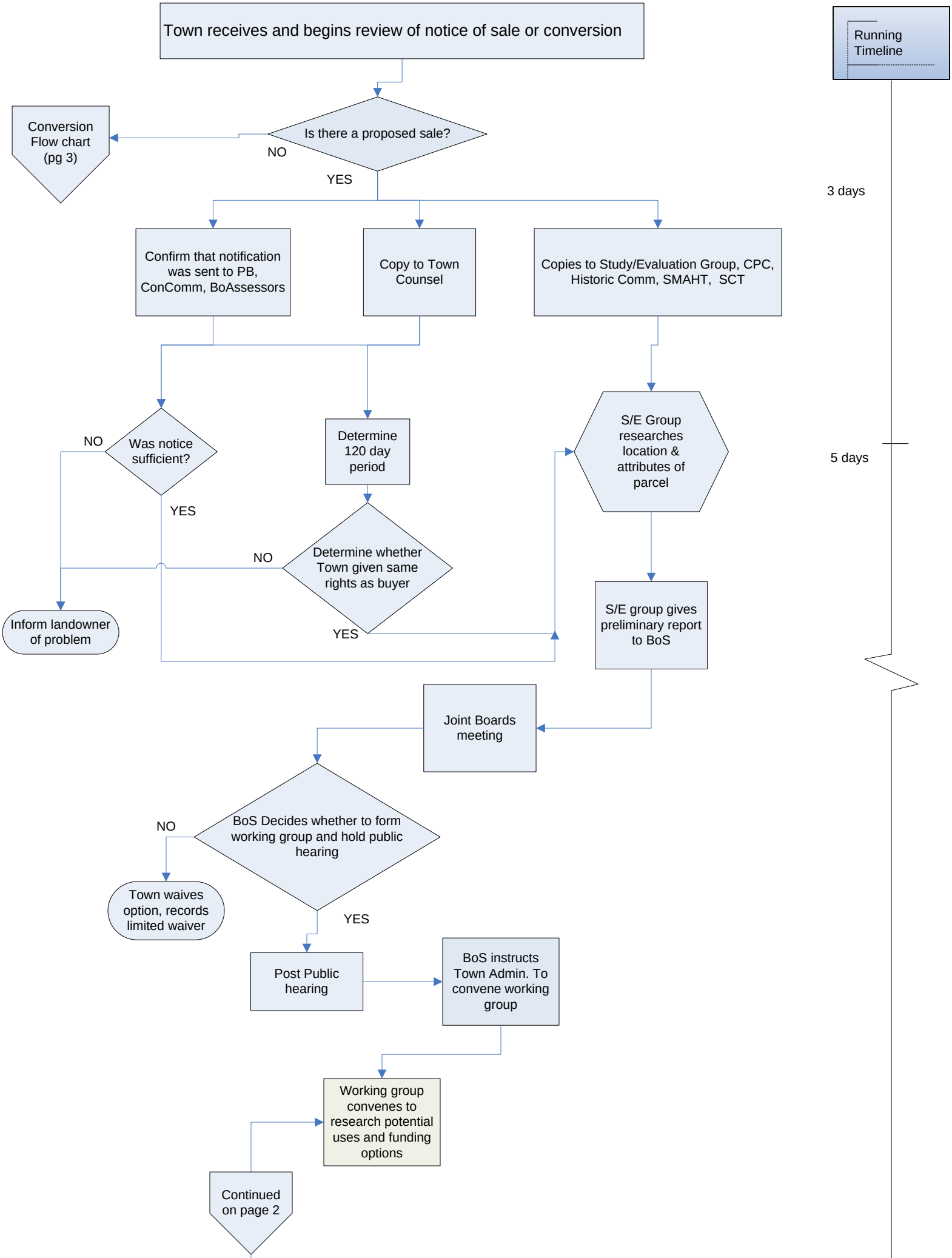
Parcel ID	Owner1	Owner2	Location	Chapter Acreage	Chapter
000R-8 00006B	50 DUNSTER DRIVE NOMINEE TR	AVERY WILLIAM L JOSEPHINE V TRS	50 DUNSTER DR	50.32	61
00R-23 000001	ALBRIGHT ANNETTE	TR ACCESS REALTY TRUST	WHITE POND RD	32.08	61B
00R-23 000004	ALBRIGHT ANNETTE	TR ACCESS REALTY TRUST	SUDBURY RD	5	61B
00R-24 000001	ALBRIGHT ANNETTE	TR ACCESS REALTY TRUST	OFF SUDBURY RD	2	61B
00R-17 000009	ALBRIGHT ROBERT T	ANNETTE L ALBRIGHT	84 BOXBORO RD	5	61B
00R-23 000003	ALBRIGHT ROBERT T/ANNETTE L	TR CROW ISLAND REALTY TRUST	CROW IS	28.33	61B
000R-8 000005	BARNES HILL TRUST	KAREN MACWILLIAMS	58 WEDGEWOOD RD	28	61A
00R-21 000020	BOTTINO ROBERT J		171 WEST ACTON RD	11.75	61A
00R-17 000026	CACCIATORE RAYMOND J	TR CACCIATORE RLTY TRUST	PACKARD RD	0.97	61A
00R-17 000029	CACCIATORE RAYMOND J	TR CACCIATORE REALTY TRUST	PACKARD RD	47	61A
00R-25 000016	COLLINGS ROBERT F	CAROLINE J COLLINGS	OFF BARTON RD	29.6	61B
00R-25 000017	COLLINGS ROBERT F	CAROLINE J COLLINGS	137 BARTON RD	22.4	61B
000U-2 000054	COLLINGS ROBERT F	CAROLINE J COLLINGS	BARTON RD	11.55	61B
000U-6 00013A	DAWES ROBERT T TRUST	C/O SARAH BAILIN TR	50 HALLOCK POINT RD	2.04	61B
000U-6 00009B	DAWES ROBERT T TRUST	C/O SARAH BAILIN TR	SUDBURY RD	9.02	61B
000R-4 00039A	F & S REALTY TRUST	C/O WEDGEWOOD PINES COUNTRY CLUB	215 HARVARD RD	23.76	61B
000U-9 000031	FIELD FAITH B		GREAT RD	11.92	61A
00R-17 000020	FIELD PEDER O	FAITH B FIELD	PACKARD RD	2.77	61A
000U-9 000033	FIELD PEDER O	FAITH B FIELD	PACKARD RD	2.73	61A
00R-21 042-9A	FLETCHER BRUCE		SOUTH ACTON ROAD	11.35	61
00R-31 000003	FLETCHER REALTY TRUST	SANDRA J BRUCE ETRUSTEES	SOUTH ACTON RD	2.5	61
00R-31 000006	FLETCHER REALTY TRUST	SANDRA J BRUCE E FLETCHER TRUSTEES	SOUTH ACTON RD	19	61
00R-31 000005	FLETCHER REALTY TRUST	SANDRA J BRUCE E FLETCHER TRUSTEES	SOUTH ACTON RD	0.9	61
00R-14 000005	FROST RAY S		149 WHITMAN ST	9.3	61A
000R-1 0024-2	GREEN FREDERICK J	GREEN NANCY P	84 WALCOTT ST	12.81	61A
000U-7 0006-4	GUTKNECHT D RUTH		45 C MARLBORO RD	7.42	61B
00R-14 000021	HANGEN DONALD	TONA HANGEN	102 BOON RD	5.5	61A
00R-29 000073	HANSON HAROLD		65 WHITE POND RD	4.8	61A
00R-29 000072	HANSON HAROLD J		63 WHITE POND RD	4.5	61A
00R-14 00016A	HONEY POT HILL ORCHARDS INC		SUDBURY RD	79.05	61A
00R-13 000002	HONEY POT HILL ORCHARDS INC		SUDBURY RD	22	61A
00R-13 000004	HONEY POT HILL ORCHARDS INC		SUDBURY RD	7.3	61A
00R-13 000006	HONEY POT HILL ORCHARDS INC		SUDBURY RD	13.9	61A
00R-13 00004A	HONEY POT HILL ORCHARDS INC		SUDBURY RD	1.9	61A
00R-14 000014	HONEY POT HILL ORCHARDS INC		SUDBURY RD	8.12	61A
00R-14 000018	HONEY POT HILL ORCHARDS INC		BOON RD	3.28	61A
00R-14 0012-2	HONEY POT HILL ORCHARDS INC		SUDBURY RD	7.66	61A
00R-13 000001	HONEY POT HILL ORCHARDS INC		SUDBURY RD	7.35	61A
00R-14 00016B	HONEY POT HILL ORCHARDS INC		SUDBURY RD	3.46	61A
00R-14 019A-2	HONEY POT HILL ORCHARDS, INC		BOON RD	4.19	61A

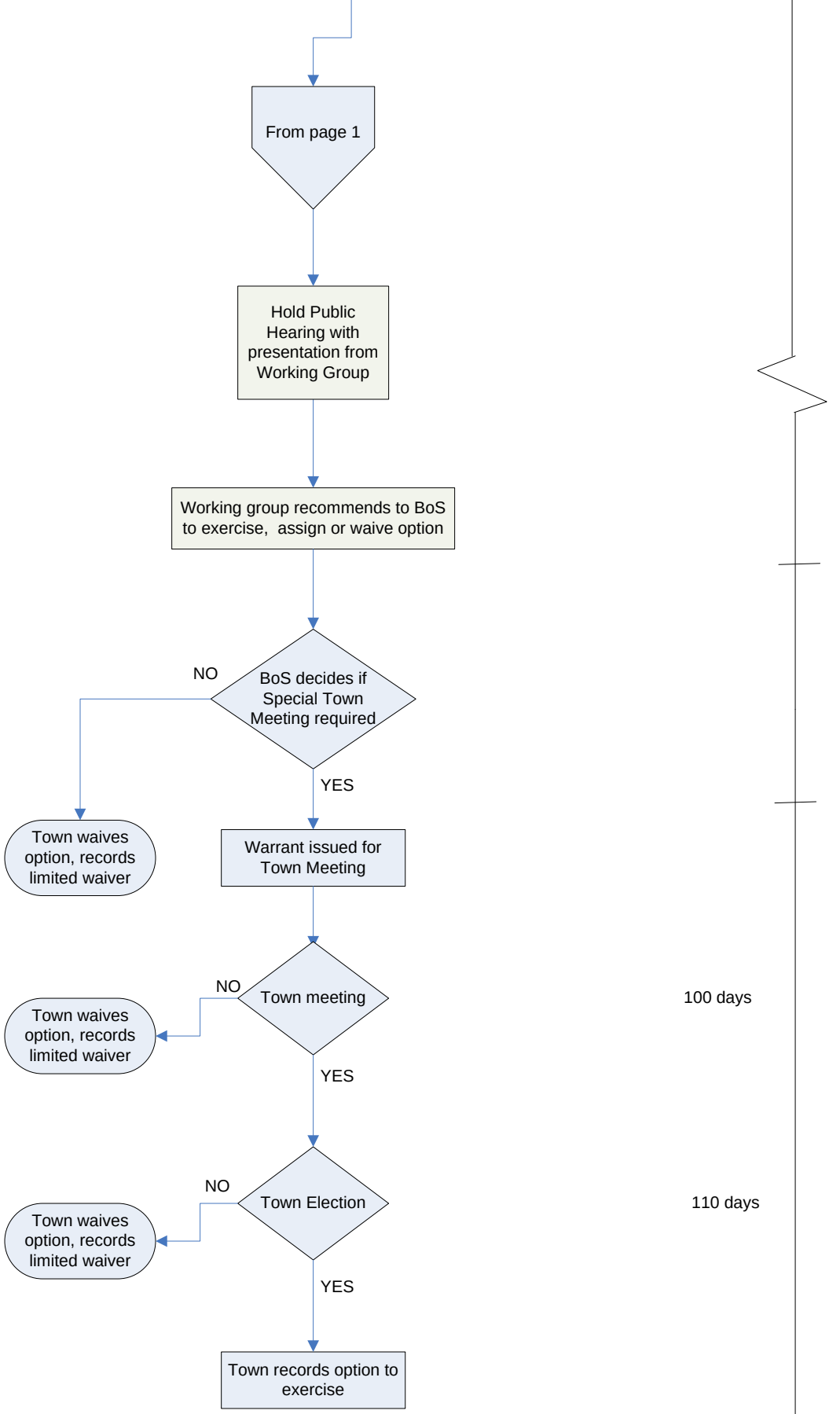
Properties classified under Chapter 61, 61A, 61B
FY 09

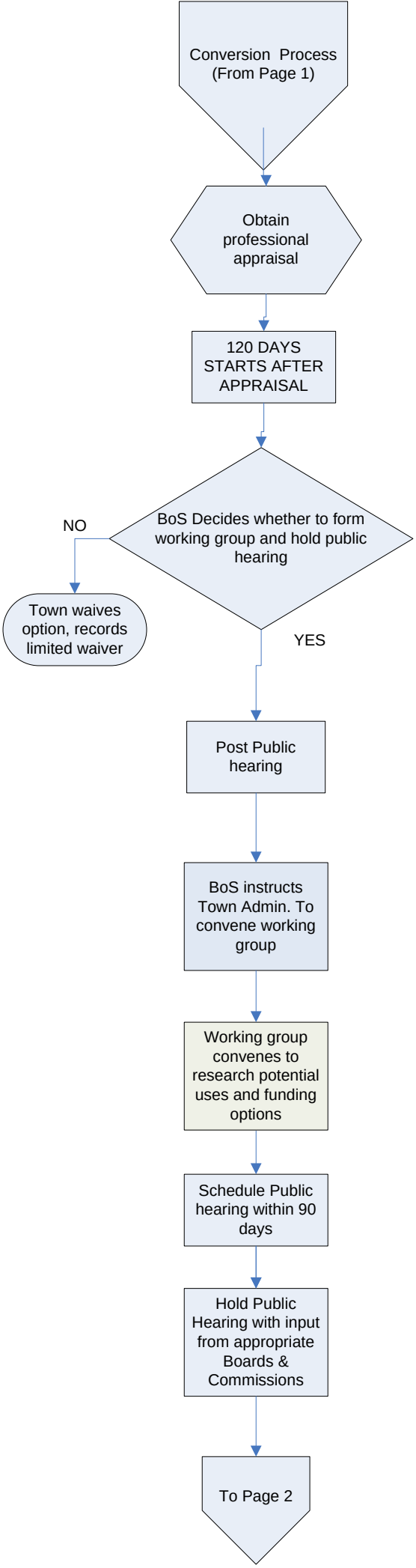
Parcel ID	Owner1	Owner2	Location	Chapter Acreage	Chapter
00R-21 001D-1	JEAN H LYNCH TRUST OF 1999	LYNCH JEAN H TR	74 WEST ACTON RD	5.33	61B
00R-13 000009	JONES GREGORY D	BARBARA H JONES	61 SUDBURY RD	9.1	61B
00R-31 000001	KENNEDY RUTH H		137 TUTTLE LN	4	61B
00R-31 001-1A	KENNEDY RUTH H		131 TUTTLE LN	1.86	61B
00R-20 000047	KENNEDY RUTH H		OFF TUTTLE LN	32	61B
00R-20 00042C	KENNEDY RUTH H		WEST ACTON RD	22.74	61B
00R-31 000057	KUNELIUS MARILYN E		144 RED ACRE RD	42.1	61
000R-6 113-1A	LARSON ARTHUR G	LAURIE M LARSON	435 TAYLOR RD	8.2	61B
00R-22 00002B	LORD CHARLES H	JEAN F LORD	66 -69 BROOKSIDE AV	74.3	61A
00R-16 0030-2	MARSHALL BARBARA A.		67 GLEASONDALE RD	8.75	61B
00R-14 000004	MARTIN ANDREW S	MARTIN KRISTINE M	BOON RD	5.21	61A
00R-14 00003B	MARTIN RICHARD S	PAULA MARTIN	BOON RD	2.9	61A
00R-14 00020B	MARTIN RICHARD S	PAULA W MARTIN	BOON RD	19.65	61A
00R-12 000005	MCDONALD ROBERT C	GAY GIBSON MCDONALD	387 GLEASONDALE RD	18.5	61A
000R-8 00005A	MERRILL CHRISTOPHER B TR	HERO MEADOWS NOMINEE TRUST	WEDGEWOOD RD	25.19	61
000R-7 000038	MINUTE MAN AIR FIELD INC		BOXBORO RD	10	61A
000R-7 0030-7	MINUTE MAN AIR FIELD INC		TAYLOR RD	7.84	61A
000R-7 000035	MINUTE MAN AIR FIELD INC		302 BOXBORO RD	111.13	61A61B
000R-7 000034	MINUTE MAN AIR FIELD INC.		TAYLOR RD	24.5	61A61B
000R-7 035B-4	MINUTE MAN REALTY CORP		BOXBORO RD	11.05	61A
00R-18 22B-3A	MINUTE MAN REALTY CORP		BOXBORO RD	111.72	61A
000R-3 0023-1	MONG STEVEN R	KIRSTEN MONG	70 OLD BOLTON RD	5.51	61A
00R-31 000008	MOREY GEORGE		SOUTH ACTON RD	5.25	61
00R-31 000009	MOREY GEORGE		SOUTH ACTON RD	14	61
00R-31 000010	MOREY GEORGE		SOUTH ACTON RD	8	61
00R-31 000011	MOREY GEORGE		SOUTH ACTON RD	5	61
00R-31 000012	MOREY GEORGE		SOUTH ACTON RD	9	61
00R-31 000013	MOREY GEORGE		SOUTH ACTON RD	2.5	61
00R-31 000014	MOREY GEORGE		SOUTH ACTON RD	8	61
00R-31 000016	MOREY GEORGE		TUTTLE LN	5.5	61
00R-31 000017	MOREY GEORGE		OFF SOUTH ACTON RD	26.75	61
00R-15 000066	PAGE FAMILY LIMITED PARTNERSHP		WHEELER RD	81.15	61B
00R-16 000047	PAGE FAMILY LIMITED PTNSHP.		115 WHEELER RD	2	61B
00R-12 000001	PERKINS EDWARD H	TR ASH TRUST	25 ROCKBOTTOM RD	87	61A
00R-21 000044	PILOT GROVE FARM INC		SOUTH ACTON RD	30	61A
00R-17 00001A	PILOT GROVE FARM INC		CRESCENT ST	15	61A
000R-4 000043	PITT CONSTRUCTION CORPORATIC	C/O WEDGEWOOD PINES COUNTRY CLUB	OFF HARVARD RD	42.12	61B
00R-16 000046	PORCELLA ANNE D ESTATE OF	LINDA MIKOSKI, LAURIE PERRY EXECUTRIXE	WHEELER RD	12	61A
00R-30 000049	PORCELLA ANNE D ESTATE OF	LINDA MIKOSKI, LAURIE PERRY EXECUTRICE	OFF RED ACRE RD	16	61A
000U-9 000018	PORCELLA ANNE D, ESTATE OF	LINDA MIKOSKI, LAURIE PERRY EXECUTRICE	438 GREAT RD	14.6	61A

Properties classified under Chapter 61, 61A, 61B
FY 09

Parcel ID	Owner1	Owner2	Location	Chapter Acreage	Chapter
00R-30 000077	PORCELLA ANNE D, ESTATE OF	LINDA MIKOSKI, LAURIE PERRY EXECUTRICE	OFF POMPOSITTICUT ST	12.33	61A
000U-9 00017A	PORCELLA ANNE D, ESTATE OF	LINDA MIKOSKI, LAURIE PERRY EXECUTRICE	GREAT RD	0.4	61A
00R-15 000034	RISING DONALD B		TREATY ELM LN	14	61B
00R-15 00047D	RISING DONALD B	ANNA COHEN REALTY TRUST	TREATY ELM LN	29.5	61B
00R-12 000002	ROCKBOTTOM LIMITED PTNSHP.	C/O SUSAN BONNER	449 GLEASONDALE RD	20.94	61B
000R-3 000048	SCANSAROLI ALBERT R	CAROL L SCANSAROLI	49 OLD BOLTON RD	0.95	61A
000R-3 000052	SCANSAROLI ALBERT R	SCANSAROLI CAROL L	GREAT RD	0.94	61A
000R-3 00048A	SCANSAROLI ALBERT R	SCANSAROLI CAROL L	OLD BOLTON RD	3.45	61A
00R-11 00037A	SCC ASSOCIATES INC		58 RANDALL RD	146	61B
00R-11 025B-3	SCC ASSOCIATES INC		RANDALL RD	177.06	61B
00R-11 00011A	SCC ASSOCIATES INC		OFF HUDSON RD	1.77	61B
00R-11 025B-8	SCC ASSOCIATES INC		CROSS ST	1.54	61B
000R-4 000003	SHEPHERD T NATHANAEL	LESLIE E SHEPHERD	154 HARVARD RD	27.97	61A
000R-4 00002A	SHEPHERD, NANCY H.		HARVARD RD	6.45	61B
00R-15 000075	SIPLER DWIGHT P.	BARBARA P. SIPLER	184 GLEASONDALE RD	24	61A
00R-15 064A-4	STOW CONSERVATION TRUST INC		GLEASONDALE RD	34.54	61
00R-19 00010A	SUREAU CAROLE		269 BOXBORO RD	21.87	61
00R-18 0027-1	SUREAU CAROLE		OFF BOXBORO RD	17.53	61
00R-19 0010-2	SUREAU CAROLE		BOXBORO RD	1.5	61
00R-19 0010-3	SUREAU CAROLE		BOXBORO RD	4.13	61
00R-14 000008	TALPEY THOMAS M	MARYANNE P TALPEY	170 WHITMAN ST	9.48	61B
00R-10 0042-3	TARANTO RICHARD S/BETTY A	TR TARANTO FARM NOMINEE TR	32 HUDSON RD	5.75	61A
000R-3 000012	TYLER ALLAN A	JANET S TYLER	722 GREAT RD	7.1	61A
000R-8 00008C	WARD DANIEL E	DROMEY VICKI A TR TAYLOR RD RE TRUST	ASA WHITCOMB WY	0.49	61A
000R-9 000099	WARD DANIEL E/VICKI A DROMEY	TR TR TAYLOR ROAD RE TRUST	OFF TAYLOR RD	4.75	61A
000R-8 000010	WARD DANIEL E/VICKI A DROMEY	TR TAYLOR ROAD RE TRUST	TAYLOR RD	25	61A
00R-17 000001	WARREN FRANCIS JR		76 CRESCENT ST	26.2	61A
00R-17 000003	WARREN FRANCIS JR		WEST ACTON RD	12.3	61A
000R-8 00007A	WEDGEWOOD PROPERTIES INC	C/O WEDGEWOOD PINES COUNTRY CLUB	OFF DUNSTER DR	62.23	61B
000R-9 000100	WEDGEWOOD PROPERTIES INC	C/O WEDGEWOOD PINES COUNTRY CLUB	WEDGEWOOD RD	12.55	61B
00R-19 00008A	WOODHEAD WM&DANIEL/M KATRAI	WOODHEAD FAMILY REALTY TRUST	297 BOXBORO RD	4.13	61A
00R-19 00008B	WOODHEAD WM&DANIEL/M KATRAI	WOODHEAD FAMILY REALTY TRUST	BOXBORO RD	4.13	61A
				2228.96	


Town receives and begins review of notice of sale or conversion
Running Timeline
Conversion Flow chart (pg 3)
Is there a proposed sale?
NO
YES
3 days
Confirm that notification was sent to PB, ConComm, BoAssessors
Copy to Town Counsel
Copies to Study/Evaluation Group, CPC, Historic Comm, SMAHT, SCT
NO
Was notice sufficient?
YES
Determine 120 day period
S/E Group researches location & attributes of parcel
5 days
NO
Determine whether Town given same rights as buyer
YES
Inform landowner of problem
S/E group gives preliminary report to BoS
Joint Boards meeting
NO
BoS Decides whether to form working group and hold public hearing
Town waives option, records limited waiver
YES
Post Public hearing
BoS instructs Town Admin. To convene working group
Working group convenes to research potential uses and funding options
Continued on page 2


From page 1
Hold Public Hearing with presentation from Working Group
Working group recommends to BoS to exercise, assign or waive option
BoS decides if Special Town Meeting required
NO
YES
Town waives option, records limited waiver
Warrant issued for Town Meeting
Town meeting
NO
Town waives option, records limited waiver
YES
100 days
Town Election
NO
Town waives option, records limited waiver
YES
110 days
Town records option to exercise
120 days


Conversion Process (From Page 1)
Obtain professional appraisal
120 DAYS STARTS AFTER APPRAISAL
BoS Decides whether to form working group and hold public hearing
NO
Town waives option, records limited waiver
YES
Post Public hearing
BoS instructs Town Admin. To convene working group
Working group convenes to research potential uses and funding options
Schedule Public hearing within 90 days
Hold Public Hearing with input from appropriate Boards & Commissions
To Page 2

Inventory of Lands Under the Care, Custody and Control of the Stow Conservation Commission and Stow Recreation Commission

Area/Parcel Name	Location	Map/ Parcel	Area	Owner/ Manager	Date	Book/ Page	How?	Funding	Protection	Uses	Zoning	SCORP/Notes
							P=Purchase; B=Bargain Sale; T=Transfer G=Gift;	To the extent known at publication; 1=State/Federal Funds; 2=Stow Cons Fund; 3=CPA; 4=Other Municipal; 5=Gifts	(to the extent known at publication) 1=Article 97; 2=SH Agreement; 3=3rd Party CR; 4=Permit Conditions; 5=Deed Restrictions ; 6=Reverter	1=Conservation & Passive Recreation; 2=Trails; 3=Agriculture & Community Gardens; 4=Playing Fields; 5=Fitness Course; 6=Parking		
Northeastern Stow												
Flagg Hill Conservation Area/SVT	Boxboro/ W. Acton Rd.	R20#6A	95.0	SCC	Feb-99	29793/396	P	1	1,2	1,2,6	RC & R	Plan at 29793-371; SH Agreement for 242 ac 31117/30
Flagg Hill/Woodhead	Boxboro Rd.		42.0	SCC	Jun-99	30240/371	B		1	1,2	RC	
Flagg Hill/Boyer	W. Acton		74.3	SCC	May-99	30139/504	P		1,5	1	RC	restricted to conservation, forestry, rec., agriculture
Flagg Hill/Trefry Lane Open Space	Trefry Lane	R19#5A-A;5A-B	32.3	SCC	Aug-06	48059/102	G	N/A	1, 4, 5	1,2,6	R	
Flagg Hill/Waluck	Windemere Dr.	R-19#2A	4.7	SCC	Apr-03	38866/379	P		1	1	RC	small parcel at town line
Flagg Hill/Boxboro Land	W. Acton	R19#3	17.5	Boxboro CC	Jun-98				1	1	RC	

Captain Sargent Conservation Area	S.Acton/ Tuttle	R31#15+R21#43	153.0	SCC	Aug-80	14475/581	B	1…	1,2,	1,2,3,6	RC	286014; 286023
Heath Hen/Shelburne Woodland	W. Acton	R18#29-1	48.8	SCC	Dec-96	26917/164	P	1,2,4	1,2	1,5,6	RC	
Heath Hen/Frescha Land	Boxboro Rd.	R18#31-2	3.5	SCC	May-96	26354/192	G	1	1,2,5,6	1	RC	
Red Acre Estates Parcel A	Off Militia Circle	R30#82	8.1	SCC	Feb-03		G	N/A	1, 4	1	R	
LSN Tax Title Land	Off West Acton Road	R20#31	17+/-	SCC	May-07		T	N/A	1	1	R	
Carriage Lane Land	Off Packard	R17#14-14	7.5	SCC		COT95763; Plan 27221A	G	N/A	1,4	1	R	286022
Crescent Farms Open Space	Deerfield La.	U11-39C-10	13.5	SCC			T (Temp)	N/A	3,4	1,2	RC	Town also holds CR
Northwestern Stow												
Marble Hill Conservation Area	Great Rd.	R9#80	249.2	SCC	Jan-75		P	1	1,2	1,2,5,6	RC	286006; DCS-SH2
Nyhan Land	Off Taylor Rd	R7#30-8	26.7	SCC	Apr-84	15383/341	G	N/A	1,4,5	1,2	R & I	286027; has access easement, condition in OOC
Derby Woods Open Space	Off Harvard Rd.	R4#35A	41.1	SCC	Pending	Pending	G	N/A	1,3,4	1,2	R & RC	
Pacy Land (Delaney)	Off Delaney St.	R4#32A	3.6	SCC	Aug-06	48059/134	B	2	1	1	RC	Plan 19345/237

Southeastern Stow												
Gardner Hill Conservation Area/Town Forest	Bradley Lane	R29#105	326.5	SCC	Nov-68			1	1,2	6	RC	286005; DCS-SH1
Gardner Hill/Caswell Land	Off White Pond	R29#74-2	18.8	SCC	Dec-93	24113/277	P		1	1	C & RC	Deed not indexed
Gardner Hill/off White Pond road (Taylor)	Off White Pond	R29#74A	2.5	SCC	4/72	12215/518	P		1		RC	286021, plan recorded with
Gardner Hill/Heritage Lane OS	Off White Pond	R29#85B	17.5	SCC	May-98	28554/427	G	N/A	1,4	1,2	R & RC	
Memorial Field	Bradley Lane	R29#104	5.0	SRC	?					4	R	
Apple Blossom Land	Birch Hill	R14#6A-G1	6.8	SCC	Aug-92	22325/412	G	N/A	1,4,5	1	R & RC	
Dawes Lot	Sudbury Rd.	U6#9A	0.1	SCC	Jan-83				1		R & RC	286026
Kingland road A (SCT)	Kingland Rd.	U4#63	0.4	SCC	5/81	#611515	G	N/A	1		R	286024; Plan Book 407/253, water easement
Kingland road B	Kingland Rd.	U4#74	1.2	SCC	Jan-81				1		R	286025
Pine Bluff Recreation Area	Sudbury Rd.	U3-#12	31.0	SRC	Jan-75				1	4	RC	
Southwestern Stow												
Susan Lawrence Park	Great Rd.	U10#(68)	1.3	SCC	1963				1		R	286012

Annie Moore Land	Maple St.	R3#35 +R2#2 4	27.5	SCC	Jun-89	COT 801007 179550	P	1,2,4	1,2	1	R	2860043; DCS-SH4
Hudson Road	Walcott St.	R1#66	1.2	SCC	?				1	1	R	
Spindle Hill/SVT	Wheeler Rd.	R10#1-4B,	8.9	SCC	Jun-99	30240 /391	P		1,3,5,6	1,2	RC	
Spindle Hill/Hyde Land	Gates Lane	R10#1 7B	5.7	SCC	Dec-95	25912 /318	G	N/A	1,5	1	R	
Gates Lane Lot	Gates Lane	R10#3 3	0.9	SCC	Apr-97		T	N/A	1	1	R	Taken: Order at 20857/419; Judgement at 23261/456: need to find transfer vote
Access Strip to Elizabeth Brook	Off Hudson Rd.	R10#5 30-80	0.1	SCC	Apr-07	49247 /575	G	N/A	1,4,5	1	R & RC	
Kane	Off Edson Rd.	R11#1 1B	13.7	SCC	Pending	Pending	G	N/A	1,4	1	R	
Arbor Glen Open Space	Hudson Rd/BOS E Rd.	R10-560-001B	20.2	SCC	Pending	Pending	G	N/A	1,4,5	1,2,3	I	
**NOTE: This table contains incomplete information and in some cases additional research is required on specific parcels. It should not be relied upon for legal research purposes. Please consult the Conservation Commission where information is required about the legal status of specific parcels.												

Town of Stow
HIGHWAY DEPARTMENT
88 South Acton Road
Stow, Massachusetts 01775
(978) 897-8071
FAX (978) 897-5682

Michael Clayton
Superintendent of Streets

Mailing Address:
88 South Acton Road
Stow, MA 01775

3/17/09

To: Land Use Task Force

Fr: Highway Department

Re: Answers to questionnaire

1. I believe that we have enough space at the Highway Department property to provide any expansion we may need in the future.
2. We do have a need for internal space presently. Our office space is dwindling because of many years of records which we keep. Maybe we could acquire one of those portable classrooms from the Pompo School (when construction of a new school gets underway obviously) to use for additional office space. We have a serious need for changing/sleeping quarters for the employees. During the winter our employees spend many, many, many hours here, yet we have very limited amenities at their disposal. I was considering a locker type room for this issue. We would also like to expand our garage area for more vehicle and equipment storage. This would include part of the garage having a wash bay for vehicles which would have a wash water recycling system built into it.
3. Yes
4. No
5. None

The Highway Department currently has 7 full time employees and 5 part time employees. We have 12 vehicles which are stored inside. We have 4 pieces of heavy equipment. We have the capability of storing all of our equipment undercover (not all in the same building though).This is not our suggested practice however. Storing equipment inside the salt storage building is not recommended as it will accelerate deterioration of the equipment.

If further information is needed, just let me know.

Michael Clayton
Superintendent of Streets

Land Use Task Force
Questions for Police Department

Considering Stow's population will be 10,000 at build out:

1. **How will needs for land differ for your department once Stow's population reaches 10,000?**
   Already have space needs dispatch, equipment room and miscellaneous storage space (ATV, boat, tires, lighting tower) Intend to remain at current site.

2. **What will your space requirements be?**
   Office space (more officers) increased dispatch space, larger equipment room and storage for ATV, boat, tires lighting tower, etc.

3. **Does your current site allow for expansion you will need?**
   Yes, intent is to eventually add a second story to the existing building. Unknown if inside storage for ATV, boat, lighting tower can also be located here possibly at expanded fire station.

4. **Does have a second concurrent site work?**
   No

5. **What other municipal functions could share your space?**
   Fire Department

Comments

Spoke with Building Inspector, Craig Martin who reviewed current structures plans. He reports 2" x 6" framing and sound footing and foundation; adding a second story seems feasible.
Standard is 2 officers per 1,000 people currently have 11 officers and 4 dispatchers.

Land Use Task Force
Questions for Fire Department

Considering Stow's population will be 10,000 at build out:

1. **How will needs for land differ for your department once Stow's population reaches 10,000?**
   Even prior to build out, more space is needed. Storage for turnout gear and a second bathroom with shower for female staff are needed now.

2. **What will your space requirements be?**
   A larger station with pull through entrance and exit for equipment, room for present equipment (8 pieces) as well as a second ambulance, a ladder truck and a mechanics bay.

3. **Does your current site allow for expansion you will need?**
   Yes, current site has adequate room for expansion; current Chief has reviewed plans that were done by former Chief, for this purpose. Fire Chief aware that Pomp School site, if available, might also be suitable.

4. **Does have a second concurrent site work?**
   No, a substation would require more staff and equipment.

5. **What other municipal functions could share your space?**
   No objection to a shared site as long as fire equipment can exit and return safely and not cause a safety issue with other uses.

Comments

Present Staffing: 1 Fire Chief
30 Call firefighters
4 Full time firefighters
1 EMT firefighter
2 per diam EMT firefighters

At build out, staffing needs are expected to increase by 1/3. Until a new station is built, a second ambulance and ladder truck cannot be added (storage issue). A second ambulance could generate revenue.

Land Use Task Force
Questions for Council on Aging

Considering Stow's population will be 10,000 at build out::

1. **How will needs for land differ for your department once Stow's population reaches 10,000?**

   Current population 6,200 *projected population* *10,000*

   Senior population (age 60 +) 1,300 *projected senior population (60+)* *2,000*

2. **What will your space requirements be?**

   State Executive Office/ Senior Affairs recommends that a Senior Center have 6-7 gross sq. ft per senior. Current site is 1200 sq ft, using above recommendation; current site should be 7800 sq ft.

3. **Does your current site allow for expansion you will need?**

   No, current site allows for minimal expansion. COA is seeking a site where a 10,000 sq ft structure and associated parking can be developed, at build out 12,000 sq ft.

4. **Does have a second concurrent site work?**

   No

5. **What other municipal functions could share your space?**

   Historical Society or Food Pantry

Comments

Per Allison Toole, Director COA: Contact with other towns that have had a Community Center (multi-generation) has not worked well as Seniors and their space needs have been taken over by other age groups.

Land Use Task Force

Questions for Library

The current building could be expanded by using the meeting room and with the first floor being change to section off an area for children. This would require more staff. The only need is for more parking space. Because most of the parking is on the street if the church has a function there is very few spaces left for the library.

Discussion with: Susan Wysk, Library Director

Land Use Task Force

Qestions for Board of Health

It is difficult to predict land needs without a definite plan for buildout. If we think of the village concept for dense development we must set aside land for water and or septic.

Discussion with: Jack Wallace Board of Health Agent Inspector

March 19, 2009
Stow Recreation Commission
Land Use Task Force Report

The following information is what the Stow Recreation Commission forecasts for future needs for recreational land.

Lacrosse- Currently we have around 112 participants from Stow in the Nashoba lacrosse program. We have no fields right now reserved for lacrosse. With the projected growth of the program doubling in the next couple of years and the addition of another 1000 families to Stow there would be no way Bolton could continue to provide all of the fields for Nashoba Lacrosse. So there would be a need for us to either contribute at least 2 fields dedicated to lacrosse in Stow. The lacrosse field dimensions are 330x246 feet and would require 1.6 acres of land.

Field Hockey- Currently we do not have a designated field for Field Hockey. This is a growing sport and Stow Recreation foresees the need for at least one field to accommodate this growing program. A field hockey field dimensions are 300x180 and would require 1.2 acres of land.

Youth football- Currently our football program is run fully in Bolton. If we build out to 10,000 people in Stow there maybe a need to split the current football program and have the Stow participants play in Stow. We would need at least one game field and a large enough area to hold multiple practices. A football field dimensions are 360x160 feet and would require 1.3 acres of land.

AVLL- Currently we have roughly 300 participants from Stow in AVLL. We currently have three 60ft baseball fields dedicated to AVLL plus two additional fields to be built at the Old Bolton Road property. If we build out to 10,000 there will be a need for an additional field to sustain the program. If we loose the two Center School fields we will need at least two additional fields. A 60ft base ball field would be 300 x 300 feet in dimensions and would require 2 acres of land.

Babe Ruth Baseball- Currently we do not have a 90ft baseball field in Stow. So that means we can not accommodate Babe Ruth or Senior league baseball. There is a need now to add at least one 90ft baseball diamond. A 90ft baseball field would be 450 x 450 feet in dimensions. With the increase of population we would need to add a total of two 90ft diamonds to run a Senior league or Babe Ruth Program. Currently our kids have to go to Maynard and use their fields.

Soccer- Currently we have roughly 624 participants from Stow playing soccer in town. With the addition of the Snow fields we will have a total of 7 fields. If the build out happened and we loose the Center School fields we will need at least 4

additional fields to have enough space to accommodate the program in town. An 11v11 soccer field dimensions are 330x240 feet and would require 1.8 acres of land. An 8v8 field would be 70x50 in dimension and a 6v6 would be 50x40 feet in dimension.

Men's Softball- We currently have 160 participants in the men's softball program. This number could double if we build out to 10,000 people so we would need 1 additional softball field to accommodate that program and possibly add a women's softball league in town, which we currently do not have.

Recreation Center/Community Center-With the anticipated growth there would be a great need for a community center. Stow Recreation would like the center to include such things as a pool, fitness center, basketball court, teen center, and community-gathering place.

Indoor basketball court-We currently only have two indoor basketball courts in Stow. We have over 160 participants in the youth basketball program. We currently don't have enough space and time at the gyms to run the program. With the addition of 1000 families we would need at least two more indoor courts to run the youth basketball program during the winter.

Boat Landing- canoe/kayak access to Lake Boone and Assabet River

Bike Trails - support of Assabet River Rail Trail links.
Walking/Skiing Trails - support of Stow Conservation Commission and other protected spaces for walking.

Tennis Courts - If we lost the two Center School tennis courts there would be a need for at least four additional tennis courts in Stow. A tennis court dimensions are 78x36 feet.

Skate board park- There are many communities that have added Skate Board parks. With the increase in population it would be great to have a place for teens to come and do something constructive and physical.

In addition a field or a complex of fields would need parking and storage areas as well. And there is always the requirement of flat dry land.

