



Town of Harvard Master Plan



Phase II: Master Plan, 2016

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Photo Credit: Joe Hutchinson

GLOSSARY OF TERMS

Chapter 498	The 1993 Act of the Legislature that established the DEC and the DREZ and placed governance in the hands of the Government Land Bank, now MassDevelopment
DEC	Devens Enterprise Commission
DEAT	Devens Economic Analysis Team
DREZ	Devens Regional Enterprise Zone
HEAC	Harvard Energy Advisory Committee
JBOS	Joint Boards of Selectmen
IWPA	Interim Wellhead Protection Area
MBSA	Massachusetts School Building Authority
MPSC	Master Plan Steering Committee
Residential Harvard Combined Harvard and Devens	That portion of Harvard that excludes Devens Harvard and Devens combined as one entity

CHAPTER 1: INTRODUCTION, VISION AND GOALS

1. INTRODUCTION

The Master Plan Steering Committee (MPSC) is pleased to present this *Master Plan* to the citizens of Harvard with the hope that it will prove to be a useful tool for preserving the character of the Town and be a guide for sustainable growth. We are deeply indebted to all of the committee members and residents who participated in workshops, surveys, roundtables, and document reviews, which composed a clear voice for formulating a unified public policy to address the key issues confronting Harvard in the years ahead.

In many ways, Harvard has been able to preserve its small-town appeal. Its excellent schools, plentiful open space, scenic views, lack of traffic congestion, and historic Town Center have kept property values high and provided residents with a pristine environment. Growth has continued at a slow pace, and low density zoning regulations have prevented many of the ills of suburbanization and commercial sprawl. However, even slow growth causes problems that call for action.

Harvard last updated its Master Plan in 2002. It set forth an agenda of urgent tasks to confront identified concerns. The Town checked off many items on the list only to be replaced with new issues that were not anticipated at the time. In undertaking this planning process officials devised a two-phased strategy to take stock of the current state of affairs and to devise a new game plan to meet residents' expectations for preserving Harvard's community fabric. This 2016 Update is the result of numerous public input sessions and committee meetings and sets out a clear path for guiding the Town forward over the next ten-year planning horizon.

Phase I, completed in 2012 with the assistance of Brown Walker Associates and Wolf Landscape Architecture, crafted a Vision for the future and established a set of Goals and Objectives that define the principles by which Harvard will evaluate all future courses of action. Phase I identified five major subject areas that were to be the focus of in-depth examinations in Phase II. These include Devens, Conservation, Housing, the Ayer Road Commercial District, and the Town Center. *Phase I: Vision and Goals* is a stand-alone report but is an integral component of the Master Plan. The Vision and Goals from Phase I are re-printed below due to their importance in shaping the work program and strategic thinking that occurred throughout Phase II.

Phase II: Harvard Master Plan, contains the various elements required by the Massachusetts Master Plan Law, MGL c. 41 §81-D, in order to constitute a complete Plan. Chapters 2-8 introduce the various elements in sequence with text, maps, and analysis to acquaint the reader with current conditions, including Devens factors that pertain to that element. Chapter 9 reports on the status of Devens. Chapter 10, Opportunities and Challenges, discusses the implications of the five focus areas from Phase I. Chapter 11 offers implementation actions for each element that are intended to resolve problems or correct deficiencies identified in the report. Each action lists a particular board or department that is responsible for shepherding that particular item through to completion. In this way, the various entities in Town government can be held accountable if they "drop the ball" and lose sight of the overall mission.

The MPSC believes it has completed its charge, and upon adoption by the Planning Board, will disband. We leave it to others to pick up the banner and carry on with the difficult, yet important

task of actually accomplishing the things we believe to be important to the Town's future. We urge the Planning Board to appoint an implementation committee to track progress of the Action Plan. It is all too easy to focus on day-to-day responsibilities and lose sight of the ultimate goal of working to help Harvard fulfill its potential to be a wonderful place to live for all of its citizens and to make sure its beauty remains for future generations. While the Planning Board will take the lead for many of the land use recommendations, there are numerous other committees in Town that must also step up and assume responsibility for improving conditions within their domain.

Phase II began with the selection of RKG, Associates to be the professional consultant to assist the MPSC with analysis and identification of workable solutions to resolve major areas of concern. Upon delivery of an initial draft, Harvard cut ties with the consultant and assumed a more direct role in formulating the key components of the Plan, with technical assistance provided by the Town's consulting planner, William Scanlan. Near the end of the process, realizing that it did not have a sufficient grasp on the complexity of the matter of resuming (or not resuming) jurisdiction of Devens, Harvard hired the consulting firm of Burns and McDonnell to undertake a thorough evaluation of this question. *Devens Impact Evaluation and Recommendations* (December 2015) will be an invaluable resource to help residents understand the benefits and responsibilities of Harvard taking back control of its historic lands at Devens.

Readers may choose to read the Plan from cover to cover, or just zero in on a particular area of interest. The Town needs capable citizen-volunteers to participate in all aspects of local government. We ask each resident to consider devoting some time and creative energy to the rewarding task of public service.

The Vision and Goals from Phase I follow.

2. VISION STATEMENT FROM PHASE 1

Harvard's community vision is the picture that the Town has painted of its future; it is an inspiration and a focus on what is possible. It answers the question "Where do we want to go," and articulates the dreams and hopes of Harvard's residents. It expresses what residents want Harvard to look like into the next decade and into a future that will be shaped by decisions the Town makes over the next few years. In the context of the Master Plan, the goals define the results that we expect after having taken actions outlined in the plan.

Harvard's shared vision comes from the hearts and minds of the hundreds of residents who engaged in Phase I of the master planning process and who shared their ideas about what they like about Harvard and about what they felt should change in town. The commonalities indicate shared beliefs, values, and desires, and are the basis for Harvard's community vision. It is important to note that these commonalities also show a great consistency across time as can be seen in Harvard's vision statement from its 2002 Master Plan.

(http://www.harvard.ma.us/Pages/HarvardMA_BComm/Planning/exec.pdf).

Vision Statement

In 2020 Harvard will be a town that continues to foster a strong and vibrant sense of community and place, embraces careful stewardship and enhancement of its natural, historic and cultural resources, understands a clear direction in its role in Devens' governance, and employs best

practices for achieving long-term sustainability. An informed and involved community is critical to accomplishing this vision.

3. TOWN GOALS

Harvard has a robust sense of community and place:

- Encourage a strong volunteer government and provide necessary staff support
- Encourage active civic life through public and private institutions and organizations
- Develop housing to accommodate a diversity of needs and population
- Foster a variety of gathering places for all generations
- Maintain the Town Center as the institutional, civic and cultural heart of the community, as envisioned in the 2005 Town Center Action Plan

Harvard has a defined role in Devens:

- Analyze fiscal and community impact of Devens on Harvard
- Use public outreach and education to ascertain Harvard's preferred direction and encourage and promote the awareness of the stake Harvard has in Devens in terms of governance, schools, and the civic life of the town
- Collaborate with Devens' stakeholders, including Ayer, Shirley and MassDevelopment
- Decide on Harvard's role in governance of Devens

Harvard is assured long-term sustainability:

- Develop plans for investment in public infrastructure, buildings and equipment
- Diversify and strengthen the town's revenue base
- Invest in near and long-term energy efficiencies
- Encourage retail and commercial activities of appropriate size and in appropriate locations as determined by residents and market

Harvard engages in judicious stewardship of natural, historic and cultural resources:

- Preserve and enhance historic buildings and cultural resources
- Identify and protect critical natural resource areas
- Restore and/or maintain key viewsheds
- Support agricultural heritage and farms
- Preserve stone walls and shade trees along rural roads
- Adopt best management practices on public conservation lands and disseminate them to the public

4. FOCUS AREA GOALS

DEVENS

Goals

- Be engaged and informed participants in planning for Devens' development and governance.
- Set a timeline for determining Harvard's preferred direction with respect to local governance of Devens.
- Understand the full scale of potential benefits and liabilities related to governance decisions.
- Ensure decision on local governance results in a positive outcome for Harvard and other stakeholders, including the Commonwealth, the region, and our neighbor towns.
- Keep Devens' neighborhoods intact.

AYER ROAD COMMERCIAL DISTRICT

Goals

- Diversify Harvard's economy and tax base with an appropriate mix of residential and commercial development in the Commercial District.
- Work with existing and new businesses to attract commercial services that fit the town.
- Decrease barriers and increase incentives for attracting new business.
- Work with adjacent neighborhoods, town residents, and other stakeholders to facilitate planning and coordination prior to any permitting processes.
- Understand the relationship between economic development of the C-District and Devens, in terms of various factors such as transportation and circulation, conservation, and housing.

HOUSING

Goals

- Increase the diversity of housing types in Harvard to meet the needs of a greater variety of households.
- Ensure that new housing is harmonious in design with the character of the community.
- Provide a greater variety of housing throughout Harvard.
- Be proactive in meeting the state's affordable housing goals.

TOWN CENTER

Goals

- Emphasize Town Center's role as the central community gathering place.
- Accommodate land uses that meet different needs of the community across different time scales.
- Integrate the natural landscape with the historic beauty and viewsheds of the Town Center.
- Provide safe, convenient and attractive circulation choices for pedestrians that reduce parking demands.
- Maintain and enhance public buildings for cultural and community uses.
- Protect and optimize multi-family and rental properties to provide diverse housing options.

CONSERVATION

Goals

- Conserve natural, historic and cultural resources.
- Preserve the Town's defining landscapes that are valued by Harvard's residents and reflective of the rural heritage.
- Protect local watersheds.
- Protect Harvard's agricultural base.
- Preserve historic structures and locations.

5. FINDINGS OF THE 2014 MASTER PLAN SURVEY

The Master Plan Steering Committee and RKG Associates developed a citizen survey to assess residents' sentiments regarding important topics facing Harvard in the years ahead. Understanding citizens' desires is an important element of preparing a Master Plan, and surveys help to place in perspective the relative merits of various choices. Results may help to shape local growth policies and can serve as indicators of support, or non-support, for possible implementation measures to address the threats and opportunities confronting Harvard.

The survey contained six demographic/identification questions and 51 public policy questions. The survey was administered on the internet in the spring of 2014 via Survey Monkey. It required interested parties to have access to a computer and an internet connection. Paper copies were also available at the Senior Center and in other locations. 239 residents completed the survey. As primarily an on-line instrument without checks on who could take it or the number of times one could participate, the survey does not represent a statistically valid, random sample of residents. Local officials should use caution in interpreting the results. Nevertheless, the survey offers some interesting insights into the mutual aspirations of the citizens.

Presented below is a summary of key findings from the survey organized by topic. The tabulation of data is in Appendix 4 and includes a brief interpretation of the results for each question.