BK10716 PG172

17

QUITCLAIM DEED (INDIVIDUAL) 882

We, WILLIAM H. PECK and ELEANOR L. PECK,

of Stow, Middlesex County, Massachusetts,

being ~~x~~*married,* for consideration paid, grant to

THE TOWN OF STOW, a municipal corporation located in Middlesex County, *

of Massachusetts

with quitclaim covenants

the land in

[Description and encumbrances, if any]

Two parcels of land, together with the buildings thereon, located in Stow, Massachusetts, shown on a plan entitled, "Land in Stow, Mass. owned by William H. Peck and Eleanor L. Peck," Harlan E. Tuttle, Surveyor, July 13, 1964, bounded and described as follows:

Parcel One: Entitled Lot 1 on said plan and beginning at a point on Great Road at land of David W. Smith, it is bounded:

EASTERLY by land of David W. Smith, thirty-two and 88/100 (32.88) feet, one hundred thirty-four and 71/100 (134.71) feet, one hundred ninety-four and 77/100 (194.77) feet, and one hundred sixty-three and 64/100 (163.64) feet;

NORTHEASTERLY by land of Ira E. Creelman, one hundred sixty-five and 12/100 (165.12) feet and seventy-eight and 05/100 (78.05) feet;

NORTHWESTERLY by land of William H. and Eleanor L. Peck, four hundred eighty and 27/100 (480.27) feet;

SOUTHWESTERLY by land of Carlo Norgoal, one hundred thirty-eight and 46/100 (138.46) feet and one hundred seventeen and 39/100 (117.39) feet; and

SOUTHERLY by Great Road, four hundred thirty and 17/100 (430.17) feet, and one hundred sixty and 80/100 (160.80) feet.

Containing about 6.658 acres, more or less.

Parcel Two: Entitled Lot 2 on said plan and beginning at the southeasterly corner of said Lot 2 at land of Carlo Norgoal, it is bounded:

SOUTHEASTERLY by Lot 1, four hundred eighty and 27/100 (480.27) feet;

NORTHEASTERLY by land of Ira E. Creelman, three hundred twelve and 53/100 (312.53) feet and seventy-six and 44/100 (76.44) feet and by land of C. D. Fletcher, eighty-one and 25/100 (81.25) feet;

NORTHWESTERLY by land of William H. and Eleanor L. Peck, four hundred twenty-nine and 86/100 (429.86) feet and three hundred nine and 21/100 (309.21) feet;

SEE PLAN IN RECORD BOOK 1513 PAGE 69

1513

(*Individual — Joint Tenants — Tenants in Common — Tenants by the Entirety.)

WESTERLY by land of William H. and Eleanor L. Peck, eighty-one and 53/100 (81.53) feet, thirty-five and 22/100 (35.22) feet and thirty-nine and 84/100 (39.84) feet;

NORTHWESTERLY by land of William H. and Eleanor L. Peck, three hundred seventy-eight and 23/100 (378.23) feet; WESTERLY by Harvard Road, fifty-six and 68/100 (56.68) feet;

SOUTHERLY by land of William H. and Eleanor L. Peck, three hundred fifty-seven and 22/100 (357.22) feet;

NORTHWESTERLY and WESTERLY by land of William H. and Eleanor L. Peck, seventy and 20/100 (70.20) feet, sixty-five and 36/100 (65.36) feet and fifty-one and 16/100 (51.16) feet;

SOUTHERLY by land of Carlo Norgoal, three hundred fifteen and 42/100 (315.42) feet; and

SOUTHWESTERLY by land of William H. and Eleanor L. Peck, three hundred thirty-seven and 23/100 (337.23) feet.

Containing about 11.309 acres, more or less.

For our title, see two deeds recorded in the Middlesex Registry of Deeds Book 7304, Page 460 and Book 6984, Page 568.

This deed is given to confirm a taking by the town of parcel 1 for school purposes and a gift of parcel 2 to the Town of Stow, and for that reason no deed stamps are affixed or cancelled.

Witness our hands and seals this 18th day of December, 64.

William H. Peck
WILLIAM H. PECK

Eleanor L. Peck
ELEANOR L. PECK

The Commonwealth of Massachusetts

Middlesex ss. December 18, 1964

Then personally appeared the above named WILLIAM H. PECK

and acknowledged the foregoing instrument to be his free act and deed, before me

Thomas R. Moore, Jr.
Notary Public

My Commission Expires Jan. 1, 1970

Town of Stow
380 Great Road
Stow, Massachusetts 01775-1122
(978) 897-5098
FAX (978) 897-2321

Date: _____

TO:

Board of Assessors	Police Department
Building Commissioner	Board of Selectmen
Conservation Commission	Historical Commission
Fire Department	Stow Municipal Affordable Housing Trust
Board of Health	Town Administrator
Highway Department	Planning Department

FROM:

RE:

Attached please find the above referenced Petition from_____ for _____ _____for property located off of _____. The land is further identified and shown as Parcel _____ on Assessor's Map Sheet _____.

Please review and comment on the above Application as it relates to the following Municipal needs that may be appropriate for this property. In alphabetical order:

Affordable Housing
Agriculture
Community Center/Senior Center
Fire/Police/Highway
Library
Municipal Parking
Open Space
Recreation
Schools
Town Offices
Well/Septic

The _____ would appreciate your review and comments by _____.

Department: _____ Date: _____

Signature: _____

APPENDIX 14

Recreation Department Master Plan

2007

Stow Athletic Fields Master Plan

April 14, 2007

table of contents

Gale Associates, Inc.

163 Libbey Parkway | Weymouth MA 02189-0004

P 781.335.6465 F 781.335.6467 www.galeassociates.com

Town of Stow
Pine Bluff and Snow Property
Master Plan

April 14, 2007

enclosures

Tab 1 – Athletic Field Master Planning Flow Chart

Tab 2 – Stow Recreation Working Group Alternative Site Evaluation Summary

Tab 3 – Gale Scope of Services/Study Approach

Tab 4 – Photo Documents of Existing Facilities

Tab 5 – User Group Demand Analysis

Tab 6 – Current Field Needs Assessment

Tab 7 – Pine Bluff Existing Conditions and Aerial

Tab 8 – Snow Existing Conditions and Aerial

Tab 9 – Pine Bluff Site Information
(Aerial, USGS, Photos, Soils Map, Flood Map, etc.)

Tab 10 – Snow Parcel Site Information
(Aerial, USGS, Photos, Soils Map, Flood Map, etc.)

Tab 11 – Stow Working Group Report on Snow

Tab 12 – Snow Parcel Schematic Layout Plan-COA1
Pine Bluff Schematic Layout Plan-COA1
Pine Bluff Schematic Layout Plan-COA2

Tab 13 – Results of Course of Action 1 and 2

Tab 14 – Initial Project Development Flow Chart

Tab 15 – Preliminary Project Budget Estimates

Tab 16 – Synthetic Turf Details

Tab 17 – Summary of Studies related to Synthetic Turf Hazards

Tab 18 – SPLP Test Results

Tab 19 – Archeological Intensive Survey Scope

Gale Associates, Inc.
163 Libbey Parkway | Weymouth MA 02189-0004
P 781.335.6465 F 781.335.6467 www.galeassociates.com

STOW ATHLETIC FIELD MASTER PLAN

1.0 – Background and Master Plan Objectives

1.1 Background and Study Approach

Gale Associates, Inc. (Gale) has completed community or campus-wide athletic field master planning in over a dozen municipalities and universities to include Norwood, Sudbury, Gardner, Weymouth, Franklin, and Dartmouth and Springfield Colleges. Community athletic field master planning is typically a five step process:

- Assessment of current facilities (condition and potential for redevelopment).
- Assessment of current and future field demands/needs requirements.
- Assessment of available undeveloped parcels.
- Concept planning and schematic plans for expanded facilities.
- Scheduling and Cost Estimating.

A schematic flow chart describing the process followed by Gale in the completion of this study is provided as Enclosure 1.

As demonstrated within, there is a long standing and pervasive, Town-wide lack of athletic field space. Youth sports programs have grown in numbers, in diversity of sports, and in terms of gender equity, while the population of fields has actually declined. There is a great deal of analytical data and anecdotal evidence in support of this conclusion. For example:

- With the exception of a recent effort to provide 3 hours of field time per week (at the expense of soccer), there are no available fields in the community for lacrosse, despite the rapid growth of that sport over the past two years and projected in the future.
- There is no adult baseball venue ("90-foot" diamond) in the Town of Stow, despite active support for Babe Ruth baseball.
- Development league Little League baseball players are unable to practice and are limited to one game per week due to lack of field space.
- Stow accounts for 520 players on 50 teams in the Assabet Valley Little League while providing for only 12% of the field usage.
- Stow Soccer has some 620 particpants in 45 teams and is projecting 5% growth in the next 5 years and is soliciting additional field space in Boxborough and Sudbury.

The current field inventory includes facilities, described in detail within, at Pine Bluff, Center, Bradley, Hale, and Pompo. One of the consequences of inadequate field space to meet the current demand described in this report is a generally poor condition of existing fields which cannot support the current program without breaking down. The fields are overused, inadequately maintained, and lack the 30-day rest period in either the fall or

spring growth season to re-establish the rootzone structure. They are generally poorly drained and unavailable for much of the spring season. Most importantly, the lack of an adequate stand of turf grass results in improper footing and inappropriately hard surfaces and constitutes a significant safety hazard.

In addition to the assessment of existing facilities, the preparation of a community-wide athletic field Master Plan typically includes the assessment of undeveloped parcels which may be reasonably available for the development of expanded athletic field space. Prior to the engagement of Gale, the Stow Recreation Working Group completed a thorough review of all open space, private, public and conservation acreage to determine the possibility of obtaining the land area required to meet the Town of Stow's outstanding needs resulting from 12 years of apparent failure to invest in required recreational facilities. A summary of these efforts is provided as Enclosure 2. Only two sites with significant development potential and reasonable availability were identified: the Snow parcel and the Pine Bluff parcel. Gale was directed to assess the athletic field development potential of these two parcels of land which could possibly be made available for recreational development. Again, these parcels are described in greater detail within this report.

The Pine Bluff Property is a parcel of land which is owned by the Town of Stow, MA (the Town) and zoned as recreation land. The parcel is approximately 31 acres, and includes the Town Beach, an existing soccer field, and related parking. The majority of the site is undeveloped and wooded. The parcel is bounded by Sudbury Road, Kingland Road, and Lake Boon. Although the topography and soils are most favorable for recreational development, there are constraints to development to include deeded setback requirements, nearby abutters, and several environmental receptors to include a vernal pool. As described later in the report, these constraints can be managed and the project impacts appropriately mitigated in a limited or even moderate recreational buildout.

The Town is considering the purchase of 13 acres of land (Snow Property) off of Old Bolton Road. There are many aspects of this property which make the back half of this parcel ideal for recreational development to include favorable topography and soils, sparse vegetative cover, lack of immediate residential abutters, and lack of environmentally sensitive areas.

1.2 Study Goals and Deliverables

Gale was engaged in the spring of 2007 to assist the Town with the development of an Athletic Field Master Plan. The overall goals for this planning effort are:

1. Assess the current requirements for athletic fields in the community and how they are currently being met. Define a planning program of additional field requirements.

2. Define the current population of fields in the community and generally assess their condition and, in general terms, their potential for future redevelopment.

3. Assess the prevailing site conditions at the Snow and Pine Bluff parcels and the opportunities and constraints inherent in each as they relate to potential for development of additional field space.

4. Define concepts for the possible development of each of the recreational parcels (Snow and Pine Bluff) and provide estimates of cost, permitting requirements, possible phasing, and the impact on the Town's ability to better support its field space requirements.

The resultant Athletic Field Master Plan is intended to identify and address the priority needs of the Recreation Department and the Town, make best use of available space, and provide cost-effective, yet state-of-the-art planning solutions for the potential development of the two parcels identified to better meet the demands of the current and future sports programs. It should be noted that like all recreational master plans, this is a work in progress that continues to evolve over time, and it will require periodic update as needs and facilities evolve.

In completing this planning effort, Gale has:

- Completed a preliminary evaluation of existing recreational facilities.
- Completed a series of user meetings to assess requirements and priorities.
- Met with the Stow Recreation Working Group regarding the Town-wide meetings they had conducted previously.
- Prepared a working base plan in AutoCad for each undeveloped parcel based on available information from the Town.
- Completed an informal wetlands delineation and characterization of the sites.
- Completed a preliminary geotechnical evaluation of the sites.
- Conducted a series of committee, community and user group meetings to evaluate various development strategies.

Please see the Gale Scope of Services at Enclosure 3 for a complete discussion of technical approach and scope of services.

The resultant Athletic Field Master Plan provides:

- A general assessment of exiting facilities.
- A field demands analysis.
- A summary of the Town requirements for additional facilities (The Program).
- A schematic level layout of each of the undeveloped parcels.
- A phasing plan for accomplishing the renovation.
- An assessment of the required permitting effort.
- A summary of maintenance requirements for the proposed additional facilities.
- An estimate of the constructed cost for each phase.

2.0 – Inventory and Preliminary Assessment of Existing Stow Athletic Fields

Gale completed multiple site visits to the existing field sites in the Town to evaluate the existing facilities, and met multiple times with Town officials, user groups, and maintenance officials. Existing facilities were generally assessed for serviceability, code compliance, and handicap access, compliance with National Federation of State High School Associations (NFHS) or other applicable geometry standards, safety, and remaining useful life. We also provided a general assessment of the redevelopment potential of each site to better meet the needs of the Town and take best advantage of available space. Photo documents referenced within this narrative are provided, sequenced by number, at Enclosure 4.

2.1 Pine Bluff

2.1.1 General Description of Site. The existing Pine Bluff recreation area is comprised of approximately 31 acres which is accessed off of Sudbury Road on the south side of the Town. Approximately 5 acres of the site are developed for active recreation and the remainder is wooded. A complete description of this site is provided at Section 4.1.1. According to a former member of the Stow Conservation Commission, the existing fields were constructed by members of the Town following a series of noticed public hearings before the Stow Conservation Commission, which issued a Notice of Intent for the project.

2.1.2 Current Fields Provided. Currently, Pine Bluff provides one and a half playing fields. There is one 6 vs. 6 field and one full-sized 11 vs. 11 soccer field.

2.1.3 General Condition/Limitations. The fields are properly sized for the intended sports and generally have adequate planarity and drainage. The fields are not rested during the year and experience excessive overuse. At the end of the spring and fall, there is generally no turf on the fields. The Pine Bluff fields are irrigated. The irrigation has had repair problems in the past, but, with additional investment, 2006 was problem free.. There is insufficient and poorly organized on-site parking. The parking lot is dirt and requires periodic regrading. There are public restrooms available to the site. Presently, the site does not provide any ADA parking, accessible routes, or facilities. The access to the Town beach is a steep dirt embankment and very steep stairs.

2.1.4 Constraints and Potential for Redevelopment. As will be discussed in more detail in Section 4, this site has significant potential for the development of additional field space. With a limited to moderate 2-3 field development, the various zoning and environmental constraints and off site impacts can be adequately mitigated with thorough planning and design.

The park has a 100-foot wetland jurisdictional boundary on the west side of the site which is associated with Lake Boon. There also appears to be an uncertified vernal pool in the center portion of the site which may also have a 100-foot “no alteration” buffer.

Additionally, there is a 100-foot "no structure" setback defined in a deed restriction on the property.

As stated above, there is effectively a 100-foot buffer which surrounds the parcel. This is a part of the deed restriction and wetland jurisdictional boundaries. However, these buffers are not prohibitive to a limited to moderate athletic field buildout. The potential for redevelopment on the south side of the parcel as additional athletic fields and open space is good. The parcel is relatively flat and soils beneath the parcel are generally free draining.

2.2 Memorial Field at Bradley Lane

2.2.1 General Description of Site. Memorial Field at Bradley Lane is approximately 5 acres and accessed off of Great Road. The site is in a residential zoned portion of Town. The site is bordered by residential property and conservation land. The parcel was donated to the Town by a group of five families in honor of a fallen WWII soldier, for the purpose of a baseball and softball field.

2.2.2 Current Fields Provided. The Memorial Field provides for one adult 60-foot softball diamond. The outfield of the diamond is heavily utilized for soccer. This is the only area where adult softball is played in the Town.

2.2.3 General Condition/Limitations. Currently, the outfield is in poor condition. It has a marginal stand of turf and is poorly drained due to chronic overuse as the only adult softball field in Town and as an overscheduled soccer field. There is no rest period afforded during an active growing season. The site is not irrigated and the parking area for the field is a dirt parking area. The pathway to the field is also dirt and not ADA compliant.

2.2.4 Constraints and Potential for Redevelopment. The parcel is bounded by conservation land and Town forest on three sides. The other side is residential property. The edge of the playing area is immediately adjacent to a wetland resource area and much of the play is already within the 100-foot wetland buffer. Unlike proposed development at the Snow parcel or Pine Bluff parcel, any expansion at Bradley would involve direct alteration of a wetland, or as a minimum, alteration of a 100-foot buffer area. Additionally, it is unlikely that the available space would allow for the development of a second 60-foot diamond with non-conflicted outfields. Finally, the parcel reportedly has a deed restriction which allows for the play of softball and baseball only. As a result, it is uncertain whether the Town would be able to reconfigure the parcel for a renovated softball field and multi-purpose rectangular field. As a result of these constraints, we assess the redevelopment potential of Bradley to be minimal beyond renovation of the existing field. Even then, the Integrated Turf Management restrictions due to the immediate proximity of environmental receptors are likely to make its future maintenance a questionable investment.

2.3 Pompositticut School ("Pompo")

2.3.1 General Description of Site. The Pompositicut School (Pompo) site is approximately 18 acres and is accessed off of Great Road (Route 117). The school is located just outside of the Stow Town Center. The school building itself occupies 80% of the useable acreage. There is ample parking which is ADA compliant. However, there are no accessible routes to the field.

2.3.2 Current Fields Provided. There is currently an undersized 6 vs. 6 soccer field at the site. The field was constructed by the Army Corp of Engineers. A second 6 vs. 6 soccer field exists, but with reconstruction of a culvert on Rte. 117, the field has become very wet and is unusable 90% of the year.

2.3.3 General Condition/Limitations. Based on interviews conducted with Town personnel, the field was not constructed with either an underdrain system or adequate surface drains. Additionally, the field construction incorporated poorly draining, heavy clay soils in the rootzone, contributing to the poor playing conditions. Over the years, the Town has tried making improvements, but many areas of the field have experienced differential settlement and continued poor drainage performance, resulting in a playing surface with large depressions and uneven slopes. Heavy soils, poor drainage and occasional overuse have resulted in an often unplayable surface. The fields are not irrigated and receive little maintenance, exacerbating the problem of turf quality. By the end of the fall and spring season, the turf is all but destroyed and in need of major rootzone regeneration.

2.3.4 Constraints and Potential for Redevelopment. There is no available land for either expansion or a more advantageous reconfiguration. The land which surrounds the field areas is either wetland or owned by the Town of Stow Conservation Commission. The field lies entirely within a jurisdictional buffer for the wetlands to the west. As a result of these constraints and the general lack of expansion space, we assess the redevelopment potential of Pompo to be minimal beyond renovation of the existing field. The rootzone should be reconstructed using a free-draining coarse sand, an underdrain system, an irrigation system, and a reduced schedule/program affording a rest period. Even then, the Integrated Turf Management restrictions due to the immediate proximity of environmental receptors are likely to make its future maintenance a questionable investment.

2.4 Center School

2.4.1 General Description of Site. The Center School site is approximately 14.9-acres and is accessed off of Great Road (Route 117). There are approximately 120 parking spaces and a sufficient number of ADA accessible parking spaces at the site. However, there are no ADA accessible routes to any of the athletic fields.

2.4.2 Current Fields Provided. There are presently 2 baseball diamonds at Center and a shared multi-purpose rectangular field. The fields are used daily from May

through November. There is one 60-foot Little League diamond and a 90-foot adult diamond that is used for both adult baseball and Little League baseball. The use of the 90-foot diamond for routine Little League play is unfortunate, as the infielders are playing on the infield grass, and the outfielders are playing on the infield clay skinned surface.

It is questionable whether the Center fields should be considered to address any of the Town's athletic current or future field needs. The school is likely to be expanded and all athletic fields will be demolished for the new wing of the building and for construction laydown areas. It is unlikely there will be any athletic space at Center School for up to three years, and it is questionable what athletic space will be put back and when.

2.4.3 General Condition/Limitations. Like all others in Town, the Center School fields are chronically overused, not irrigated, and not rested. They are used daily from May through November, never rested, not irrigated, poorly drained, and inadequately maintained. As noted above, one field is used for Little League but has a 90-foot geometry.

2.4.4 Constraints and Potential for Redevelopment. The western portions of the school site where the fields are located are within the 100-year floodplain as defined by FEMA Flood Insurance Rate Maps (FIRM). As a result, they cannot be raised without the creation of compensatory flood storage. There is a hill in the northeastern portion of the site, and any redevelopment would require a substantial effort for earth moving and clearing prior to the construction of the fields. Finally, as with each of the previous sites, Center is surrounded by jurisdictional wetland areas and conservation land. As a result of the uncertain future of the Center fields given the pending school expansion, along with the other development constraints (floodplain, topography, wetlands), we believe the expansion potential of this site or ability to reorganize to better meet the Town's needs is very limited.

2.5 Hale School

2.5.1 General Description of Site. The Hale School site is approximately 16.56 acres. The parcel is irregularly shaped and the school occupies 70% of the readily buildable space on the parcel. The school is accessed off of Hartley Road. There is ample parking at the site, and the parking includes the required number of ADA accessible parking spaces. There are no accessible routes to athletic fields.

2.5.2 Current Fields Provided. Currently, the Hale School provides a single 60-foot Little League-type diamond.

2.5.3 General Condition/Limitations. The field condition is extremely poor. Based on interviews with Town staff, this condition results from historic overuse and failure to rebuild the destroyed rootzone or otherwise maintain it. It is likely also to result from inadequate drainage provisions and very heavy glacial till soils with a high silt content. Based on interviews with Town personnel, the Hale field is not used regularly due to the state of the turf, as it is considered to be unsafe.

2.5.4 Constraints and Potential for Redevelopment. The site is at the top of a hill, most likely a drumlin or kame deposit created by a glacier. The northern side of the site slopes through several private residences and down to Boxboro Road. Such formations are typically poorly drained with heavy silt and clay soils.

While there is some room for possible expanded field development on the north side of the site, any such development would require extensive cutting and filling of the slope and construction of a large retaining wall. Given the questionable soils at the site and the necessity for extensive earthwork and retainage, such expansion would likely not be cost-effective for the marginal increase in field space it affords. As a result, we assess the potential of this site to be fair beyond renovation of the existing field. It should have the rootzone reconstructed using a free-draining coarse sand, an underdrain system, an irrigation system, and a reduced schedule/program affording a rest period.

2.6 Conclusions

The table below provides a summary of Gale's findings regarding the current population of Stow athletic fields:

Table 2.6
Field Assessment Summary

Location	Fields	Condition	Rested 30 Days	Expansion Potential
Pine Bluff	1 full-size rectangular 1 half-size rectangular	Very Poor	No	Very Good
Bradley	1 60-ft. softball/rectangular	Very Poor	No	Very Limited
Pompo	1 half-size rectangular	Very Poor	No	Very Limited
Center	1 90-ft. baseball 1 60-ft. baseball/rectangular	Very Poor	No	Very Limited
Hale	1 60-ft. baseball	Very Poor	No	Fair/Limited

**NOTE: *Combinations fields are conflicted and cannot be scheduled concurrently and do not represent two fields.*

Total Inventory:
1 full-size soccer field
2 half (6 vs. 6) soccer fields
1 60-ft. softball field/rectangular field combination**
2 60-ft. baseball field/rectangular field combination**
1 90-ft. baseball field (used as 60-ft.)
6 total field equivalents

As demonstrated in Section 3 which follows, the Town has an extraordinary athletics program given its size. It is constrained from further growth based on unavailability and condition of fields. The current requirements of 130 athletic teams and 1,750 participants are being met in the Town by 6 poorly maintained, non-ADA accessible, unsafe field equivalents. This deficit is exacerbated by the field drainage conditions which severely limit field availability in the spring and following storm events.

The Pine Bluff parcel which was identified by the users as the most heavily scheduled facility also has the most potential of the existing facilities for expansion. As discussed in more detail below, this site has the area required and the topography, zoning, and geotechnical conditions to support additional recreational development in a responsible manner. Constraints and limitations associated with wetland buffers, vernal pool buffers, and deed restrictions can be addressed with sound engineering and planning. The other existing recreational field facilities in the Town we assessed have very limited potential to be significantly improved for additional field inventory.

3.0 – Current and Projected Demand Analysis

Gale met with the Stow Recreation Working Group to gain a general understanding of field scheduling and use. We then took written summaries from each of the field user groups. Finally, we met with each user group to further our understanding of field use and program constraints.

3.1 Lacrosse

Lacrosse is the fastest growing youth athletic sport in the country, and that trend holds true in Stow. The sport over the next five years in Stow is projected by League Officials to grow at a rate of over 200% for girls lacrosse. Boys lacrosse has demonstrated a 100% growth rate in 2006 and 2007 and is expected to grow over 100% again in the next five years. In order to be conservative, we have assumed a 50% growth rate over 5 years in our subsequent analysis.

Currently, the Town of Stow accounts for 50% of the participants in the Nashoba Valley Lacrosse League, while providing almost none of the field time. As the sport grows over the next five years, it is expected that a Stow Lacrosse League will likely be created and the Town consortium that it presently participates in will no longer be viable due to its large size.

3.1.1 Demand Data. Presently, there are approximately 225 participants in girls and boys lacrosse configured as 10 teams in six different age/sex groupings: Development – 1 team, Under 11 Boys – 2 teams, Under 13 Boys – 2 teams, Under 13 Girls – 1 team, Under 15 Boys – 3 teams, and Under 15 Girls – 1 team. There is also an adult team with Stow participation that practices and plays at Lincoln-Sudbury Regional High School (see User Group Demand Analysis at Enclosure 5). There is only currently one girls developmental lacrosse team. That is expected to change over the next two years where the boys and girls lacrosse programs are of the same size and number. The girls' field has different dimensions and is striped differently. By 2012, the program as it is presently set up as a consortium of towns, has a projected user group of approximately 1,000 kids participating. Stow will account for approximately 400 to 500 kids in the program.

The primary season is the spring season extending 12 to 14 weeks depending on age group, weather, and field availability. Assuming that each team intends to practice 2 times per week and play 1 game per week over a 14 week season, this represents a demand for 420 scheduled team events per spring season. If allowed to grow to full potential, that number could double in five years to 840 scheduled team uses per year without the addition of summer or fall leagues.

3.1.2 Current Field Use. Presently, Nashoba Youth Lacrosse uses fields provided by the Town of Bolton, MA. There is an undersized field used on weekdays for practice, and a single full-size field used for games on Sunday. These Bolton fields are used by a variety of sports, and the demands sustained by these fields results in a very poor quality of turf grass. The lack of an adequate stand of grass significantly alters the quality of developmental play and can be unsafe.

The field inventory in Stow does not allow for the use of fields for lacrosse, with the recent exception of a handful of hours.

3.1.3 Unresourced Requirements/Program Implications of Current Space. Presently, Bolton does not have the field inventory for the future demand as their fields are already overscheduled. The Town of Bolton has imposed growth limitations on the league and additional field time is unavailable. Additionally, the field which lacrosse presently uses in Bolton is not regulation size. The current lack of field space does not allow for either summer clinics or camps, and certainly doesn't support the development of any type of fall league.

If the growth of Stow Lacrosse is as predicted by League Officials, and there is a demand for 630 scheduled team uses in 5 years, and if 40% of those are to be met in Stow consistent with the demographics of the League, that implies a need for 1.3 fields in Stow, based on a well-maintained field being able to sustain up to 250 team uses per year (see Enclosure 6, Current Field Need Assessment). This need could be met with a new, high use dedicated lacrosse field and additional time available on multi-purpose rectangular fields throughout the Town.

3.1.4 Lacrosse Recommendations. For the program to continue to grow at the rate which is indicated, more local fields will be required by lacrosse. At present growth rates, lacrosse requires an additional dedicated field. They also require the use of an additional shared multi-use rectangular field which can be shared with soccer. For developmental lacrosse, it is important that the fields utilized have a uniform playing surface.

3.2 Soccer

3.2.1 Demand Data. Presently, there are approximately 624 participants in Stow Soccer. Soccer has the most diverse user groups in the community. Leagues in Stow range from Munchkin Soccer to Adult over 40 years old leagues. Soccer as a whole has realized a growth of around 12-14% over the past 5 years. In some areas of the program, the growth is as high as 25%. According to league officials, these growth rates are expected to be sustained in the next 5 years due to increased interest in this sport. To be conservative, we have assumed a 5-year growth rate of 5% for Stow Soccer.

As may be noted in the User Group Demand Analysis spreadsheet at Enclosure 5, the 624 players are arrayed over 45 teams in 14 different age/gender groupings. Each of these groupings play 8-week seasons both spring and fall, and many have an 8-week summer league as well. While the actual scheduling among the Town's fields is very complex, it is conservative to say that if each team intends to play one game and conduct one practice a week over three 8-week seasons per year, there is a demand for 2,160 scheduled team events per year. This does not account for summer camps, clinics, and informal play which all place additional demands on fields.

3.2.2 Current field Use. Soccer utilizes the most fields in the Town. They use Pomp, Center, Bradley and Pine Bluff. As noted In Section 2.6, there is an inventory of 3 full-size fields and 2 half-size fields in the Town, counting a full-size field at center which will soon be unavailable for an indefinite period of time. Assuming that use is evenly distributed across this population of fields, and assuming the half-size fields can be considered on a one for one basis with the full-size fields if they are used for younger 6 vs. 6 age groups, then each field sees a demand of 432 scheduled events per year for soccer alone. The fields are not rested and in chronic disrepair, and will remain so regardless of the maintenance effort. If the projected growth rate of 5% is realized over the next five years, this translates to an average of 475 scheduled team uses per field per year.

3.2.3 Unresourced Requirements/Program Implications of Current Space. Every available space in the Town is utilized for soccer during the season, which is most of the year. Fields are destroyed by the end of the season, making play nearly impossible and possibly unsafe. If we assume that a well-maintained field can sustain up to 250 scheduled team uses per year, then there is a quantifiable deficit of 3.6 fields today and 4 fields in 5 years (see Enclosure 6).

3.2.4 Soccer Recommendations. Construction of three (3) high-use, multi-purpose rectangular fields.

3.3 Assabet Valley Little League (AVLL)

3.3.1 Demand Data. As reflected in the User Group Demand Analysis at Enclosure 5, there are approximately 600 children which participate in the AVLL. Stow accounts for approximately 280 participants of the league, or nearly 50%. These 600 participants are organized in 50 different teams over four developmental groupings over a 12 week spring season. There is also a four-team Jimmy Fund Program in the six week summer period.

Currently, practices are limited, and in the younger developmental leagues, precluded by lack of field space. However, it is the intent of the league to conduct an average minimum of 2 games and 1 practice, or a total of 3 scheduled team events per team per week. As a result, there is a current requirement for field space for 2,268 schedule team uses. If it were the Town's intent to provide for its share (50%) of these requirements, this would amount to 1,134 scheduled team events. The league has sustained a long-term steady growth rate, and a growth of 5% is anticipated over the next 5 years, bringing the projected field requirements to 1,191 scheduled team uses per year (see Field Needs Assessment at Enclosure 6).

3.3.2 Current Field Use. AVLL utilizes 9 fields in Maynard and Stow. Stow currently supplies less than 13% of the fields' usage time for the AVLL, with the remainder in Maynard. Additionally, because of the field quality issues, all of the Stow play is in the farm or developmental divisions, with minors and majors using Maynard fields exclusively.

In Stow, there are currently three 60-foot diamonds used by AVLL; 1 at Hale and 2 at Center. It is important to note that the Center fields may be unavailable due to school expansion and it is uncertain if or when they might be replaced. Assuming that there are 3 fields available they should be able to sustain 1,125 scheduled uses IF they were dedicated sole user fields. However, the Center fields, if they are available in the future, are combination dual-use fields, and unavailable on weekends due to soccer play.

3.3.3 Unresourced Requirements/Program Implications of Current Space. The deficit of field space for baseball is to the point where farm baseball does not get the opportunity to practice; they only play games. During wet season, games go unplayed and practices are missed on a regular basis. This problem will only be amplified when the fields at Center School are taken out of the inventory for construction. According to league officials, the 2006 season farm baseball could have utilized two additional fields. If growth of 5 to 10% continues without the addition of field space, a cap on the amount of kids participating will have to be implemented.

3.3.4 Recommendations. AVLL requires the addition of two 60-foot diamond fields to play at its current size. This does not consider the possibility that the Center School will no longer be available for use for an undetermined amount of time once construction begins.

3.4 Men's Softball

3.4.1 Demand Data. Men's softball in Stow has been at capacity for the last 5 years. There are currently 160 participants organized in 16 teams which play in the league. The league does not expect to be able to grow; there are no other facilities in the Town which they can utilize. The season extends from mid-May through Labor Day, or 14 weeks. There are 2-3 practices followed by one game per week and an occasional practice (see User Group Demand Analysis at Enclosure 5). This results in a field space requirement of about 210 team uses per season. For planning purposes, a growth rate of 5% in 5 years has been assumed. This is conservative and below expected growth rates.

3.4.2 Current Field Use. Currently, there is one field available to men's softball. Memorial Field at Bradley Lane is their sole field. The field is now being used for soccer in the spring and fall, further reducing field availability and opportunity to rest.

3.4.3 Unresourced Requirements/Program Implications of Current Space. There are no unresourced requirements due to the fact that the program has not been allowed to grow over the last five years. If the program had field space to grow, the national average for growth is in the 5-7% growth range. However, assuming that not to be the case, the current field, <u>if</u> properly maintained and dedicated solely for adult softball, would likely be able to meet the demands of this group (see Current Field Needs Assessment at Enclosure 6).

3.4.4 Recommendations. It is recommended that men's softball be afforded an additional field so that their current facility can be rested and better maintained.

3.5 Babe Ruth Baseball

3.5.1 Demand Data. As reflected in the User Group Demand Analysis at Enclosure 5, Babe Ruth Baseball plays in the spring, summer, and fall. There are approximately 160 children in the league organized into 5 teams in the spring and fall, and 2 teams in the summer. Approximately 50% of the participants are from the Town of Stow. The spring and fall season are each 12 weeks long and the summer season is 8 weeks long. Each team intends to have 1 game and .5 practices per week, or 1.5 scheduled team events. As a result, there is a requirement for 576 scheduled team uses per year attributable to Babe Ruth. League officials have cited a modest 5% increase per year, so the 5 year projection would be 605 (see Current Field Needs Assessment at Enclosure 6).

3.5.2 Current Field Use. Adult baseball utilizes fields at Maynard High School and Crowe Park. The fields are used by a number of other users (e.g., Maynard High School) and are used everyday for multiple events from April to November. Especially during the spring, the fields are used 7 days a week and multiple games are scheduled from the early morning until sundown on weekends. Presently, Babe Ruth does not use any fields in Stow, while half of the Babe Ruth Baseball participants are from the Town of Stow, as noted above.

3.5.3 Unresourced Requirements/Program Implications of Current Space. Games which are scheduled and then rained out are difficult to make up during the season due to scheduling conflicts at Crowe Park and Maynard High School. The program growth is constrained due to the amount of available fields, and given the intensity of use, the fields are maintained aggressively resulting in fair turf condition. The deficit of fields has not impacted the size of the program and the amount of practices and games as of yet, however age and ability divisions cannot be formed due to limited space.

3.5.4 Recommendations. The development of an additional 90-foot diamond in the Town to help ease the scheduling difficulties in Maynard is recommended. At present growth, there will be need for a total of 1-2 90-foot diamonds in the community.

3.6 Conclusions and Planning Program Recommendations

A quantitative analysis of new field requirements is complicated by the joint use of facilities by multiple Towns; however, it is clear that Stow's athletic leagues are severely under resourced. The table at Enclosure 6 summarizes the demand data analysis:

With intensive maintenance and a 30-day rest period during an active growth season, a field has the ability to sustain an average of 250 90-minute events per year. Stow Soccer alone utilizes five fields (3 full, 2 half) across the Town at various locations. These fields, if properly maintained, have the ability to safely accommodate 1,250 events a year. Stow Soccer has a yearly requirement of nearly 2,160 events per year. Sustaining this type of demand on a population of fields that is inadequate to do so only accelerates the

deterioration, regardless of the maintenance effort expended. The implications are threefold:

1. Each of the various athletic programs will be limited in their growth and will not meet the needs of significant numbers of potential program participants.

2. The quality of play based on field quality will be insufficient for the intended sport. This is particularly true for lacrosse.

3. The Town will incur significant liability risk as the fields deteriorate further to an unplayable, unsafe condition.

Based on the analysis above, and assuming that the fields in Center, if lost for use for some period of time will be replaced in kind, Gale recommends the construction of the following fields to meet the projected needs of the Town for field space:

- 4 multi-purpose rectangular fields (3 if one is synthetic)
- 2-3 60-foot diamonds (2 if one is synthetic)
- 1 90-foot diamond

This will just handle the present use and, particularly if there is a synthetic turf component of the buildout, will leave room for some growth among all user groups.

Finally, the various Town informational meetings conducted by the Stow Recreation Working Group and by Gale identified several other potential program elements that should be considered in the development of additional field space. The first is obviously sufficient off-street parking to meet the new field needs. Secondly, there was much comment about the possibility of a bandstand-type pavilion. This could possibly be incorporated into a site building otherwise used for concessions, restrooms and on-site storage. For this type of development, such facilities are often funded by private donations or in-kind labor. There is also a stated demand for hard court space (basketball, tennis, and hockey). Lastly, any new field complex should consider the incorporation of a walking or jogging trail. Such a trail could potentially include workout stations and/or environmentally related interpretive eco-signage or displays.

4.0 – Assessment of Undeveloped Parcels

Based on locally available information, Gale compiled an existing conditions base plan suitable for planning purposes for both the Pine Bluff and Snow parcels. They are provided as Enclosures 7 and 8. These plans are not suitable for the preparation of permitting or design documents, and a full topographic and property line survey will be required in any subsequent phase of the project.

4.1 The Pine Bluff Parcel

See Aerial Photo, Site Photos, and Existing Conditions Plan at Enclosure 9.

4.1.1 General Site Description. The Pine Bluff site was purchased by the Town with the intent of preservation of open space for active recreational purposes. The parcel is approximately 31 acres in size and is bounded by Lake Boon, Kingland Road, and Sudbury Road. As described elsewhere, a 5-acre portion of the site is currently developed for a soccer field and associated parking. There is a small rest room facility on-site that serves both the athletic fields and a small Town beach. The remainder of the site is heavily wooded with mixed soft and hardwood species and brush. A dozen or so Sudbury Road single-family homes immediately abut the parcel along the eastern property line. The property is zoned for recreation, and there are deed restrictions that, among other things, impose a 100-foot development buffer along all property lines.

4.1.2 Geology and Topography. In terms of geology and topography, the site is well suited for recreational development. The soils mapping for the site, the lack of wetland areas and impoundments, tree growth and our limited observation suggest that the soils in the area are Hinckley Loam Sand. These are characteristically free draining soils with good engineering and agronomic properties. Given the free draining nature of the soils and the relative elevation of the adjacent Lake Boon, we conclude that the separation to groundwater will be in excess of 10 feet.

The entire site, with the exception of the potential vernal pool depression and the area within 75-100 feet of the Lake Boon shore, lies approximately 25 feet above the lake elevation on a relatively flat plateau. Site grades around this plateau are only 1-2 percent.

4.1.3 Environmental Assessment. On March 27, 2006, a wetland scientist from Gale conducted field inspections of two properties within the Town of Stow, MA. The purpose of the field inspections was to conduct a preliminary habitat assessment and to approximately locate potential resource areas on the sites that would be subject to jurisdiction under the Massachusetts Wetlands Protection Act (MWPA, M.G.L. c. 131, s. 40) and its Regulations (310 CMR 10.00) as well as the Town's Wetland Protection Bylaw.

The site is located south of the Pine Bluff Recreational Facility and east of Lake Boon in Stow, MA (refer to Locus Map). According to the United States Geological Survey (USGS)

topographic map (1987), the nearest body of water on or in the vicinity of the site is Lake Boon, which abuts the western property border.

According to the Massachusetts Natural Heritage Atlas 12th Edition, no estimated habitats of rare wildlife, priority habitat of rare species, or certified vernal pools are located on the site (refer to the attached copies of the Natural Heritage Atlas at Enclosure 9). The nearest such habitats are located approximately ¼-mile northeast of the site. The nearest certified vernal pool is mapped approximately ½-mile north of the site.

No areas within the Town of Stow are identified as Areas of Critical Environmental Concern (ACEC) according to the *ACEC Program Guide* (June 1993, Executive Office of Environmental Affairs). The *ACEC Program Guide* defines an ACEC as "…an area containing concentrations of highly significant environmental resources that has been formally designated by the Commonwealth's Secretary of Environmental Affairs….".