Housing

Harvard's housing stock consists principally of single family dwellings on large lots, and respondents see a need to diversify the housing stock. In particular, respondents believe there is a need for housing that would allow older homeowners to move to a smaller unit and remain near-by even if it means increasing density in some locations. A high percentage of respondents believe that ethnic, generational, and economic diversity are important for the health and vitality of Harvard. Respondents feel that the Commercial District (C District) is an appropriate location for mixed use development (locations that provide a mix of residential and commercial uses), but they were divided on whether or not the C District is an appropriate location for affordable housing. A majority of respondents believe that Harvard needs more affordable housing, but such is not the case for special needs housing. Respondents believe that Devens provides opportunities to broaden the housing mix for the Town.

Economic Development

Respondents think that Harvard relies heavily on residential property to raise taxes for municipal services, and they would like to see the Town broaden its tax base through commercial growth. Respondents favor uses that provide services to meet local needs, and not just those that will generate tax revenue. In fact, a majority believe the Town should have a more “business-friendly” approach regarding development in the C District. While loss of town character from greater commercial growth is a concern for some, a greater number believe such growth is possible without altering town character. Some respondents have concerns that economic growth could negatively impact surrounding neighborhoods, but many believe this can be accomplished without adversely affecting nearby residents. Respondents believe the Town should implement appearance controls on new development and should carefully consider the types of uses to allow in the C District. Respondents think that lack of infrastructure along Ayer Road is an impediment to growth, and that bringing infrastructure to the area would spur economic growth and provide revenue for the Town.

Municipal Facilities

If Harvard ever needs a site for a new school, respondents were about evenly split over whether it should remain within the school campus in the Town Center or locate elsewhere. There is lack of support for single stream recycling, although nearly half of the respondents had no opinion on the question. In addition, respondents believe that a fee-per-bag system for waste disposal would not increase recycling, and there is little support for adopting that approach. Respondents clearly support actively maintaining Town buildings, and would be willing to raise taxes to do so. A majority of respondents also believe that the Town should hire a full-time facility manager to look after Town buildings. Respondents support preservation of historic town buildings even if it costs more.

Governance

Unfortunately, there appears to be a widespread perception that local boards do not communicate well or collaborate together and lack capacity to manage a more complex municipal structure, i.e. assuming jurisdiction of Devens.

Town Center

Respondents favor keeping municipal and school buildings in the Town Center. They believe that expanding water and sewer districts there would allow the area to accommodate additional growth. A proposed walking path from the Town Beach through the Center enjoys modest support. A pub or restaurant is the kind of use respondents would like to see open there. Nearly half of the respondents are not in favor of increasing residential density or encouraging affordable housing in the Center. Respondents would like to see the Town implement a comprehensive circulation plan to address traffic flow, parking problems, and pedestrian comfort and safety in the Town Center.

Transportation

Respondents would support re-opening roads that used to lead to Devens if the Town resumes jurisdiction. Respondents do not believe greater traffic enforcement by police will curtail speeding on local roads, nor do they think that cut-through traffic is responsible for unsafe travel

speeds. Instead, respondents strongly endorse building paths for pedestrians and bicyclists to insure their safety. Respondents approve increasing spending on road maintenance.

Devens

The question of resuming jurisdiction over Devens is an important issue for Harvard. Respondents think that the Town should not resume jurisdiction unless the revenues gained are greater than the cost of services. However, over half of the respondents neither agree nor disagree with whether Devens will become fiscally self-supporting within the next decade. Respondents recognize that Harvard will need to hire more professionals due to the complexity of assuming control over a large community. Acquiring conservation lands and recreation facilities is perceived as a benefit of resuming jurisdiction. Furthermore, respondents have confidence that local boards will do a good job protecting the natural resources. Another benefit respondents perceive from resuming jurisdiction is gaining control over the aquifer that underlies Devens. (Harvard is looking for a new water source at the present time.) Respondents recognize that Harvard's small town character might change by absorbing the intensively developed former Army base.

Natural and Cultural Resources

Respondents exhibit a strong ethic for preserving the Town's natural and cultural resources. 73% support preserving Harvard's historic landscapes, including historic lands, sites, stone walls, objects, and areas. Preserving agricultural lands received the greatest amount of support in the entire survey; 90% agree that the preservation of agricultural land should be encouraged. In addition, a large majority wishes to preserve the Town's resources for future generations and is willing to spend more to do so. Many respondents view open space (cluster) development as one way to accomplish this task, but 37% could not agree or disagree on the technique. A clear majority believes it is necessary to exercise good stewardship of conservation lands through proper management and maintenance and would like to secure a reliable funding source. Creating new historic districts or expanding existing districts does not appear to be a priority, although questions elsewhere indicate strong support for historic preservation in general.

CHAPTER 2 LAND USE

1. HARVARD TRENDS

Harvard is located on the outer edge of Boston's northwest suburbs, bounded by the Towns of Shirley, Ayer, Littleton, Boxborough, Stow, Bolton, and Lancaster. With 26.4 square miles (sq. mi.) of land and about 6,500¹ residents, Harvard is a sparsely populated, low-density town with broadly distributed development of homes, farmsteads, orchards, and forested land. In 2014, Residential Harvard – that is, Harvard excluding Devens – looks very similar to the Town as it was when the Planning Board updated the Master Plan in 2002. And in 2002, even though Harvard had absorbed a considerable amount of housing growth in the 1990s, it still looked a lot like the Harvard of 1988: the year of the Town's second Master Plan.



The view from Fruitlands to the Bristol-Myers-Squibb compound at Devens

Despite the modest amount of physical change that has occurred in Harvard over the past twenty-five years, the Town is a different place. Like so many small towns, Harvard has been transformed by everything from traffic to technology. The demographic pendulum swing that packed the public schools with children over a decade ago has introduced an era of declining enrollments, which may have reversed once again. But Harvard, like most towns, is turning gray. There also seems to be more debate in Harvard today, exemplified by recent disputes over the scope and cost of Town Hall renovations and whether Harvard should have a grocery store on Ayer Road.

Harvard is different for other reasons, too. In 2002, the redevelopment of the former Fort Devens was already well underway. However, high-end companies like Bristol-Myers/Squibb were not on the horizon, and no one could have foreseen the arrival of the Commonwealth's first major film production studio. Both the amount and types of development that have occurred at Devens since 2002 have changed the land use pattern of Harvard as a whole, and the changes are dramatic. While the Army is gone, physical and institutional barriers continue to isolate Devens from its historic roots.

2. TOWN FORM

In urban and suburban settings, *land use* focuses primarily on the balance of residential, commercial, industrial, institutional, and recreational uses and open space. It is often concerned with differentiating various types, functions, and scale of uses, all of which help to define and nurture unique neighborhoods, main streets, and districts in a built-up environment. In Harvard, forests account for about 70 percent of the land cover, and wetlands and brush another 7 percent. Today, housing development covers about 7 percent of Harvard's total area, and agriculture only

¹ According to the 2010 US Census, 1,457 people live in Devens, Block Group 6.

5 percent.² The conversion of land from fields, orchards, and forests to residential use, though a relatively small percentage of the Town, has had the most dramatic effect on land in Harvard for the past fifty years – not including the postwar buildup at Fort Devens and redevelopment of the base since 1995.

3. LAND USE PATTERNS

Harvard's distinctive character is defined by its remaining farms and some noteworthy natural and man-made features. The Town Center, Still River Village, Fruitlands, and the historic Shaker Village in North Harvard stand out because they differ so much from the low-density residential development found throughout the Town (Map 2.1). Harvard's central crossroads, the Town Center, began as early as the seventeenth century with a traditional New England common. Today, it is home to most of Harvard's municipal facilities, a limited mix of residential and institutional uses, and a handful of small businesses. Since the Town Center has evolved as a more compact setting than the rest of town, it is a relatively walkable space, though it does present some hazards to pedestrians due to the amount of activity that converges there at busy times of day.

Harvard's land use patterns remain dominated by fields, orchards, forests, and wetlands, but over time housing and to a lesser extent, commercial and institutional structures have been built on once-vacant land.³ Single-family homes on large lots are the predominant type of housing found in Harvard. Where other housing types exist, they tend to occur in the villages that developed organically, prior to the adoption of zoning, and mixed-income housing developments approved under Chapter 40B. Harvard has impressive and treasured view sheds with expansive open space, forested hills, wetlands, and scattered homes. However, the number of homes that dot the landscape increases every decade and in all corners of town. Efforts to protect open space through conservation restrictions and land acquisitions have helped to preserve quite a bit of land in Harvard, owing to the efforts of Harvard's Conservation Commission, the Harvard Conservation Trust, and others. Still, many parcels in town, including large farms, could still be developed.

Apart from a few Chapter 40B permits for mixed-income housing and one mixed-use development on Ayer Road (permitted as an Ayer Road Village Special Permit), land development in Harvard remains dominated by detached single-family homes on spacious lots. This echoes Harvard's zoning, which establishes a clear preference for large-lot residential development over other uses. Harvard's 1.5-acre minimum lot size is a result of lack of public water and sewer systems through much of the Town. Tight, rocky soils impede percolation, and mandated separation between on-site wells and septic systems dictate large lots. The Commercial (C) District on Ayer Road is narrow and haphazardly developed, and the Town Center's very small business district is not designed or intended to promote much commercial activity. The absence of a variety of businesses in Harvard is attributable to zoning restrictions, lack of construction-ready land (sites with utilities, infrastructure, and drainage), low population density, and better development options in other nearby towns.