Two significant wetland areas were noted on the property. The criteria used for identifying wetland areas included vegetation, topography, and hydrologic conditions. Hydrologic conditions and vegetation were the primary factors used to mark the approximate edge of the wetlands.

1. Lake Boon is located along the western border of the site. According to the Wetlands Protection Act, areas associated with Lake Boon subject to jurisdiction would be Inland Bank (Bank), Land Under Water bodies (LUW), and Bordering Land Subject to Flooding (BLSF). Any proposed alteration of land within 100 feet of this area would be subject to approval under Notice of Intent filing with the Stow Conservation Commission under the Wetlands Protection Act.

2. An isolated depression was noted to the immediate south of the Pine Bluff Parking area. The wooded depression at its deepest point contained standing water with no identifiable inlet or outlet. Based on Gale's observations, this isolated area may potentially contain vernal pool species. The areas observed which may be subject to jurisdiction under the Wetlands Protection Act included Isolated Land Subject to Flooding (ILSF) and Bordering Land Subject to Flooding (BLSF). Gale's planning for development on the Pine Bluff parcel has assumed that this area may be certified in the future as a vernal pool and subject to protection.

The Pine Bluff parcel does not lie with a 100 year floodplain. There is no apparent spill history or evidence of site contamination.

4.1.4 Historical/Archeological Findings. Based on available information, the Pine Bluff parcel may be archaeologically sensitive and may contain archaeological sites associated with pre-contact (ancient) Native American and historic period Euro American occupation. Through study of private artifact collections, the Stow Historical Commission has documented Native American stone tools found in the vicinity of Pine Bluff when the area was in agricultural land use. A number of known pre-contact period Native American archaeological sites are located in proximity to the Pine Bluff project area along the Assabet

River, and within the Assabet River National Wildlife Refuge (former Fort Devens Sudbury Annex), both north and south of Hudson Road. As a result of previous archaeological surveys within the refuge, 27 pre-contact Native American sites were identified, mostly in the vicinity of Puffer Pond and Taylor Brook.

Following consultation with the Massachusetts Historical Commission (MHC), the Stow Historical Commission recommended that the Town have an archaeological survey conducted at the proposed Pine Bluff recreational facility expansion. MHC concurred with this assessment and recommended that an intensive (locational) archaeological survey (950 CMR 70) be conducted within the Pine Bluff parcel.

The goal of the intensive (locational) archaeological survey will be to locate and identify any significant archaeological deposits that may be present within the project area, and to make recommendations regarding the need for additional archaeological testing or mitigation if necessary. It is important to note that no additional recreation development at Pine Bluff will begin until this archeological survey is complete.

4.1.5 Constraints to Recreational Development and Conclusions. There are both opportunities and constraints to additional recreational development at the Pine Bluff parcel. The available space, zoning, topography, and soils all contribute to make this site very favorable for the development of supplemental athletic fields and related recreational development.

Deed restrictions which create a 100-foot "no structure" buffer, and the proximity of residential abutters somewhat limit the extent of development. The jurisdictional buffers to the potential vernal pool that lies within the central portion of the parcel, along with the Lake Boon resource area, do not overly constrain development. However, the proximity of these environmental receptors requires that stormwater management and natural turf management standards will need to be established and rigorously maintained. The Integrated Turf Management Plan would be prescriptive and include a long-term water quality monitoring component. The implication of the potential historical significance of the site will not be fully known until an archeological survey is completed in any subsequent planning or design phase. Finally, any development at the Pine Bluff parcel must fully consider off-site impacts as they relate to noise, traffic, trash, and security.

Assuming that historical concerns can be favorably resolved, the Pine Bluff parcel has significant potential for either a limited (1-2 field) or moderated (3-4 field) development of needed athletic space. Such development could be completed in a responsible and environmentally sensitive fashion, preserving substantial buffers and open space. Any such development would require careful design of stormwater facilities, turf management practices, vehicular movement, and off-site impact mitigation. Given the favorable aspects of the site and its size, none of these design requirements associated with a limited 2 field buildout or a moderate 3-4 field buildout appear to be difficult or prohibitively costly.

4.2 The Snow Parcel

See Aerial Photo, Site Photos, and Existing Conditions Plan at Enclosure 10.

4.2.1 General Site Description. The Snow parcel is currently under consideration for purchase by the Town of Stow. The Town completed a preliminary evaluation of the parcel and prepared the report at Enclosure 11 summarizing their findings. The lot is a cleared, 13-acre parcel with frontage on Old Bolton Road adjacent to the Bose property. The parcel is rectangular in shape with a width of approximately 385 feet and an overall length of 1,475 feet. The site is zoned as residential and we are unaware of any encumbrances or restrictions on the parcel. There is evidence of recent agricultural use of the parcel. There are several residential homes to the immediate west of the parcel.

4.2.2 Geology and Topography. As may be noted in the USGS soil mapping for the site, the soils consist of Merrimac Fine Sandy Loam. These are well drained soils with moderate to moderately rapid permeability and good engineering characteristics.

The site is essentially level with a small depression centrally located. No development proposal for the site would be constrained by earthwork requirements. It appears that there is 6-10 feet of separation to groundwater, and that the parcel may overlay an aquifer with sufficient yield for irrigation water withdrawal.

4.2.3 Environmental Assessment. The Snow property is located on Old Bolton Road west of the Bose Complex in Stow, MA (refer to locus map). According to the United States Geological Survey (USGS) topographic map (1987), the nearest body of water on or in the vicinity of the site is an unnamed perennial stream located some 300 feet south of the property. It does not appear that development of the site would be subject to either the Rivers Protection Act nor the Wetland Protection Act.

According to the Massachusetts Natural Heritage Atlas 12th Edition, no estimated habitats of rare wildlife, priority habitat of rare species, or certified vernal pools are located on the site (refer to the attached copies of the Natural Heritage Atlas, Enclosure 10). The nearest such habitats are located approximately ¼-mile northeast of the site. The nearest certified vernal pool is mapped approximately ½-mile north of the site. The site does not lie within a 100 year flood plain.

No areas within the Town of Stow are identified as Areas of Critical Environmental Concern (ACEC) according to the *ACEC Program Guide* (June 1993, Executive Office of Environmental Affairs). The *ACEC Program Guide* defines an ACEC as "…an area containing concentrations of highly significant environmental resources that has been formally designated by the Commonwealth's Secretary of Environmental Affairs….".

One significant wetland area was noted to the south of the property. This area is most likely associated with the unnamed perennial stream. Due to its distance from areas to be

altered, the area observed would not likely be subject to jurisdiction under the Wetlands Protection Act including Bordering Vegetated Wetlands (BVW).

4.2.4 Constraints to Recreational Development and Conclusions. There are few constraints to the development of recreational fields at the Snow parcel. The soils and groundwater condition, topography, lack of vegetative cover, roadway line of site and level of service, and lack of environmental receptors make this a favorable site. If development were slated for the "rear" half of the parcel, direct abutter impacts could be mitigated.

Perhaps the largest constraint to field development is the lot shape, which is long and relatively narrow. Any fields would need to be "stacked" on the lot, one wide. Additionally, any development would require site design features (mounding, fencing, landscaping plantings, etc.) to buffer off-site impacts for the few direct abutters. Assuming the Town is able to procure this parcel and to make it available for use as recreational field development, it is most suitable for this purpose and should be the Town's top priority in any field development effort. Assuming up to one-half of the parcel might be made available for recreational development, it would be possible to develop up to two, high-intensity use fields at this site. Any development should be toward the "rear: of the parcel to mitigate impacts on residential abutters.

5.0 – Schematic/Concept Design Summary

Following the assessment of existing facilities and the quantification of field requirements, Gale was requested to consider two planning scenarios. The first, and more desirable of these, is the development primarily of the Snow parcel with a more limited development of the Pine Bluff parcel. The second alternative is the development of the Pine Bluff parcel only, assuming the Snow parcel is unavailable. The results of the schematic planning effort are discussed below.

5.1 Course of Action 1 – Aggressive Development of Snow Parcel and Limited Development of Pine Bluff

5.1.1 Snow Property Development. In this development scenario, the intent for the Snow property would be fairly aggressive development to meet the majority of the Town's program needs on this site, given its advantages and relative lack of constraints. With approximately one-half of the parcel, we believe it is feasible to develop two multi-purpose ball fields (one of which is a 90-foot adult diamond) with rectangular field overlays. Given the program demands intended to be met at this location, there is emphasis on the possible use of synthetic turf to enhance near all-weather availability and to minimize maintenance and operations costs. For purposes of our cost estimating, we have assumed a single field as athletic (see layout plan at Enclosure 12).

5.1.1.1 Multi-Purpose Athletic Fields. The Snow development should include a minimum of two, full-sized, high quality multi-purpose rectangular fields which can be used for soccer, field hockey, lacrosse, and football. At least one of these fields should be a filled-synthetic turf installed by an industry leader with an effective under-drainage system. The synthetic turf field(s) should afford a minimum 65-yard wide soccer field. It should be permanently striped for three events - American football, soccer, and lacrosse with permanent tufted lines. Guide marking will also be tufted into the turf to facilitate the painting of other lines (e.g., field hockey) as needed by Town personnel.

The natural turf fields should be constructed with a coarse grained, free-draining rootzone with adequate under-drainage, be fully irrigated, and include a premium athletic turf grass cultivar. The finished grade should be somewhat higher to limit flooding and allow for early spring use most years. The decision to use sod or seed should be based on budget and the immediate need for field space. An automatic irrigation system should be installed so that the field can be better maintained using on-site water withdrawal. An irrigation well should be installed to maximize the irrigation on the site.

5.1.1.2 Baseball Diamonds. The park development at Snow should include the construction of at least one high-quality 90-foot adult baseball diamond with under-drainage, proper orientation, spectator seating, and geometry compliance suitable for Babe Ruth and MIAA competition.

The park development should include the construction of at least one high-quality 60-foot combination softball/Little League diamond with under-drainage, proper orientation,

spectator seating, and geometry compliance for MIAA(softball) and Little League competition. A portable mound and a fully carpeted infield (i.e., no clay) would allow use for both purposes.

Ball fields should include comprehensive amenity packages to include fdugouts, benches, backstops, fencing, scoring, foul poles, and Beam clay skinned infields, unless synthetic turf is used. Outfield fencing could be installed using collapsible PVC fencing that is removable and stackable in containers when the field is to be used for rectangular sports.

5.1.1.3 Hardscape/Basketball and Tennis/Deck Hockey/Ice Hockey.

The park development could include two basketball courts and a minimum of two tennis courts. Hardscape courts should be located centrally to buffer abutter impacts of noise and light (if lighted). Courts should be dark green on light green in color to soften their appearance. They should be surrounded by 8-foot fencing to control ball overflight.

The courts will be surfaced with a tough acrylic. They will have a berm and water supply and drain and have the ability to be flooded in the winter time and act as an outdoor hockey rink. Fencing and net posts would be sleeved for easy removal and capping. Alternatively, if not in use for tennis or basketball, they could be used for deck hockey in the summer.

5.1.1.4 Other Snow Facilities/Amenities

Spectator Seating. The concept design for Snow includes limited spectator seating located between the two fields that could be oriented in either direction. The proposed spectator seating which is fully ADA accessible and meets life safety code should be installed with a capacity of approximately 100 seats, which could be relocated as desired.

Bathroom Facilities. The planning/design program of concessions and bathroom facilities generally includes a new centrally located combined bathroom and concessions building which should be developed to support all recreation venues in the park. The concessions should allow for multiple service windows and be fully ADA accessible. It would provide power and equipment for some limited on-site food preparation and sale of pre-packaged products. The concessions building should allow for vending machine access and drinking fountains when the full concessions are not open.

The concessions/toilet building should allow for a limited amount of on-site storage and a small administration area that may serve as an aide station. The open air, covered pavilion at the front of the building could serve as a bandstand or organizational area. The bathroom building shall contain approximately 6-8 bathroom fixtures for both the men's and women's facilities, and would require the development of an on-site septic system for wastewater disposal.

For purposes of our budget development, we have assumed this building could be privately funded or provided by "in kind" construction donations.

Off-Street Parking. Parking should be located at the front of the recreational development so vehicles do not penetrate into the working areas of the narrow site. This location would allow for the joint use of parking with other Town facilities to be developed on the front half of the site. There should be approximately 100 spaces provided to account for field and court use using industry standards. The current plan provides for 126 spaces. For special events, the hard court space contiguous with the parking lot could be used as supplemental parking. The impervious surfaces created by the parking lot, access drive and hardscape courts will need to be properly drained and the drainage system must treat and attenuate any offsite flows to at or below the exiting condition. The park entrances and gateways should be generally strengthened by plantings, architectural features, signage, etc.

Security Lighting. The park development will require the installation of minimal security lighting along the entrance drive, on parking lot islands, and on the restroom building. These will be the minimal number required by the Town Planning Regulations and be photo cell activated.

Athletic Lighting. In order to make best use of the new fields at Snow, particularly in the case of a synthetic turf field, we recommend that consideration be given to lighting at least one field. The proposed lights would ideally be located deep within the parcel away from abutters, and employ the latest "green" light control technology. This technology can effectively control the amount of light glare and spill off-site such that post development illumination levels at the property line do not exceed pre-development illumination. The incorporation of lighting into the project results in a synthetic turf combination field like that proposed that represents over two premium field equivalents in terms of its ability to sustain use without loss of turf quality. For purposes of budget development, we have assumed the Snow project will provide lighting conduit only, and actual lighting is treated as an alternate bid item.

5.1.2 Pine Bluff. Under this development scenario, the majority of the program requirements for additional field space would be met at Snow, particularly if one or more of the proposed Snow fields are lighted with synthetic turf. As a result, the Pine Bluff development could be less intense and lower in priority (see phasing discussion below). We believe that the Pine Bluff development should include a dedicated (as opposed to dual use) 60-foot Little League-type diamond and a minimum sized multi-purpose rectangular field suitable for lacrosse and youth soccer.

5.1.2.1 Multi-Purpose Athletic Field. The Pine Bluff development should include a single minimum-sized, high quality multi-purpose rectangular field which can be used for youth soccer, field hockey, and lacrosse. This natural turf field should be constructed with a coarse grained, free draining root zone with adequate under-drainage, be fully irrigated, and include a premium athletic turf grass cultivar. The finished grade should be somewhat higher to limit flooding and allow for early spring use most years. The decision to use sod or seed should be based on budget and the immediate need for field space. An automatic irrigation system should be installed so that the field can be better

maintained using on-site water withdrawal. An irrigation well should be installed to maximize the irrigation on the site.

This field would be located in the central portion of the site to afford the maximum possible buffers to both the lake shore and the residential abutters. As noted on the schematic plan, the buffer to both would average 120 feet and be a minimum of 100 feet.

5.1.2.2 Baseball Diamond. The Pine Bluff development should include the construction of one high-quality 60-foot softball/Little League diamond with under-drainage, proper orientation, spectator seating, and geometry compliance for MIAA (softball) and Little League competition. This would not be a combination field; rather, a dedicated Little League field. It should include an amenity package to include formal dugouts, benches, backstops, fencing, scoring, foul poles, and Beam clay skinned infields. Outfield fencing could be permanent 4-foot dark green vinyl clad chain link.

5.1.2.3 Other Pine Bluff Facilities/Amenities

Spectator Seating. The concept design for Pine Bluff includes minimal spectator seating located on the first base side of the baseball diamond. It would consist of a portable aluminum bleacher accommodating 50 seats. In the fall, it could be relocated to the rectangular field. The proposed spectator seating would be fully ADA accessible and meeting life safety code.

Bathroom Facilities. The existing public restroom building at Pine Bluff would be used to support the proposed fields as well. This may require an building renovation and expansion of the tank and leaching field, however no new facility is proposed.

Off-Street Parking. Minimal parking should be located at the front of the recreational development so vehicles do not penetrate into the working areas of the narrow site. This parking will be designed as the minimum to support the two new fields only. Existing parking for the existing soccer field off of Sudbury Road and the beach front would be unchanged.

There should be approximately 60 new spaces provided to account for field use using industry standards. The current plan provides for 60 spaces. The impervious surfaces created by the parking lot and access drive will need to be properly drained and the drainage system must treat and attenuate any off-site flows to, at, or below the exiting condition. The park entrances and gateways should be generally strengthened by plantings, architectural features, and minimal signage, etc.

Security Lighting. The park development will require the installation of limited security lighting along the entrance drive and on parking lot islands. These will be the minimal number required by the Town Planning Regulations and be photo cell activated.

Athletic Lighting. None.

5.1.3 Conclusions. Under development Course of Action 1, as reflected in the Table at Enclosure 13, nearly all of the unresourced or under resourced program requirements identified by Gale are met. The minimalist approach to the development of Pine Bluff results in the alteration of less than 4.7 acres or 15_% of the site while providing unaltered buffers of woodland averaging 120 feet in width, with a minimum of 100 feet.

5.2 Course of Action 2 – Moderate Development of the Pine Bluff Parcel

If the Snow parcel is unavailable for development for additional athletic field space, given the development constraints at Pine Bluff, it is unlikely that the Town's programmed needs for athletic space can be met. The Stow Recreation Working Group prepared some original concept plans for how Pine Bluff might be developed which were overly aggressive and intense given the prevailing site constraints. However, with a moderate 3 field development at Pine Bluff, incorporating at least one field in synthetic turf, the majority of the priority needs can be met. While this would result in more potential for environmental impacts and abutter/off-site impacts (noise, traffic, etc.) in the Lake Boon area than the smaller 2 field development described above, we believe that this layout could be planned and designed in an environmentally sensitive fashion in accordance with all relevant design standards, regulations, and permitting requirements. However, until an actual survey, geotechnical investigation, wetlands delineation, and archeological survey are completed as part of the project design effort, this remains an assumption.

5.2.1 Multi-Purpose Athletic Fields. The "Pine Bluff only" development should include two minimum-sized, (195' x 340') high-quality multi-purpose rectangular fields which can be used for youth soccer, field hockey, and lacrosse. One of them would be a stand alone dedicated field, and the other would be a combination field overlaid with a 60-foot Little League diamond. The synthetic combination field should be a filled-synthetic turf installed by an industry leader with an effective under-drainage system. The synthetic turf field(s) should afford a minimum 65-yard wide soccer field. In addition to Little League baseball, it should be permanently striped for three events - American football, soccer, and lacrosse with permanent tufted lines. Guide marking will also be tufted into the turf to facilitate the painting of other lines (e.g., field hockey) as needed by Town personnel. The synthetic field should be located more proximate to the potential vernal pool and the Lake Boon waterfront than the natural turf fields so as to mitigate potential water quality issues associated with natural turf. This location also allows for parking in both the north and south ends of the Pine Bluff parcel to access this most heavily scheduled venue.

This natural turf field should be constructed with a coarse grained, free draining root zone with adequate under-drainage, be fully irrigated, and include a premium athletic turf grass cultivar. The finished grade should be somewhat higher to limit flooding and allow for early spring use most years. The decision to use sod or seed should be based on budget and the immediate need for field space. An automatic irrigation system should be installed so that the field can be better maintained using on-site water withdrawal. An irrigation well should be installed to maximize the irrigation on the site.

This second natural turf field would be located in the southern portion of the site adjacent to proposed parking off of Kingland Road. As noted on the schematic plan, in this scheme the buffer to both rectangular fields would average 110 feet and be a minimum of 100 feet.

5.2.2 Baseball Diamond. The "Pine Bluff only" development should include the construction of two high-quality 60-foot softball/Little League diamonds with under-drainage, proper orientation, spectator seating, and geometry compliance for MIAA (softball) and Little League competition. As noted above, one would be a combination field, rather than a dedicated Little League field, and be a synthetic turf installation. Both fields should include an amenity package to include dugouts, benches, backstops, fencing, scoring, foul poles, and Beam clay skinned infields in the case of the natural turf field. Outfield fencing could be permanent 4-foot dark green vinyl clad chain link at the dedicated field, and temporary fencing could be installed on the synthetic turf combination field.

5.2.3 Other Pine Bluff Facilities/Amenities

Spectator Seating. The second concept design for Pine Bluff includes minimal spectator seating. It would consist of 4 sets of portable aluminum bleachers accommodating 50 seats each. In spring, they would be positioned for baseball and in the fall, they could be relocated to the rectangular fields. The proposed spectator seating would be fully ADA accessible and meet life safety code.

Bathroom Facilities. Under this option, the existing public restroom building at Pine Bluff would be used to support the proposed fields as well. This may require a building renovation and expansion of the tank and leaching field; however, no new facility is proposed.

Off-Steet Parking. Minimal parking should be located at the front of the recreational development so vehicles do not penetrate into the working areas of the narrow site. This parking will be designed as the minimum to support the three new fields only. Existing parking for the existing soccer field off of Sudbury Road and the beach front would be formalized and expanded somewhat.

There should be approximately 80 new spaces provided to account for field use using industry standards. The current plan provides for 68 spaces in a new parking lot off of Kingland Road, and the balance of new spaces included in a reconfigured lot off of the Sudbury Road entrance. The impervious surfaces created by the parking lot and access drive will need to be properly drained and the drainage system must treat and attenuate any off-site flows to at or below the exiting condition. The park entrances and gateways should be generally strengthened by plantings, architectural features, and minimal signage, etc.

Security Lighting. The park development will require the installation of limited security lighting along the entrance drive, and on parking lot islands. These will be the minimal number required by the Town Planning Regulations and be photo cell activated.

Athletic Lighting. None.

5.2.4 Conclusions. Under development Course of Action 2, as reflected in the Table at Enclosure 13, most of the unresourced or under resourced program requirements identified by Gale are met. The somewhat more intense approach to the development of Pine Bluff results in the alteration of 8.0 acres or 26% of the site, while providing unaltered buffers of woodland averaging 110 feet in width, with a minimum of 100 feet. Again, with central location of limited facilities, maintenance of all required natural buffers, creative use of mounding and plantings, and other landscape treatments, the development impact on viewscapes and noise will be reduced to the extent possible.

6.0 – Project Schedule and Phasing

There are primarily four considerations when formulating a phasing plan for the implementation of an athletic field Master Plan: operational requirements (the need to keep some facilities in play); accomplishing the most high-use facilities first, priority of need for specific field types, and fiscal constraints. This discussion of phasing addresses each of the development strategies/alternatives described above.

6.1 Course of Action 1 – Aggressive Development of Snow Parcel and Limited Development of Pine Bluff.

It may be possible to complete the proposed Stow athletic field development in two phases: All facilities at Snow in Phase 1 in year one, and remaining facilities at Pine Bluff in year 3.

The goal of the Town would be to construct the synthetic and natural turf fields in the summer of 2008 at Snow, and if there is a synthetic turf component to the project, this field(s) would be usable to support the fall 2008 season as they are immediately available for use. Any natural turf fields at Snow, if seeded before Oct 1, 2008 would be available in late summer 2009. If sodded, they would be available in late spring 2009.

To achieve this goal, final Snow site design would commence in the summer of 2007, and project permitting would be completed by January 1, 2008. Construction plans and specifications would be completed by February 1, 2008 with a public bid period from February 1 to March 1, 2008. Construction contract award, mobilization, and submittal review would be complete by May 1, 2008. Construction could begin on June 1st and the synthetic turf project could be complete by the end of August. The other project elements would be completed by spring 2009. The majority of the comparable projects completed by Gale have essentially met this schedule.

The design and permitting of the second priority fields at Pine Bluff could be completed in 2008 with bidding and construction in 2009.

6.2 Course of Action 2 –Moderate Development of Pine Bluff Only

This 3 field project would be most cost-effective if built as a single-phase procurement. The goal of the Town would be to construct the fields in the summer of 2008 at Pine Bluff, and if there was a synthetic turf component to the project, this field(s) would be usable to support the fall 2008 season as they are immediately available for use. Any natural turf fields at Pine Bluff, if seeded before Oct 1, 2008, would be available in late summer 2009. If sodded, they would be available in late spring 2009.

To achieve this goal, final Pine Bluff site design would commence in the summer of 2007, and project permitting would be completed by February 1, 2008. Construction plans and specifications would be completed by March 1, 2008 with a public bid period from March to

April 2008. Construction contract award, mobilization, and submittal review would be complete by May 1, 2008. Construction could begin on June 1st and the synthetic turf project could be complete by the end of August. The other project elements would be completed by spring 2009.

6.3 Project Phasing/Schedule Conclusions

Upon approval of one course of action or the other, the initiating project would be designed, permitted and constructed in accordance with the flow chart provided as Enclosure 14. In either course of action, the top priority should be to compete the synthetic component of the project as part of the initiating project. Assuming that initiating project is designed in the summer fall of 2007, permitted in the winter 2007-2008, bid in the early spring 2008, and construction commences in May or June 2008, then play on the synthetic surface(s) could commence in the fall 2008 sports season.

7.0 – Estimated Project Costs

The preliminary project cost estimate for the Stow Athletic Field Master Plan is presented as Enclosure 15. This estimate is based upon very schematic quantities, and while suitable for preliminary project budget development, it is subject to change during the design development and permitting process. This estimate is consistent with recent bid results for analogous public projects at prevailing wage rates.

The estimate includes a construction contingency of 10%, and an estimate of "soft" costs for survey, geotechnical investigation, design, permitting, and construction administration, also taken as 10%. We have assumed that the project(s) would be public construction at prevailing wage in 2008-2009. We have assumed no "in-kind" services from Town contractors or donors.

One of the most expensive aspects of the project, and therefore one to which the cost estimate is most sensitive, is synthetic turf. We have assumed that the turf will be installed by an industry leader (e.g., Field Turf Pro-Series) at a cost of $4.90/S.F. or $500,000 for the carpet and infill alone.

We have also included the possible lighting of the synthetic turf field at Snow under Development Alternative 1 as an "Add" alternative. The lighting of this field by MUSCO Lighting using 60-80' towers results in a budget cost of $300,000. The concessions/restroom pavilion building will be approximately 40' x 40' at a cost of approximately $175 /S.F., or $280,000. This is also treated as an add alternate.

Under Development Alternative 1, the overall cost to construct the project as shown on the attached schematic drawings is approximately $1,715,100 for Phase 1 at Snow, and $and $884,000 for Phase 2 at Pine Bluff.

Under Development Alternative 2, the overall cost to construct the project as shown on the attached schematic drawings is approximately $1,821,000 for the single project phase at Pine Bluff.

8.0 – Summary of Permitting Requirements

The discussion of the likely permitting scenario will be limited to the first development option (Snow and Pine Bluff), as the permitting requirements for the Pine Bluff only development scenario are essentially the same.

8.1 Local Issued Permits

8.1.1 Wetlands Protection Act/Stow Conservation Commission. The Pine Bluff development will possibly involve work within 100 feet of a jurisdictional wetland resource area, and therefore be subject to permitting under the Wetlands Protection Act. Following formal delineation of the wetland area, the project will require a Notice of Intent filing with the Stow Conservation Commission. The filing will require complete sedimentation and erosion control design, stormwater management calculations, and an Integrated Turf Management Plan. The filing will include a noticed public hearing. Following the closing of the public hearing, the Conservation Commission will have 30 days to Issue an Order of Conditions, stipulating how the project is to be accomplished with respect to the wetland concerns. This Order is subject to appeal to DEP by abutters or other interested parties.

8.1.2 Site Plan Approval, Stow Planning Board. There are several aspects of the proposed developments which will likely trigger a requirement for Site Plan Approval with the Stow Planning Board, such as change in seating, change in use, change in lighting, and change in parking. The Site Plan Approval will require an application to the Planning Board and a noticed public hearing. The Planning Board will issue a record of decision after closing the public hearing.

8.1.3 Zoning Board of Appeals. It is not yet apparent whether the design of the Pine Bluff or Snow fields will require relief from Zoning regulations; however, one or both may. Any waiver or variance will trigger a filing with the Stow Zoning Board of Appeals and result in a noticed public hearing.

8.1.4 Miscellaneous Local Permits

Curb alteration. The project possibly involves modification of curb cuts/entrances off of Sudbury Street, Kingland Road, and Old Bolton Road, which we understand are local roads. The Town Engineer would be the permitting granting authority for this requirement.

On-Site Wastewater Treatment. Any modification to the on-site septic system at Pine Bluff or any new system proposed for Snow would require a Septic System Construction permit from the Stow Board of Health.

Building Permit. The construction of the concessions/rest room building will require a building permit. This will likely be "pulled' by the successful general contractor at the time of construction.

Well Permits. The development of on-site wells for either irrigation or potable water will require local permitting. The volume of water required (well less than 100,000 gallons per day) for irrigation will not trigger a state groundwater withdrawal permit requirement.

8.2 State Permits

At this point, it does **not** appear that the project would result in any state level permitting requirements. The possible exceptions are:

- **A DEP Superseding Order of Conditions** - if the local Order of Conditions from the Conservation Commission is appealed.

- **Massachusetts Environmental Protection Act (MEPA).** If the results of the intensive archeological survey at Pine Bluff results in its designation as a site of historical significance with the State Historical Commission, the development would require the preparation and filing of an Environmental Notification Form (ENF). Following the ENF review by the Secretary's office, a more comprehensive Environmental Impact Review (EIR) may be required.

8.3 Federal Permits

The project will require a permit application under the National Pollution Discharge Elimination System (NPDES) requirement and the Corps of Engineers Water Quality Certification. For these filings, the designer will need to prepare a Stormwater Pollution Prevention Plan (SWPPP). These permits will likely be issued under the general programmatic permit and not require public hearings or site meetings.

Section 9.0 – Maintenance Projections

Regardless of the athletic field expansion option the Town adopts, Snow plus Pine Bluff or Pine Bluff alone, the implementation of this Master Plan will result in the creation of some combination or synthetic and natural turf fields. Below is a very preliminary notional estimate of what is required to maintain each field by type.

9.1 Natural Turf Field Annual Maintenance Program

Task	Labor* (Man Days)	Materials**	Allowance
Winterize/Dewinterize/Repair Irrigation	3 MD	Parts	$500.00
Provide Irrigation weekly, .5-1 inch		400,000 gal	$2,500.00
Cut grass weekly x 20 weeks	10 MD	fuel	$100.00
Stripe Fields weekly x 20 weeks	10 MD	lime	$200.00
Fertilize per ITMP	2 MD	fertilizer, fuel	$400.00
Aerate, top dress, overseed, PH Adjust	4 MD	loam, seed, fuel	$200.00
General maint./fall & spring cleanup	4 MD	fuel	$200.00
	33 MD		$4,100.00

* Does not include supervisor time

** Does not include equipment capitol cost or depreciation

Based on this very rough estimate, the cost to maintain a high-quality natural turf athletic field annuals is 33 Man Days x 8 hours per day x an assumed labor rate of $24/hour, or $6,336 plus $4,100 in materials for a total of **$10,436**. Each community is different, as are maintenance policies; however, this is a reasonable figure.

9.2 Synthetic Turf Field Annual Maintenance Program

Task	Labor* (Man Days)	Materials**	Allowance
Groom w/ Groomer 6 per year	3 MD	(groomer part of field cost)	
General maint./fall & spring cleanup	2 MD	fuel	$200.00
	5 MD		$200.00

* Does not include supervisor time

** Does not include equipment capitol cost or depreciation

Based on this very rough estimate, the cost to maintain a synthetic turf athletic field annually is 5 Man Days x 8 hours per day x an assumed labor rate of $24/hour, or $960 plus $200 in materials for a total of **$1,160.**

This limited analysis does not take into consideration the need to replace the carpet of the synthetic turf field at about year 14-16. The current planning figure is $300,000 – $400,000.

This limited analysis also does not take into consideration the maintenance savings on other fields in the community based on the amount of demand that can be shifted to the very durable, low maintenance synthetic fields.

9.3 Maintenance Conclusions. Assuming that these rough estimates are suitable for planning purposes, then the additional maintenance costs to the Town or user groups for each of the two strategies above are:

Course of Action 1 – Intensive Development of Snow and Limited development of Pine Bluff

Synthetic Turf at Snow	$ 1,160
Natural Combination Field at Snow	$10,436
Natural Baseball field at Pine Bluff	$10,436
Natural Rectangular Field at Pine Bluff	$10,436
	$32,468/year

Course of Action 2 –Moderate Development of Pine Bluff

Synthetic Turf at Pine Bluff	$ 1,160
Natural Baseball field at Pine Bluff	$10,436
Natural Rectangular Field at Pine Bluff	$10,436
	$22,032/year

Section 10.0 – Overview of Synthetic Turf System Characteristics

Both courses of action anticipate the possible development of a synthetic turf combination field providing high-quality durable fields for baseball, soccer, lacrosse, field hockey and football in one footprint. The current generation of synthetic turf, called "In-Filled Turf" was first manufactured and patented by the company FieldTurf about 10 years ago, with the first such field in New England installed at UMASS Lowell in 1999 (designed by Gale). This generation of turf has fibers of polyethylene tufted into a 3-ply carpet backing which is then placed on a prepared stone base and anchored to a concrete curb which circumscribes the field. It is then top dressed with approximately 2 inches of sand and rubber crumb which affords the surface its footing and resiliency. See Enclosure 16 for synthetic turf cross sections and details. The primary advantages of this technology are high durability, low maintenance, environmental sensitivity, permanent markings, all-weather availability, improved safety, and immediate availability. The primary disadvantages are temperature and increased initial and replacement costs. This report will briefly discuss each of these attributes.

10.1 High Durability. It is well documented that a synthetic turf equals approximately 2.5 high quality grass field equivalents in terms of its ability to sustain use without degradation of the turf quality or safety.

10.2 Low maintenance. All of the intense maintenance requirements associated with well managed natural turf (mowing, striping, watering, fertilizing, etc.) are eliminated. The synthetic turf field comes with a specified groomer that can be towed by any truck or tractor. About once per month, the groomer is towed around the field to fluff up the fiber and level the infill.

10.3 Environmental Sensitivity. Because the synthetic turf requires no fertilizer or pesticides, it is considered by most to be more environmentally friendly than managed natural turf. Additionally, the USEPA has noted with favor that each field represents the recycling of some 12,000 tires. Finally, because the fields are not irrigated, there is a water savings of over 400,000 gallons per year (.5 inches applied over 100,000SF, weekly for 16 weeks).

Opponents of synthetic turf have recently raised questions of potentially dangerous leachate from the ground rubber crumb and possible health risks. There have been no studies that have demonstrated that under field conditions there are leachate or health risks. At Enclosure 17 is a compendium of technical papers addressing these questions which all conclude that these materials are inert under field conditions and pose no significant risk.

Gale provided the raw materials for several brands of synthetic turf to an independent testing lab at the request of the Town of Wayland, and had the Synthetic Precipitate leaching Potential Test (SPLP) performed in accordance with the EPA protocol to assess the long-term leaching potential of these systems. The test results of each product showed all

tested levels of contaminants at least 10 times below the state drinking water standard (Enclosure 18).

10.4 Permanent Markings. Fields may be permanently striped in various colors for between one and five sports. This eliminates the need for weekly striping of the fields and the resultant stripes are crisp and clear under all conditions.

10.5 All-Weather Availability. The fields are designed to drain vertically in excess of 16 inches per hour and can be played on during and immediately after a rain event without ponding or loss of footing. In the winter, they can be plowed with no effect on the 8-year warranty. These fields allow for practice and play a month earlier in the spring and a month later in the fall.

10.6 Immediate Availability. While no two sites are the same, the development of the synthetic turf field, from ground breaking to ribbon cutting, is typically 90 days. And once completed, it is immediately ready for use. This contrasts sharply from a seeded natural turf field where, depending on the time of the year seeding takes place, can take up to 18 months for satisfactory grow-in to allow for play.

10.7 Improved Player Safety. The previous generation of synthetic turf, the knitted nylon Astro-turf type surface, was known to be hard, abrasive like a brillo pad, and to have "foot lock" issues leading to knee and hip injuries. The current in-filled turf fields play like grass, and studies by leading sports medicine officials, the NCAA, and the NFL have concluded that it is as safe as a high-quality stand of natural turf. More importantly, it is much safer than a poorly maintained or broken down municipal field.

10.8 Increased Temperature. The in-filled synthetic turf fields tend to play somewhat hotter than natural turf fields. Each field that Gale has designed has had water couplings available close to the field to water it down if needed to mitigate the heat. Very few current field owners feel they need to cool the fields in this manner. In a recent survey of the owners of synthetic turf fields designed by Gale, 50% responded that they thought the heat differential was "no problem", 50% responded it was a minor problem, and no one responded that it was a moderate problem, significant problem or severe problem. No respondent had seen or heard of a heat-related injury related to the turf.

10.9 Initial and Replacement Costs. Clearly, the most significant disadvantage of the new in-filled synthetic turf is initial cost. As a rule of thumb, these fields cost $9 per square foot to construct with approximately $5 of this cost attributable to the carpet and infill alone. Given a typical 90,000 SF soccer field installation, the initial development cost can be around $800,000 at prevailing wage for public construction. The cost of a comparable, high-end irrigated, under-drained natural turf field is approximately $350,000. Over the 14-16 year life cycle cost comparison of these alternatives, the synthetic turf option is still slightly more expensive despite the maintenance savings over natural turf. However when the durability is factored in, the cost per use greatly favors synthetic.

10.10 Conclusions Related to Synthetic Turf. The synthetic turf field is equivalent to over two high quality natural turf fields. It can sustain three times the use, be available under all weather conditions, provide a safer playing surface, limit irrigation water use, and reduce maintenance costs. Given the demands for playing fields in the Town of Stow and the limited space and resources available to develop those needs, the synthetic turf option may prove to be a good investment, and we recommend that it be given strong consideration in this instance.

Section 11.0 – Conclusions and Recommendations

As detailed herein, the existing athletic facilities in Stow are obsolete, non-accessible, and require intensive maintenance and severely limited use to maintain a reasonably healthy and safe stand of natural turf. They are insufficient in number to meet the current and future requirements of the Town. Town fields require general redevelopment to gain compliance with applicable codes, to make better use of available space, and better meet the needs of the Town. Unfortunately, there are numerous constraints to redevelopment of existing facilities other than Pine Bluff and the results are not cost-effective solutions.

The Stow Athletic Field Master Plan detailed herein addresses these requirements and results in an arrangement of fields and facilities that will provide fully accessible, code compliant, geometry compliant, safe and efficient athletic and recreation infrastructure that will better enable the Town to meet its growing requirements. As reflected in the Demand Analysis Results Spreadsheet at Enclosure 13, with the addition of the fields proposed in this Master Plan under Course of Action 1, the field use rates fall within acceptable sustainable limits, assuming that the 60-foot Center diamonds remain in the mix.

If included, the resultant synthetic turf fields will be safer and extremely durable. It/they will provide an all-weather surface that will allow for significantly more use and will take the burden off other fields within the community. It will drain freely and require virtually no maintenance (water, fertilizer, pesticides, lime, aeration, top dressing, stripping, plowing, etc.), allowing for the diversion of maintenance resources to other fields.

The Master Plan provides a detailed project budget, phasing plan, schematic plan set, an estimate of maintenance requirements, and summary of permitting requirements that will provide a roadmap for the Town to achieve the intended Master Plan development.

Gale appreciates the opportunity to assist the Town with this planning effort and looks forward to future opportunities to assist with the Master Plan implementation.

MASTER PLAN FOR THE REDEVELOPMENT OF THE ATHLETIC FACILITIES

GALE

PROJECT APPROACH

Facilities Evaluation

- Facilities Evaluation
  - Safety Adequacy
  - ADA Accessibility
  - Serviceability
  - Geometry Conformance
- Zoning and Planning Research
- Geotechnical Investigation
- Environmental Site Assessment (limited)
- Traffic Assessment (limited)

Base Plan Development

- Existing Site Plans
- Assessors Maps
- USGS Maps
- FEMA Maps
- "As-Builts" Plans
- Utility Maps
- Aerial Photos
- Riverfront Delineation

Survey

1. **Interim Geotechnical and Utilities Report**
2. **Base Plan and Constraints**
3. **Condition Assessment Report**

Design Program Development

- Meet with Users
- Meet with Maintenance Staff
- Meet with C Athletic Staff
- Athletic Surfacing Site Visits/Interviews
- Meet with Town Official (if appropriate)
- Meet with Abutters (if appropriate)

Master Planning Program

- **Needs/Functional Requirements**
- **Establish Current Maintenance Practices**
- **Priorities**
- **Field Demand/Scheduling**

"Project Vision"

Draft Master Plan

- Capital Improvements/Redevelopment Alternatives
  - Preliminary Layouts (2-3 Alternatives)
  - Concept Designs (layout, grade, drain, landscape, etc.)
  - Preliminary Cost Estimate
- Immediate Maintenance Requirements
  - Renovations and Repairs
  - Priority/Need
  - Cost Estimate

Final Master Plan

- Final Layout Concept Plans
- Drainage Concepts
- Schematic Utility Plans
- Schematic Landscape Plans
- Preliminary Grading Plans
- Final Layouts in Color
- Final Cost Estimates
- Guide Specifications
- Permitting Assessment
- Short Term Maintenance Needs
- Maintenance Cost Estimate
- Proposed Phasing Plan
- Operations and Maintenance Projection

Master Plan Document and Presentation — **Project Advocacy**

Site Options Review

The Stow Recreation Directors Working Group (SRDWG) has been studying the land/site options available to the town for the creation of additional active recreation facilitates. This effort has been ongoing since October 2006. The review process has included the determination of the required land characteristics, review of the towns currently owned active and passive recreation land, review of land offered for sale to the town from the Board of Selectman's 2006 request for purchase of land for general municipal use and privately owned parcels identified by the SRDWG and others.

In mid-February with no other sites identified the SRDWG decided that the best parcels to pursue were the Pine Bluff Recreation Area (already owned by the town) and the Snow Property (a 13 acre flat, dry farm field that was offered to the town as a result of the Selectman's request to purchase land).

Determination of Land Characteristics:
Active recreation playing fields such as soccer fields and baseball diamonds require large, flat, dry parcels with adequate access. The geometry of the parcel must also be appropriate to fit large rectangle multipurpose playing fields. An example is an 11 v 11 soccer field which requires 350' x 220'. Efficient development and ongoing maintenance strategies dictate that multiple fields are clustered together. The aforementioned characteristics require a minimum useable area of at least 7 acres.

Active Recreation Land:
In light of over 2,000 acres of preserved open space within the Town of Stow, there is only 36 acres of active recreation land under the management of the Stow Recreation Commission. The 36 acres is split between two sites Memorial Field at Bradley Lane and the Pine Bluffs Recreation Area on Sudbury Road.

Memorial filed is sited on a 5 acre parcel located in the center of town. This parcel is located at the end of Bradley Lane a narrow dead end road off of Rt. 117. The entire parcel is used. It is configured with a 11 v 11 soccer filed and a 60' softball diamond. The parking area is shared with the town forest passive land and its hiking trails.

The Pine Bluffs Recreation area is sited on a 31 acre parcel located adjacent to Lake Boon. This parcel is accessed from Sudbury Road. The land was purchased by the town in 1975. Its use is limited to "recreation, playground and swimming". The site currently has a parking area, playground structure, 11 v 11 soccer field, small 6 v 6 soccer field, seasonal bathroom facility, and town swimming beach. There are approximately 22 acres unused. With exception of a small vernal pool the site is flat, dry and wooded.

Passive / Conservation Land:
The Town of Stow owns over 1,140 acres of open space conservation land. This land is under the management of the Conservation Commission. It's use is restricted to "passive recreation" only. This does not allow for any organized team sport activities. There is also an additional 1000+ acres of private, state and federally owned land located in Stow. The SRDWG has considered the conversion of "passive use restricted land" for active recreation. Discussions with members of Open Space and Conservation Commission committee has lead the SRDWG to consider options of other than passive land conversion.

Private Land:
A number of parcels of land were identified by the SRDWG, citizens, and land owners. The Crow Island parcel was not formally offered to the town to purchase. The owner did casually offer to sell the land for $2M. With exception of Crowe Island located within the Assebet River, the other parcels were not for sale, offered for lease/rent or not available for use. The SRDWG is looking to fund a majority of the development of the recreation facilities through the use of Community Preservation Act funds, Massachusetts Executive Office of Environmental Affairs Urban Development Self Help Grant Funds and other sources that can not be used on land not "owned" by the town. In some cases deed restrictions are required to be added.

Future Land Opportunities:
Although two parcels, Pine Bluff Recreation Area and Snow Property, have been identified, the intended development either one or both of these parcels will not fulfill the current or projected future need for additional recreation facilities. The SRDWG will continue pursue future land that becomes available.

GALE

RECREATIONAL MASTER PLAN
TOWN OF STOW

STATEMENT OF SCOPE

The goals of this project are:

- To review the Town's requirements as defined by the RFS Committee for athletic and recreation facilities currently, and in the future.
- To provide preliminary master planning, resulting in a well-integrated development plan for the King Land Recreation Complex (KRC) parcel site that best meets the needs of the community.
- To evaluate the feasibility of and to prepare schematic level master plans for the use of the parcel for expanded facilities.

This project would be completed in five phases as follows:

- Phase 1 - Background Investigation and Base Map Development
- Phase 2 - Site Investigation
- Phase 3 - Community Outreach and Facilities Program Development
- Phase 4 - Schematic Planning
- Phase 5 - Master Plan Development

Phase 1 - Background Investigation and Facilities Assessment and Base Map Development

Project Startup meeting. Gale will conduct an initial meeting with the RFS working group to review the final project scope, planning milestones, and to introduce the project team within 1-2 weeks of a notice to proceed. We will also begin the design program development, at this initial meeting.

Background Investigation. Gale will collect and review information bearing on the proposed development to include previous studies and surveys that have been performed, zoning, planning, health, and conservation regulations that may apply, and other related materials. Further, we will review applicable portions of the MA State Building Code and Americans with Disabilities Act, and the local and state permit requirements.

Assessment of Existing Facilities and Requirements. Gale will conduct a limited facilities inventory and condition assessment of the existing athletic facilities within the Town (e.g. Pine Bluffs and Bradley) to gain a general understanding of the current constraints and needs within the Town. This inventory will generally assess the current athletic facilities and conditions. Given the funding available and primary focus of this study (a Master Plan for KRC), this inventory will not include an in-depth assessment of

each venue, but rather a general assessment of available facilities and will be based largely on input from RFS and user groups.

Base Plan Development. Also during this initial phase, we assume the Town will assist Gale to compile information pertinent to the project as may be available, and Gale will develop a working base plan for the Complex in AutoCAD 2006 based on information provided by the Town and otherwise reasonably available. This will include, but not be limited to, site plan information available, surveys by others, assessor's maps, Stow GIS data (if any), USGS maps, FEMA floodplain maps, and any "as built" drawings for existing drainage and utility systems within the KRC and Snow Property (SP) parcels.

Using the available information, we will develop an existing conditions base plan for the parcels in AutoCAD 2006, suitable for Master Planning purposes. This base map will not include property line or easement research or topographic survey, nor will it include actual wetlands delineation/flagging or surveyed topography. These services will be required subsequently for detailed design and preparation of construction/bid documents.

Phase 2 – Site Investigation

Wetlands Assessment. Our wetlands specialist will provide a preliminary evaluation of the site's environmental resource area constraints as they bear on site redevelopment at both the KRC and SP parcels. This will include a site visit to generally sketch wetland resource area boundaries. We will generally assess the likelihood of critical habitat, vernal pools, and other sensitive environmental resource areas. Floodplain elevations will be based on existing FEMA mapping. This Scope of Services will not result in an actual delineation of the wetlands, (hanging flags, and location by survey) that will be required in the preparation of actual permitting plans in the future.

Utilities Study. Gale will assess existing utilities (electric, gas, wastewater, drainage, and water) as may exist within the parcels and within adjacent roadways, based on record locations and aboveground appurtenances. We will obtain and review record information related to the existing on-site system at the Pine Bluffs Recreation Area from the Board of Health.

Preliminary Traffic Assessment. Gale will provide a preliminary assessment of traffic implications for the proposed development. We will review any reasonably available traffic studies for other development in the area, and review available data from MassHighway or the Town related to local ADT and levels of service as may be reasonably available.

Based on the anticipated development scenarios, we will estimate additional peak hour trip generation and parking requirements. For both development scenarios, we will evaluate adequacy of parking, traffic and pedestrian movement, emergency vehicle access, and truck turning radii as appropriate.

GALE

Phase 3 - Program Development and Community Outreach

We will conduct a meeting with Town officials and user groups to refine the needs of the community and the associated priorities. We will meet with school and league officials to evaluate youth demographic trends and athletic team requirements. We would meet with various user groups as designated by the Town to include, as applicable, Youth Sport Boards such as Pop Warner, Babe Ruth and Little League, Youth Soccer, Youth Lacrosse, and others as appropriate. For purposes of this proposal, we assume that this can be accomplished in one evening meeting.

The intent of this meeting is to establish current demand on athletic facilities, identify shortfalls, establish priorities, verify desired field geometries, and desirable amenities (e.g., required on-site storage). We would evaluate the need for site improvements such as seating, site lighting, sports lighting, irrigation, concessions, public toilets, turf types, fences, etc. We will evaluate field requirements by user, how they are being met, and shortfalls. We assume that each user group representative will provide a summary of their program, growth trends, current field requirements, and unresourced field requirements, preferably in hard copy.

Based on the results of this initial round of programming/community outreach meeting, Gale would produce a design program tabulation with prioritized functional requirements for this site. We would look for the Town to review and concur with this design program prior to the development of design schematics.

This Scope of Services does not include a Town-wide needs assessment survey. Gale can provide such a survey if required for an additional fee to be determined.

Phase 4 - Schematic Design Development and Cost Estimates

Based on our background investigation, site assessment, base plan development, and community outreach/program development efforts, Gale will prepare up to two (2) schematic concept layouts for the Stow athletic facilities improvements, one for the KRC only scenario, and one for the KRC plus SP scenario. Gale will develop a preliminary site layout plan for the parcels to address demand shortfalls, the need to rest fields, access and safety issues identified, and the need for future growth. These will each reflect the proposed layout of athletic facilities to include: hard courts surfaces, multipurpose athletic fields, the types and locations of baseball/softball fields, parking provisions, on-site storage and site amenities, signage, site lighting (if any) and other significant site features.

The alternate layout plans for the Complex may be generally based on the following criteria:

- Orientation of the fields in consideration of prevailing winds and sun
- Orientation of the fields so as to maximize the use of available space and meet projected demand and priorities
- Optimal traffic flow (both pedestrian and vehicular); provide supplemental/overflow parking for special events (e.g., soccer tournaments)
- Sensitivity to environmental concerns; provide wetlands mitigation and replication as required (if any)
- Cost effectiveness and efficiency of the proposed redevelopment layout
- Optimal use of available space to meet demands such as redundant use of fields (e.g., one full size layout field meets the standard for two youth soccer fields in the transverse direction)
- Preservation of options for future development such as future site buildings
- Enhanced aesthetics throughout the site consistent with the character of the Town
- Localized and general drainage improvements; improvement of stormwater management practices
- Designation of landscape buffers to mitigate off-site impacts (noise, light, trash, and trespassing)
- Development of sufficient field space and a maintenance regimen that allows for resting fields during the fall or spring growth period.
- Development of site amenities to include spectator seating, storage, rest rooms, concessions, pavilion, etc.
- Provision of miscellaneous site equipment such as goals, trash receptacles, score boards, benches, bollards, etc.)
- ADA accessibility throughout
- Compliance with applicable governing body, state and federal geometry standards for fields
- Development of hardscape facilities (tennis and basketball, deck hockey, etc.) as called for in the program
- Engineered turf and rootzone design specific to the site and maintenance and use strategies
- Consideration of one or more multi-purpose fields incorporating synthetic field
- Identification of potential passive enhancements at the parcel such as eco-trails with interpretive signage
- Improvements to both site lighting and athletic lighting
- Irrigation facilities, possible well development
- Upgrade to required utilities (sewer, water, electricity)

The advantages and disadvantages and associated costs of each item alternative will be provided.

GALE

Phase 5 - Master Plan Development

Following the development of the athletic complex layout alternatives, Gale will meet again with RFS and designated user groups to present our preliminary findings and recommendations, and to obtain feedback and direction for the preparation of the final layouts (one meeting).

Based on the comments received and consensus layout, Gale will finalize the Master Plan layouts, cost estimates, product selections, etc. Cost estimates will be based upon data collected from having publicly bid over a dozen athletic and recreation redevelopment projects in just the past year. Estimates will include an estimate of "soft costs" for final engineering, survey, permitting and construction administration.

We will then consider the phasing of the Master Plan implementation. Phasing will consider priority of need, the need to keep a number of sites fully functional at any given time, and fiscal constraints. The phasing plan will clearly define the scope of the initiating project.

Based on the layout and phasing, Gale will define a permitting scenario which identifies the required permits, the filing requirements (to include filing fees), the likelihood of success and a permitting timeline.

Gale's final submission will be a bound Master Plan that will include the following deliverables:

- A compiled existing conditions base plan and constraints mapping for the Complex, based on information provided by the Town
- Photo documentation describing current conditions of KRC and SP
- A discussion of KRC and SP
- A discussion of KRC and SP environmental constraints
- A design program which identifies functional requirements and priorities
- A colored layout redevelopment plan for the Complex (computer, plan view only)
- A phasing plan for each project and project timeline for the Complex
- A cost estimate and breakdown for the Complex (by phase)
- A permitting requirements list and strategy

Note:

1. Based on the proposal fee, this Master Plan study will not address specific recommendations for the redevelopment of existing recreational facilities elsewhere in the Town, nor will it address the development potential of other parcels within the Town.

2. While we will check with the local and state historical agencies and determine if the site has known historical/archeological significance, this Scope of Services does not include an archeological study or survey.

3. This Scope of Services does not include:

   a. A formal traffic study.
   b. Topographic or property line study.
   c. A geotechnical investigation.
   d. A wetlands delineation or habitat study.

4. This study will not result in actual permitting or construction documents.

Photograph 1: View of Pine Bluffs Field, large wet depression in the middle field. The home in the background is on the opposite side of Sudbury Road.

Photograph 2: View of low saturated depression in the middle of Pine Bluffs soccer field.

Photograph 3: View of Kingland Rd.

Photograph: 4 View of Memorial Field at Bradley Lane

Photograph 5: View of the Center School playground and Fields and background.

Photograph 6: View of Hale School Field, foreground show the change in grade.

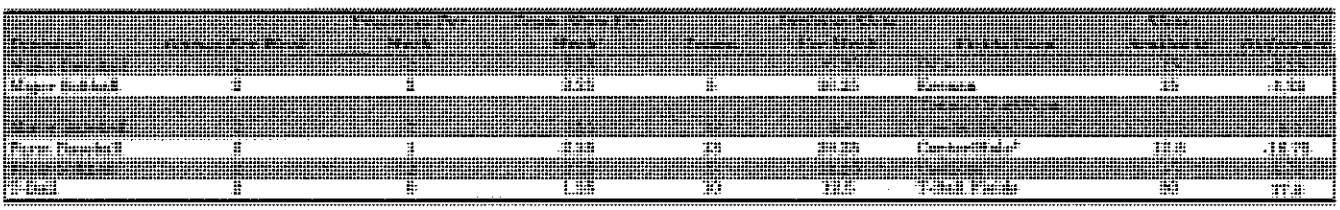
Photograph 7: View of "Pompo" fields. The background is the 6 vs. 6 field which is used regularly by Stow Soccer. The foreground is the 6 vs. 6field which is used during extremely dry conditions.

Photograph 8: "Pompo" Field note the jurisdictional buffer between the fields and on the left hand side of the fields.

Asabet Valley Little League
Summary Table

Field	*Type*	*Physical Limitations*	*Location*	*Condition*	*Usage*	*Availability*	*Slots Per Week*[1]
D.J.'s	60' Baseball	None	Maynard High School (Maynard)	Excellent	Major baseball	After 5pm weekdays; most weekends	15
Keenan	60' Softball (skinned)	None	Maynard High School (Maynard)	Excellent	Major softball	After 5pm weekdays; most weekends	15
Tennis Court	60' Baseball	No outfield fence; outfield grass requries work every spring after freshman football season	Maynard High School (Maynard)	Fair	Minor baseball	After 5pm weekdays; most weekends	15
New Fowler	60' Baseball/Softball Hybrid (grass infield)	No outfield fence; no mound from shard use with Mayard Middle School softball	New Fowler Middle School (Maynard)	Fair	Minor baseball	After 5pm weekdays; most weekends	15
Coolidge	60' Softball (pebbled infield)	No outfield fence; pebbled surface prevents sliding	Coolidge School (Maynard)	Poor	Farm softball	After 5pm weekdays; most weekends	15
T-Ball fields	90' Diamond/Multi-use open grass	Unmaintained; Incorrect field dimensions; no fencing on secondary open field diamonds	Maynard High School (Maynard)	Poor	T-Ball	After 5pm weekdays; most weekends	30
Hale	60' Softball (skinned)	No outfield fence	Hale Middle School (Stow)	Good	Minor and Farm baseball	After 5pm weekdays	5
Center Left	90' diamond baseball	No outfield fence; incorrect field dimensions	Center School (Stow)	Poor	Farm baseball	After 5pm weekdays	5
Center Right	60' baseball	No outfield fence; no dugout fencing	Center School (Stow)	Poor	Farm baseball	After 5pm weekdays	5

[1] *Weekdays after 5pm allow for a single 2 hour slot. Weekend days allow 5 for 2 two hour slots (8am-10am; 10am-12pm; 12pm-2-pm; 2pm-4]*



[2] *Two teams share a field during a game only so each game only requires ½ a slot. In order to have slots to make up rainouts we assume one out of every four games is rained out. We do not make up rained out practices.*
[3] Split Hale bewteen Minor and Farm baesball

Notes
1. T-Ball and Farm softball are the only fields which can support the number of teams we have scheduled to play there.
2. We cannot use the surplus of of field slots on Coolidge and the T-Ball for other divisions because of the poor field conditons.
3. The short fall in the other divisions totals 25.75 2-hour slots.
4. Assuming a full-time field provides 15 2-hour slots per week, AVLL last year could have fully used 2 more full-time fields.
5. These are 2006 numbers and do not account for growth.
6. AVLL typically grows around 5% each year, although we have had spikes as high as 10%.
7. The greatest shortfall in fields occurs in the Farm baseball division. We deal with this by not scheduling practices during the season. This is unfortunate because the Farm level is where children could benefit most from practice.
8. Stow accounts for 46% of the children in the Assabet Valley Little League.
9. Stow provides 12.5% of the field time available to AVLL.

Soccer

	Munchkins	Transitions	U8	U10 BOYS	U10 GIRLS	U12 BOYS	U12 GIRLS	U14 BOYS	U14 GIRLS	U16 BOYS	U16 GIRLS
Age	4-5	5-6	6-7	8-9	8-9	10-11	10-11	12-13	12-13	14-15	14-15
Sex	M/F	M/F	M/F	M	F	M	F	M	F	M	F
# Teams	1	1	10-11	6	6	2	3	1	1	1	1
# of Players	60	60	110	60	60	30	42	18	18	18	18
Season Length	8 weeks (Fall& Spring) + 8 week summer leagues										
Season Played	2 + summer league										
Projected Growth (5 yrs)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Past Growth (5 yrs)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Present Field Uses and Locations (Games)	Pompo	Center	Center/ Pompo	Pine Bluff							
Practices	n/a	n/a	Pompo/Center/Pine Bluff/Bradley								
Field Size	55x70 yds		50x60 yds			55x70 yds		60x100 yds			
Field Condition	Poor										
Field Amenities	None										

Multiple Camps Throughout Summer at Pine Bluff
Adult Pick-up Games April-October at Bradley or Pine Bluff
Bradley and Pine Bluff also support MAPLE soccer practices and matches, and women's league soccer

Men's Softball

Age		Adult
Sex		Men
# Teams		16
# of Players		160
Season Length		May-Labor Day
Season Played		Summer
Projected Growth (5 yrs)		None - At Max Capacity
Past Growth (5 yrs)		None - At Max Capacity
Present Field Uses and Locations		Memorial Field on Bradley Lane
Field Size		60 Ft. Diamond
Field Condition		Poor
Field Amenities		Backstop

Nationally Mens Softball grows at a rate of 5 to 7%.

Women's Soccer

	Over 30		Over 40
Age	30+		40+
Sex	Women		Women
# Teams	1		1
# of Players	15		15
Season Length	10 weeks		10 weeks
Season Played	spring/fall		spring/fall
Projected Growth (5 yrs)	none		none
Past Growth (5 yrs)	none		none
Present Field Uses and Locations	Pine Bluff		Pine Bluff
Field Size	11v11		11v11
Field Age	13 yrs		13 yrs
Field Condition	poor		poor
Field Amenities	none		none

Club Soccer

Bandits

	Games		Practices
Age	Youth		Youth
Sex	Boys and Girls		Boys and Girls
# Teams	6		3
# of Players	60		30
Season Length	10 Weeks		10 Weeks
Season Played	Spring and Fall		Spring and Fall
Projected Growth (5 yrs)	NA		NA
Past Growth (5 yrs)	NA		NA
Present Field Uses and Locations	Memorial Field at Bradley Lane		Pompositticut School
Field Size	11 v 11		11 v 11
Field Condition	Poor		Poor

Games on Sunday, noon to 6 PM Games on Sunday, noon to 6 PM
Practice at Pompo Saturday morning Practice at Pompo Saturday morning 11:30 to 2:30 (3 teams)

Babe Ruth

		Spring		Summer		Fall
Age		13-15		13-18		13 - 18
Sex		M		M		M
# Teams		5		5		2
# of Players		65		65-70		30
Season Length		3 months		3 Months		2 months
Season Played		Spring		Summer		Fall
Projected Growth (5 yrs)		10-15 players per year		None		none
Past Growth (5 yrs)		Added 2 expansion teams		60 - 65 players		30 players
		24-28 players				
		Crowe Park - Maynard		Crowe Park - Maynard		Crowe Park - Maynard
Field Size		90 ft diamond		90 ft diamond		90 ft diamond
Field Age		15 years		15 years		15 years
Field Condition		O.K		O.K		O.K
Field Amenities		Concession stand, Porto-Pot, Batting Cage		Concession stand, Porto-Pot, Batting Cage		Concession stand, Porto-Pot, Batting Cage

One field in Maynard. Servicing both Maynard and Stow. Constant use 9 AM to 6 PM most weekends and near constant use weekdays during the summer.

The summer program consists of 4 Lou Tomkins All Star Teams (13 yr old, 13/14 year old, 15/16 year old & 16 -18 year old) and one Babe Ruth team for the players who do not make the all star team. Crowe Park is used 7 days a week for practice and games. Maynard hosted 2 Lou Tomkins tournaments last year and will probably host them again this year. Crowe Park does not get any rest from the end of March to the first of November. We are hoping to use the middle school field this summer because of possible scheduling conflicts but their field isn't in the greatest shape.

The fall league consists of 2 teams (13-15 & 16-18). They play their games on weekend days and the field isn't really used during the week for practice.

Lacrosse

	Development	U11 Boys	U13 Boys	U13 Girls	U15 Boys	U15 Girls
Age	U9	Grade 3,4	Grade 5,6	Grade 4,5,6	Grade 7,8	Grade 7,8
Sex	Boys	Boys	Boys	Girls	Boys	Girls
# Teams	1	2	2	1	3	1
# of Players	16	45	43	16	57	14
Season Length	12 -14 weeks	12 -14 weeks	12 -14 weeks	12 -14 weeks	12 -14 weeks	12 -14 weeks
Season Played	Spring	Spring	Spring	Spring	Spring	Spring
Projected Growth (5 yrs)	100	100	100	200	100	200
Past Growth (5 yrs)	NA	NA	NA	NA	NA	NA
Present Field Uses and Locations	Bolton	Bolton	Bolton	Bolton	Bolton	Bolton
Fall Ball	--	25	35	--	40	--

Fall Ball (fall 2006 was first season, all played in Bolton at Tower field)

Adult leagues play in Sudbury at Lincoln/Sudbury High School

Current Field Needs Assessment

Program	Number Participants	Percent Stow	Teams	Weeks	Events Per Week	Scheduled Team Uses	Projected Growth	Projected Tm Uses	Town Share	Current Fields	Tm Use Availability	Deficit	Required Fields*	Program Recommend
Lacrosse	225	50%	10	14	3	420	50%	630	315	0	0	-315	-1.3	1-2 fields
AVLL	580	50%	54	14	3	2268	5%	2381	1191	3	750	-441	-1.8	1-2 fields
Soccer	624	100%	45	24	2	2160	5%	2268	2268	5	1250	-1018	-4.072	3-4 fields
Babe Ruth	160	50%	12	32	1.5	576	5%	605	302	0	0	-302.4	-1.2096	1 field
Adult Softball	160	100%	10	14	1.5	210	5%	221	221	1	250	none	no change	no change
											(does not consider use of rectangualr field)			
Totals	1749		131			5634		6104.7						

<u>Assumptions:</u>

1. The Town intends to provide the prorated share of field space based on percent of Stow participants

2. The (2) 60-ft diamonds at Center remain as part of field inventory, long term.

3. The fiedls are properly maintained and can sustain 250 scheduled team uses per year.

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PROJECT
STOW ATHLETIC COMPLEX
STOW, MA

OWNER
RECREATION FOR STOW COMMITTEE
375 GREAT ROAD
STOW, MA 01775

REVISIONS

NO.	DATE	DESCRIPTION

CADD FILE	
DESIGNED BY	
DRAWN BY	WAH
CHECKED BY	
DATE	4/17/07
DRAWING SCALE	1"=100'-0"

GRAPHIC SCALE

SHEET TITLE
EXISTING CONDITIONS AERIAL

DRAWING NO.
C-1A

PROJECT NO. 712290

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DRAWN BY	WAH
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DATE	4/17/07
DRAWING SCALE	1"=100'-0"

GRAPHIC SCALE

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SHEET TITLE

EXISTING CONDITIONS

DRAWING NO.
C-1

PROJECT NO. 712290

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DESIGNED BY	
DRAWN BY	WAH
CHECKED BY	
DATE	4/17/07
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GRAPHIC SCALE

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C-1A

PROJECT NO. 712290

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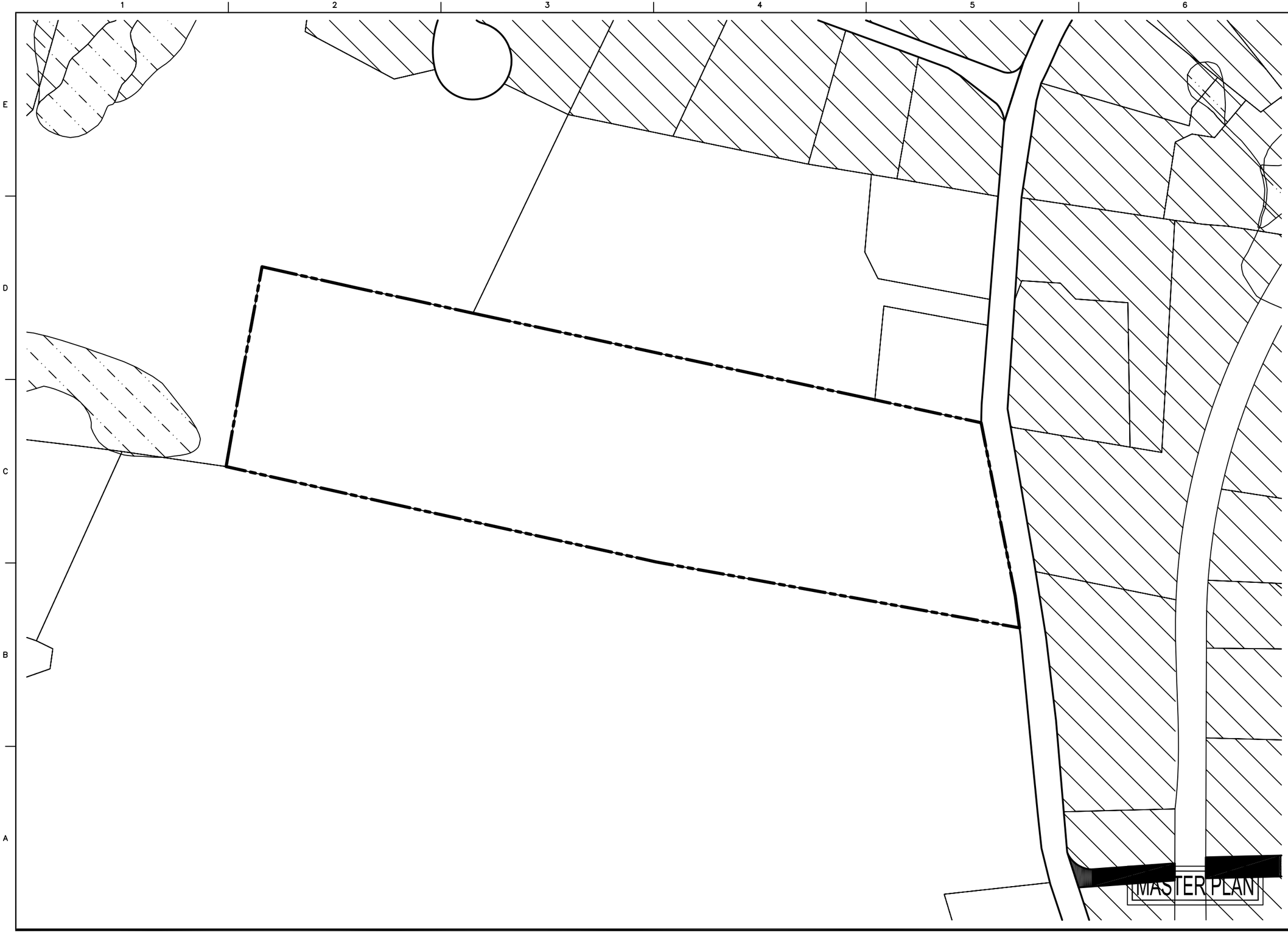

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GRAPHIC SCALE

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SHEET TITLE

EXISTING CONDITIONS SNOW PROPERTY

DRAWING NO.

C-1

PROJECT NO. 712290

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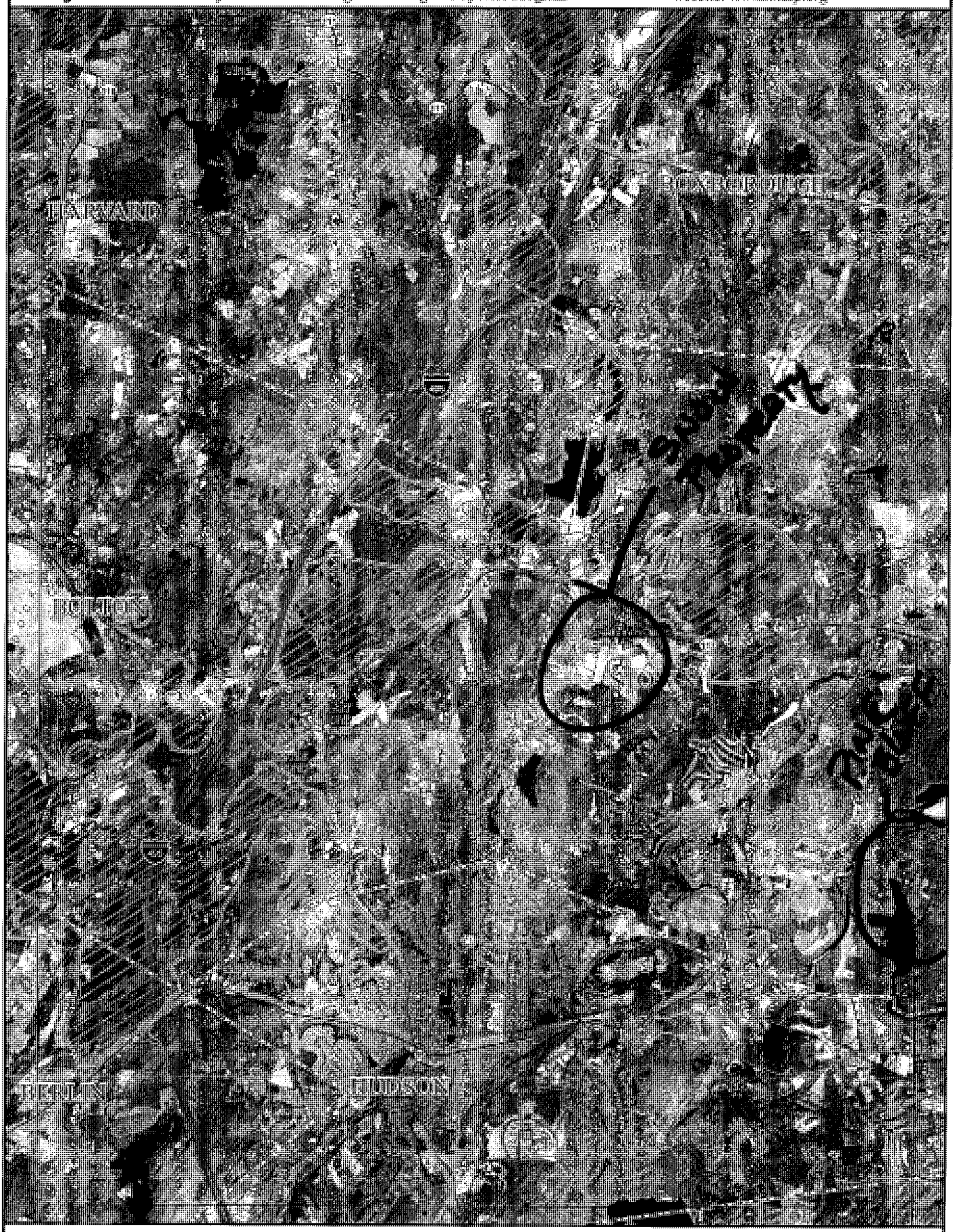
Priority Habitats and Estimated Habitats - Effective October 1, 2006

Priority Habitats for use with the MA Endangered Species Act Regulations (321 CMR 10)
Estimated Habitats for use with the MA Wetlands Protection Act Regulations (310 CMR 10)

Produced by the Natural Heritage & Endangered Species Program website: www.nhesp.org



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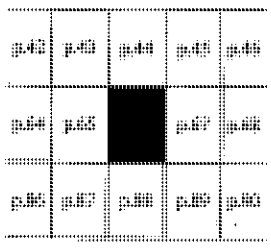


Priority Habitat of Rare Species

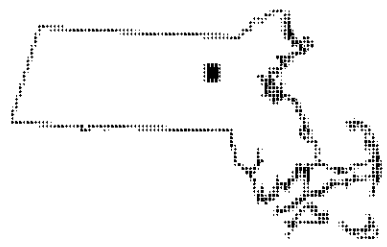
Priority Habitat of Rare Species and also Estimated Habitat of Rare Wildlife

Certified Vernal Pool (as of July 14, 2006)

N

0 0.5 1 2 Miles

Hudson Quad



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CADD FILE	
DESIGNED BY	
DRAWN BY	WAH
CHECKED BY	
DATE	4/17/07
DRAWING SCALE	1"=150'-0"

GRAPHIC SCALE

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SHEET TITLE

EXISTING CONDITIONS SNOW PROPERTY USGS

DRAWING NO.
C-1B

PROJECT NO. 712290

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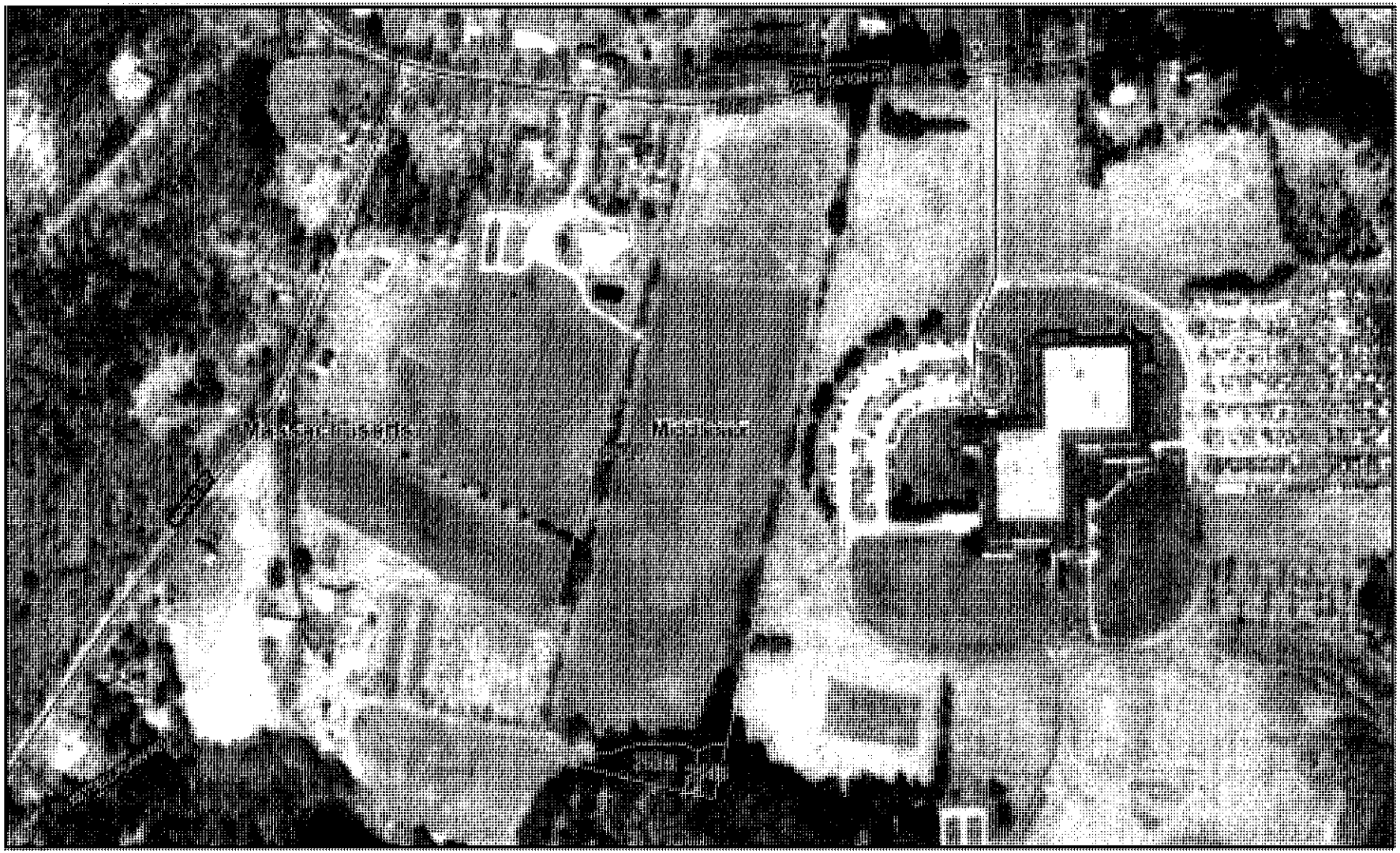
SOIL SURVEY OF MIDDLESEX COUNTY, MASSACHUSETTS

SNOW PROPERTY



Meters
0 35 70 140

Feet
0 100 200 400 600 800

Map Unit Legend Summary

Middlesex County, Massachusetts

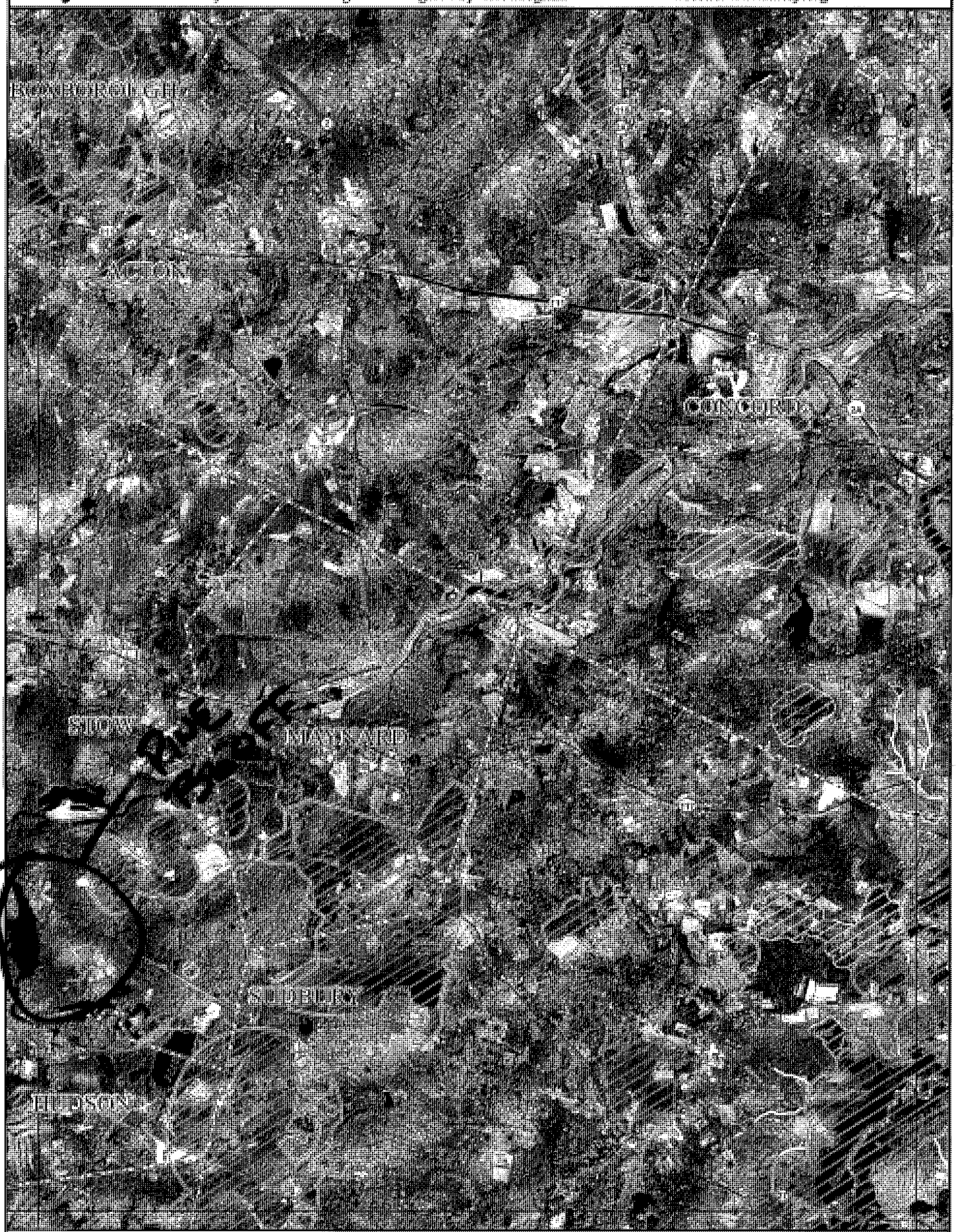
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
253B	Hinckley loamy sand, 3 to 8 percent slopes	0.4	2.7
254A	Merrimac fine sandy loam, 0 to 3 percent slopes	14.0	86.4
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	1.8	10.9