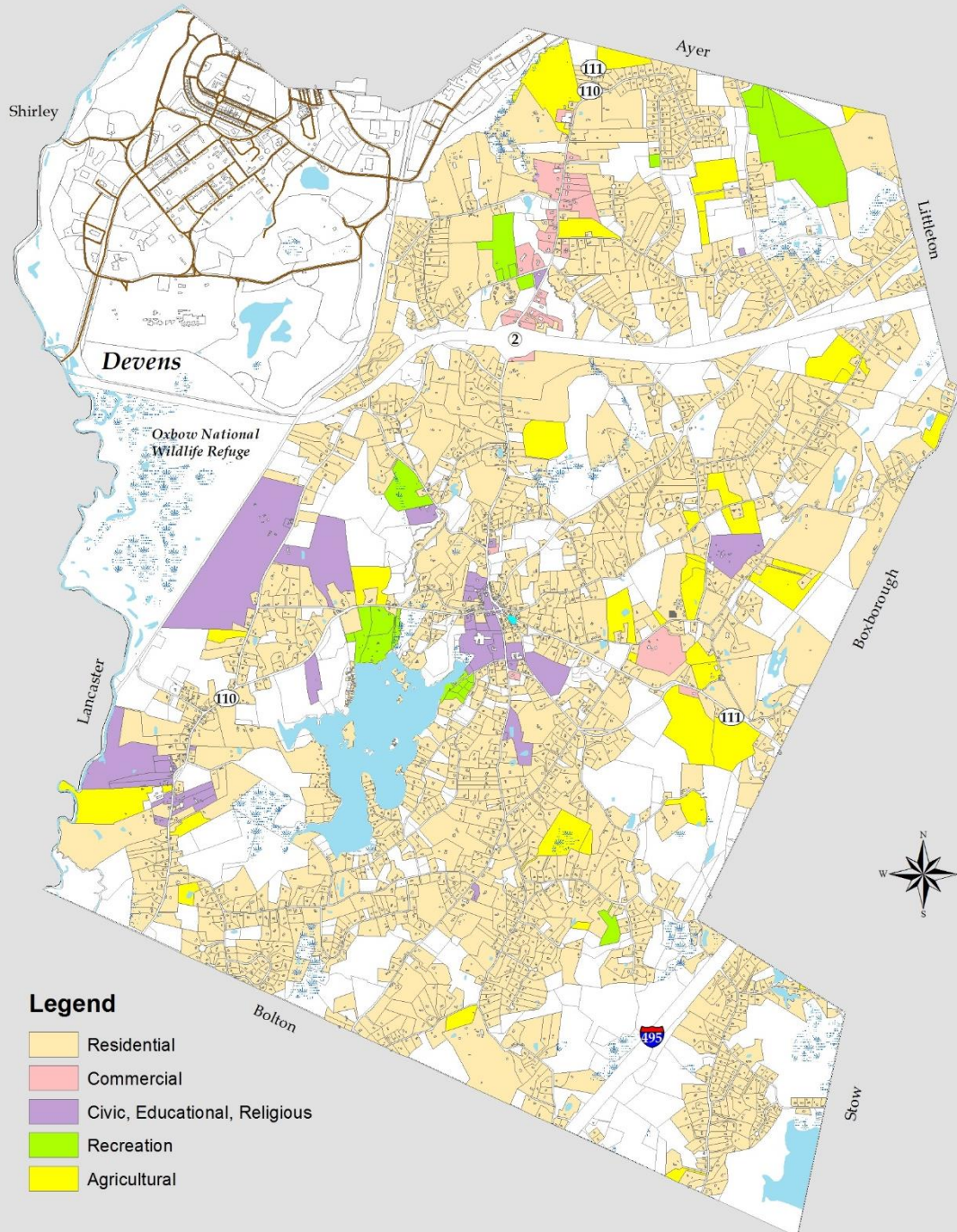
² These figures are based on 2005 MassGIS aerial analysis, and differ from Parcel Assessment data. Land cover depicts a birds-eye view of what exists on the ground, while parcel data tabulates ownership information by land use codes for entire lots.

³ Based on land coverage figures from MassGIS Land Use, 2005.



Harvard, Massachusetts Parcel-Based Land Use, 2015

Map 2.1



Legend

- Residential
- Commercial
- Civic, Educational, Religious
- Recreation
- Agricultural

Data Sources: Parcels-Harvard Assessors
Prepared by Harvard Planning Dept: Dec. 2015

0 0.5 1 2 Miles

The Impact of Roads

Roads built in and near Harvard have been the greatest catalyst of development and land use change since the Town was founded, and especially since the mid-twentieth century. The existing frame of roadways began with the original paths that connected Harvard Center with all surrounding towns. Farmsteads lined the first roads, including Still River Road, Littleton County Road, and Bolton Road, leaving large swathes of hinterland in between. Only after the Second World War did new roads, cul-de-sacs and subdivision crescents appear, encroaching on agricultural and forested lands.

In the early 1950s, the Leominster-Concord section of Route 2 was built in its current alignment, providing Harvard with much faster and direct access to Boston. It also created a bypass for traffic from points west of town.⁴ The location of Route 2 in the northern part of Harvard resulted from opposition to the highway running near the Town Center on an alignment following Route 111. The highway was built in a right-of-way purchased by the state across largely vacant land. Although built as a limited access route with no at-grade intersections, four existing roads traversed it by bridge – Ayer Road, Poor Farm Road, Littleton Road, and Old Littleton Road – and one by underpass, Depot Road. Three other roads were cut off, including present-day Green Hill Road between Littleton Road and Old Littleton Road, Lancaster County Road between Old Shirley Road and Blanchard Road, and Old Shirley Road between Prospect Hill Road and Devens.⁵ These last two roads, together with the Boston and Maine Railroad and the perimeter established around Devens, closed off means of circulation to the northwest quadrant of town.

The interstate highway system brought I-495 close to Harvard in 1961 when the first section opened between Littleton (Route 2) and Westford (Route 225). In 1964, the Littleton-Westborough section opened, crossing Harvard's southeastern corner just east of the Harvard/Boxborough town line.⁶ The interstate provided an alternative to State Route 110, which passes through Harvard's Town Center and serves as the main roadway connection between the Merrimack Valley and Central Massachusetts. Stow Road continues to pass below the highway in its original path, allowing for access to the neighboring towns of Boxborough, Stow, and Bolton.

The interstate was designed both to relieve traffic from country roads and “create” traffic by providing suburban and rural towns with access to Boston and other regional employment centers such as Lowell and Worcester. Towns along the “relocated Route 110” were now ripe for growth. Not surprisingly, Harvard grew dramatically following the completion of I-495. Still, the lack of a direct connection with I-495 effectively prevented the emergence of a new commercial development zone. Unlike nearby communities such as Littleton, Acton, Marlborough, or Westford, Harvard chose not to make major zoning changes to attract nonresidential growth near I-495 or, for that matter, Route 2. Meanwhile, the Army built hundreds of units of housing for military families at Fort Devens as the Vietnam War accelerated.

⁴ “Massachusetts Route 2 History,” MIT.

⁵ The original road names changed after rerouting. Blanchard road was the extension of “(old) Shirley Road”, Present-day Old Shirley Road south of the former intersection with Lancaster County Road was itself “Lancaster County Road”.

⁶ http://www.bostonroads.com/roads/I-495_MA/

Agriculture and Open Space

One of Harvard's signature land use features is the enduring presence of farms, open space, and institutional properties. Agriculture is so prominent in Harvard that even the small leisure farms have an indelible impact on the Town's appearance, but the large commercial operations such as Westward Orchards (273 acres) Doe Orchards (63 acres) and Carlson Orchards (123 acres) make a significant contribution both to Harvard's economy and the texture of its open space. The large farms remain a distinctive feature, but Harvard has non-agricultural properties that stand out, too. In addition to the Fruitlands Museum (208 acres), Harvard's largest privately owned institution, there are significant institutional properties in Still River Village: the Saint Benedict Abbey (56 acres) and the adjacent Saint Benedict Center (33 acres). Harvard also has some large recreational areas, such as the Shaker Hills Golf Course (115 acres).

Harvard is a "Right-to-Farm" community. Town Meeting adopted a right-to-farm general bylaw as Chapter 123 of the Town Code in order to establish special protections to farmers and as a way to recognize the importance of farming to the character of the community. Farmers may engage in agriculture in all of its various forms with minimal interference from neighbors as long as they conform to generally accepted agricultural practices.

Town Center

The Town Center is the hub of Harvard's roadway network and the civic, social, and cultural heart of the Town. Children attend school in the Town Center, and it is here that celebrations occur, visitors explore, and local decisions are debated and made. In 2007, the Harvard Public Library moved from 7 Fairbank Street, now the temporary home of municipal offices, to a renovated and expanded facility at the old Bromfield School on Pond Street. While many Massachusetts communities have gradually redistributed and dispersed their public buildings and schools, Harvard stands out for its considerable investment in facilities and infrastructure in the Town Center. Harvard does have other historic villages, including Still River and Shaker Village, but the Town Center's living history is unique.

Most activity in the Town Center happens in its civic structures and spaces: Town Hall, the schools, library, Hildreth House (Harvard's Senior Center and Council on Aging office), the Common, and Bare Hill Pond. Hundreds of residents and visitors use these facilities on a daily basis. In addition, the General Store attracts a wide range of customers year-round from Harvard and beyond, with seasonal and weekend peaks. Three churches are also located in Town Center, two of which book-end the Common. Together, these places contribute to the Town Center's vibrancy. They are also connected to residents' concerns about traffic circulation and pedestrian safety, and expanded commercial activity. There are seventeen businesses currently operating in the Town Center, including the General Store, personal services, and professional offices.



Harvard General Store

In 2004, Harvard hired the Bluestone Planning Group (BPG) to produce a Public Realm Plan and Wastewater Study based on the recommendation of the 2002 Master Plan. The Town Center Action Plan (TCAP) produced a comprehensive set of recommendations, some of which the Town has implemented. Notably, the Town Center sewer district was completed in 2012. Prior to the expansion, only the schools and Town Library were connected to the wastewater treatment facility. All other properties used septic systems, many of which are old and failing. The new sewer district encompasses most of the Town Center's civic and institutional buildings, churches, businesses, and many of the residences. The treatment system has a capacity of 23,000 gallons per day, which is large enough to accept flows from properties in the district. Having been in operation for several years, it appears that there is an excess capacity of about 2-3,000 gallons per day. The Town Center would be an appropriate location for new housing given the compact land use pattern, infrastructure and services that exist. Excess land adjacent to the Hildreth House, for example, would be suitable for a small senior housing project if connected to the Town's water and sewer systems.

Residential Development

Harvard's restrictive frontage regulations and provisions for backland and hammerhead lots have contributed to an interesting land use pattern. "Basic Lots" with 1.5 acres and 180 feet of frontage, which Harvard allows by right, have been carved along the roadside from larger agricultural parcels across town. Hammerhead lots are placed behind them, requiring only fifty feet of frontage but much larger lots (generally 4.5 acres). An additional lot type, backland lots, can be located further back from the street, and also require at least 50 feet of frontage and 4.5 acres. Both hammerhead and backland lots require a special permit. This system of land development has prevented the creation of subdivision roads and cul-de-sacs while allowing greater and deeper development of properties. Hundreds of highly irregular-shaped lots now exist in Harvard. The large lot areas and "unusable" long necks gobble up land that might otherwise be developed or preserved as public open space. The end result is a dispersed residential pattern with a great deal of open space remaining in private hands that cannot be developed.

Over the past ten years, Harvard has added 69 single-family homes, 77 condominiums, and 42 senior apartments to its total housing supply.⁷ The fact that multi-family condominiums and rental units surpassed the production of single-family homes is not indicative of a long-term trend, for many towns that experienced a shift in demand toward multi-unit dwellings and smaller housing units a decade ago and have since witnessed a reversion to single-family home development. Most multi-family housing in Harvard has developed via the comprehensive permit process, which is why the new condominiums and apartments include low- or moderate-income units. They provide an additional public benefit as well: on average, Harvard's multi-family units occupy just 0.38 acres per unit, compared with the 3.7 acres per unit for single-family homes. Nevertheless, it is worth noting that two-thirds of Harvard's affordable housing units (built with comprehensive permits) are located off Ayer Road north of Route 2, largely but not entirely in areas the Town has zoned for commercial uses.