Priority Habitats and Estimated Habitats - Effective October 1, 2006

Priority Habitats for use with the MA Endangered Species Act Regulations (321 CMR 10)

Estimated Habitats for use with the MA Wetlands Protection Act Regulations (310 CMR 10)

Produced by the Natural Heritage & Endangered Species Program website: www.nhesp.org



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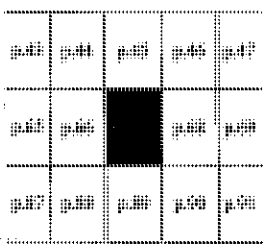


Priority Habitat of Rare Species

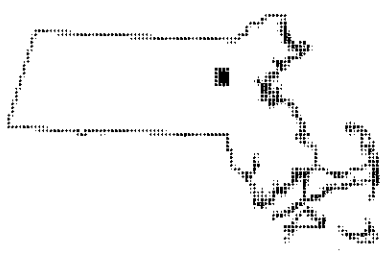
Priority Habitat of Rare Species and also Estimated Habitat of Rare Wildlife

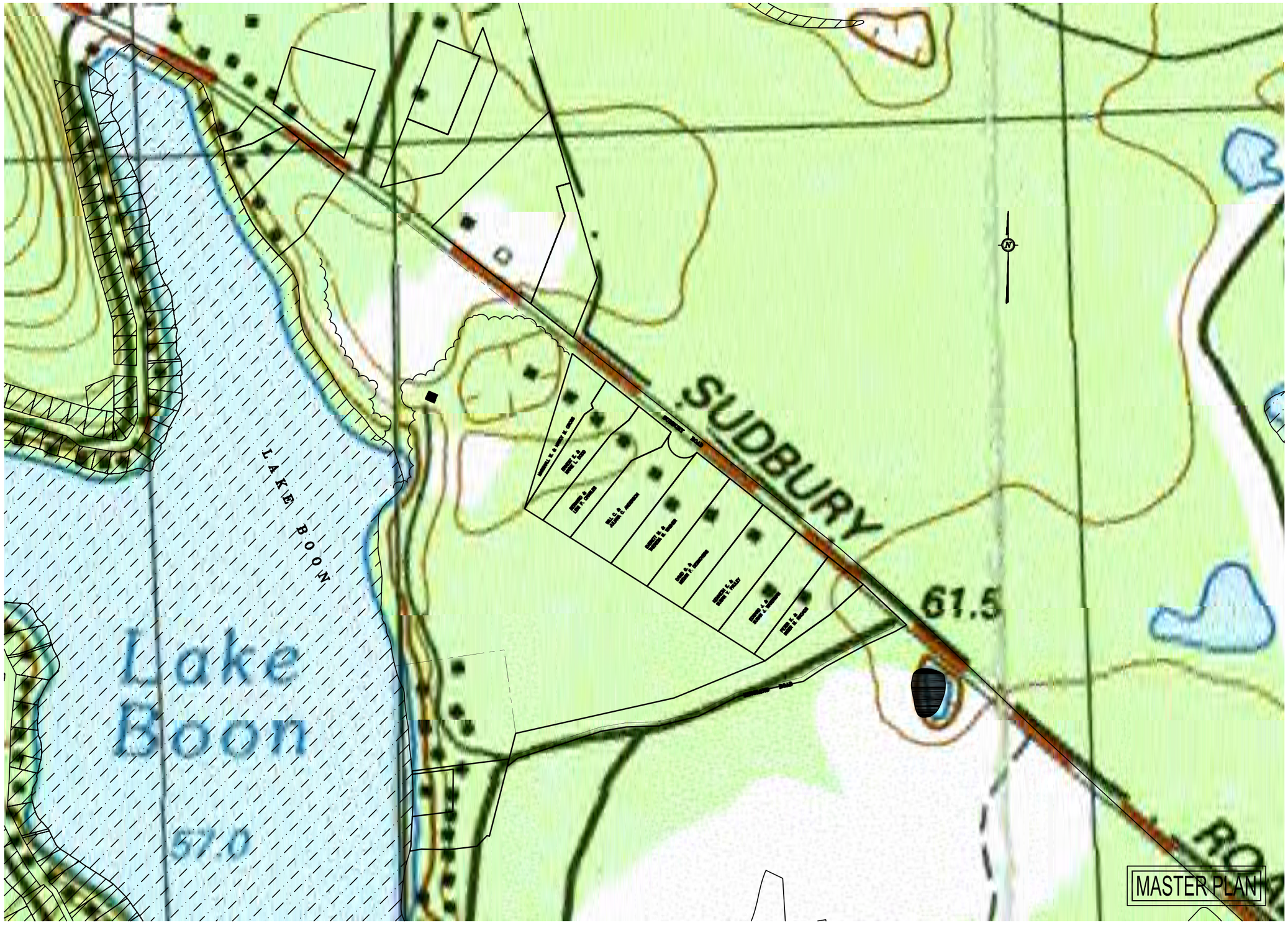
Certified Vernal Pool (as of July 14, 2006)

N

0 0.5 1 2 Miles

Maynard Quad





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DATE	4/17/07
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GRAPHIC SCALE

0 150' 300'

SHEET TITLE

EXISTING CONDITIONS PINE BLUFF USGS

DRAWING NO.
C-1B

PROJECT NO. 712290

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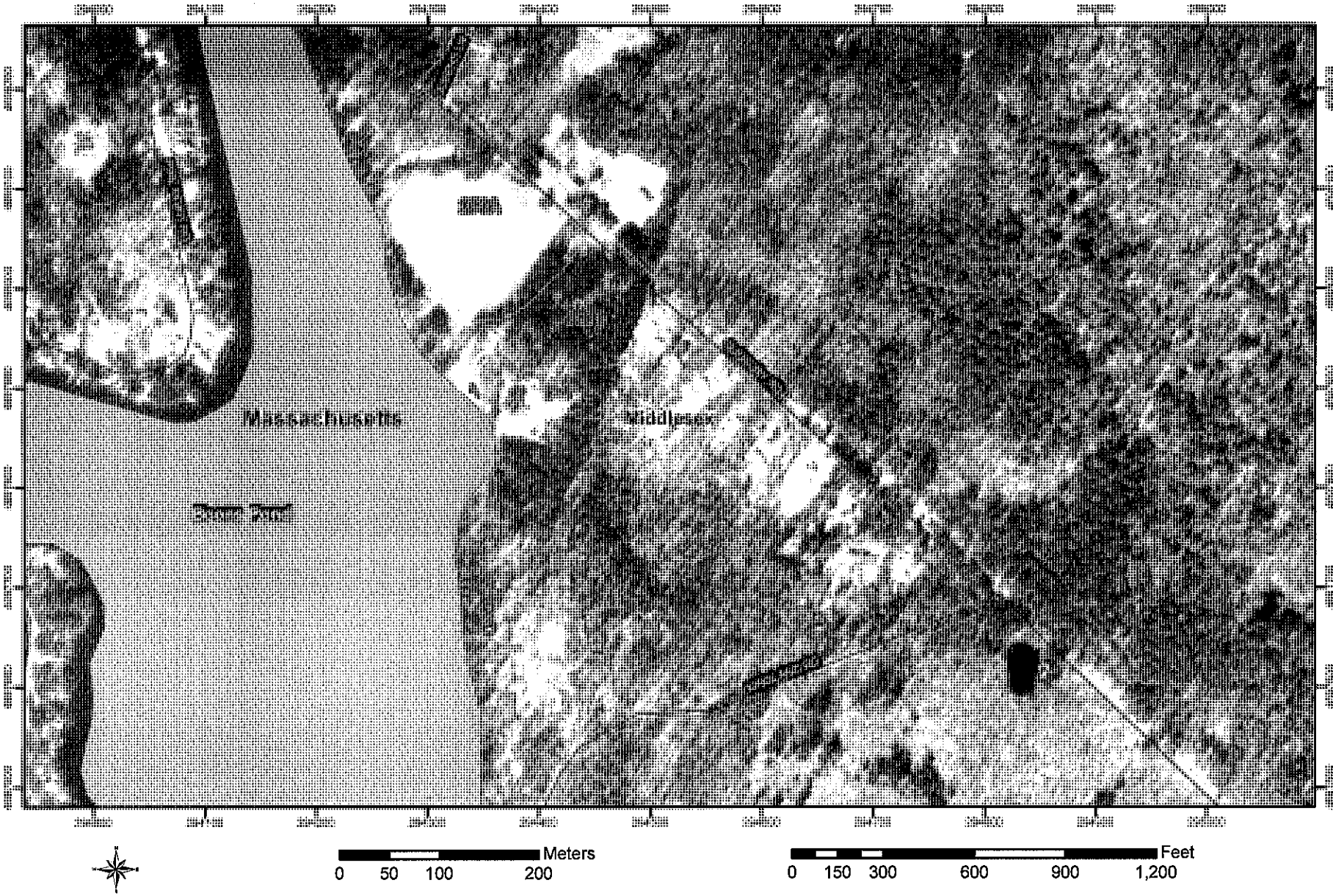
PINE BLUFF



Map Unit Legend Summary

Middlesex County, Massachusetts

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Water	0.3	0.6
253A	Hinckley loamy sand, 0 to 3 percent slopes	33.2	66.0
253D	Hinckley loamy sand, 15 to 25 percent slopes	8.2	16.2
259A	Carver loamy coarse sand, 0 to 3 percent slopes	8.6	17.1

Findings from the Review of the Snow Property Located on Old Bolton Road

Document revision-C, 13FEB06

Table of Contents:

Introduction:

Per request of the Stow Board of Selectman the following group was formed to review the Snow Property located on Old Bolton Road, Map/parcel number R3-18:

Eric Bachtell.....Stow Housing Partnership
John Sangermano.....Stow Recreation Commission
Steve Dungan.....Board of Selectman
James Wheeler, PE.....Stow Resident, Geotechnical Engineer

The group compiled and reviewed maps and soils information. A walk of the land was done on February 7th, 2006. This document was created as a compilation of the data and observations.

Summary:

- The land is cleared and flat, thus making most forms of development an easier task.
- By both map based soils analysis and a site visit the land can be seen to drain easily and should provide excellent percolation rates to support a septic system if needed.
- The proximity to a known aquifer and data regarding surrounding water sources should mean that a good water supply is readily available.
- Access to the site is very good. Old Bolton Rd. in the area of the site is wide with a large, flat, shoulder area and seems to be able to support added traffic. The site is located in very close proximity to Rt. 117 – Great Rd.
- The group did not find anything problematic with the Snow site.
- The property could be easily developed for a multitude of purposes such as municipal uses, recreation, affordable housing, continued farming, etc.

Findings:

Location:

The property is located ¼ of mile from the intersection of Old Bolton Road and RT. 117 Great Road. It is on the south side of the road adjacent to the Bose property. It is represented on the Assessors Map page R-3, parcel-18. The entire parcel is visible from Old Bolton Road. Old Bolton road is paved, sufficiently wide for vehicles to pass, is straight and flat in the area of the Snow Property.

Zoning, Chapter Status, Restrictions/Encumbrances:

The entire parcel is Residentially Zoned. It is not under Chapter-61. There was no deed or title search performed as part of this review and therefore there is no information regarding restrictions or encumbrances.

Lot Size and Dimensions:

The parcel is 13 acres in size.
It is rectangular in shape and is approximately 385 feet wide by 1475 feet long.
See Appendix-A, Map with Map and Parcel Information and Dimensions for details

Soil Review:
A Surficial Geologic Map was reviewed and the information presented on the map was confirmed during the site visit.

Soil Type: Based on this information, it is anticipated that the subsurface soils at the site consist primarily of clean, fine to coarse sand, with some cobbles noted particularly in the north half of the site. The coarser grained soils noted at the north end of the parcel corresponds with the fact that historically, a sand and gravel operation was conducted on this portion of the site along Old Bolton Road as shown on the soils map.

Soil Drainage: These granular soils, deposited as part of a glacial lake delta (Kame Terrace), are quite permeable and are well suited for on-site septic disposal.

Ground Water: Based on the surface water elevations at the Hiley Brook wetland area to the north and the wetland area and irrigation pond to the southwest of the parcel, it is anticipated that the groundwater levels at the site may be anticipated to be 10 to 20 ft. below ground surface. In addition, based on the parcel's location, close to these water sources, it is anticipated that the sand and gravel deposits beneath the site and the adjacent wetlands comprise an aquifer layer that should ensure a reliable source of groundwater.

Soil Based Construction Data: From a construction standpoint, it is important to note that the site has already been cleared and is relatively flat and should therefore not require significant grading. In addition, excavation should not be anticipated to encounter near surface bedrock.

See map, Appendix-B, Surficial Geology – USGS Hudson/Maynard Quad Surficial Mapping, 1956 for details.

Topography:
The land is flat. There is a small depression about 2/3 into the depth of the parcel as viewed from Old Bolton Road. The parcel was visited following a week of rain and snow melt. There was no visible standing or flowing water on any area.

Aesthetics:
The parcel is bordered on all sides by nicely stacked, straight, fieldstone walls. It is an open field with recently tilled soil from its' current farming use. There are mature trees and brush along the perimeter of the property. See Appendix-C, Photographs for details.

Adjacent Property:
The east side is entirely adjacent to two separate parcels owned by Bose. The adjacent Bose parcel nearest to Old Bolton Rd. is residentially zoned and therefore not currently useable for Bose's commercial operation. This parcel is about 6-3/4 acres in size. It has 515 feet of frontage on Old Bolton Road (directly adjacent to the Snow property's frontage). It has a gated driveway and no structures. The second parcel is industrially zoned and contains the Bose campus and operating infrastructure.
The west side is adjacent to three residentially zoned lots; a.) Starting from Bolton Road, the first lot shares a 210 foot border, has a home it and is about 1 acre in size; b.) the next lot shares a 797 foot border, has a house, green houses and other small structures, is 7.01 acres in size and is currently under Chapter-61A; c.) the last lot is referred to as

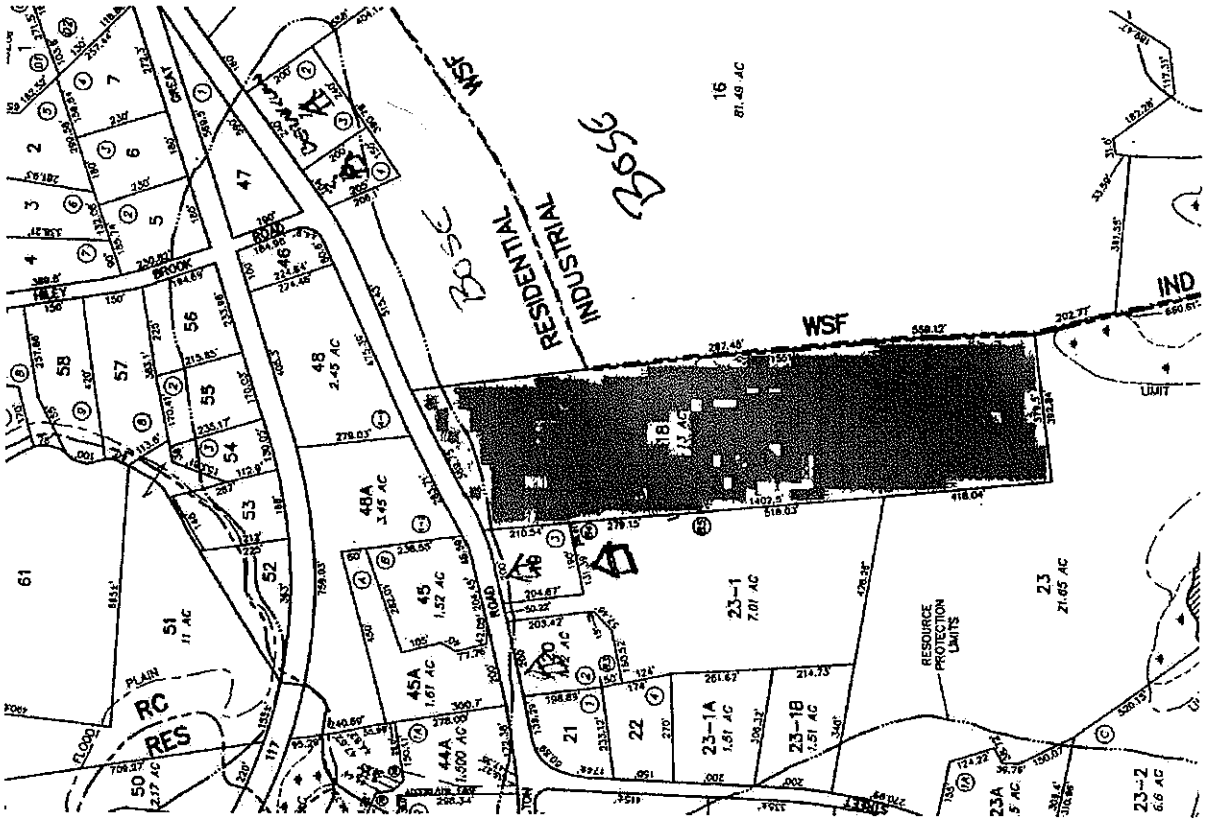
the Moseley farm, it is 21.65 acres in size, shares a 418.04 foot border, this land is currently under Chapter-61A and also has an Agricultural Preservation Restriction in place.
The north side is adjacent to the aforementioned Moseley farm.
The south side is Old Bolton Road.

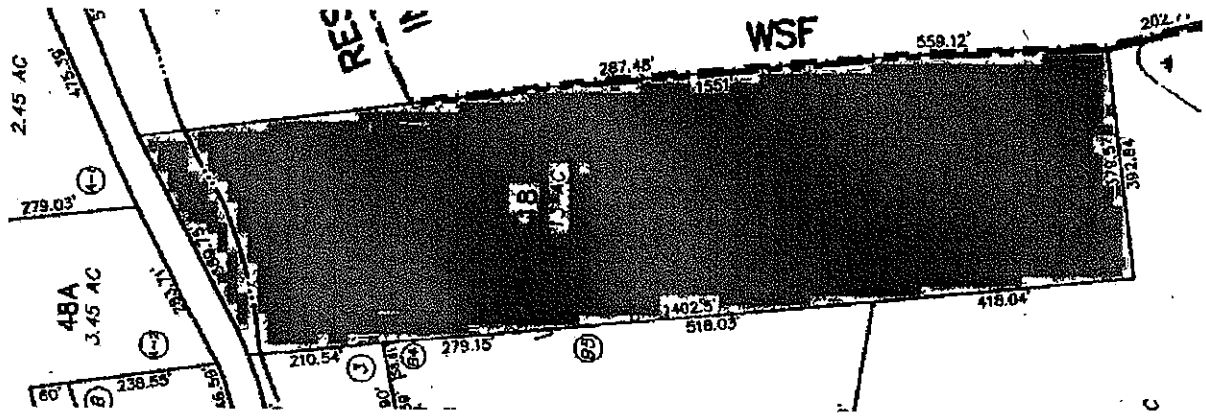
The land opposite this parcel on Bolton Rd. is listed as Chapter-61 land consisting of two parcels 3.45 and 2.45 acres in size. These parcels also have a combined frontage about 1,160 feet on Rt.117 – Great Road.

See Appendix-D, Chapter-61 Land Map for more details

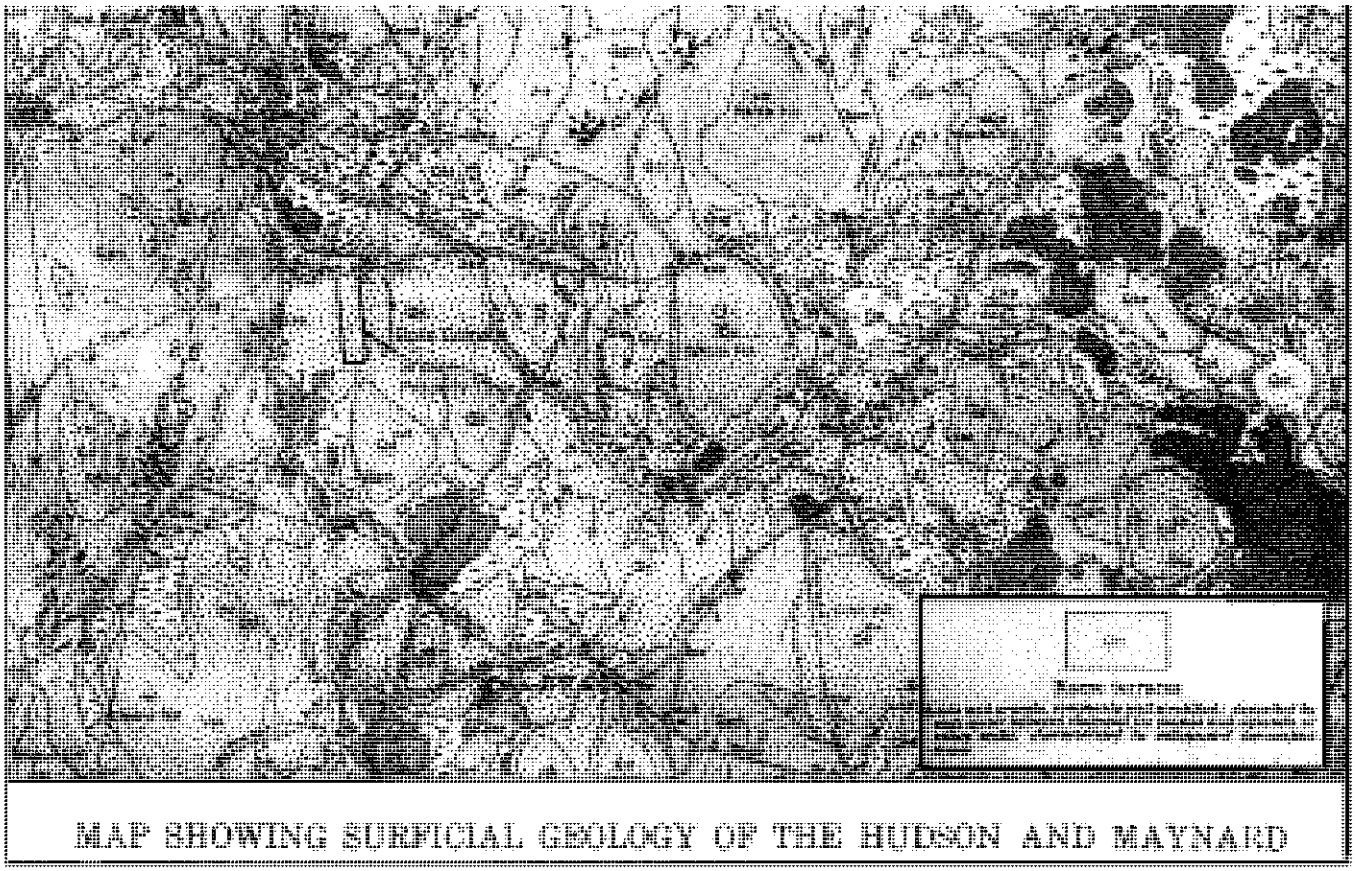
Current Use:
The land has been leased on an annual basis to an abutter for agricultural/farm use (Steve Mong, Applefield Farm). The property is part of a patch work of agricultural fields that comprise the farming operation.

Appendix-A , Map with Map and Parcel Information and Dimensions

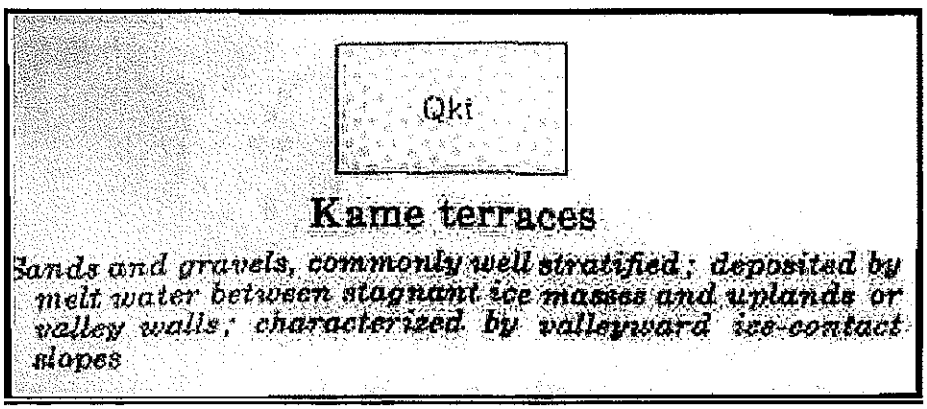




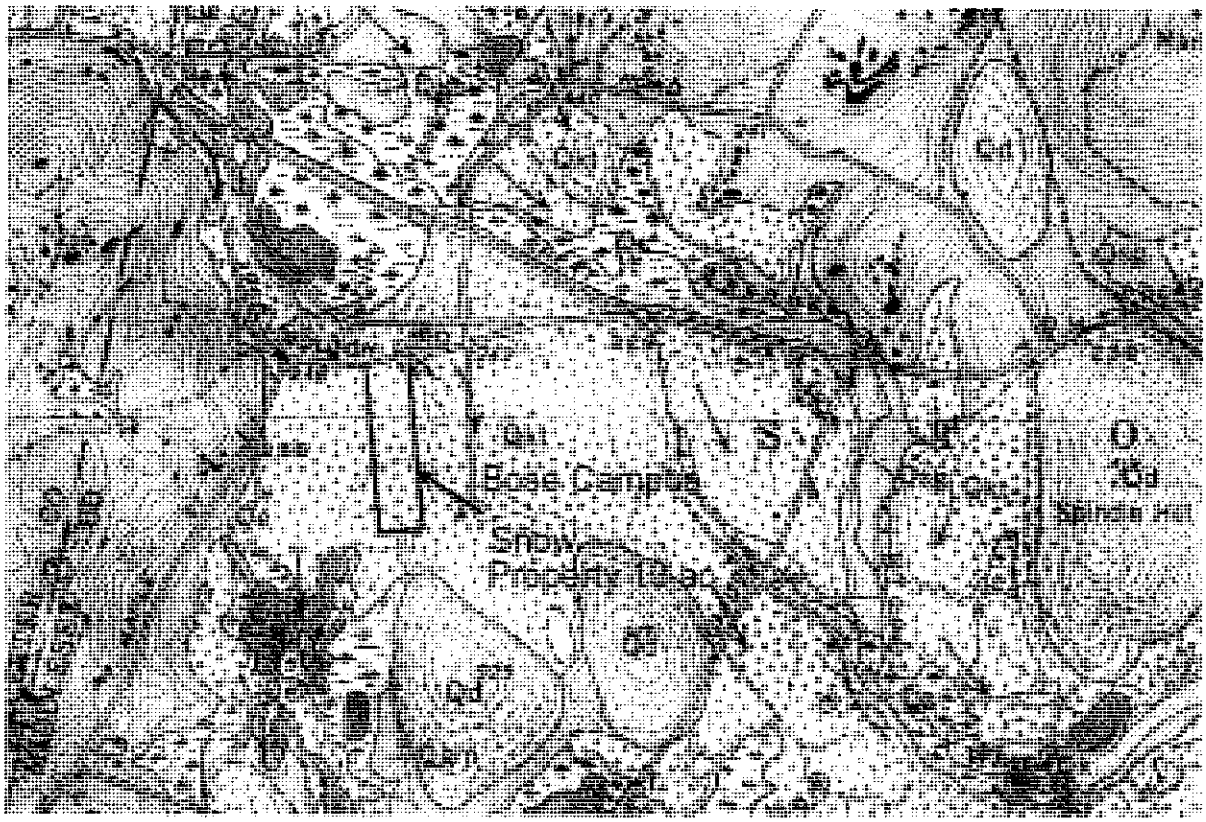
Appendix-B, Surficial Geology – USGS Hudson/Maynard Quad Surficial Mapping, 1956



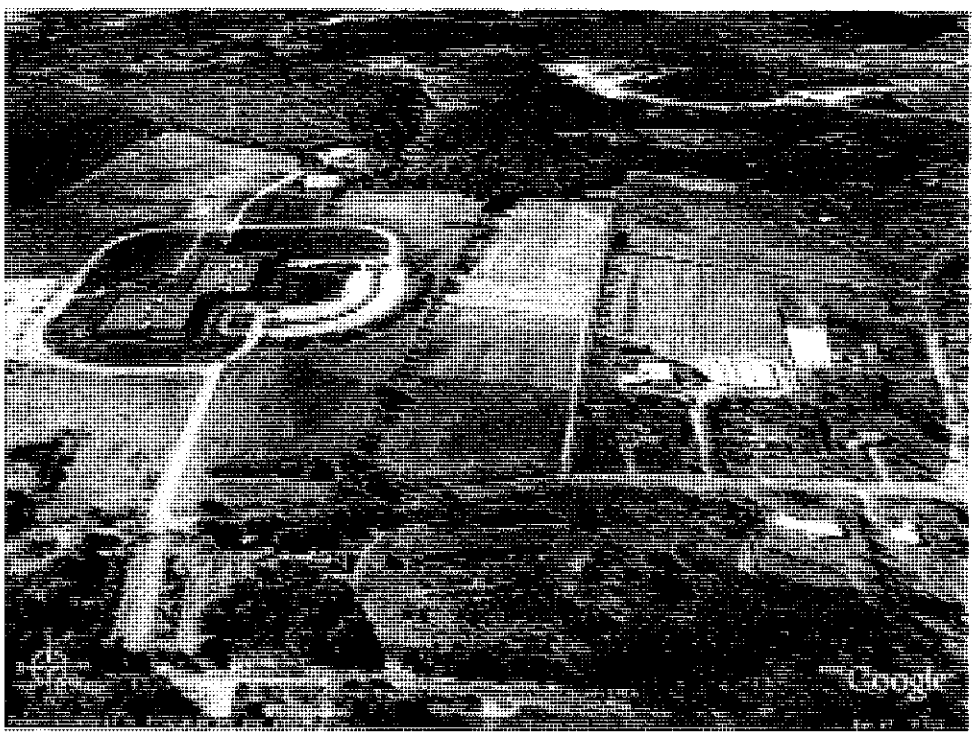
MAP SHOWING SURFICIAL GEOLOGY OF THE HUDSON AND MAYNARD



Appendix-B, Surficial Geology – USGS Hudson/Maynard Quad Surficial Mapping, 1956 (continued)



Appendix-C, Photographs



Photographs Appendix-C, (continued)

Panoramic View from far south-west corner facing Old Bolton Rd. - Base is to the right.

Partial view of the east side property line.

Photographs Appendix-C, (continued)

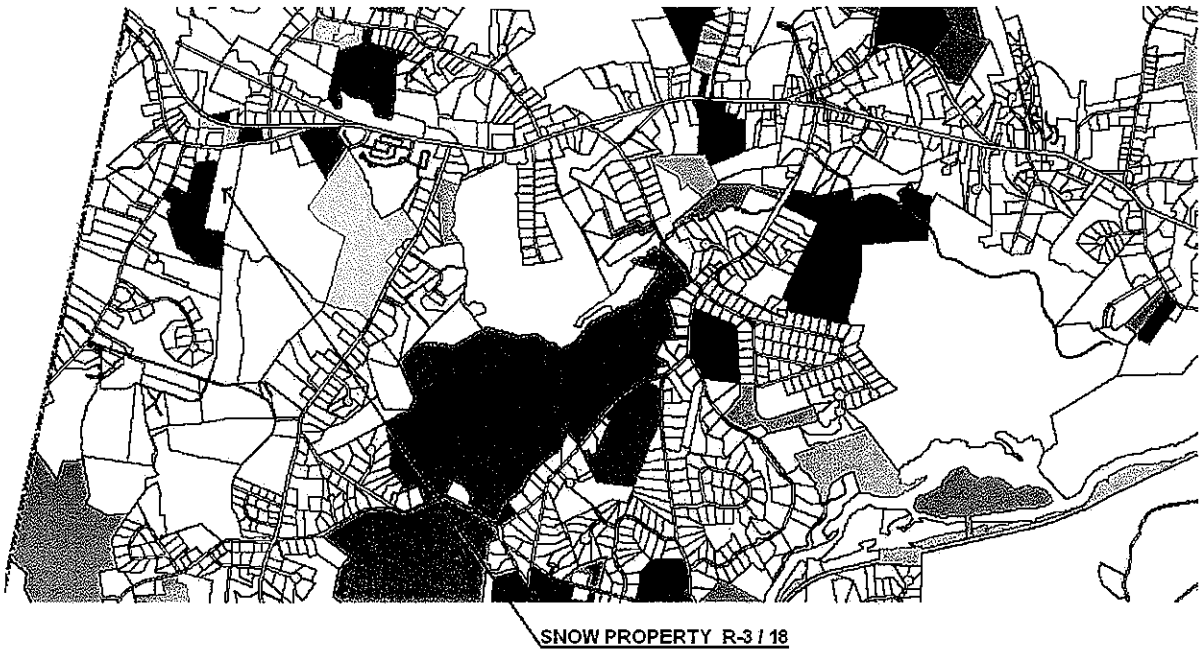
Partial view of the west side property line

View from east facing to the west about ¼ way into parcel from Old Bolton Road

Photographs Appendix-C, (continued)

View to the southwest across frontage on Old Bolton Road

Appendix-D, Chapter-61 Land Map, February, 7th 2006 Data



State Class Code

- 61 (16) Part Residential/Part Forestry
- 61A (17) Part Residential/Part Agriculture
- 61B (18) Part Residential/Part Recreation
- 61A (37) Part Commercial/Part Agriculture
- 61B (38) Part Commercial/Part Recreation
- 61A (47) Part Industrial/Part Agriculture
- 61A/61B (78) Part Recration/Part Agriculture
- 61 (601) Forestry
- 61A (712) Truck Crops
- 61A (713) Field Crops
- 61A (714) Orchards
- 61A (717) Productive Woodland
- 61A (718) Pasture
- 61A (719) Nurseries
- 61A (720) Non-Productive Land - Necessary Related Land
- 61A (722) Non-Productive Land - Wetland
- 61B (801) Hiking
- 61B (805) Golfing

126 TOTAL
PARKING SPACES

BASIN

330

ENTRANCE
SIGN

BAND
STAND

CONCESSIONS/
REST ROOMS

350

MULTIPURPOSE
FIELD

FLAGPOLE
ISLAND

310

220

340.00

SCOREBOARD

220.00

220

220

MULTIPURPOSE
FIELD

MASTER PLAN

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REVISIONS

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CADD FILE	DES4COLOR
DESIGNED BY	
DRAWN BY	WAH
CHECKED BY	
DATE	4/17/07
DRAWING SCALE	1"=50'-0"

GRAPHIC SCALE

SHEET TITLE

SNOW
MASTER
PLAN

DRAWING NO.
SK-1

PROJECT NO. 712290

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CHECKED BY	
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SHEET TITLE
SCHEME 4

DRAWING NO.
SK-4

PROJECT NO. 712290

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MASTER PLAN

GALE

Gale Associates, Inc.
Engineers Architects Planners

163 LIBBEY PARKWAY | WEYMOUTH, MA 02189
P: 781.335.6465 F: 781.335.6467 www.galeinc.com

Boston Baltimore Orlando San Francisco

PROJECT
STOW ATHLETIC COMPLEX
STOW, MA

OWNER
RECREATION FOR STOW COMMITTEE
375 GREAT ROAD
STOW, MA 01775

REVISIONS

NO.	DATE	DESCRIPTION

CADD FILE	
DESIGNED BY	
DRAWN BY	WAH
CHECKED BY	
DATE	4/17/07
DRAWING SCALE	1"=100'-0"

GRAPHIC SCALE
0 100' 200'

SHEET TITLE
PINE
BLUFF
MASTER PLAN

DRAWING NO.
SK-3

PROJECT NO. 712290

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Results of Course of Action 1 - Intensive Development of Snow, Limited Development of

(1,650 new team uses)

Program	Tm Use Deficit	Solution	Projected Tm Uses	Projected Deficit	Result
Lacrosse	-315	1 Natural Field at Pine Bluffs	250	115	OK
		1/5 Synthetic field at Snow	180		
AVLL	-441	1 natural field at Pine Bluffs	250	-10.7	OK
		1/5 Synthetic field at Snow	180		
Soccer	-1018	3/5 Synthetic field at Snow	540	-315.4	1 field short
		Balance of time from Lacrosse	115		
		Balance of Time from Babe Ruth	47.6		
Babe Ruth	-302.4	1 natural turf field at Pine Bluffs	350	47.6	OK
Adult Softball	none				

Results of Course of Action 2 - No Development of Snow, Moderate Development of Pine Bluff

(1,400 new team uses available)

Program	Tm Use Deficit	Solution	Projected Tm Uses	Projected Deficit	Result
Lacrosse	-315	1 Natural Field at Pine Bluffs	250	-65	< 1 fld short
					OK
AVLL	-441	1 natural field at Pine Bluffs	250	-40.7	< 1 fld short
		1/6 Synthetic field at Snow	150		OK
Soccer	-1018	5/6 Synthetic field at Pine Bluff	750	-268	1 field short
Babe Ruth	-302.4	none	0	-302.4	1 field short
Adult Softball	none				

Proposed Program and Alternatives at
Pine Bluffs and Snow Property

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Program Element	Alternative 1		Alternative 2	
	Snow	Pine Bluff	Snow	Pine Bluff
Synthetic Turf Multi Purpose Rectangular	X			X
Synthetic Turf 60-Foot Diamond	X			X
Natural Turf Multi Purpose Rectangular	X	X		X
Natural Turf 60-Foot Diamond		X		X
Natural Turf 90-Foot Diamond	X			None
Band Stand	X			X
Tennis Courts	X			None
Basketball	X			None
Walking Path		X		X
Playgrounds		X		X
Outdoor Skating Rink	X			None
Off Street Parking	X	X		X
Public Restrooms	X	X		X

STOW RECREATION PARCEL
PROJECT APPROACH

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Background Investigation

- Utilities Research
- Facilities Evaluation
- Zoning and Planning Research
- Geotechinical Investigation
- Wetlands & Stream Delineation

Base Plan Development

- Obtain Electronic Files
- Topographic GPS Survey
- Property Line Confirmation
- Pickup Wetland Flags
- Draw Base Plan

Design Program Development

- Meet with Users/Community
- Meet with Maintenance Staff
- Establish Budget
- Establish Functional Requirements & Traffic Flow
- Establish Needs/Priorities
- Informational Brochures

1. **Base Plan and Constraints Map**
2. **Condition Assessment Report**
3 **Design Program (needs/priorities)**

Schematic Design

- Park Layout Master Plan
- Schematic Utilities
- Stormwater Concepts
- Landscape Concept Plan
- Products/Systems Selection
- Solicit Comment from Community and Recreation Department

Schematic Plans; Preliminary Cost Estimate

Design Development

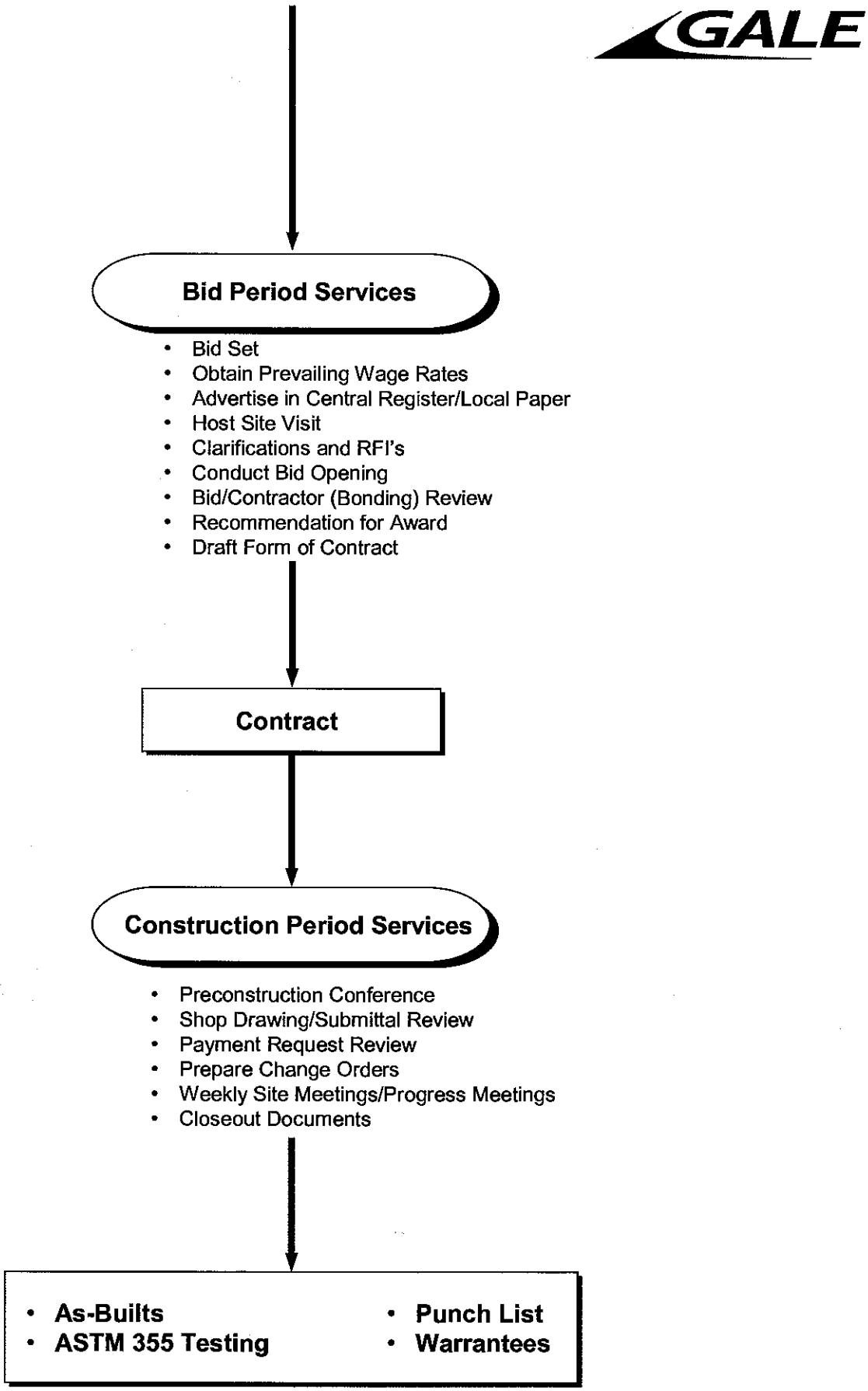
- Park Campus Master Plan
- Demolition and Erosion Control Plan
- Layout and Materials Plan
- Grading and Drainage Plan
- Signage and Striping Plan
- Landscape Plans and Schedules
- Utilities Plans and MEP Plans
- Building Architectural Plans
- Building Structural Plans
- Technical Specifications

Permitting

- Notice of Intent
- Board of Health
- Site Plan Approval
- Curb Alteration
- MEPA ENF?
- Town Council

Bid/Construction Plans & Specs
Final Cost Estimates

Orders of Condition


GALE
Bid Period Services
• Bid Set
• Obtain Prevailing Wage Rates
• Advertise in Central Register/Local Paper
• Host Site Visit
• Clarifications and RFI's
• Conduct Bid Opening
• Bid/Contractor (Bonding) Review
• Recommendation for Award
• Draft Form of Contract
Contract
Construction Period Services
• Preconstruction Conference
• Shop Drawing/Submittal Review
• Payment Request Review
• Prepare Change Orders
• Weekly Site Meetings/Progress Meetings
• Closeout Documents
• As-Builts
• ASTM 355 Testing
• Punch List
• Warrantees

COA 1 - Snow Plus Pine Bluffs

Phase I - Snow Development

Preliminary Cost Estimate - Pre-design
Date: 15-May-07

GALE

ITEM #	DESCRIPTION	QTY	UNIT	COST	SUBTOTAL	TOTAL
Section 00001 General Conditions						
	Bonds and Insurance	1	LS	$ 50,000.00	$ 50,000.00	
	Site Trailer and Temp Utilities	1	LS	$ 15,000.00	$ 15,000.00	
	Mobilization	1	LS	$ 50,000.00	$ 50,000.00	
						$115,000
Section 01571 Erosion and Sedimentation Control						
	Temporary erosion control at detention basins	1	LS	$ 10,000.00	$ 10,000.00	
	Haybale and silt fence protection	800	LF	$ 10.00	$ 8,000.00	
	(Includes removal and maintenance)					**$18,000**
Section 02200 Demolition and Site Preparation						
		1	LS	$ 15,000.00	$ 15,000.00	**$15,000**
Section 02300 Earthwork, Base Prep, Drainage, Curb						
	Earthwork - natural field	135,000	SF	$ 1.50	$ 202,500.00	
	Earthwork - synthetic field	108,000	SF	$ 3.00	$ 324,000.00	
						$526,500
Section 02750 Site Utilities						
	Potable water, power, commo, data	1	LS	$ 15,000.00	$ 15,000.00	
						$15,000
Section 02513 Bituminous Concrete Pavement						
	Bituminous pavement, misc walkways/aprons (3" thick with 8' base)	840	SY	$ 20.00	$ 16,800.00	
	Parkinglot	5,700	SY	$ 20.00	$ 114,000.00	
	Tennis and Basketball Paving	3,110	SY	$ 20.00	$ 62,200.00	
	Striping	1	LS	$ 10,000.00	$ 10,000.00	
						$203,000
Section02600 Nat. Turf Ball Field Construction						
	Rootzone placement	3,350	CY	$ 7.00	$ 23,450.00	
	Seeding	135	MSF	$ 50.00	$ 6,750.00	
	Clay Infield	1,500	SY	$ 35.00	$ 52,500.00	
	Irrigation and controller	3	ACRES	$ 10,000.00	$ 30,000.00	
	Irrigation Well	1	LS	$ 15,000.00	$ 15,000.00	
						$127,700

Section 11480 Ball Field Equipment						
dugouts, foul poles, backstops, etc.	2	field	$ 10,000.00	$ 20,000.00		**$20,000**
Section 02790 Synthetic Turf Surfacing						
Synthetic Turf - Field Turf Proseries	95,500	SF	$ 4.90	$ 467,950.00		
Striping for three sports	3	ea	$ 10,000.00	$ 30,000.00		
						$497,950
Section 02795 Basketball and Tennis Surfacing						
PlexiPave Colored Acrylic	3,110	SY	$ 6.00	$ 18,660.00		
Tennis and Basketball hardawre (net posts, goals, etc.)	1	LS	$ 10,000.00	$ 10,000.00		
						$28,660
Section 02800 Site Improvements and Amenities						
flagpoles	1	EA	$ 5,000.00	$ 5,000.00		
goal posts and anchors	1	PR	$ 15,000.00	$ 15,000.00		
bollards	10	EA	$ 1,000.00	$ 10,000.00		
Miscellaneous Site Lighting	1	LS	$ 10,000.00	$ 10,000.00		
						$40,000
Section 02830 Fencing						
Chain link fence	1,975	LF	$ 40.00	$ 79,000.00		
swing gate at emergency drive	1	EA	$ 1,250.00	$ 1,250.00		
double swing gates, 4' CL	2	EA	$ 1,771.00	$ 3,542.00		
pedestrian gates, 4' CL	5	EA	$ 630.00	$ 3,150.00		
pedestrian gates, 6' CL	2	EA	$ 650.00	$ 1,300.00		
						$88,242
Section 02945 Planting and Seeding						
Misc Landscape Plantings	1	LS	$ 10,000.00	$ 10,000.00		
						$10,000
Section 0900 Sepctator Seating						
Portable Bleacher , 50 person	1	LS	$ 10,000.00	$ 10,000.00		
						$10,000
TOTALS				**Subtotal**		**$1,715,100**
				Contingency at 10%		**$171,510**
				Soft Costs (Design and Permitting) at 10%		**$171,510**
				Total Project Budget		**$2,058,120**

Add Alternate 1					
Site and Athletic Lighting and other electrical					
Field Lighting – Stadium and All-Purpose Field	1	LS	$ 220,000.00	$ 250,000.00	
Electrical installation by licensed State of Mass. Electrical Eng.	1	LS	$ 50,000.00	$ 50,000.00	
					$300,000
Add Alternate 2					
Concessions and Rest Room Buidling					
Woodframe Concessions and Bathroom Building	1000	SF	$ 175.00	$ 175,000.00	
					$175,000

COA 1 - Snow Plus Pine Bluffs

Phase II - Pine Bluff Development

Preliminary Cost Estimate - Pre-design
Date: 15-May-07

GALE

ITEM #	DESCRIPTION	QTY	UNIT	COST	SUBTOTAL	TOTAL
Section 00001 General Conditions						
	Bonds and Insurance	1	LS	$ 50,000.00	$ 50,000.00	
	Site Trailer and Temp Utilities	1	LS	$ 15,000.00	$ 15,000.00	
	Mobilization	1	LS	$ 50,000.00	$ 50,000.00	
						$115,000
Section 01571 Erosion and Sedimentation Control						
	Temporary erosion control at detention basins	1	LS	$ 10,000.00	$ 10,000.00	
	Haybale and silt fence protection	1,500	LF	$ 10.00	$ 15,000.00	
	(Includes removal and maintenance)					**$25,000**
Section 02200 Demolition and Site Preparation						
	Demolition	1	LS	$ 15,000.00	$ 15,000.00	**$15,000**
Section 02300 Earthwork, Base Prep, Drainage, Curb						
	Clearing and grubbing	5	acre	$ 20,000.00	$ 100,000.00	
	Earthwork - natural fields (Both fields)	157,000	SF	$ 1.75	$ 274,750.00	
	Striping	1	LS	$ 2,500.00	$ 2,500.00	
						$377,250
Section 02750 Site Utilities						
	Potable water, power, comm, data	1	LS	$ 15,000.00	$ 15,000.00	
						$15,000
Section 02513 Bituminous Concrete Pavement						
	Bituminous pavement, misc walkways/aprons (3" thick with 8" base	1,760	SY	$ 20.00	$ 35,200.00	
	Parking Lot (3" thick with 8" base)	2,440	SY	$ 20.00	$ 48,800.00	
						$84,000
Section02600 Nat. Turf Ball Field Construction						
	Rootzone placement	4,000	CY	$ 7.00	$ 28,000.00	
	Seeding	157	MSF	$ 50.00	$ 7,850.00	
	Clay Infield	820	SY	$ 35.00	$ 28,700.00	
	Irrigation and controller	3.5	ACRE	$ 10,000.00	$ 35,000.00	
	Irrigation Well	1	LS	$ 15,000.00	$ 15,000.00	
						$114,550

Section 11480 Ball Field Equipment					
dugouots, foul poles, backstops, etc.	1	LS	$ 10,000.00	$ 10,000.00	**$10,000**
Section 02800 Site Improvements and Amenities					
flagpoles	1	EA	$ 5,000.00	$ 5,000.00	
goal posts and anchors	1	PR	$ 15,000.00	$ 15,000.00	
bollards	10	EA	$ 1,000.00	$ 10,000.00	
Miscellaneous Site Lighting	1	LS	$ 10,000.00	$ 10,000.00	
					$40,000
Section 02830 Fencing					
Chain link fence	1,000	LF	$ 40.00	$ 40,000.00	
6' swing gate at emergency drive	1	EA	$ 1,250.00	$ 1,250.00	
pedestrian gates, 4' CL	3	EA	$ 630.00	$ 1,890.00	
					$43,140
Section 02945 Planting and Seeding					
Misc Landscape Plantings	1	LS	$ 10,000.00	$ 10,000.00	
					$10,000
Section 0500 New Septic System					
LeachField and Tank	1	LS	$ 15,000.00	$ 15,000.00	
Building renovations	1	LS	$ 10,000.00	$ 10,000.00	
					$25,000
Section 0900 Sepctator Seating					
Portable Bleacher , 50 person	1	LS	$ 10,000.00	$ 10,000.00	
					$10,000
TOTALS			**Subtotal**		**$883,900**
			Contingency at 15%		**$132,585**
			Soft Costs (Design and Permitting) at 10%		**$88,390**
			Total Project Budget		**$1,104,875**

COA 2 - Pine Bluffs

Phase I

Preliminary Cost Estimate - Pre-design
Date: 15-May-07

GALE

ITEM #	DESCRIPTION	QTY	UNIT	COST	SUBTOTAL	TOTAL
Section 00001 General Conditions						
	Bonds and Insurance	1	LS	50,000.00	$ 50,000	
	Site Trailer and Temp Utilities	1	LS	15,000.00	$ 15,000	
	Mobilization	1	LS	50,000.00	$ 50,000	
						$115,000
Section 01571 Erosion and Sedimentation Control						
	Temporary erosion control at detention basins	1	LS	$ 10,000	$ 10,000	
	Haybale and silt fence protection	1,500	LF	$ 10	$ 15,000	
	(Includes removal and maintenance)					**$25,000**
Section 02200 Demolition and Site Preparation						
		1	LS	$ 15,000	$ 15,000	**$15,000**
Section 02300 Earthwork, Base Prep, Drainage, Curb						
	Earthwork - natural field	135,190	SF	$ 1.75	$ 236,583	
	Earthwork - synthetic field	96,400	SF	$ 3.35	$ 322,940	
	Clearing and Grubbing	9.3	Acre	$ 20,000.00	$ 186,000	
						$745,523
Section 02750 Site Utilities - Water Distribution Systems						
	Potable water, power, commo, data	1	LS	$ 15,000	$ 15,000	
						$15,000
Section 02513 Bituminous Concrete Pavement						
	Bituminous pavement, misc walkways/aprons (3" thick) with 8" base)	1,700	SY	$ 20	$ 34,000	
	Parking Lot	3,690	SY	$ 20	$ 73,800	
	Striping	1	LS	$ 2,500	$ 2,500	
						$110,300
Section02600 Nat. Turf Ball Field Construction						
	Rootzone placement	3,350	CY	$ 7	$ 23,450	
	Seeding	140	MSF	$ 50	$ 7,000	
	Clay Infield	840	SY	$ 35	$ 29,400	
	Irrigation and controller	3	ACRES	$ 10,000	$ 30,000	
	Irrigation Well	1	LS	$ 15,000	$ 15,000	
						$104,850

Section 11480 Ball Field Equipment						
dugouts, foul poles, backstops, etc.	2	field	$ 10,000	$ 20,000		**$20,000**
Section 02790 Synthetic Turf Surfacing						
Synthetic Turf - Field Turf Proseries	96,400	SF	$ 4.90	$ 472,360		
Striping for three sports	3	ea	$ 10,000	$ 30,000		
						$502,360
Section 02800 Site Improvements and Amenities						
flagpoles	1	EA	$ 5,000	$ 5,000		
goal posts and anchors	1	PR	$ 15,000	$ 15,000		
bollards	10	EA	$ 1,000	$ 10,000		
Miscellaneous Site Lighting	1	LS	$ 10,000.00	$ 10,000		
						$40,000
Section 02830 Fencing						
Chain link fence, 4-6'	2,200	LF	$ 40	$ 88,000		
6' swing gate at emergency drive	1	EA	$ 1,250	$ 1,250		
double swing gates, 4' CL	2	EA	$ 1,770	$ 3,540		
pedestrian gates, 4' CL	6	EA	$ 630	$ 3,780		
pedestrian gates, 6' CL	2	EA	$ 650	$ 1,300		
						$97,870
Section 02945 Planting and Seeding						
Misc Landscape Plantings	1	LS	10,000	$ 10,000		
						$10,000
Section 0900 Sepctator Seating						
Portable Bleacher , 50 person	2	LS	$ 10,000.00	$ 20,000.00		
						$20,000
TOTALS				**Subtotal**		**$1,820,900**
				Contingency at 15%		**$273,135**
				Soft Costs (Design and Permitting) at 10%		**$182,090**
				Total Project Budget		**$2,276,125**

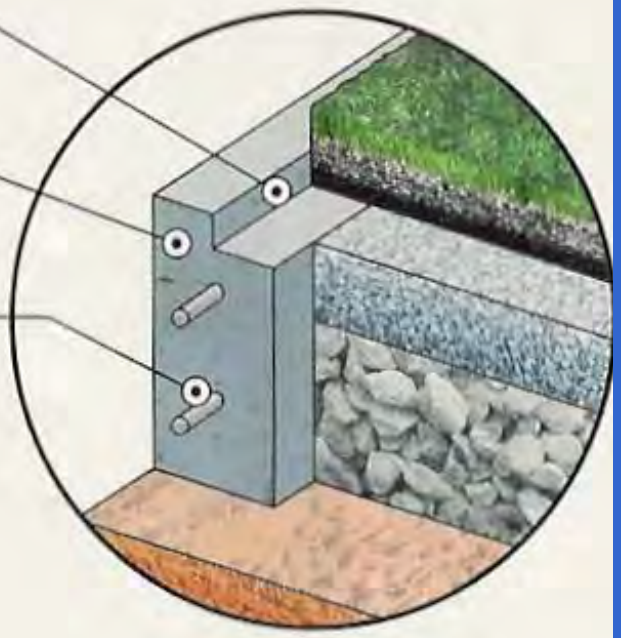
FieldTurf

Edging Detail - Concrete Curb

2" wide recess same depth as infill

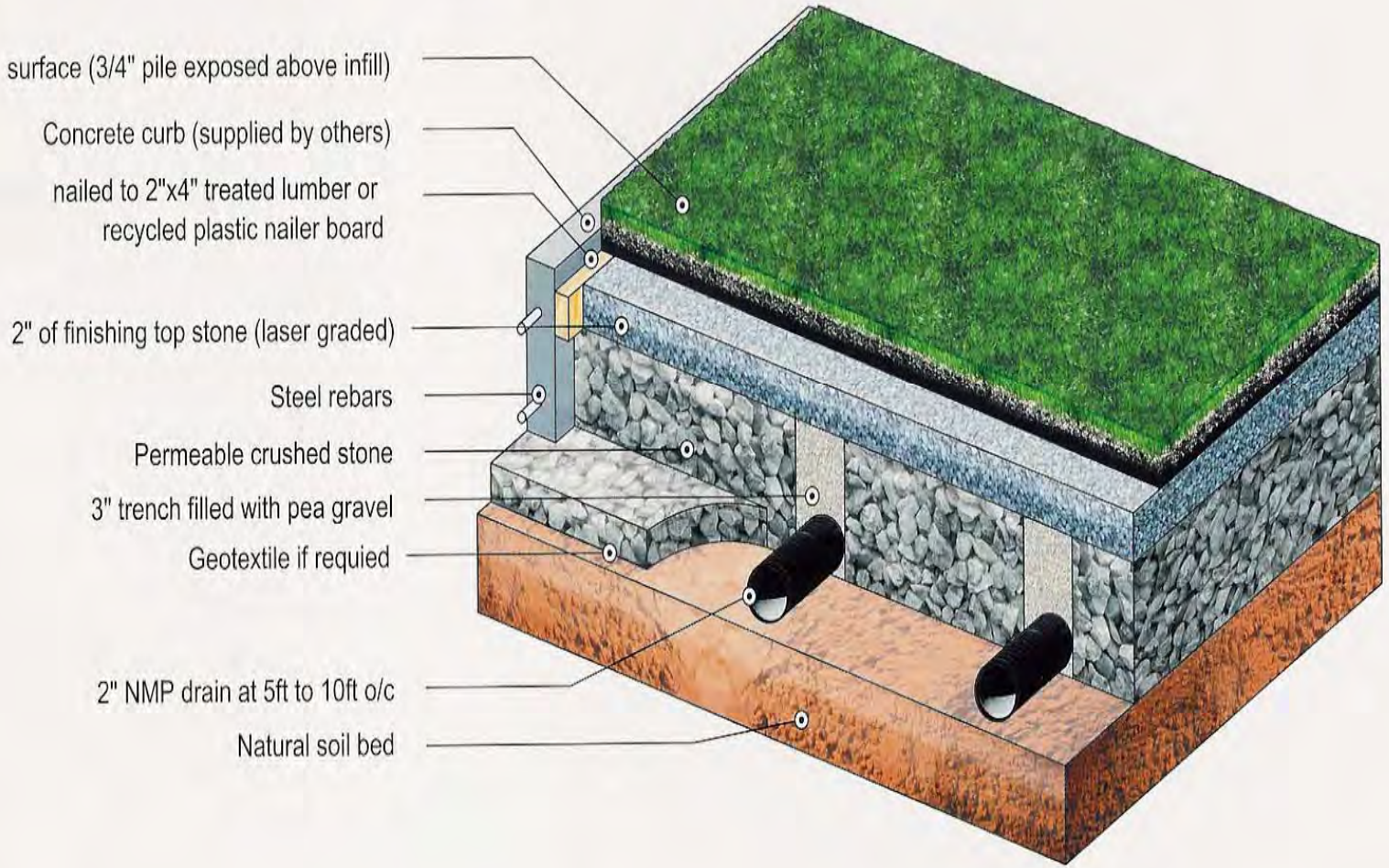
Concrete curb (supplied by others)

Rebars



GALE

Typical Edging Detail - Standard Curb



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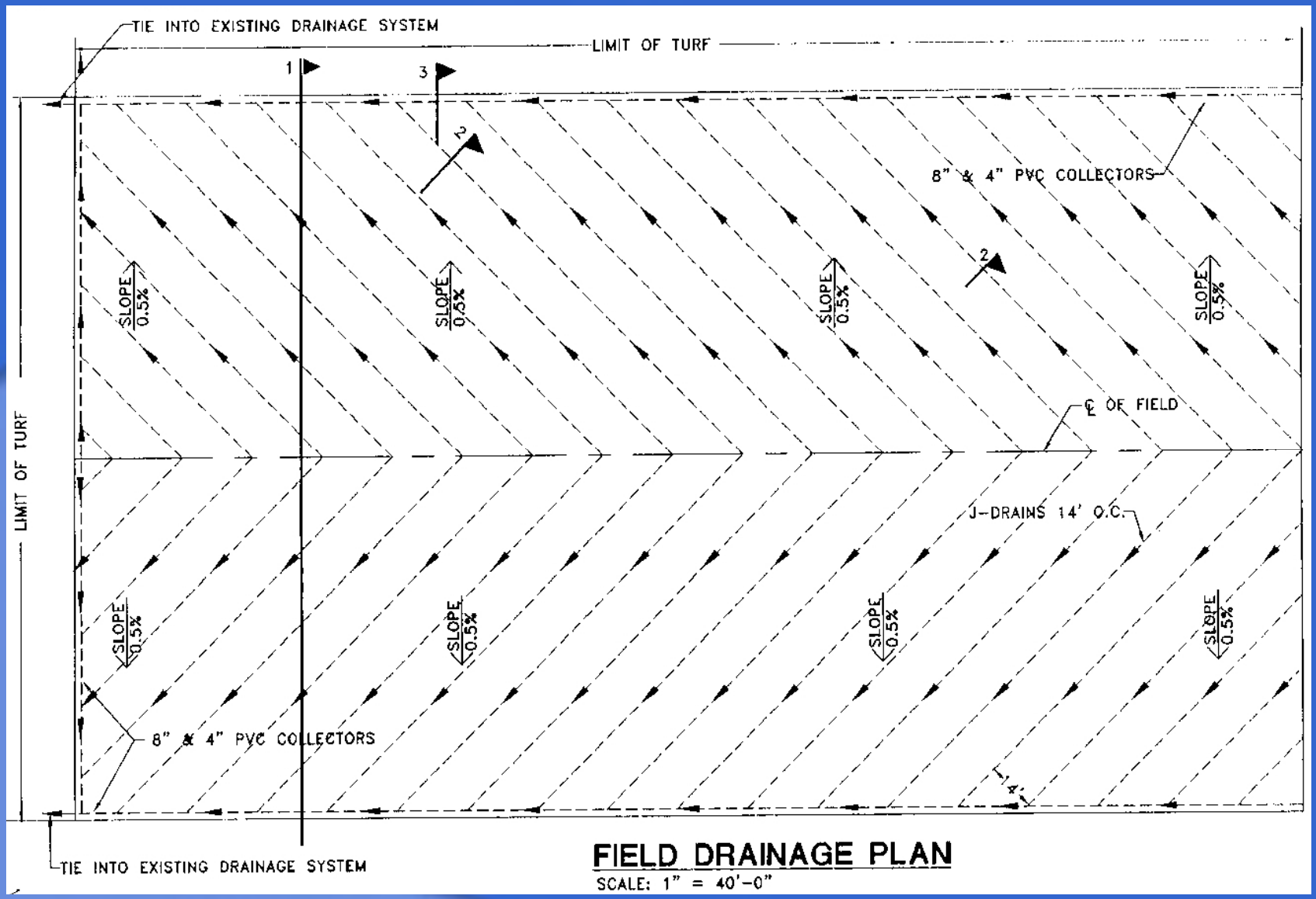
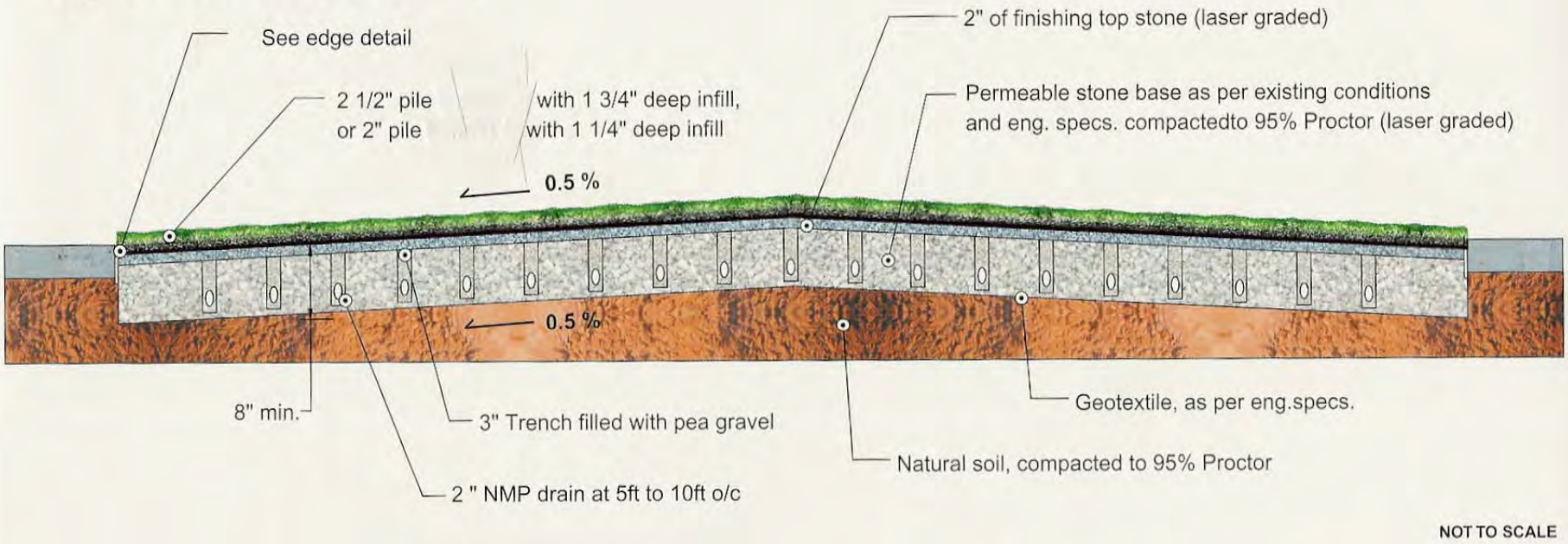


FIELD DRAINAGE PLAN

SCALE: 1" = 40'-0"

GALE

Typical Base Cross-Section



CRUSHED STONE BASE WITH 2" PIPES (NMP)

GALE

Synthetic Turf Maintenance

GALE

All-Weather Availability

Snow Removal Operations

Same Field, Next Day

GALE

Title	Author/Company	Conclusions
Toxicological Evaluation of the Hazard Assenssment of Tire Crumb for Use in Public Playgrounds - July 2003	Detlef A. Birkhoiz (Enviro-Test Labratories, Alberta, Canada); Kathy L. Belton (Alberta Centre for Injury Control and Research, Edmonton, Alberta, Canada); Tee L. Guidotti, Department of Public Health Sciences, University of Alberta, Edmonton, Alberta, Canada)	"An exposure assessment performed to address the potential health risks to children playing in faciilities where tire crumb is used as ground cover concluded that there was little potential for an exposure sufficient to cause adverse health effects in children."
Environmental and Health Evaluation of the use of Elastomer Ganulates (Virgin and from Used Tyres) as Filling in Third-Generation Artifiical Turf - 2006	Dr. Robert Moretto (Groupement d'Interet ScientifiqueEEDEM)	"The results of the evaluation of the environmental iimpact on the water and of the health risk evaluation (gaseous emissions) on the populaiton group shows: comparable behavious irrespective of the type of filling granulate (virgin TPE and EPDM, used granulates), an absence of impact of this type of work on water resources, no effect worthy of concern of the health associated with the inhalation of VOC and aldehydes emitted by artifical surfaces."
Use of end-of-life tyre rubber crumb in sports floors:environmental consequences. 2006 update	Catherine Rigaud (Laboratoire de Recherches et de Contole du Caoutchouc et des Plastiques)	"In the event of ingestion of crumb particles, although it is highly improbable, the particles do not present any toxicity, the digestive system is not powerfule enough to extract chemical components from the rubber. Inhaling is practically negligible because crumb rubber does not give off volatile products. direct ocntact with the skin does not present any real danger, even from the point of view of allergy. from the genetic point of view, biological tests have shown the absence of genotoxicity."

An Open Letter concerning the potential cancer risk from certain granulate infills from artificial turf	Prof. Dr. Jiri Dvorak (Federation Internationale de Football Association (FIFA))	"The World Health Organisation and other investigators do not implicate tire wear particles in ambient air as contributing to human health effects (respitory and cardiovascular diseases).....The majority of the studies have been on higher surface area particles and have concluded they are currently acceptable. Therefore the larger granules used in artificial turf will have even less potential for emissions. A study undertaken by the Danish Ministry of the Environment concluded that the health risk on children's playgrounds that contained both worn tyres and granulates rubber was insignificant."
Toxicity Evaluation of Sample 755 MSF2S and 755 MSF2N	AMEC Earth & Environmental, Inc.; William E. Shiels (Talasaea Consultants, LLC)	"We have completed water quality testing for two *Field Turf* projects....No Toxicity was detected in water samples colleted at either the Grass Lawn Park ball field or the Microsoft Campus ball field #3."
The Use of Recycled Rubber in Sports Surfaces	Sports and Play Construction Associates (SAPCA)	"SAPCA's opinion is that, because tire rubber is designed to be strong, durable and substantially impermeable, it is unlikely that any losses could occur to air or warer in concentrations that would pose serious human or environmental risk. The opinion is supported by the reports and academic studies reviewed, which have shown insignifcant envirnmental effects of such chemicals or release of violates and particulates into the atmosphere."
Architectural Bid Specifications PSI Report No. 486-40013-001	Maryland Environmental Services (MES)	"In 1994 the Maryland Environmental Services (MES) sent 3 inch pieces of tire chips to a testing laboratory to be tested with hydrochloric acid (stomach acid). '... The tire rubber did not appear to be affected in any way...' Therefore, if a piece of rubber is swallowed, it should not cause an acute or chronic problems. Short-term issues, such as upset stomach will be a function of the amount of rubber swallowed."
Park and Recreation Products Procurement Guidelines May 2004	Environmental Protection Agency USEPA	Playground surfaces can contain 100% recycled rubber...rubber crumb is more desirable than sand, wood fiber or asphalt because it can provide more cushioning and thereby may be safer for children.

Equi-Tread Quality Crumb Rubber Arena Footing	Equi-Tred with test from EPA	"The environmental Protection Agency (EPA) tests performed in 1986 on crumb rubber reported that this product is non-toxic and will not leach into ground water. It passed all EPA toxicity tests."
Environmental & Safety Testing Results Summary	Precision EQ	"Crumb rubber was immersed into a strong hydrochloric acid. There was basically no reaction to the crumb. Therefore, the chance of digestion is very slim based on the data collected." The EPA Compliance Monitoring Section has stated that rubber added to soil is not hazardous. It is inert.
STAPH/MRSA: Wiping the Rumor Mill Clean	FieldTurf	Investigatory research shows that no synthetic turf infill system including sand and rubber infill has special propenisty for Staph."
Material safety Data Sheet (MSDS) for black SBR Rubber	Required by US Department of Transportation	Hazardous Ingredients: N/A Sability : Stable Protective Equipment: None required for routine handling Effects of Overexposure: None Permissable Exposure Limit: None
Golfing Toward a Greener Environment	Dr. Jim Park University of Wisconsin - Madison	"We have proved that this (release of potentially toxic contaminants from crumb rummer) is not an issue"
Synthetic Precipitation Leaching Procedure (SPLP) Tests to Characterize Special Wastes Jun 2001 USEPA Method 1311	Dr. Chib-Shin Shich Florida Institute of Technology	"Trace metal elements were determined to be signigficantly lower than threshold limits"
Top Dressing With Crumb Rubber on Athletic fields	Dr. J. N. Rogers III Dept. of Crop and Soil Sciences University of Michigan	"The amount (trace metals) detected were below levels of concern and posed no hazards to water quality. Additionally not toxicity to turf grass was observed."
Toxicological Evaluation of the Hazard Assenssment of Tire Crumb for Use in Public Playgrounds - July 2003	Journal of Air and Waste management Association	" ..It is doubtful that the tire crumb would present a significant risk of contamination in receiving surface water or groundwater."
Danish Ministry of Environment Report 2004	Department fo Environment Investigation	Health risks on children's playgrounds that contained both worn tires and granulate rubber were insignificant.
Wayland High School Study 2006	Gale Associates	The results of the EPA approved leaching potential test on the raw materials (carpet and rubber) showed all measured contaminent levels at least 10 times below the 310CMR drinking water standards.

Gale Associates, Inc.
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October 31, 2006

Mr. Brian Monahan
Conservation Administrator
Town of Wayland
Town Building
41 Cochituate Road
Wayland, MA 01778

Re: Leachate Analysis Report
Wayland High School Athletic Facility
Gale JN 712050

Dear Mr. Monahan:

Gale Associates, Inc. (Gale) was hired by the Wayland Boosters Association to assist them with the planning, design, and permitting of a synthetic turf athletic field at the Wayland High School. This report has been developed for the Wayland Conservation Commission to address questions and/or concerns related to the potential risk that a synthetic turf athletic field will have on the Town's drinking water supply and wetland resource areas.

Project Summary/Background

The proposed synthetic turf field, as designed, will be located within the limits of an existing bituminous concrete running track that currently sits behind the Wayland High School building. The existing field is natural turf and is in chronically poor conditions due to overuse and the inability to apply proper fertilization due to its proximity to a wetland resource area and a Town drinking well. The use of a synthetic turf field will alleviate the current conditions of the natural turf field and provide a safe playing surface for the Wayland High School athletic teams as well as Wayland Recreation Department programs.

During the Notice of Intent application process, the Conservation Commission (the Commission), in an effort to protect the Town's public drinking supply, questioned the make-up of the proposed synthetic turf product as it relates to the effects on the environment. The proposed in-filled synthetic turf system consists of a carpet of slit-film polyethylene fibers that are punched through a fiberglass and urethane backing. The carpet is loose laid over a gravel stone base and filled on top with a clean, silica sand and crumb rubber to a depth of approximately two (2) inches. The crumb rubber is composed of recycled tires, to a gradation established by the Engineer and/or manufacturer of the synthetic turf product.

The turf industry maintains that the materials used in the "in-filled" systems are chemically inert and that there is no hazardous leachate. Gale previously provided the Commission testing results provided by various turf manufacturers which reflect that leachate from the fields is free from hazardous contamination.

Given the potential lack of objectivity of such testing, questions regarding water quality remained.

Testing Procedures

To answer the questions posed by the Commission, Gale has completed independent laboratory testing to provide the Town with data relating to the quality of the leachate that is created after stormwater percolates through the in-filled system. Gale incorporated two testing procedures into the research to get a combination of in-situ conditions and also product conditions.

The first procedure performed to test the leachate of in-filled synthetic turf field included field sampling direct drainage outflows of several turf fields that have been installed in Massachusetts. Gale collected runoff, during and after a rain event, from one FieldTurf® ProSeries field, one Sportexe® Momentum 41 field and a Sprinturf® Field. The reason for choosing these three fields was to gather a sample for sand and rubber infill composed of Cryogenic rubber (FieldTurf®), a sample for sand and rubber infill composed of ambient rubber (Sportexe®) and a sample of an all rubber infill (Sprinturf®). Samples were collected using prescribed collection methods directly from the outlets of formal field under-drain systems. After collection, the samples were given to Groundwater Analytical, an independent testing agency located in Hyannis, Massachusetts, and tested for volatile organic compounds (VOCs).

The second testing procedure was the Synthetic Precipitation Leaching Procedure (SPLP) which is a test established by the Environmental Protection Agency (EPA Method 1312) to test the long term leaching of metals into the ground and groundwater. This method provides a more realistic assessment of metal mobility under actual field conditions, i.e. what happens when it rains (or snows). The extraction fluid is intended to simulate precipitation. East of the Mississippi River the fluid is slightly more acidic at pH 4.20 reflecting the air pollution impacts of heavy industrialization and coal utilization. The SPLP test procedure consists of placing a 100 gram sample into a plastic cylinder, which contains water with a PH level of 4.20 as required in the testing procedure. The sample and water is then agitated for a period of eighteen (18) hours. Following the agitation period, the water was extracted from the sample and tested for total solids (metals), volatile organic compounds (VOCs), Polynuclear Aromatic Hydrocarbons (PAHs), nitrogen, phosphorous and sulfate. The tests were performed by Groundwater Analytical.

Gale tested two samples of the synthetic turf in-filled product using the SPLP test procedure. Sample #1 is ProSeries as manufactured by FieldTurf®, and Sample #2 is Momentum 41 as manufactured by Sportexe®. These two products are similar in many ways but differ significantly in the crumb rubber used in their system. Fieldturf® has patented the use of Cryogenic rubber. Cryogenic rubber is processed by freezing the rubber prior to pulverization. Sportexe® and all other in-filled synthetic turf companies on the market use ambient rubber,

which is not frozen prior to pulverization. Gale has specified and installed both systems in projects analogous to the proposed field at Wayland High School.

Test Results

The results from the first testing procedure are included in Enclosure #1. Based on results from the field tests, the samples had no detectable amounts of VOCs.

Below is a summary of the results of the SPLP testing procedure: (see Enclosure #2 for full report from Groundwater Analytical)

Testing	FieldTurf® ProSeries	Sportexe® Momentum 41	Maximum Contaminant Level (MCL) 310 CMR
Volatile Organic Compounds (VOC)	BRL	BRL	13 ug/L
Synthetic Precipitation Leaching Procedure (SPLP) Trace Metals	BRL	0.01 mg/L Chromium	0.1 mg/L
Extractable Petroleum Hydrocarbons by GC/FID	BRL	BRL	(Varies depending on target analyte)
Extractable Petroleum Hydrocarbons by GC/MS-SIM	BRL	0.01 ug/L Benzo[b]fluoranthene	**1 ug/L (Varies depending on target analyte)
Inorganic Chemistry	1.0 mg/l Total Nitrogen	1.3 mg/L Total Nitrogen	10 mg/L

TCLP - Toxicity Characteristics Leaching Procedure

* BRL – Indicates concentration, if any, is below reporting limit of testing apparatus.
** All other Analyte detections for Sportexe® Momentum 41 were below the reporting limit of the apparatus. MCL shown is for Benzo[b]fluoranthene.