⁷ Massachusetts Department of Revenue, Division of Local Services (DLS), Municipal Data Bank, "Parcels by Use Class," and Department of Housing and Community Development (DHCD), Chapter 40B Subsidized Housing Inventory.

Residential Harvard's housing stock would become more diverse by resuming jurisdiction of Devens due to Devens' existing residential developments. This issue is discussed in more detail under the Population & Housing Element. Development of various residential "build-out" scenarios that achieve desired or target levels of housing proportions for housing types such as affordable housing and senior housing could be helpful in planning for Harvard's future growth under various disposition outcomes. In lieu of resuming jurisdiction of Devens, Harvard could also consider overlay zones or special development districts to help allow for housing stock diversity in the future.

Table 2.1 shows the change in residential land use between 2002 and 2012 based upon Assessors land use codes. Overall, Harvard grew slowly as the amount of land in residential use increased by 123.5 acres. The largest amount of growth occurred in condominiums; no condominiums existed in 2002, but by 2012 144 acres were in this category. The market responded to a demand for alternatives to detached single family homes, and developments such as Harvard Green and Harvard Common utilized the comprehensive permit process to gain entry into the Town. Condominium growth out-paced single family home constructions, which gained 67.3 acres during this 10-year stretch.

Table 2.1 - Change in Residential Land Use in Acres

Use Type	In 2002	In 2012	Change
Detached Single Family	4,898.7	4,965.0	67.3
Multi-Family	128.2	102.8	-25.4
Apartments	3.2	6.7	3.5
Condominiums	N/R	114.0	114.0
Multiple Residence	213.5	190.6	-22.9
Mixed Residential-Commercial	27.3	14.3	-13.0
Total	5,269.9	5,393.4	123.5
Sources: Harvard Master Plan (2002), Table 2.3; Assessor's Parcel Database, 2012, MassGIS; and RKG Associates, Inc.			

Commercial and Industrial Development

Harvard has very little commercial development. The only noticeable commercial presence can be found in the Commercial (C) District, which extends along Ayer Road about 1.4 miles between Route 2 and the intersection of Ayer Road and Myrick Lane. Except for a development of multi-use buildings at 188 Ayer Road, created under a special permit provision that Harvard instituted in 2004, businesses here are mostly in sprawled, single-unit structures on large paved lots interrupted by residential and agricultural uses and open space. This physical arrangement and low-density build-out makes the C District an auto-oriented area. (See also Chapter 5.)

Resuming jurisdiction of Devens would dramatically change the existing and potential commercial and industrial components of the Town of Harvard. If availability for additional

commercial and/or industrial development is deemed necessary for economic growth within Harvard and Devens jurisdiction is not resumed, Harvard will likely need to investigate changes to its current zoning structure. Changes that should be investigated include, at least, rezoning portions of existing Residential/Agricultural lands to commercial and/or industrial use, and possibly making adjustments to permitted uses and requirements within the existing zones to allow additional business growth. Overlay zones or special development districts could also be considered to help facilitate such changes.

Vacant Land

Although Harvard has a considerable amount of protected open space, there is still quite a bit of land that could be developed. According to the Assessor's parcel database, Harvard has approximately 2,600 acres of land in private hands assessed as open space in forestry (Chapter 61), agriculture (Chapter 61A), or recreation (Chapter 61B) and another 1,000 acres (rounded) of vacant, relatively unconstrained land. The latter includes "surplus" land in existing residential parcels, i.e., large tracts of land with a dwelling and enough extra land to create more house lots.

Table 2.2 - Vacant Potentially Developable Land

Category	Acres	Parcels
Excess Land (1)	681.8	42
Accessory Land (2)	48.6	16
Vacant Developable	305.9	74
Chapter 61, 61A, 61B (3)	2,593.5	146
Total	3,629.8	278
<p>Source: Harvard Assessor's Parcel Database, FY13, MassGIS. Numbers may not total due to rounding.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. Excess land is land in large parcels with an existing residence; for purposes of this table, the estimate includes properties with 10 or more acres. 2. Accessory land is a vacant land parcel under common ownership with an abutting residence. 3. Chapter 61, 61A, and 61B excludes land known to be protected by a Conservation Restriction or an Agricultural Preservation Restriction. 		

Appendix 1 contains a Development Suitability Analysis, which provides an indication of not only the amount of land available for development, but also of its suitability for development. A series of maps display vacant land and natural resources that if developed, could have consequences on the environment. Map A-3 shows a total of 1,471 acres that are not currently developed, are not protected from development, do not have environmental constraints, and are potentially developable based on size and access. Much of this land is in one of the Chapter 61 programs noted above; these lands are not protected from development, and it is common practice for landowners to remove their land from the program, pay back-taxes, and carve the

tract up for new development. The Town has a right-of-first-refusal to purchase the land, and has done so on occasion, but will not be able to preserve most of this land.

4. ZONING IN HARVARD

Zoning plays a crucial role in carrying out any city or town plan. On one hand, Harvard's zoning is quite traditional; it divides the Town into separate use districts, i.e., areas limited to a specific type of land use. On the other hand, it is untraditional in terms of its structure, organization, and terminology. While some recommendations from the 2002 Master Plan have been implemented, many remain to be completed. In general, Harvard's zoning policies seem to focus more on preservation than providing for change.

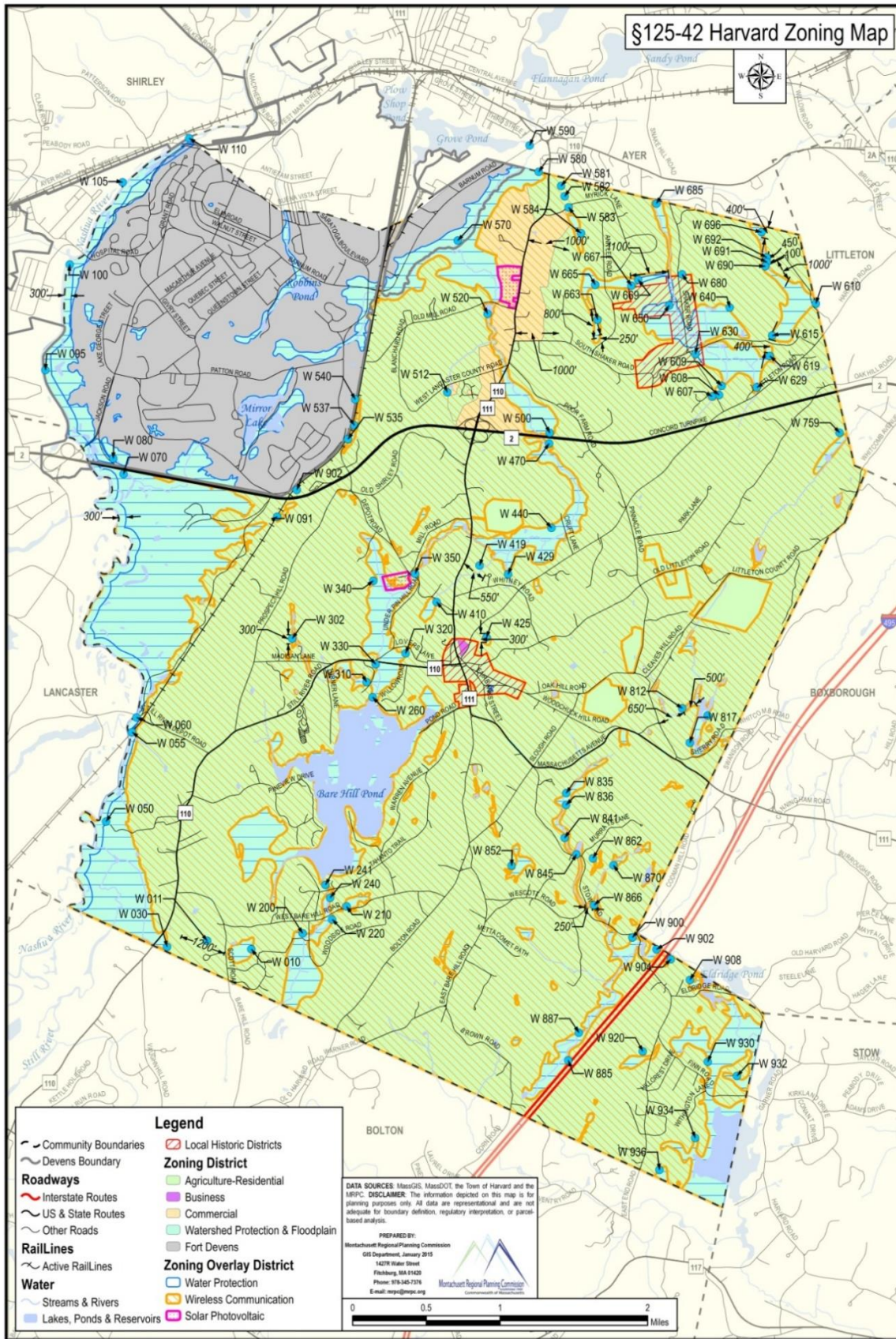
Use Districts

Town Meeting adopted Harvard's first zoning bylaw in 1951 with one district defined for the entire town, which was a common practice in rural areas. Separate use districts followed in 1965, including Agricultural/Residential (AR), Business (B), Commercial (C), and Industrial (I). Like many environmentally conscious towns, Harvard established a Watershed Protection (W) District in 1968, a few years before the state passed the Wetlands Protection Act (WPA). In 1972, the Town adopted commercial use regulations and abolished the industrial zone. A noteworthy feature of Harvard's zoning is that in 1970 the Town established regulations for a Multiple Residence (MR) District, but no land has ever been placed in the district and it remains unused. The only practical ways to develop multi-family housing in Harvard are with a Chapter 40B comprehensive permit and in a mixed use development approved with an Ayer Road Village Special Permit. Map 2.2 shows the existing zoning districts in Harvard today (2015).

Table 2.3 - Zoning Districts by Area

District	Acres	Percent
Agricultural Residential	11,753	81.7%
Business	3	.02%
Commercial	346	2.4%
Watershed Protection and Floodplain	2,275	15.8%
Acres subject to Harvard Zoning	14,378	100%
Acres in Harvard subject to Devens Reuse Plan	2,600	
Source: Town of Harvard, GIS zoning map		

Resuming jurisdiction of Devens would cause a considerable change in the zoning composition of a combined Harvard and Devens, greatly increasing the percentage of land available to commercial uses. Notably, this would occur without directly affecting any zoning within Residential Harvard. A combined Harvard and Devens (zoned per the 1994 Reuse Plan) would be zoned approximately 70.4% residential, 18.4 % open space (including Harvard's W district and Devens Open Space District), and 11.2% non-residential (including Harvard's B and C districts



and everything in Devens not zoned open space or residential). These percentage shifts would occur without reducing any current residential zoning or adjusting the current C-District boundaries. This would create a much more balanced residential-commercial-industrial zoning mix that would be more in-line with many other towns in the region. For both commercial/industrial development and housing stock considerations, the existing Devens zoning and permitting scheme, if adopted post-disposition, would continue to allow for expedited permitting while also affording Harvard greater local representation.