Conclusion

Based on the results of the two testing procedures performed by our office, we have determined through EPA approved testing procedures and in accordance with 310 CMR 22.00 Drinking Water & 310 CMR 40 Massachusetts Contingency Plan, the above results indicate that the leachate from the proposed in-filled synthetic turf athletic fields will have no adverse effect on the bordering wetland resource areas or the Town of Wayland drinking water supply. The levels of metals and inorganics detected were 10 x below the Maximum Contaminant

Level and the PAHs were 100 x below the Maximum Contaminant Level as defined in 310 CMR 22.06.

Argumentatively, the proposed system will provide an environmentally sensitive alternative to natural turf grass, due to eliminating the required applications of potentially hazardous chemicals (i.e., fertilizers, pesticides, herbicides, etc.), irrigation (water consumption) and other typical maintenance standards (i.e., mowing, overseeding, striping, etc.) related to the upkeep of a quality natural turf field.

We hope this information addresses any concerns that the Commission may have towards the proposed in-fill synthetic turf field project at the Wayland High School. Should you have any questions, please do not hesitate to contact our office at (781) 335-6465.

Very truly yours,

GALE ASSOCIATES, INC.

Nathan A. Collins
Project Manager

NAC/gmc

Enclosure(s):

1. Groundwater Analytical report dated October 18, 2006
2. Groundwater Analytical report dated October 27, 2006

cc: Wayland Board of Health
Craig Foreman – Wayland Boosters Association
Nancy McShea – Wayland Recreation Department
Wayland Water Commission

G:\712050\Reports\wayland leachate.doc

GROUNDWATER ANALYTICAL

Groundwater Analytical, Inc.
P.O. Box 1200
228 Main Street
Buzzards Bay, MA 02532

Telephone (508) 759-4441
FAX (508) 759-4475
www.groundwateranalytical.com

October 18, 2006

Mr. Christopher Morris
Gale Associates, Inc.
163 Libbey Parkway
Weymouth, MA 02189

LABORATORY REPORT

Project:	**Wayland/712050**
Lab ID:	**99920**
Received:	**10-12-06**

Dear Christopher:

Enclosed are the analytical results for the above referenced project. The project was processed for Rush 4 Business Day turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC standards, except as may be specifically noted, or described in the project narrative. This report may only be used or reproduced in its entirety.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Jonathan R. Sanford
President

JRS/jmp
Enclosures

Intensive Archeological Study Scope of Services from PAL

In response to a request from the Stow Historical Commission, PAL is pleased to submit the following scope of services for archaeological investigations at the Pine Bluffs Recreational Facility project area in Stow, Massachusetts. This property is administered by the Stow Recreation Commission which is currently planning the construction of additional recreational facilities within an approximately 15 acre project area. The Historical and Recreation Commissions are interested in identifying any cultural resources that may exist within this project area. The project area is bounded on the west by Lake Boon, on the northeast by Hudson Road, to the northwest by undeveloped land and on the southeast by a residential neighborhood.

Based on available information, the project area is archaeologically sensitive and likely to contain archaeological sites associated with pre-contact (ancient) Native American and historic period Euro American occupation. Through study of private artifact collections, the Stow Historical Commision has documented Native American stone tools found in the vicinity of Pine Bluffs when the area was in agricultural land use. A number of known pre-contact period Native American archaeological sites are located in proximity to the Pine Bluffs project area along the Assabet River and within the Assabet River National Wildlife Refuge (former Fort Devens Sudbury Annex) both north and south of Hudson Road. As a result of previous archaeological surveys within the refuge, 27 pre-contact Native American sites were identified, mostly in the vicinity of Puffer Pond and Taylor Brook.

Following consultation with the Massachusetts Historical Commission (MHC), the Stow Historical Commission recommended that the town have an archaeological survey conducted at the proposed Pine Bluffs recreational facility expansion. MHC concurred with this assessment and recommended that an intensive (locational) archaeological survey (950 CMR 70) be conducted within the Pine Bluffs parcel.

The goal of the intensive (locational) archaeological survey will be to locate and identify any significant archaeological deposits that may be present within the project area, and to make recommendations regarding the need for additional archaeological testing if necessary.

This scope of services outlines the tasks that will be undertaken as part of the cultural resource investigations within the Pine Bluffs Recreational Facility project area. The intensive survey will need to be conducted under a State Archaeologist's permit issued by the MHC.

Task 1: Coordination and Consultation

Lead project personnel will prepare the archaeological permit application for review by the proponent and the MHC. The permit application will include a technical proposal that describes the proposed project impact area and survey methodology, lists expected archaeological and cultural resources, and provides a schedule for completion of all project activities.

Task 2: Archival Research

Prior to the start of fieldwork, archaeological site files maintained at the MHC will be reviewed for updated information on known cultural resources within and/or near the project area. The review of information provided by MHC and in PAL's research files indicates that no previously recorded prehistoric or historic archaeological sites are located within the project area; however recorded archaeological sites are located in the vicinity in similar environmental settings. Data from previous archaeological projects completed in the project vicinity will be reviewed for relevant information relating to known and expected archaeological resources within the project area. The research will also include a review all available environmental data for the project area to assist with the development of a preliminary archaeological sensitivity assessment. Information on previous belowground disturbance within the project area will be used to guide the subsurface testing strategy.

Other expected sources of historic and archival information that will be reviewed include cultural resource management reports, historic maps and plans, local and regional histories and archives, and informant interviews.

Task 3: Walkover Survey

Archaeological field investigations will begin with a walkover survey of the project parcel. The walkover survey will assess existing conditions within the project area and document any surface indications of archaeological sites. The information collected during the walkover survey will be used to refine the preliminary archaeological sensitivity assessment.

While pre-Contact sites in New England are most often found belowground, artifact scatters are sometimes exposed on the surface through cultural agents such as pedestrian and vehicular traffic, and natural processes such as erosion. Post-Contact archaeological site types that might be visible include stone foundations, stone walls, and trash deposits. If the remains of a built resource such as a farmstead are present within a project area, it is likely that a cellar hole and associated landscape features such as stone walls, overgrown orchards and fields, and ornamental plantings may be visible on or above the ground surface.

Task 4: Sensitivity Assessment

Information collected during the archival research and walkover survey will be used to develop a predictive model of potential site types and their cultural and temporal affiliation. The development of predictive models for locating archaeological resources has become an increasingly important aspect of CRM planning. The predictive model considers various criteria to rank the potential for the project area to contain archaeological sites. The criteria are proximity of recorded and documented sites, local land use history,

environmental data, and existing conditions. The project area will be stratified into zones of expected archaeological sensitivity to determine where subsurface testing will be located.

Task 5: Subsurface Testing

Subsurface testing will be completed in zones of moderate and high archaeological sensitivity within the approximately 15-acre Pine Bluffs Recreational Facility project area. **Based on available project data, it is estimated that approximately 30 to 40, 50-x-50-centimeter test pits will be necessary to adequately test the Pine Bluffs Recreational Facility project impact area.** The research and walkover survey will be used to refine the preliminary archaeological sensitivity assessment and determine the exact locations of subsurface testing units.

The subsurface testing will be used to locate and identify potentially significant below ground archaeological deposits. It will also provide additional information relating to the belowground soil stratigraphy to assist in the identification of intact/natural versus previously disturbed soils. The archaeological fieldwork will also include recording and documentation of any aboveground features such as stone walls, foundations, and/or cartpaths within the project area.

Task 6: Laboratory Processing and Analyses

All artifacts recovered from the project area during the field investigations will be returned to the PAL facility for laboratory processing and analyses. These activities will include cleaning, identification, and cataloging of recovered cultural materials, as well as preliminary analyses of spatial distributions of artifacts and map and graphics production.

Task 7: Report Preparation

Within five days of the completion of the archaeological fieldwork, PAL will prepare a letter memorandum that summarizes the results of the cultural resource investigations, describes all historic and archaeological resources that were identified, and includes recommendations regarding the significance of any identified historic and archaeological resources and the need for additional work and consultation, if any. PAL will prepare a technical report that will follow the guidelines established by the National Park Service in the *Recovery of Scientific, Prehistoric, Historic, and Archaeological Data* (36 CFR Part 66) and the MHC. Draft copies of the report will be submitted o the proponent and the MHC for review. If necessary, archaeological site forms will be completed and submitted to MHC.

Task 8: Public Presentation

A public presentation based on the results of the intensive survey for the Pine Bluffs Recreational Facility project area for the Stow Historical Commission is planned and will take place after completion of the technical report for review.

Project Schedule

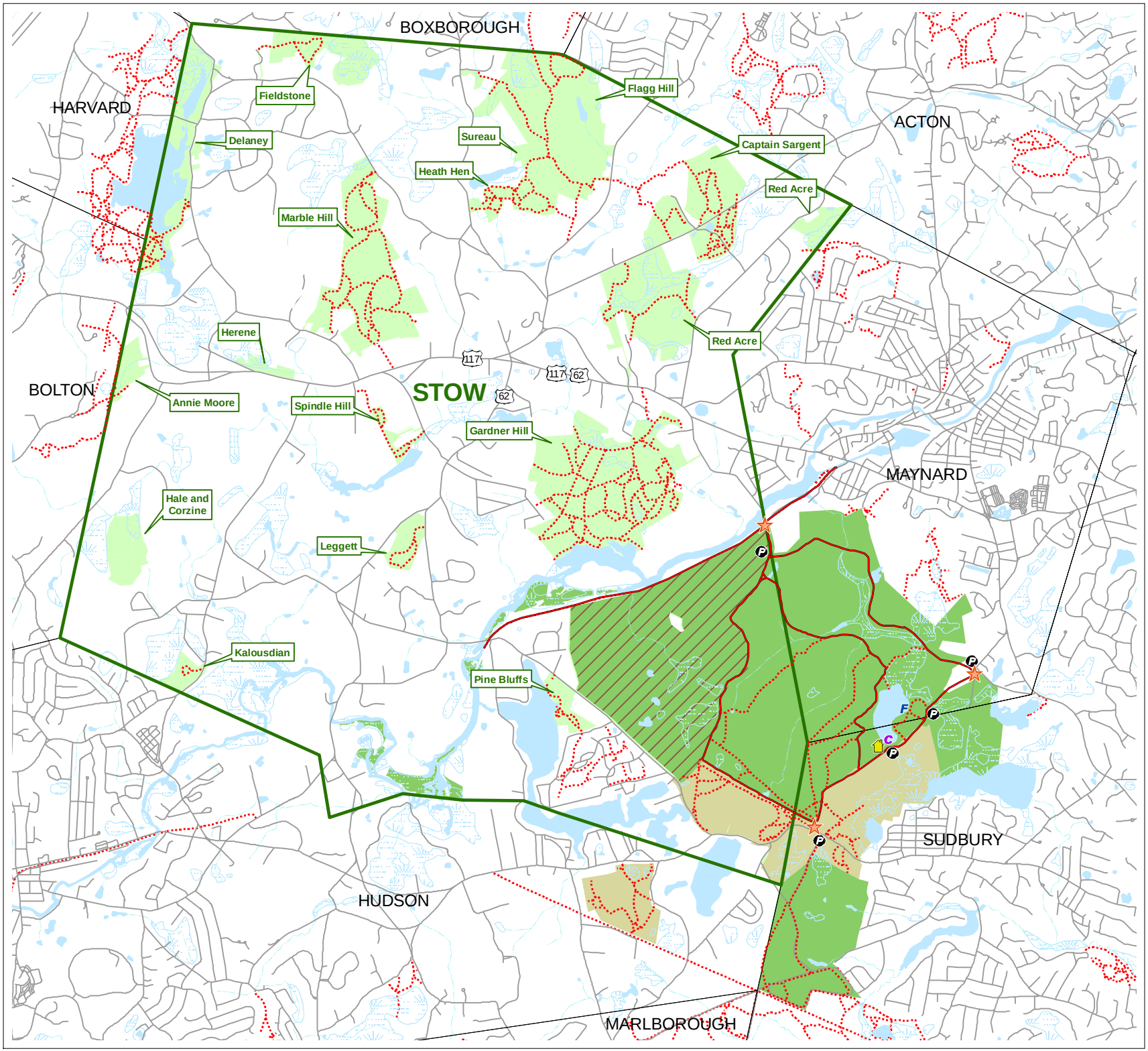
PAL is prepared to submit the technical proposal and archaeological permit application on receipt of a notice-to-proceed from the client. The MHC has 20 business days to review the application and issue the permit. The archival research can be completed during this period. The field investigations at the Pine Bluffs Recreation Facility project area will take one week to complete, depending on weather conditions. The fieldwork can begin within one week of receipt of the archaeological permit, weather permitting.

The client will be notified of the survey results upon completion of fieldwork. The technical report can be submitted within 45 days following the completion of fieldwork.

Project Personnel

Archaeological investigations will be carried out under the direction of a Principal Investigator with the assistance of a Project Archaeologist. All supervisory personnel meet the qualifications set by the National Park Service (36 CFR Part 61) for direction of archaeological projects.

APPENDIX 15
MASTER PLAN MAPS



Assabet River National Wildlife Refuge

- Trail (no biking)
- Trail (bikes allowed)

Assabet River NWR

- Assabet River NWR
- CLOSED AREA
- Entrance
- Parking
- Visitor Center
- F Fishing Area
- C Canoe Access

- Sudbury State Forest
- Stow Conservation Land

Friends of the Assabet River National Wildlife Refuge

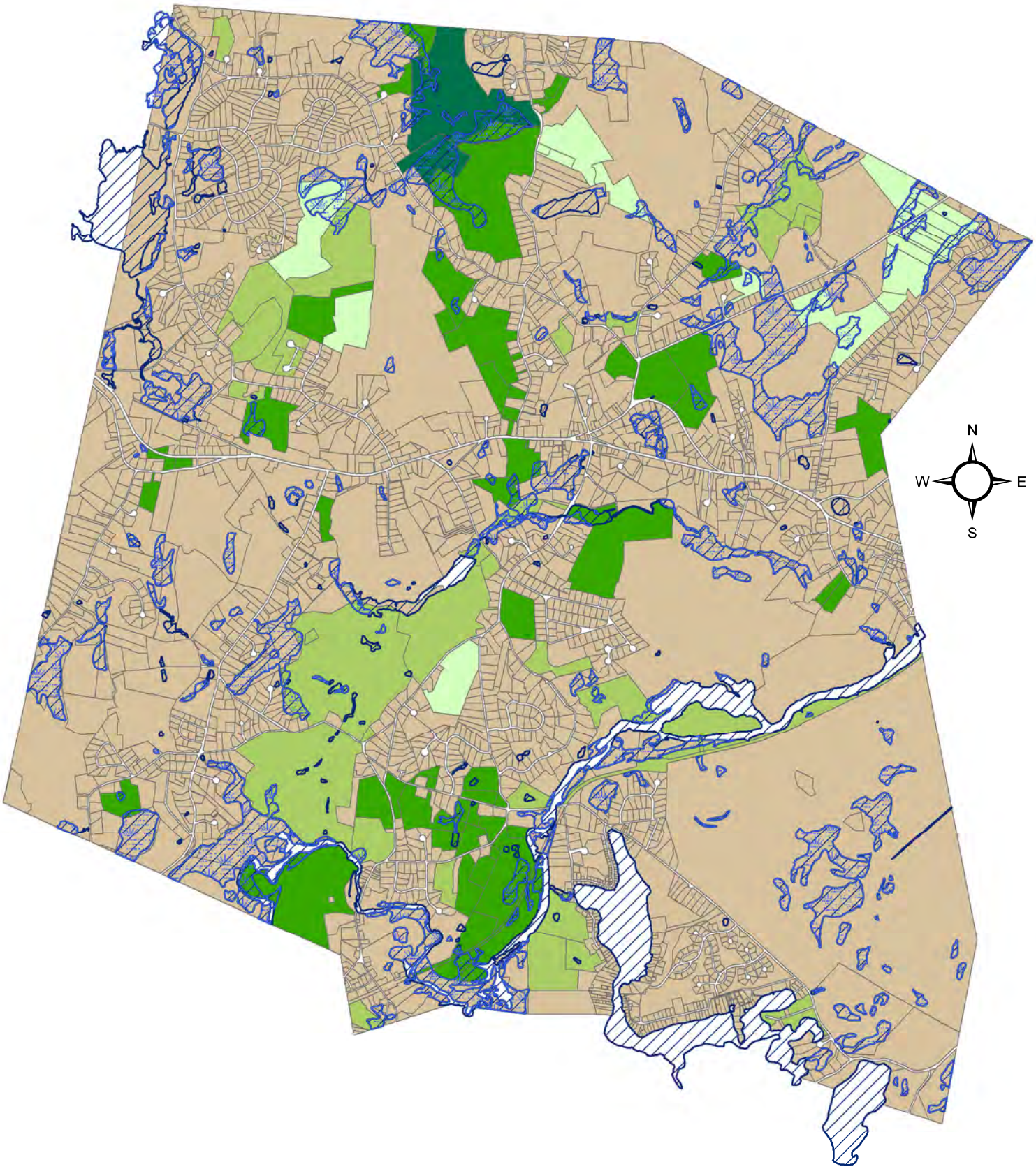
P.O. Box 5729
Marlborough, MA 01752-8729

On the Web: www.farnwr.org
E-Mail: info@farnwr.org

N

1 Mile

Chapter 61, 61A, and 61B Land



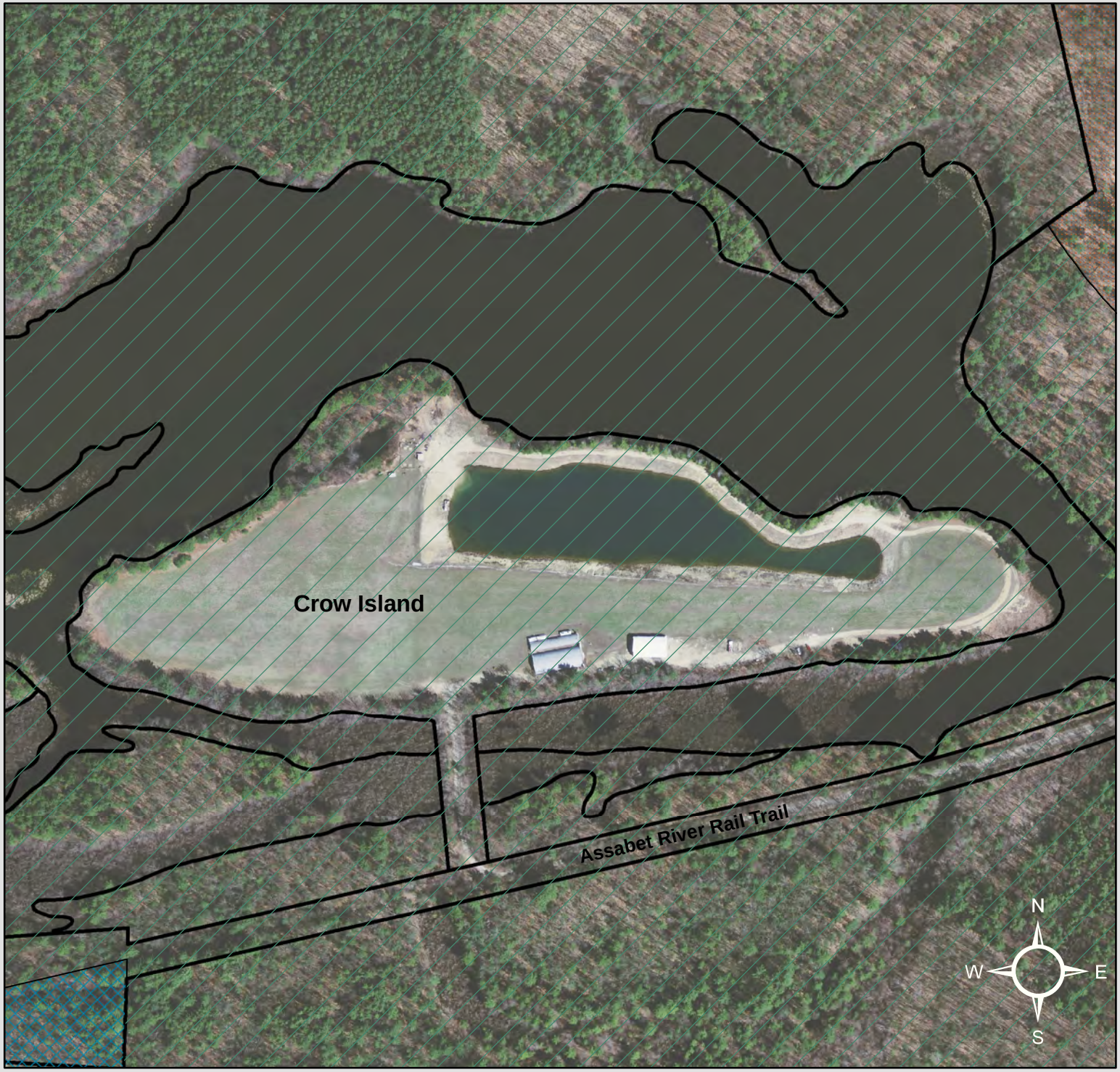
Town of Stow
Planning Department
380 Great Road
Stow, MA 01775

0 0.150.3 0.6 0.9 1.2 Miles

Data Source: Town of Stow, Assessors Data
Coordinate System: NAD1983 MA StatePlane
Projection: Lambert Conformal Conic

Chapter 61
Chapter 61B
Chapter 61A
Chapter 61A and 61B
Wetlands
Water
Parcels

January 27, 2010



Crow Island

Reference Map

Legend

- Recreation/Conservation Zone
- Commerical Zone
- Residential Zone

0 0.015 0.03 0.06 0.09 0.12
Miles

Data Source:
Stow, MA Board of Assessors

Coordinate System:
NAD1983 MA StatePlane

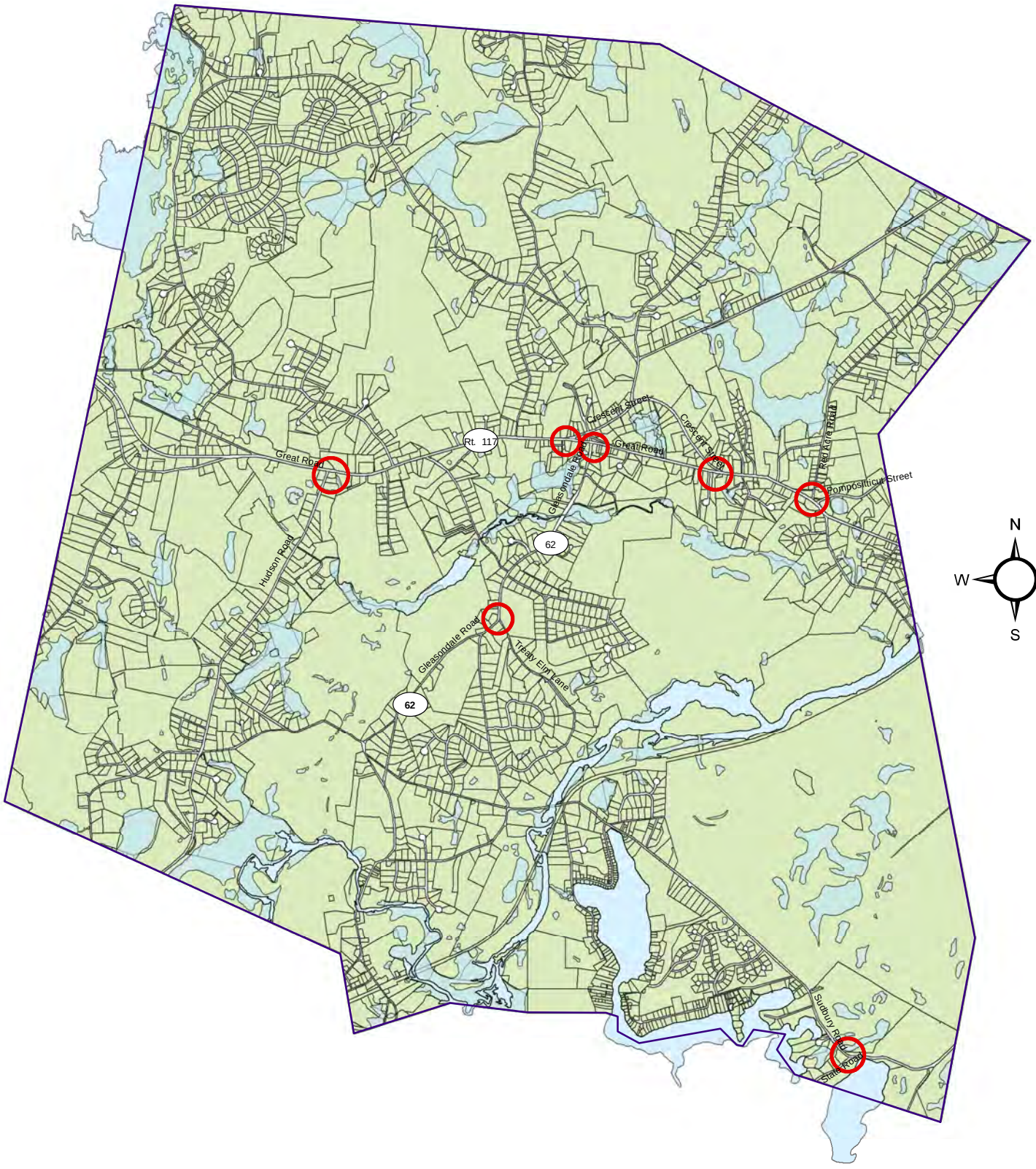
Projection:
Lambert Conformal Conic

Town of Stow

Planning Department
380 Great Rd.
Stow, MA 01775

February 1, 2010

Dangerous Intersections in Stow, MA



Town of Stow
Planning Department
380 Great Road
Stow, MA 01775

December 10, 2009

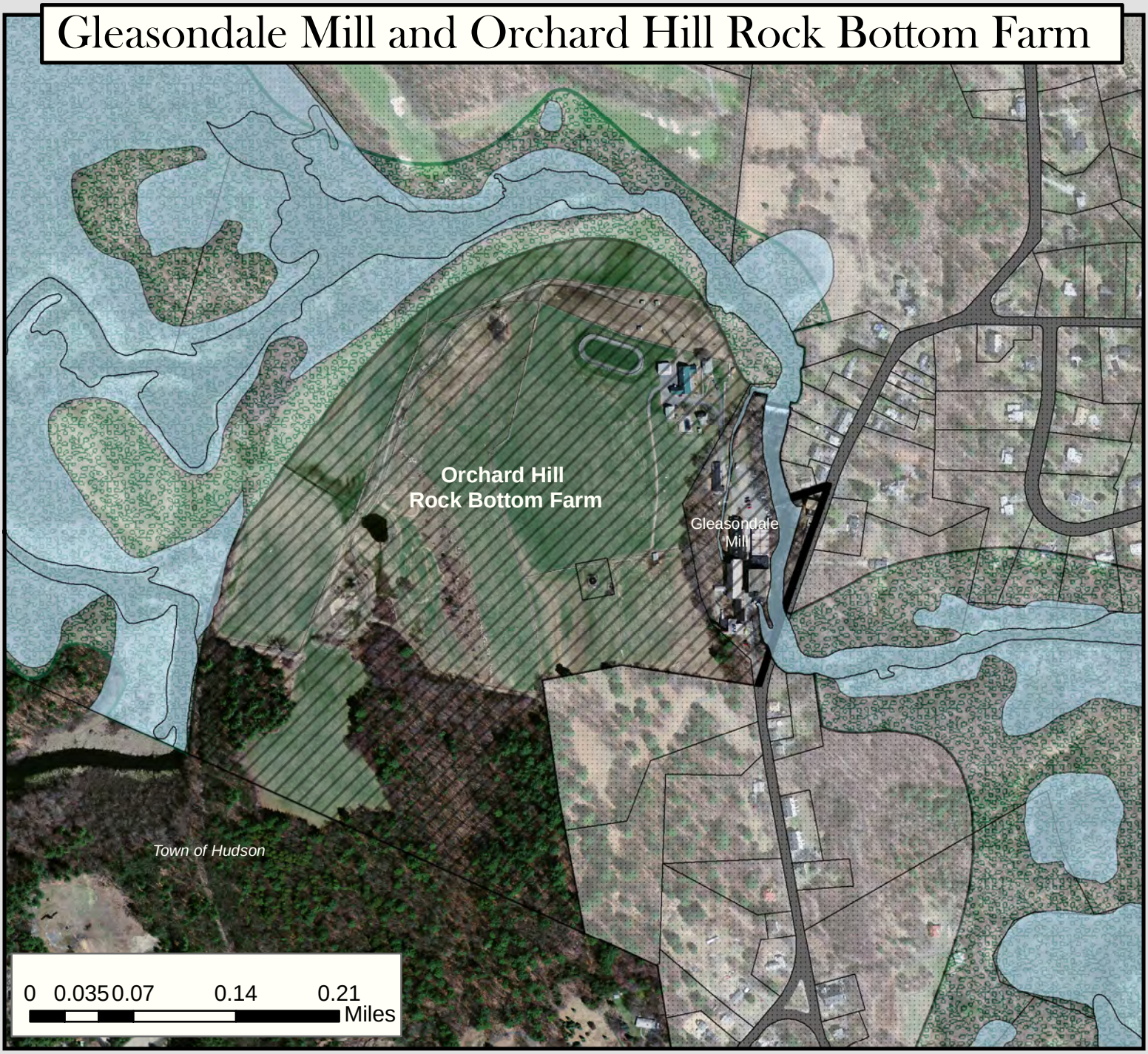
Legend

- Water/Wetlands
- Parcels
- Roads
- Most Dangerous Intersections
- TownLine

0 0.2 0.4 0.8 1.2 1.6 Miles

Data Source: Stow MA Board of Assessors
Coordinate System: NAD 1983 StatePlane Massachusetts Mainland
Projection: Lambert Conformal Conic

Gleasondale Mill and Orchard Hill Rock Bottom Farm



Legend

- Conservation
- Industrial
- Residential
- Wetlands
- Parcels
- Roads

N
W E
S

Data Source: Town of Stow Assessor's Data
and Massachusetts GIS Data

Projection: Lambert Conformal Conic
Coordinate System: NAD1983 StatePlane Massachusetts Mainland

Town of Stow

Planning Department
Stow, MA 01775

December 17, 2009

Reference View

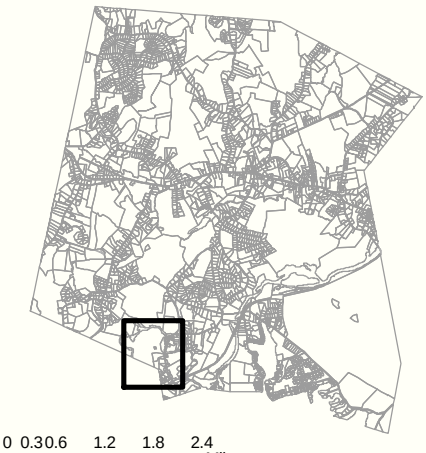
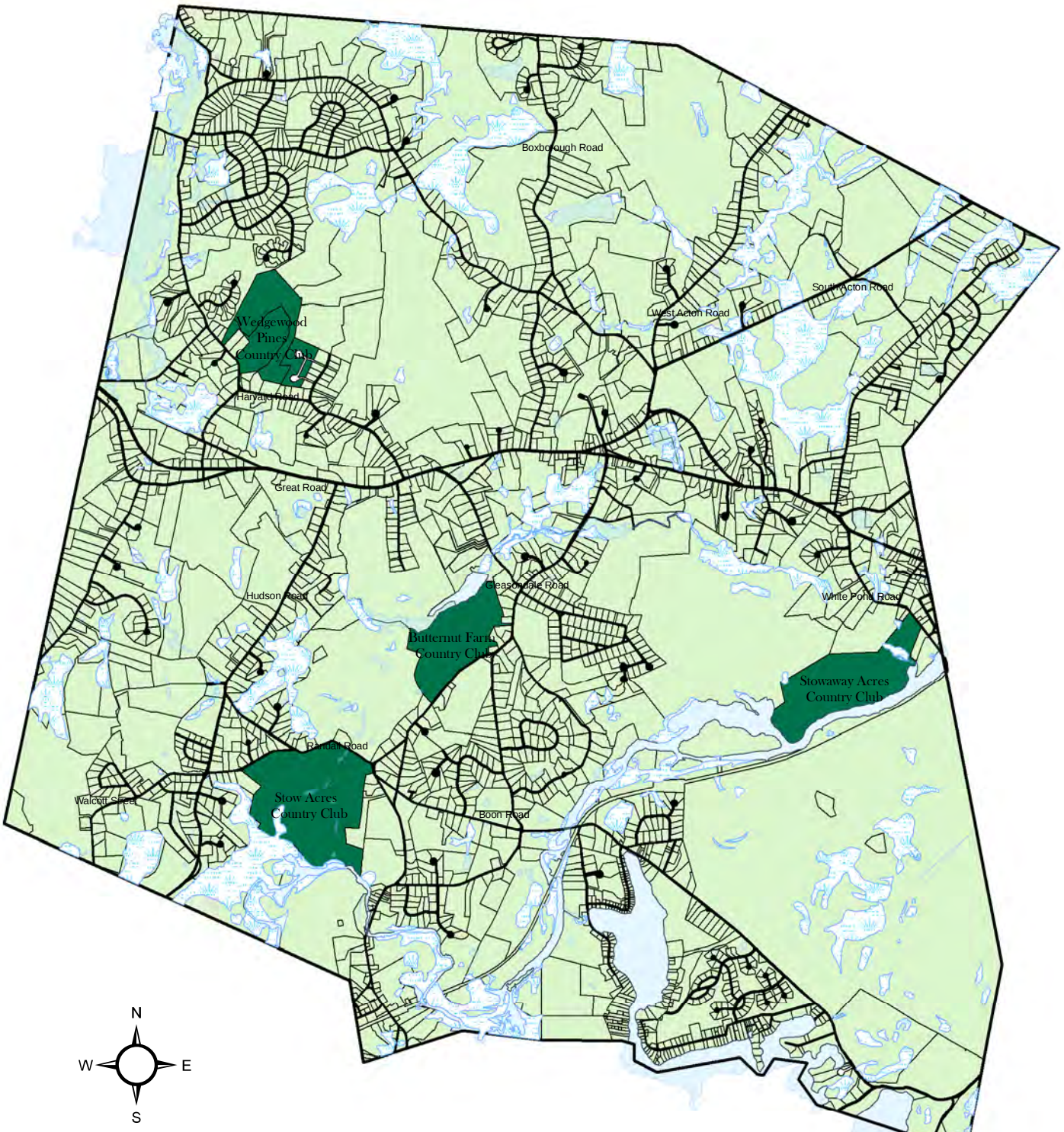


Image of Orchard Hill Rock Bottom Farm

Stow Golf Courses



Data Source: Town of Stow Assessor's Data

Projection: Lambert Conformal Conic
Coordinate System: NAD1983 StatePlane
Massachusetts Mainland

0 0.2 0.4 0.8 1.2 1.6
Miles

Wetlands
Water

TownLine
Golf Courses

Wetlands
Parcels
Roads

Town of Stow

Planning Department
380 Great Road
Stow, MA 01775

December 7, 2009

Historic Homes

Tenny Homestead

Walcott-Whitney House

Brown-Stow House

Hapgood House

Randall Hale Homestead

Taylor Road
Boxboro Road
Packard Road
West Acton Road
South Acton Road
Red Acre Road
Packard Road
Harvard Road
Old Bolton Road
Great Road
Pompositticut Street
Hudson Road
Gleasondale Road
Sudbury Road

0 0.2 0.4 0.8 1.2 1.6 Miles

Note: Pictures of the five Stow historic homes listed in the National Register of Historic Places are shown on this map.