Overlay Districts

Harvard has three overlay districts, or districts that lie on top of all or portions of the traditional use districts. Overlays impose different procedures, opportunities, or requirements on the underlying land. The overlays in Harvard include the Watershed Protection and Flood Hazard (WFH) District (a subset of the W district), the Large Scale Ground Mounted Solar Photovoltaic Facilities Overlay District, and the Wireless Communication Tower Overlay District (WCTOD). The boundaries of overlay districts are often defined by natural features such as waterways or floodplains, but sometimes the boundaries correspond to the geography of villages or neighborhoods. The Zoning Map displays the locations of these overlay districts.

Harvard's 2002 Master Plan recommended the creation of several other overlay districts: the Community Commercial District (a C district overlay), the Residential Compatibility Overlay (RCO) District, the Town Center Overlay District, an overlay to encourage historic preservation in Still River Village, a Bare Hill Pond Watershed District, and a plan to establish Agricultural and Historic Landscape districts.⁸ These overlays have not been created, but in some cases the intent has been addressed, at least in part. For example, the purpose of the RCO was to promote conservation cluster developments, and Harvard has tried to accomplish this by creating a special permit cluster provision in the AR district. Similarly, the Ayer Road Village Special Permit in the C district touches on some of the ideas behind the Community Commercial District. The Town Center Action Plan, which grew out of the 2002 Master Plan, also promoted special zoning for the Town Center when it recommended a Mixed Use Commercial Overlay District to allow appropriate uses by special permit, such as restaurants, small food markets, bookstores, and apartments above retail stores. The concept remains valid today and would legitimize businesses, such as the General Store, which are nonconforming today.

Use Regulations

Harvard allows the following land uses by right or by special permit, depending on the district.

- **Residential Uses.** These uses include a limited range of building types: by-right, single-family homes only, and by special permit, accessory apartments (in a residence or an accessory structure) and cluster developments (that may include multiple-unit structures of up to six attached units each). Detached single-family dwellings are allowed in all three districts (AR, B and C), though restricted in the C District to parcels that existed in 1972. Cluster developments are permitted in the AR and B districts only. Since 2004, multi-family buildings have been allowed as part of an Ayer Road Village Special Permit, a provision that requires a special permit and applies only to property in the Commercial District that has frontage on Ayer Road.

⁸ Harvard Master Plan (2002), Executive Summary, 22

- **Institutional Uses.** Harvard allows conservancy and passive recreation uses such as parks, conservation land, water supply areas, and open space in all districts. Churches, schools, most municipal uses, cemeteries, and museums are permitted by right and are subject to limited site plan review. Public service corporations, charitable institutions, and some municipal purposes require a special permit.
- **Agricultural Uses.** Like most towns, Harvard regulates farming by acres in agricultural use. State law exempts commercial agriculture on five or more acres of land, including an accessory farm stand, and Harvard's zoning mimics the statute. Agriculture on smaller tracts (less than five acres), known as "home agriculture," has to comply with modest performance standards. Examples of home agriculture include renting out horse stalls, selling home-grown produce, and "you-pick" harvesting of crops.
- **Mixed Uses.** Harvard's zoning does not specifically allow mixed-use buildings (e.g. first floor commercial space and upper-story residential space) except through an Ayer Road Village Special Permit, which is available under limited circumstances in the C district. Still, most farm properties have mixed uses, such as a farmer's residence and commercial agriculture, and home occupations are conducted throughout the Town.
- **Commercial Uses.** Harvard divides land uses into use groupings, e.g., residential or agricultural uses, but nonresidential uses are classified as small, medium, or large "scale," instead of the more commonly used categories such as retail, hospitality and food services, offices and banks, and so forth. The "scale" categories seem to embrace assumptions about the impact of various uses on surrounding areas because with few exceptions, "scale" is actually determined by the setbacks, building height, and bulk regulations that apply to the type of lot involved. In general, though, permitted uses in the B district include single-family dwellings and business uses such as a professional office, bank, antique shop, hardware or clothing store, florist, or artist's studio. The C district can accommodate the same types of nonresidential uses (subject to a retail floor area cap of 15,000 sq. ft.), as well as medical offices, personal service establishments, sales and service of lawn and garden equipment, or a bed and breakfast, and some additional uses by special permit such as publishing, commercial entertainment, landscaping contractors, kennels, light manufacturing, research laboratory, or mortuary.

Density and Design

Harvard has adopted an unusual approach to regulating the amount of development that can occur across town. With minor exceptions, the same lot area, frontage, and intensity of use regulations apply globally to the AR, B, C, and W districts. In addition to minimum lot area requirements and maximum floor area ratio (FAR), Harvard regulates lot coverage, shape, and dimensions, e.g., frontage, minimum lot width, along with front, side and rear setbacks, building height, and driveway access. The Ayer Road Village Special Permit, conservation cluster bylaw, and comprehensive permits enable more creative or sensitive site designs because they provide for waivers from these requirements.

- **Intensity of Development.** Standards such as maximum FAR, maximum lot coverage, and minimum lot area per dwelling unit are typical for a dense urban or suburban environment, but not necessarily the best method to control development in a rural setting. Harvard limits the amount of development on a lot by imposing a maximum FAR

of 0.10 or 8,000 sq. ft. of floor space, whichever is larger. FAR controls the amount of built floor space (including all levels) that can be built based on the area of the lot. In order to construct a 10,000 sq. ft. commercial building in Harvard, a developer would need a lot with at least 100,000 sq. ft. of land ($100,000 \times 0.10 \text{ FAR} = 10,000$).

- **Average Lot Size.** In Harvard today, the average residential lot size is 3.76 acres per dwelling unit.⁹ The average residential FAR is 0.06, and for 10 percent of all residential structures, the FAR exceeds 0.10, with an average structure size of 5,488 sq. ft. Moreover, as a direct reflection of zoning, 227 lots (9 percent of all residential properties) are sized exactly at the regulatory minimum of 1.5 acres.¹⁰ Together with setback regulations, this leads to a controlled, built form across the landscape.
- **Building Height.** The maximum building height for all buildings (except churches) is less than 35 feet and three stories. Since lot sizes are large and it is possible to achieve the maximum building area within one or two stories, height is not needed to achieve density. In areas where more intensive development could occur, such as the C District and perhaps the Town Center, the regulation of building height to protect town character is crucial.
- **Commercial District Regulations.** Until 2016, the same minimum lot size, height, and frontage requirements and maximum FAR applied in the AR, B and C Districts. However, the intent of development in the nonresidential zones, particularly the C District, is very different from the residential and agricultural character of the land. An analysis of the development pattern in the C District revealed that the standards which worked well for retaining rural character in the AR district had the unintended effect of promoting strip commercial development. Large setbacks and high percentage of undevelopable area resulted in buildings being placed far from the road and without context to neighboring properties. In 2016, Town Meeting adopted zoning amendments that reduced the front, side and rear setbacks to 20' and lowered the open space requirement to 50%. This will allow buildings to be placed closer to the road to create a more "Main Street" flavor to the District.
- **Open Space and Housing.** Harvard's Open Space and Conservation-Planned Residential Development (OSC-PRD) special permit was intended to minimize residential land coverage and protect open space. It provides building area bonuses and relaxed dimensional requirements on parcels of at least 4.5 acres. Using the Town's basic lot standard as a guide, the OSC-PRD provides a series of incentives for increased density, up to 25 percent additional units overall, in exchange for large, contiguous areas of open space, small (not more than two bedrooms) housing units, senior housing, or low- or moderate-income units. Though adopted ten years ago, OSC-PRD has produced just one development in Harvard. Local officials say the hoped-for benefits of shorter roads and less site disturbance do not compensate for Harvard's high site construction costs.

⁹ Town of Harvard Assessor Database, 2012

¹⁰ Ibid. Number of lots includes parcels that are 1.5 acres (+/- 1%).

Nonconforming Uses and Structures

Harvard has many nonconforming lots and structures, and some nonconforming uses as well. The presence of “grandfathered” structures is not at all surprising because Harvard’s older developed areas all pre-date the adoption of zoning in 1951. Most dimensional nonconformities involve older lots that were grandfathered when new zoning took effect. Over 20 percent of lots in Harvard are smaller than today’s minimum requirement of 1.5 acres, and most of them have structures that pre-date 1951. They are usually found in older, established areas such as the Town Center, Still River Village, Hillcrest Road/Withington Lane, and the summer camp enclaves around Bare Hill Pond.

5. PLANNING, ZONING, AND PERMITTING CAPACITY

Two town boards share responsibility for reviewing and acting upon land development proposals. The elected five-member Planning Board has statutory authority for reviewing and approving subdivision plans, making recommendations to Town Meeting for proposed changes to the Zoning Bylaw, and preparing the Master Plan. As in many towns, the Planning Board in Harvard also has authority to issue special (discretionary) permits, e.g., for drive-through facility for a bank or pharmacy, a golf course, a wireless communications tower, or commercial uses in the C District. The Board of Appeals, an appointed body, handles some special permits, too, notably for changes to non-conforming uses or structures. By state law, the Board of Appeals also has responsibility for Chapter 40B comprehensive permits, appeals, and variances.

The 2002 Master Plan recommended that Harvard hire a town planner in order to support the work of the Planning Board and Board of Appeals and to help the Town deal with increasingly complex issues at Devens. In 2013, Town Meeting agreed to fund a part-time contractual town planner position. Harvard also has a full-time land use administrator to manage the workflow of the Planning Board and Board of Appeals as well as serving as conservation agent for the Conservation Commission. In general, Harvard has very few paid employees, so the Town government depends heavily on volunteers.

CHAPTER 3

NATURAL RESOURCES & OPEN SPACE

Harvard's New England small-town image can be attributed, at least in part, to the development pattern formed by historic villages, farms, and water resources. With the Nashua River and the Oxbow National Wildlife Refuge along Harvard's western border, Bowers Brook flowing northward through the center of the Town from Bare Hill Pond, and the Oak Hill ridgeline along the eastern boundary, Harvard is blessed with irreplaceable natural and heritage landscapes. Many generations of conservation-minded residents have tried to be good stewards of Harvard's natural resources, and Harvard's culture of environmental protection has resulted in a sizeable inventory of open space. The Town still has quite a bit of land left to develop, however, and some of it contains scenic or ecologically significant landscapes.

Harvard's natural resources provide much of the cherished scenic and rural character enjoyed by residents and visitors alike. They also present challenges to the growth necessary for Harvard to thrive economically. Except for the Town Center, Harvard depends on private septic systems and individual private wells. Given the broadly dispersed, low-density development pattern in Harvard, establishing a public wastewater system or a public water supply and distribution system is not financially feasible. As a guide for near-term planning and land use policies, the Master Plan



has to assume that Harvard will not expand its public infrastructure in the near term. Opportunities may exist to connect to water or sewer services in Devens at some point in the future, if Harvard chooses to pursue them, but they are not practical today.

Open space and natural resources are almost inseparable in a Master Plan, yet they serve different functions and have different management needs. (See chapter 6 for a discussion of the Town's historic and cultural resources.) For this Master Plan as with its predecessors, Harvard places great weight on preserving and protecting land and water resources for environmental, scenic, agricultural, historical, and recreational purposes. Harvard has been one of the state's land conservation leaders for several decades, as evidenced by the large tracts of protected open and forested land found throughout the Town. However, the Phase 1 Master Plan report underscores that conservation is more complicated than simply acquiring land, and Harvard residents know that more needs to be done.

1. HARVARD'S LANDSCAPES

It is almost impossible to walk around Harvard without seeing bedrock outcrops, steep slopes, and wetlands. Harvard's landscape consists of a classic kame-and-kettle topography with both irregular, knobby hills and smooth drumlins, long ridges, and lots of depressions interspersed with bedrock outcrops. This variety of landforms contributes to Harvard's beauty. It comes as no

surprise to find that over half the Town is listed in the Commonwealth's scenic landscape inventory.¹¹

Harvard's geologic foundation is bedrock that was compressed, deformed, and shaped millions of years ago. When the last great ice sheets receded northward from New England approximately 11,000 years ago, they scoured and scraped the bedrock and left behind different types of unconsolidated glacial material. The glacial materials that comprise Harvard's landscape range from impermeable clay to thin layers of till and coarse, stratified deposits that can quickly transmit groundwater. Together, they provide the "parent" material for Harvard's soils. In general, bedrock, swamp deposits, and thinly deposited till underlie most of Residential Harvard and create challenging conditions for housing development. The Devens section of Harvard is somewhat different. There, extensive deposits of coarse stratified drift provide a better environment for construction and intensive land use.

Soils

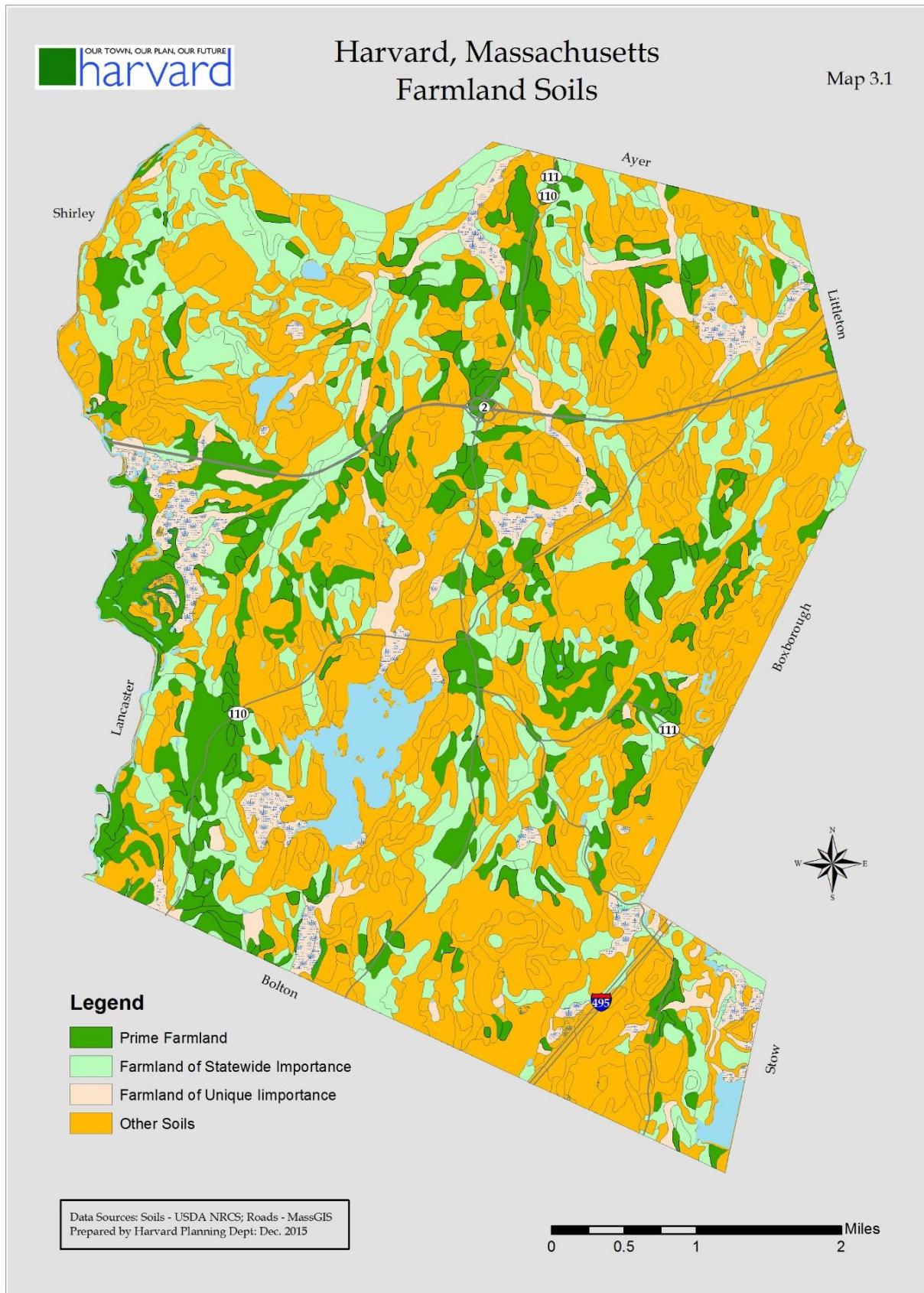
Harvard's varied landforms go hand in hand with differences in the structure, texture, and permeability of its soils. Harvard is noteworthy for its extensive farmland soils, which can be found throughout the Town. According to the Natural Resources Conservation Service (NRCS), about 40 percent of Harvard's total area (7,000 acres) is composed of farmland soils, mostly prime farmland or a class known as farmland of statewide importance: soils with productive capacity similar to prime farmland for food, forage, and other crops if treated and managed according to acceptable farming practices. Map 3.1 displays the location of Harvard's most productive farmland soils. Areas suitable for agriculture (based on soil characteristics) typically include relatively low-lying areas or gently sloped terrain with moist, loamy soils. Harvard also has many areas with soils conducive to forestry.¹² The most common soil types in Harvard are Chatfield-Hollis rock outcrops and Paxton soils, which occur both in sandy loams and stony deposits all over town.

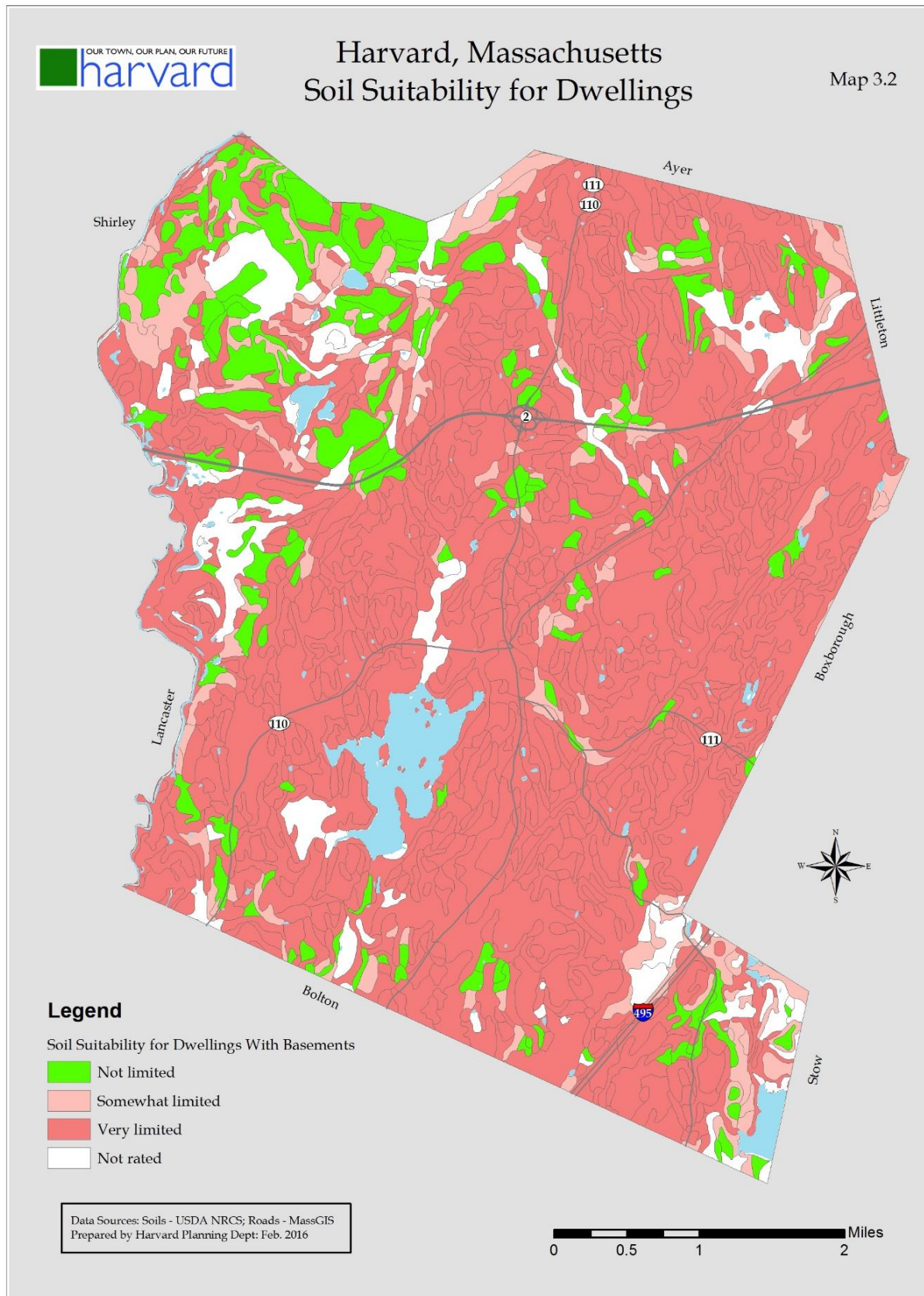
Although Harvard has developable land, the Town is not an easy environment for construction of homes or businesses. NRCS publishes soil ratings for many land uses, including septic systems and dwellings. The rating terms indicate the extent to which soils have limitations for a particular use, e.g., "not limited," "somewhat limited," and "very limited." Although the constraints of "somewhat limited" soils can usually be overcome with appropriate design, "very limited" soil conditions are generally prohibitive without major soil reclamation, special design, or expensive installation procedures.¹³ Nearly all of Harvard is comprised of soils rated "very limited" for construction of single-family homes. Most of the areas rated "not limited" or "somewhat limited" have already been developed. (See Map 3.2.) The NRCS rates all of Harvard – in fact, the entire region – as unsuitable for septic system absorption fields (leach fields), but "unsuitable" does not prevent development. It simply means that septic systems in Harvard are costly to design and build.