N
W E
S

Town of Stow

Planning Department
380 Great Rd.
Stow, MA 01775

October 19, 2010

Legend

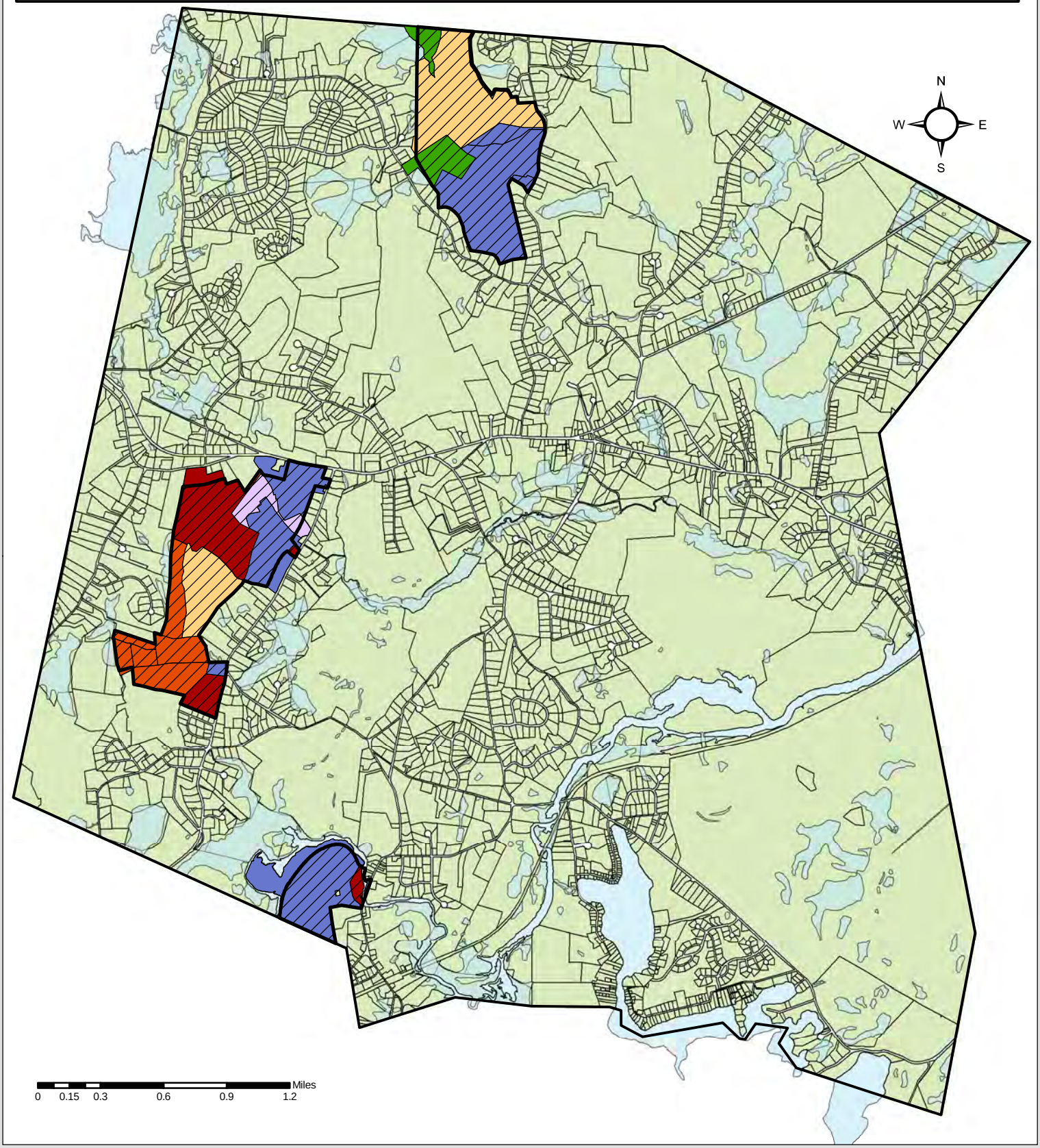
1900-1929
1800s
1700s
1600s
Historic Homes Demolished, Relocated or Significantly Altered
Natural Register of Historic Homes
Water
Roads

Data Source:
Stow, MA Board of Assessors
National Register of Historic Places

Projected Coordinate System:
NAD 1983 StatePlane MA Mainland

Projection: Lambert Conformal Conic

Developed Land Usage within the Industrial Zoning District



Town of Stow
Planning Department

380 Great Road
Stow, MA 01775

January 26, 2010

Legend

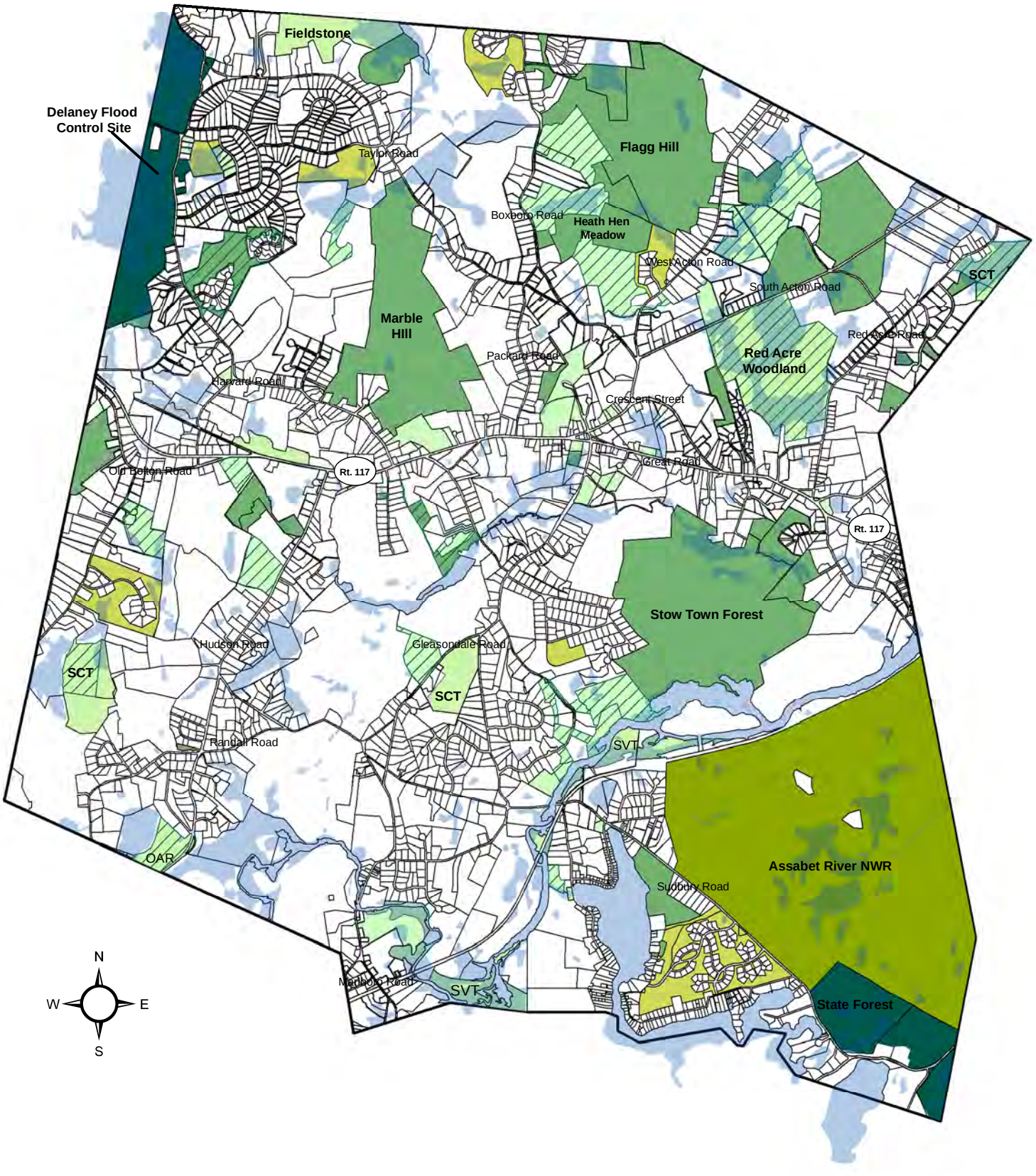
- Developed Industrial Land in Industrial Zone
- Industrial Potentially Developable
- Undevelopable Residential Land in Industrial Zone
- Developed Recreation/Agricultural Land in Industrial Zone
- Water/Wetlands
- Parcels
- Developed Commercial Land in Industrial Zone
- Developed Residential Land in Industrial Zone
- Industrial Zone

Data Source:
Town of Stow, Assessors Data

Coordinate System:
NAD1983 MA StatePlane

Projection:
Lambert Conformal Conic

Key Protected Land



Town of Stow
Planning Department
380 Great Road
Stow, MA 01775

- Town of Stow - Open Space
- State - Open Space
- Federal - Open Space
- Non-profit - Open Space
- Conservation or Agricultural Preservation Restriction
- Home Owners Associations
- Parcels
- Wetlands

0 0.125 0.25 0.5 0.75 1 Miles

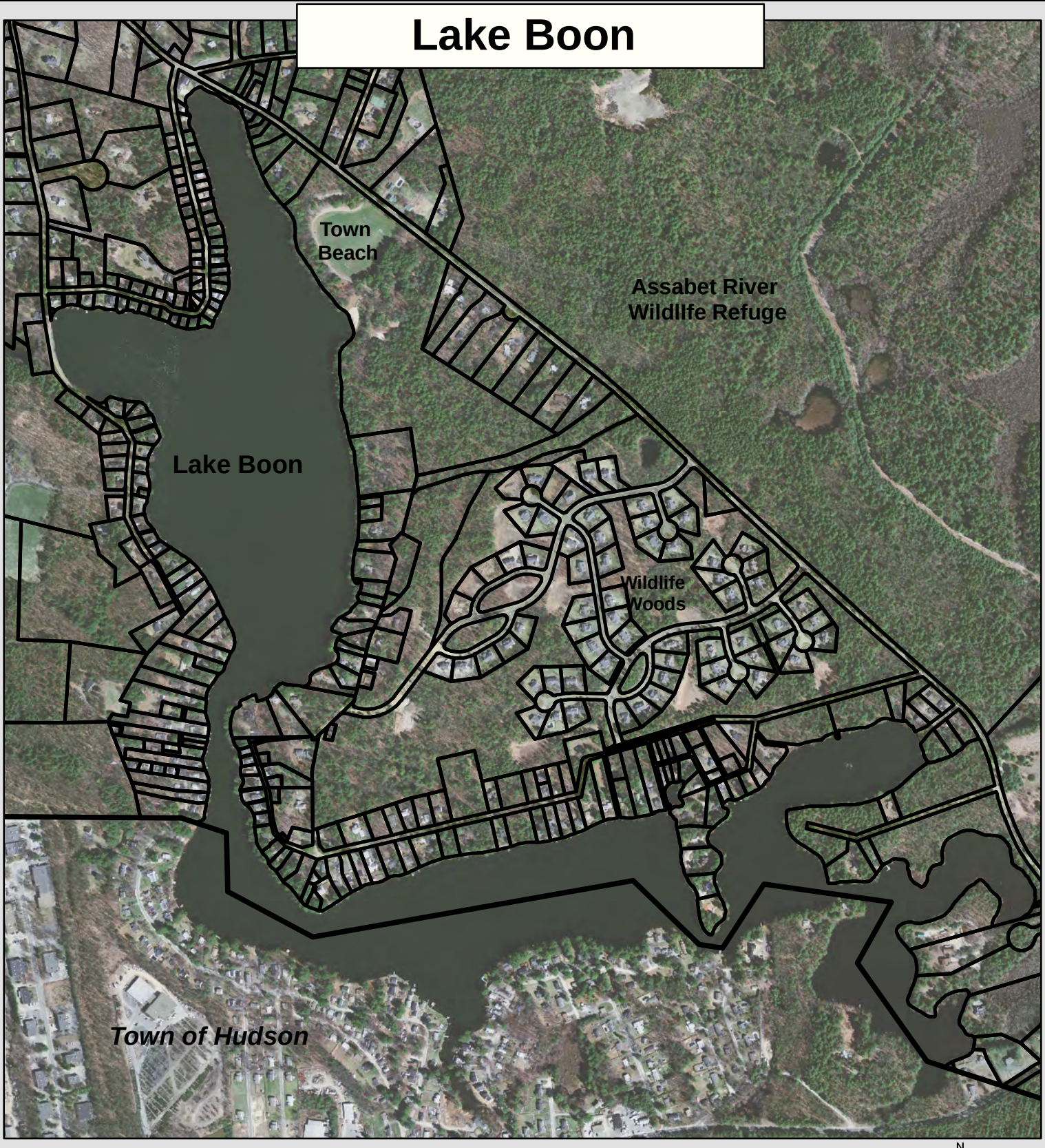
Data Source: Town of Stow, Assessors Data
Massachusetts GIS

Coordinate System: NAD1983 MA StatePlane

Projection: Lambert Conformal Conic

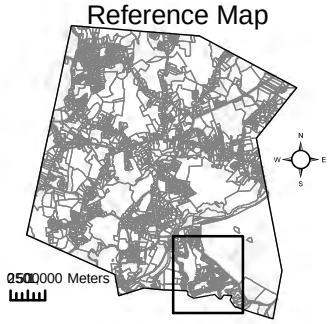
March 4, 2010

Lake Boon



Town Beach

Reference Map



0 0.045 0.09 0.18 0.27

Miles

N
W E
S

Data Source:
Stow, MA Board of Assessors

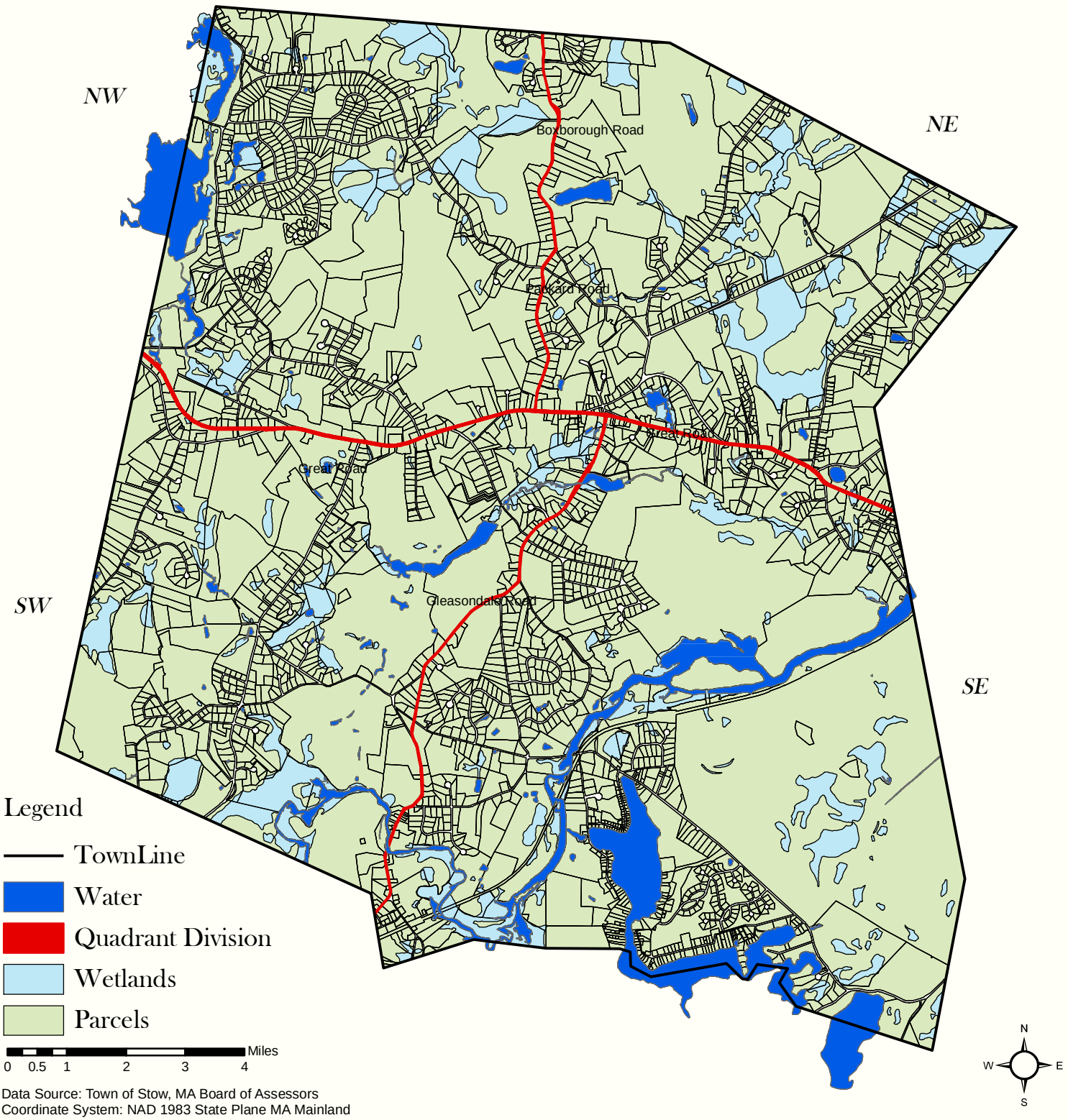
Coordinate System:
NAD1983 MA StatePlane

Projection:
Lambert Conformal Conic

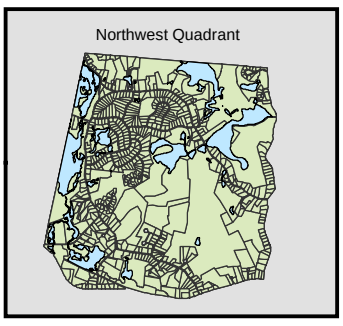
Town of Stow
Planning Department
380 Great Rd.
Stow, MA 01775

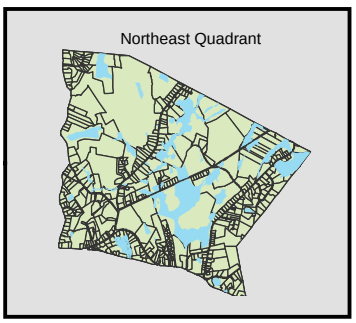
January 28, 2010

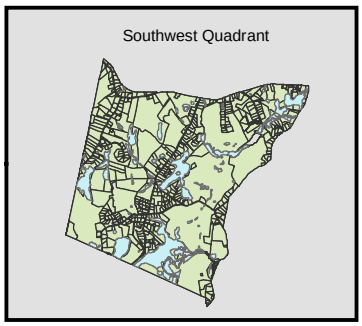
Stow Massachusetts Quadrant Map

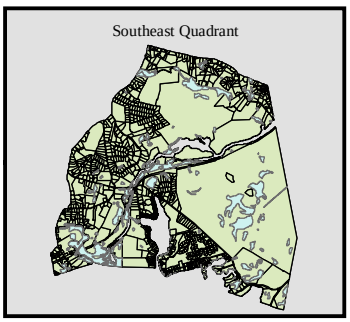


Data Source: Town of Stow, MA Board of Assessors
Coordinate System: NAD 1983 State Plane MA Mainland
Projection: Lambert Conformal Conic

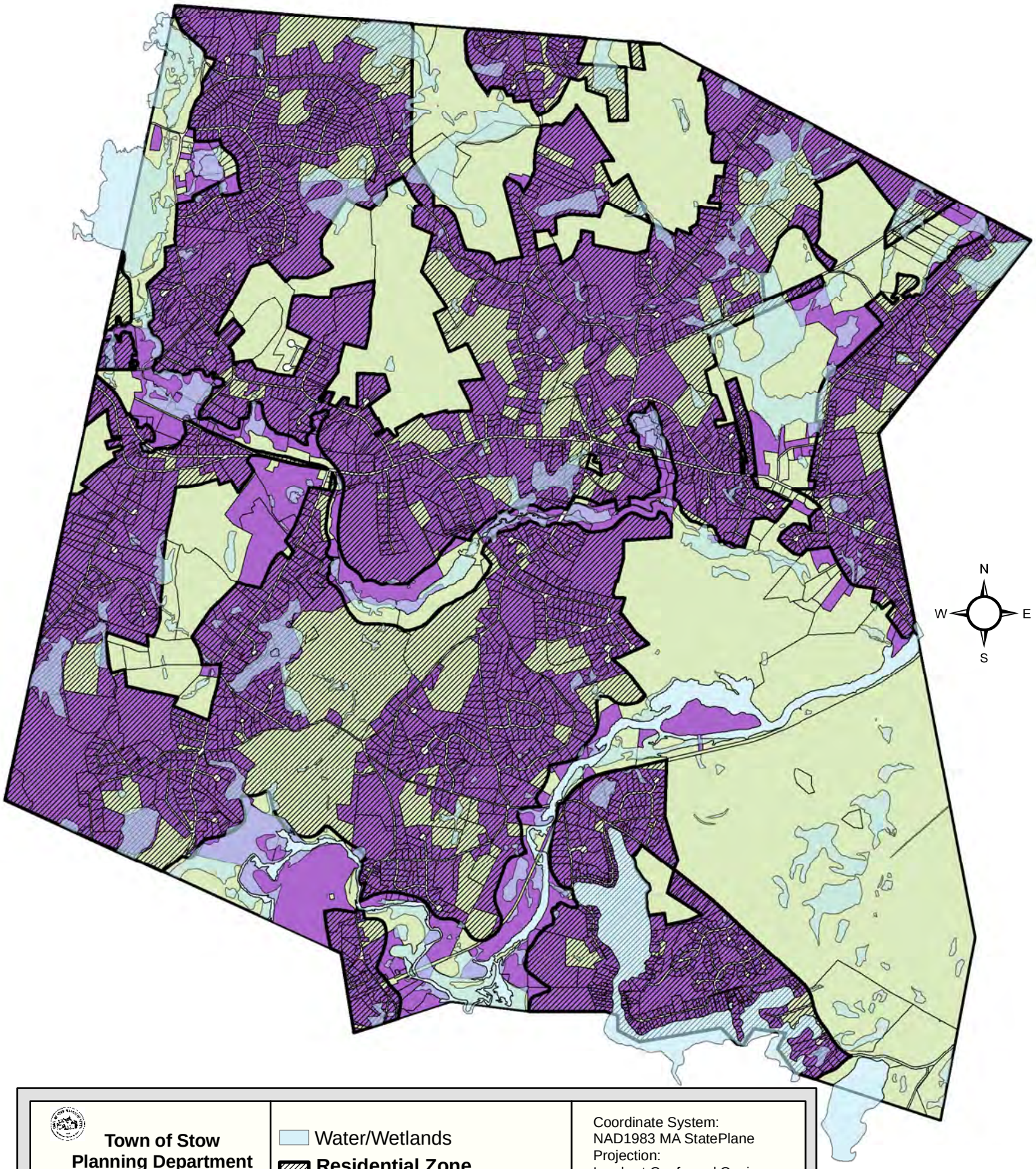








Residentially Developed Parcels and The Residential Zoning District



Town of Stow
Planning Department
380 Great Road
Stow, MA 01775

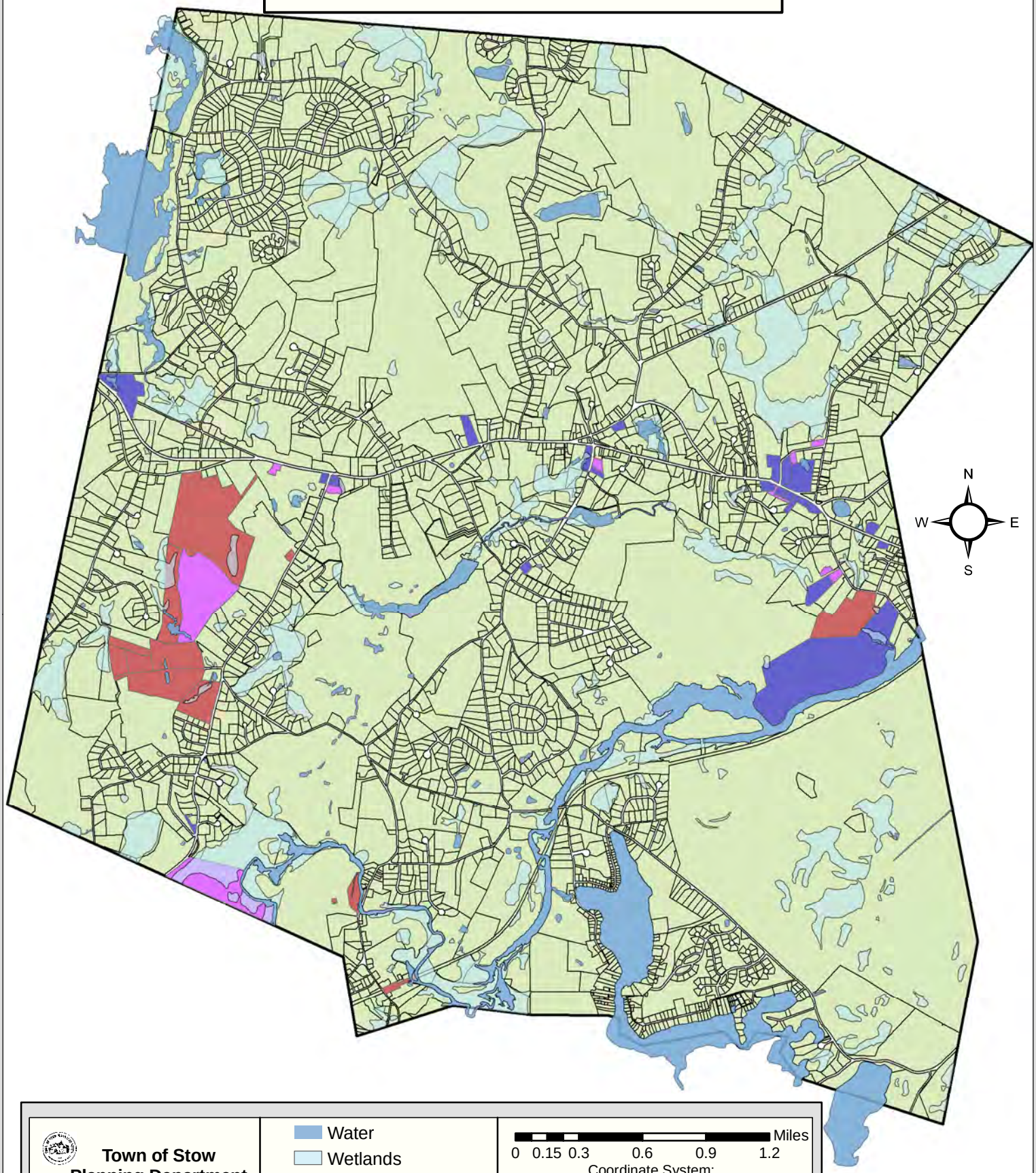
Water/Wetlands
Residential Zone
Residential Use
Parcels

Coordinate System:
NAD1983 MA StatePlane
Projection:
Lambert Conformal Conic

Data Source:
Town of Stow, Assessors Data

January 26, 2010

Parcels Developed as Commercial, Industrial, or Business



Town of Stow
Planning Department
380 Great Road
Stow, MA 01775

- Water
- Wetlands
- Industrial Uses
- Business Uses
- Commercial Uses
- Parcels

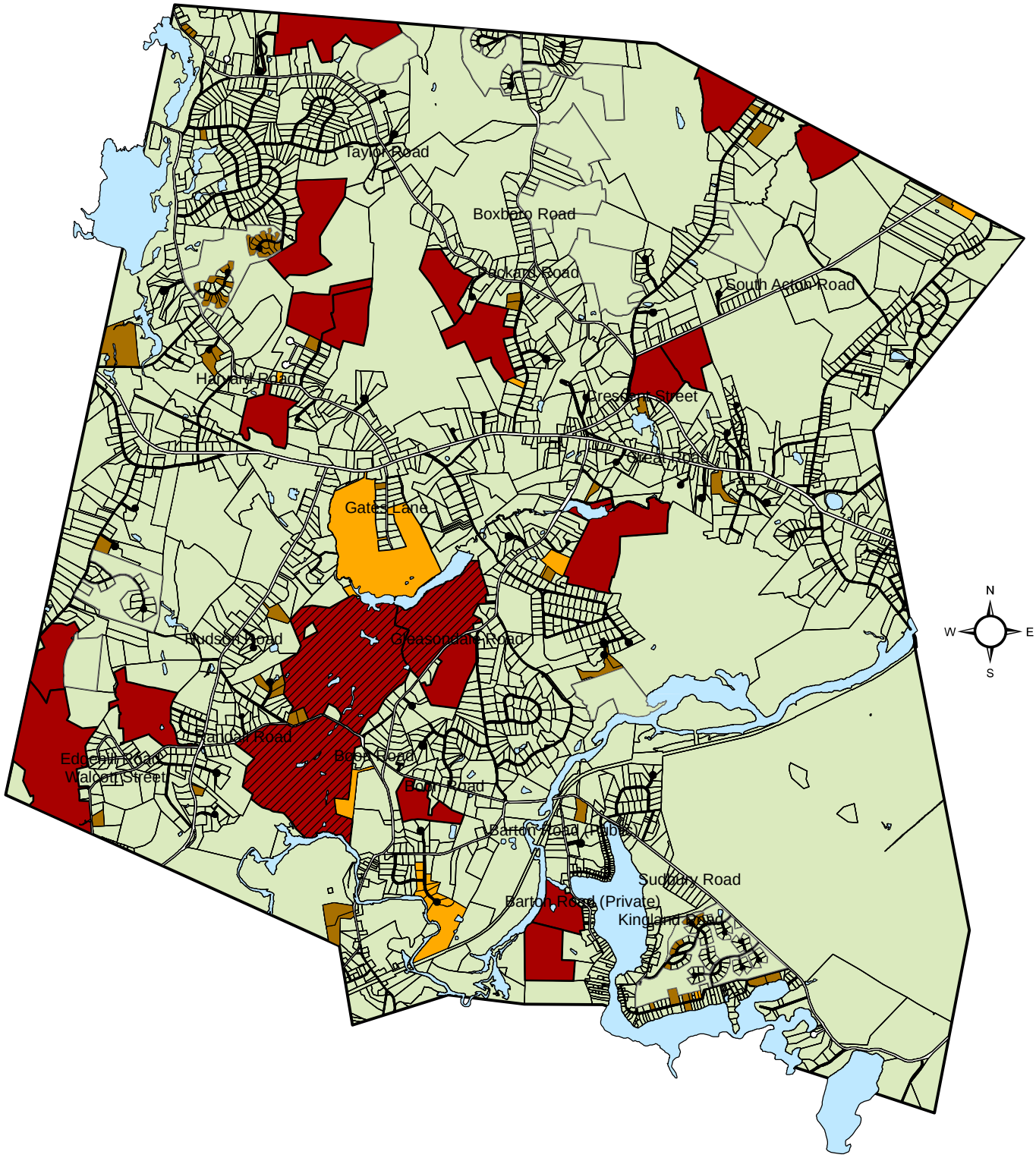
Miles
0 0.15 0.3 0.6 0.9 1.2

Coordinate System:
NAD1983 MA StatePlane
Projection:
Lambert Conformal Conic

Data Source:
Town of Stow, Assessors Data

January 26, 2010

Parcels at Risk for Residential Development



Town of Stow

Planning Department
380 Great Road
Stow, MA 01775

May 12, 2010

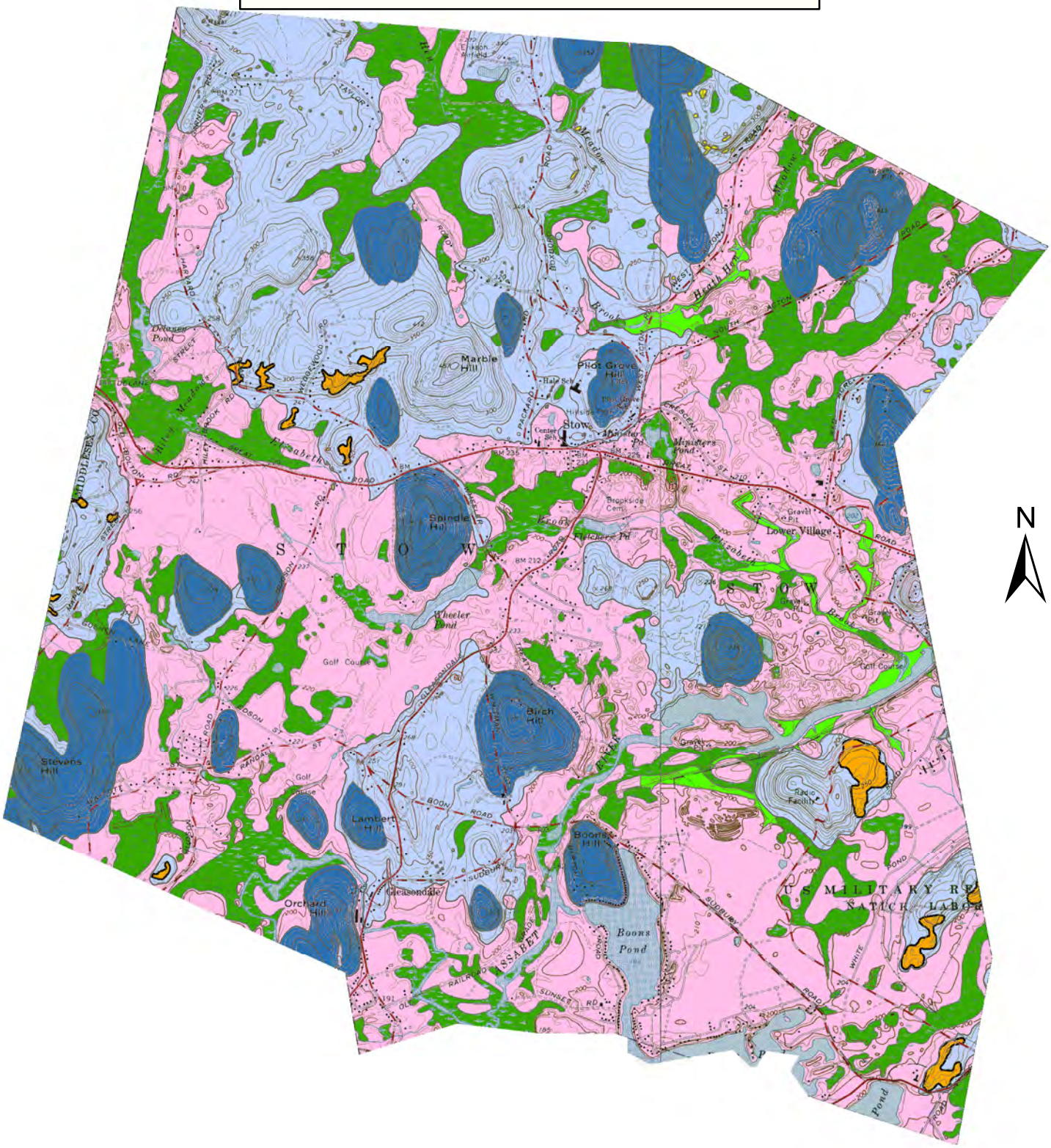
Legend

- Bodies of Water
- Roads
- Parcels
- Currently Used as Commercial
- Vacant Residential Developable
- Vacant Residential Potential Developable
- Developed Parcels >=22.5 Acres

0 0.125 0.25 0.5 0.75 1 Miles

Data Source: Town of Stow, Assessors Data
Coordinate System: NAD1983 MA StatePlane
Projection: Lambert Conformal Conic

Surficial Topographic Geology



Town of Stow

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Legend

- Floodplain Alluvium
- Swamp Deposits
- Ice contact and kame deposits, stratified
- streams02
- Areas of Abundant Outcrop and Shallow Bedrock
- Bedrock Outcrop
- Drumlin
- Ground moraine

0 0.125 0.25 0.5 0.75 1
Miles

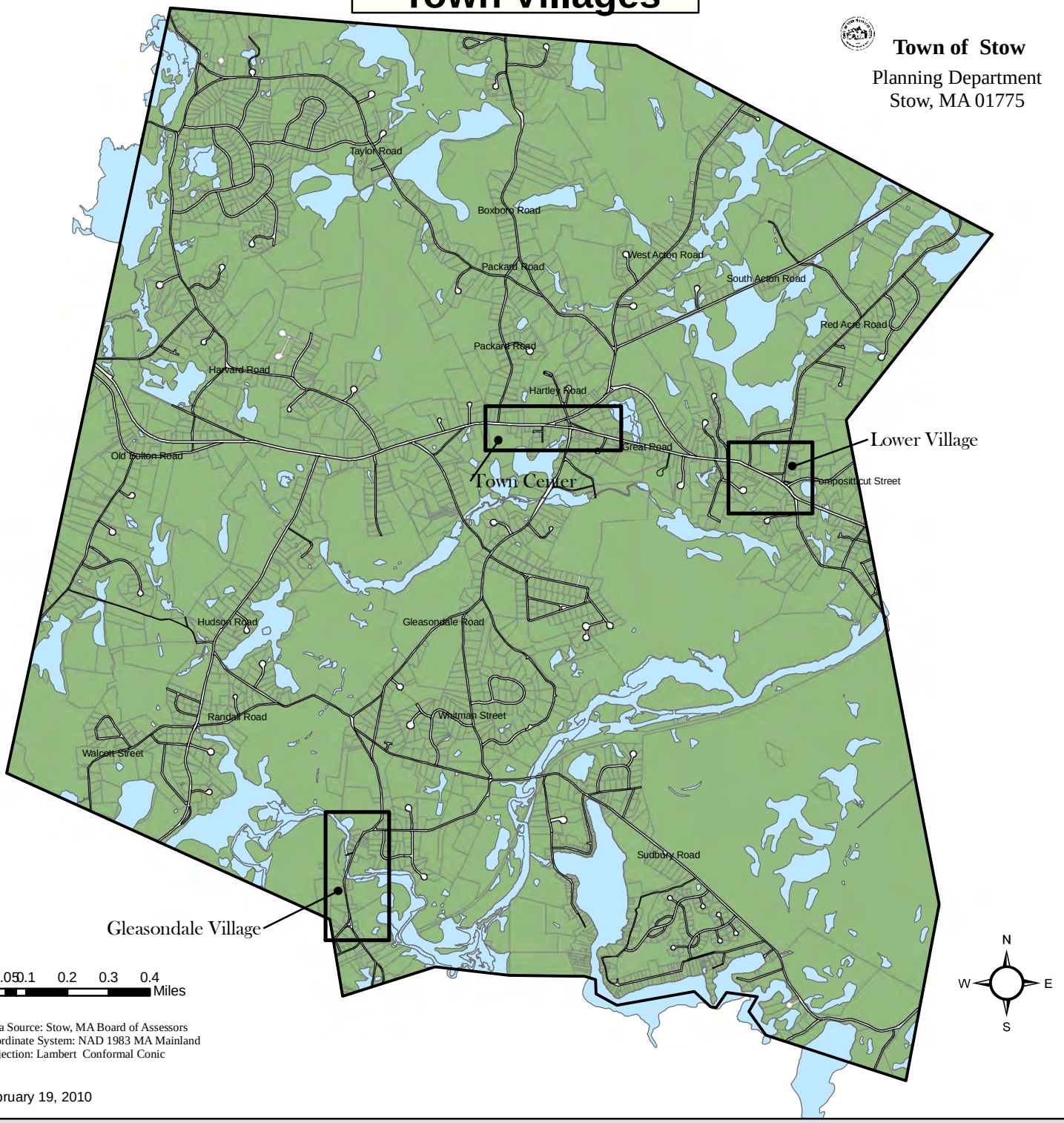
Coordinate System:
NAD1983 MA StatePlane
Projection:
Lambert Conformal Conic

Data Source: Mass GIS

February 1, 2010

Town Villages

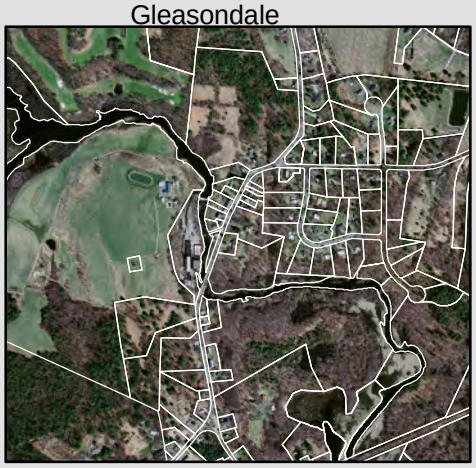
Town of Stow
Planning Department
Stow, MA 01775



Data Source: Stow, MA Board of Assessors
Coordinate System: NAD 1983 MA Mainland
Projection: Lambert Conformal Conic

February 19, 2010

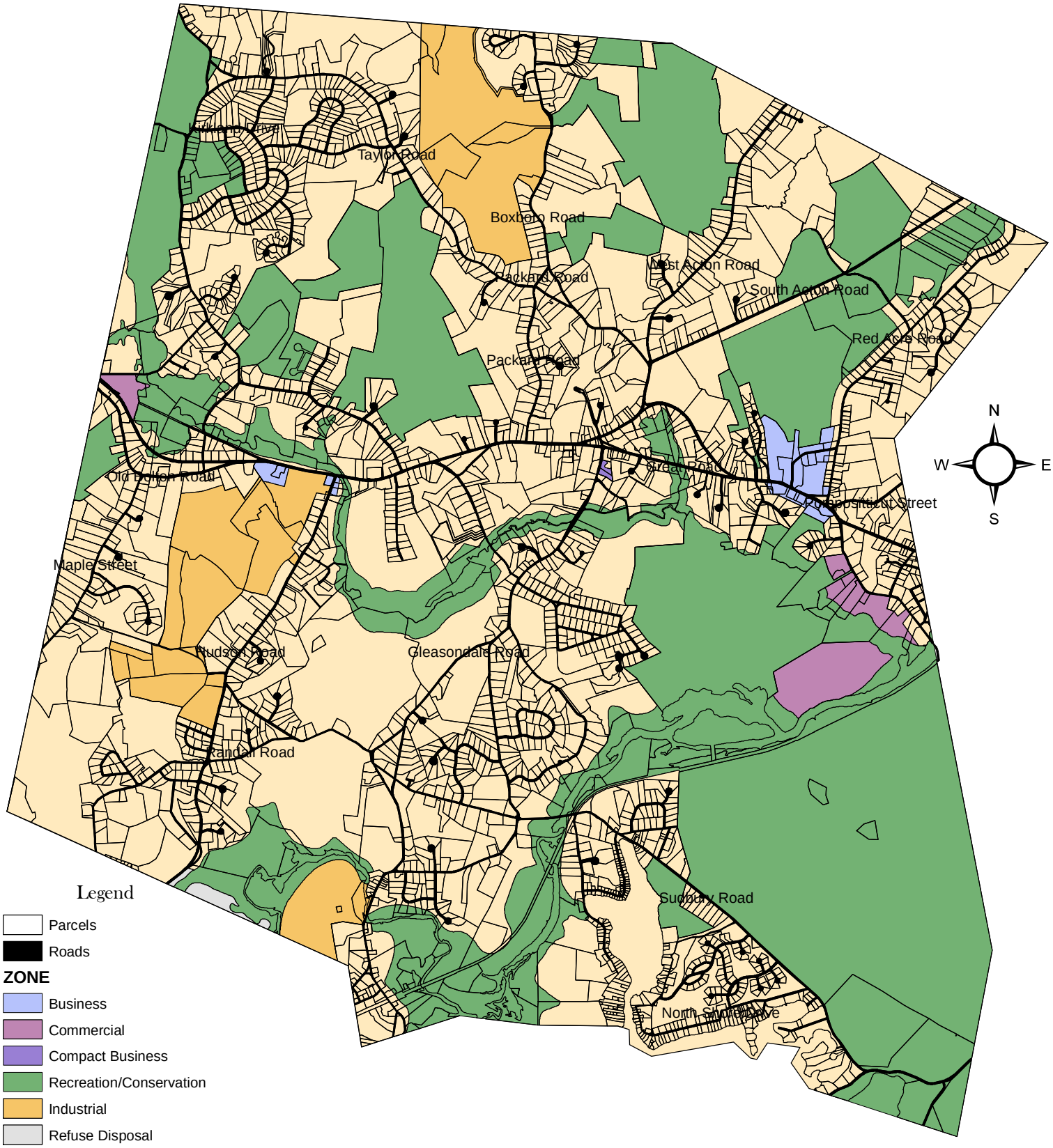
Gleasondale



Town Center

Lower Village

Town of Stow Zoning Map



Town of Stow
Planning Department
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October 6, 2009

Zoning articles are hereby established as shown, located, defined and bounded on a map entitled "Town of Stow Zoning District Map" prepared by Metropolitan Area Planning Council dated May 1, 1995.

Amended:
November 17, 1998 *October 25, 2003*
February 16, 2000 *May 17, 2004*

0 0.2 0.4 0.8 1.2 1.6 Miles

Data Source: Stow, MA Board of Assessors
Coordinate System: NAD1983 MA StatePlane
Projection: Lambert Conformal Conic