¹¹ MassGIS, Scenic Landscape Inventory (digital), based on the Scenic Landscape Inventory Project (1982).

¹² The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), formerly known as the Soil Conservation Service (SCS). <http://websoilsurvey.nrcs.usda.gov/app/>

¹³ USDA Natural Resource Conservation Service website, <http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/survey/> and associated pages (downloaded 8/2014).





2. WATER RESOURCES

The long ridgelines on the east side of Harvard are indicative of major watershed divides. In fact, Harvard is located within three watersheds: the Nashua River watershed, which encompasses about two-thirds of the Town, and the Merrimack and Concord River watersheds, which separate roughly along Oak Hill and drain the east side of town. Harvard clearly shares groundwater and surface water with Devens and nearby towns, and historically Harvard's large lot zoning has helped to protect the water quality of these water sources. Only one part of town has a Town-operated public water system (the Town Center), so it is difficult to track or report water quality characteristics for most of Harvard.

Surface Waters

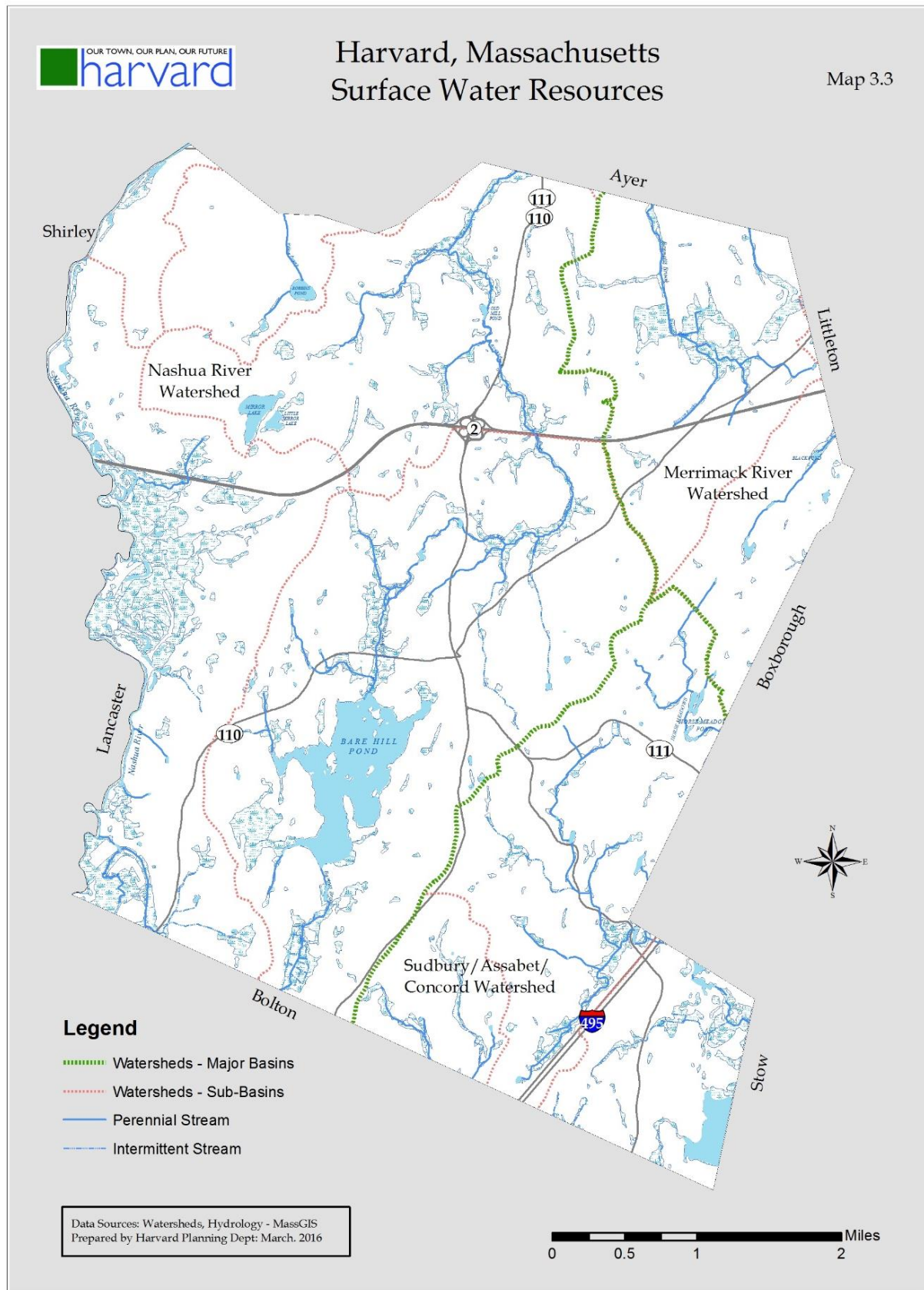
Surface waters in Harvard include rivers, streams, ponds, and wetlands. Precipitation falling on the ground either infiltrates the ground and enters the groundwater system, sometimes discharging to surface water, or it flows on the surface to a surface water. The demarcation of which surface water resource this runoff enters is the watershed. Each watershed contains sub-basins (ten in total), and for any particular pond or wetland, there is a smaller watershed that only feeds that particular surface water resource. Map 3.3 shows the boundaries of the major basins and sub-basins in Harvard, along with the rivers, streams, ponds, and major wetlands. Not all wetlands appear on the map, however, and for those that do, the boundaries are approximate.

The Nashua River, a state-designated Scenic River, defines Harvard's western boundary. It flows northward from Clinton to Nashua, N.H., where it joins the Merrimack River. Harvard's most significant stream is Bowers Brook, a Class B surface water that flows from south to north in Harvard, running through a large swamp on the south side of town into the southern tip of Bare Hill Pond. Leaving the Pond, Bowers Brook flows northward, intermittently crossing swampy terrain, and ultimately merges with Cold Spring Brook in North Harvard. Other significant water courses include Elizabeth Brook, which drains the southeast corner of town (Concord watershed) and Bennetts Brook, which drains the northeast end of town (Merrimack watershed).

Bare Hill Pond: Bare Hill Pond is the largest and most prominent water body in Harvard. Arguably Harvard's most significant natural resource, Bare Hill Pond has had a history typical for Massachusetts ponds that became prime real estate first for summer camps and later for year-round residences. A state-designated Great Pond, Bare Hill Pond covers approximately 300 acres. While much of the Pond's shoreline remains wooded, most of it appears to be developed. Development around Bare Hill Pond began in 1887 with the construction of a camp on Sheep's Island, followed a few years later by four more. Turner's Lane was built in the 1910s, Wilroy Avenue and Clinton Shores were developed in the 1930s, and Willard Shores, Peninsula Road, and several homes on Warren Avenue were developed in the 1950s.¹⁴ More recent development has occurred mainly along the eastern and southern shores of the Pond. The rate of development accelerated from 1.1 units per year prior to 1931 to 1.7 units per year between 1931 and 1960, but has slowed considerably since then – now to less than one unit per year.

Development in the last 10 years has largely involved reconstruction of existing homes and conversion of summer cottages to year-round use. Conversion of seasonal residences on non-conforming lots requires a special permit from the Board of Appeals which reviews plans to

¹⁴ Development based on Assessor data, analyzed by RKG Associates, September 2014.



prevent potential contamination of ground and surface waters. The Board of Health must approve upgrades to non-complying septic systems, which over time has had positive benefits in improving water quality in the watershed. The Conservation Commission has jurisdiction over work within 200 feet of the Pond (any pond for that matter) and reviews Notices of Intent to manage storm water runoff, retain shoreline vegetation, and minimize erosion. As a result there has been an increase in the scale of homes around the Pond, but thorough local reviews have helped to minimize visual impacts along the shoreline and achieve water quality improvements in the watershed.

Shoreline development has contributed significantly to water quality problems at Bare Hill Pond, which numerous water quality studies have documented.¹⁵ In addition, as a shallow man-made pond that covered former sheep pasture, there are excessive nutrient loads in the Pond bottom that absent drawdowns, would continue to endanger the water column. The first dam was constructed in the early 1800s and rebuilt to increase the level of the Pond in 1837.¹⁶ Weed problems had become acute by the mid-1950s, when approximately 100 camps or homes existed. The first of three committees was formed to address these problems in 1959.¹⁷ Since 1987, the Bare Hill Pond Watershed Management Committee has overseen activities within the watershed of the Pond, not just the Pond itself.

A new pumping system with capacity for deep drawdowns was installed in 2006, and it has helped to control invasive aquatic plant species.¹⁸ Notably, the level of phosphorus has been reduced by approximately 50% as a result of the drawdown program. Native, less harmful aquatic species are replacing the invasive species and the risk of oxygen-depleting algal blooms has been significantly diminished. As a result, recreational opportunities have been restored and improved.

In 2010, after extensive study and design, a stormwater management system utilizing rain gardens and other non-mechanical techniques was constructed to better handle the stormwater runoff entering the Pond from pavement in the Town Center, the school and library parking lots, and Pond Road. As a result of this and the deep drawdowns that have taken place, the phosphorus levels which had placed Bare Hill Pond on the state's endangered lakes list in 1988 (for nuisance aquatic plants and lake water quality) have fallen dramatically.¹⁹

As can be seen in Map 3.4, there are numerous undeveloped parcels within the watershed of Bare Hill Pond. The Town itself owns a significant portion of the undeveloped land. If the Town's intention is to preserve its lands in perpetuity, and if it has not already done so, then Town Meeting should place the land under the jurisdiction of the Conservation Commission, who should place conservation restrictions on the properties to preserve their natural resource values.

During the past 15 years, the Bare Hill Pond Watershed Management Committee instituted a series of education programs for property owners and residents in the watershed. Prior to the

¹⁵ BHPWMC, http://www.harvard.ma.us/Pages/HarvardMA_BComm/BareHill/index, August 2014.

¹⁶ H.G. Marsh, Bare Hill Pond Chronology of Activities, September 15, 2002.

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ BHPWMC annual report, Harvard Annual Report for the Year 2013, http://www.harvard.ma.us/Pages/HarvardMA_BComm/BOS/town, downloaded August 2014.

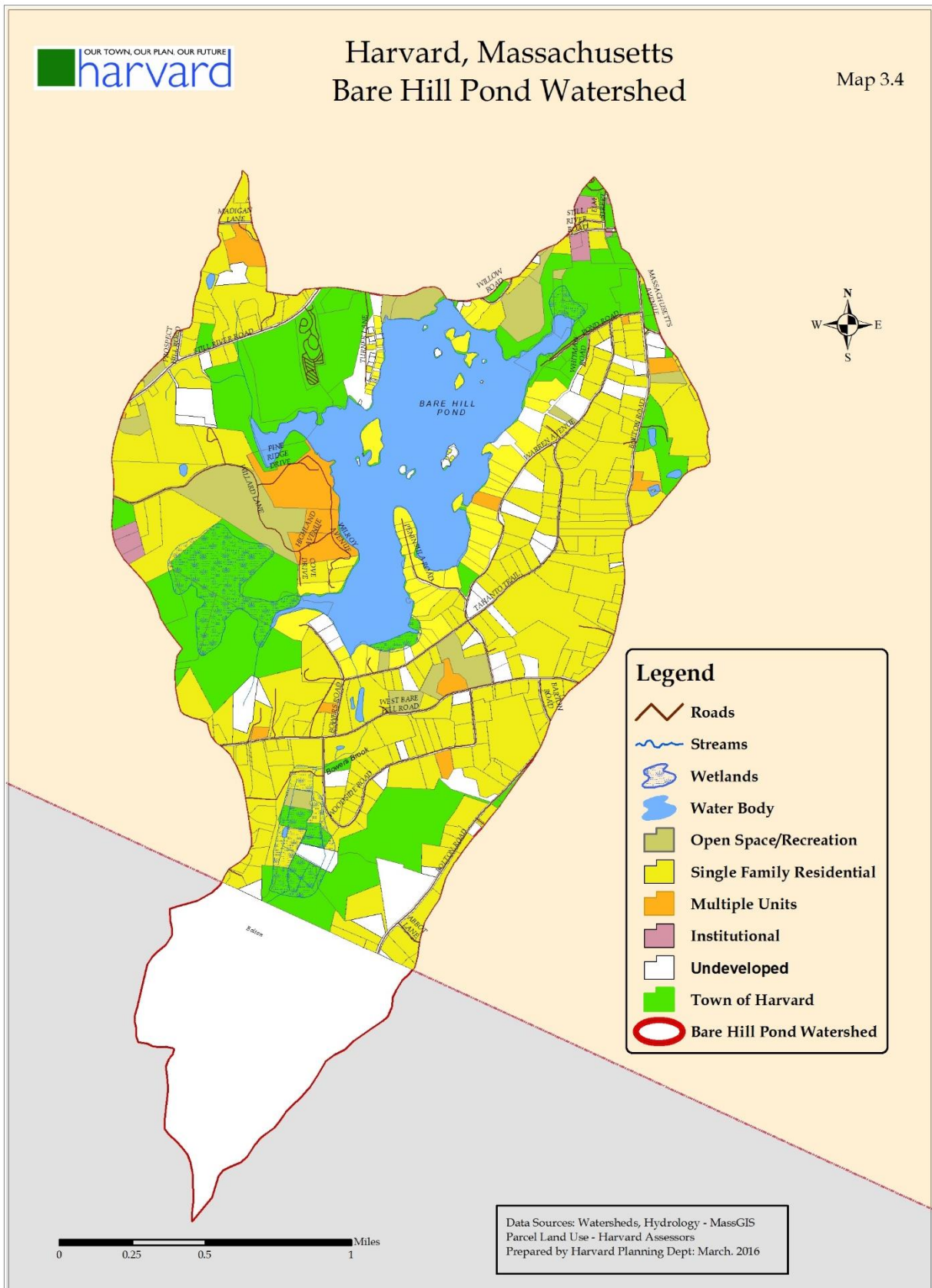
Legislature restricting phosphorous from lawn fertilizers in 2012, the Committee implemented the Healthy Lawns Healthy People Program in 2006 and encouraged residents to re-establish shoreline vegetation to reduce harmful storm water runoff. In response to education programs, many homeowners implemented best management practices rather than remove vegetation. These programs have led to a change in behavior as lawn area has been reduced and shoreline growth allowed to increase. In summary, through a combination of state legislation, local regulatory tools, stormwater management controls, pond drawdowns, and public education, the water quality of the Pond is improving.

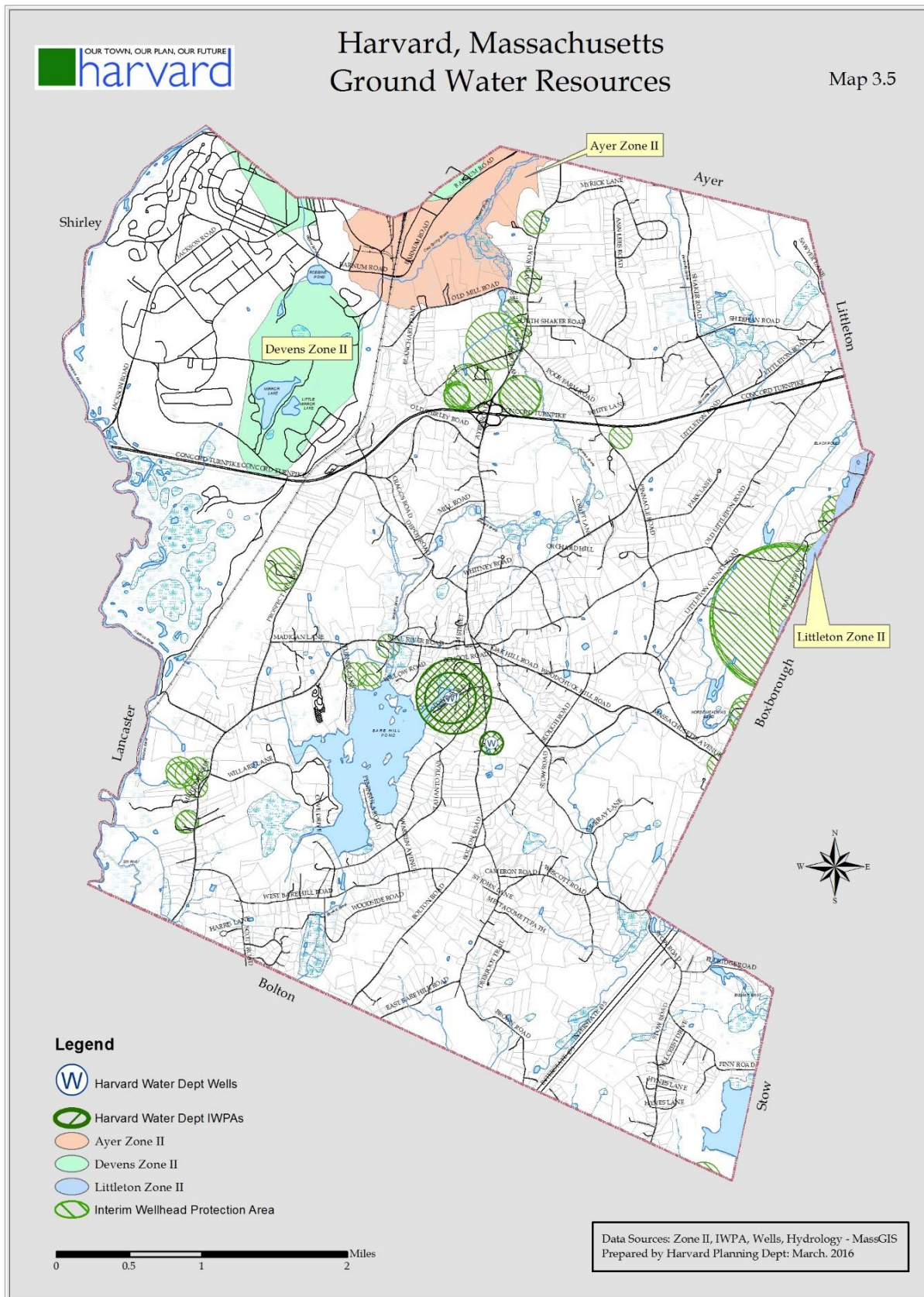
Other Water Bodies: The 103-acre main pond in the Delaney Wildlife Management Area in Harvard and Stow was created for flood control purposes, and it is the second largest water body in Harvard.²⁰ Three smaller ponds lie within Devens: Mirror Lake, Little Mirror Lake, and Robbins Pond. There are half a dozen or so smaller ponds around town, most of which are part of larger wetland systems. Old Mill Pond, which has historic importance in Harvard, is threatened by sedimentation due to upstream development and erosion.

Groundwater

For drinking water, the primary areas of importance are high and medium yield aquifers (areas with potentially adequate capacity for a public water supply) and the areas surrounding and recharging public water systems. The Massachusetts Department of Environmental Protection (DEP) regulates land around public water supplies where activity could have an impact on drinking water quality and quantity. These areas are known as Zone I, Zone II, and Interim Wellhead Protection Areas (IWPA). Zone I is a radius around a public water supply (usually 400 feet), and as a matter of DEP policy, public water suppliers are supposed to own or otherwise control the land. (This is not always the case with older wells, however.) Zone II, a larger area that almost always includes all of Zone I, is determined from field tests. From a regulatory perspective, Zone II is particularly important because it contains privately owned land that is either developed or could be developed in the future. The boundaries of a Zone II are determined from field tests while the IWPA is based on a formula (a radius of 400 feet or one-half mile, depending on the amount of water the well can produce). Harvard should delineate the Zone II of its municipal wells that serve the Town Center.

²⁰ Harvard Conservation Trust, Trail map of Delaney WMA, <http://harvardconservationtrust.org/trails.htm> (accessed August 2014)





Land uses and development within Zone IIs and IWPAAs are intended to be limited in order to protect the quality and rate of water recharging the well. In Massachusetts, each city and town is responsible for adopting and implementing protective zoning for water supplies. Harvard does not have these controls, perhaps because most of the Town is served by private wells. Furthermore, most of Harvard is underlain by glacial till soils and shallow depth to bedrock, conditions not suitable for public drinking water supplies. This is not the case at Devens, however, where the public water supplies tap a network of moderate- and high-yield aquifers. Nevertheless, as shown in Map 3.5, Harvard has numerous IWPAAs for so-called community water supplies (private wells serving larger properties). Together with portions of IWPAAs extending into Harvard from neighboring towns, Harvard has a total of 1,007 acres of land within IWPAAs. In addition, two non-local Zone IIs extend into Harvard, including 51 acres within the Zone II of a water supply in Littleton and 554 acres in the Zone II of wells in Ayer. Also, Zone IIs for the wells at Devens are within Harvard's boundaries, and there are vast aquifers under Devens, the Oxbow National Wildlife Refuge, and the Delaney Wildlife Management Area (1,497 acres). Despite the prevalence of land contributing rainfall to public water supplies, Harvard does not have any land use controls to help safeguard them from contamination. Harvard should consider adopting a ground water protection district to preserve the water quality of these aquifers.

3. AREAS OF ECOLOGICAL SIGNIFICANCE

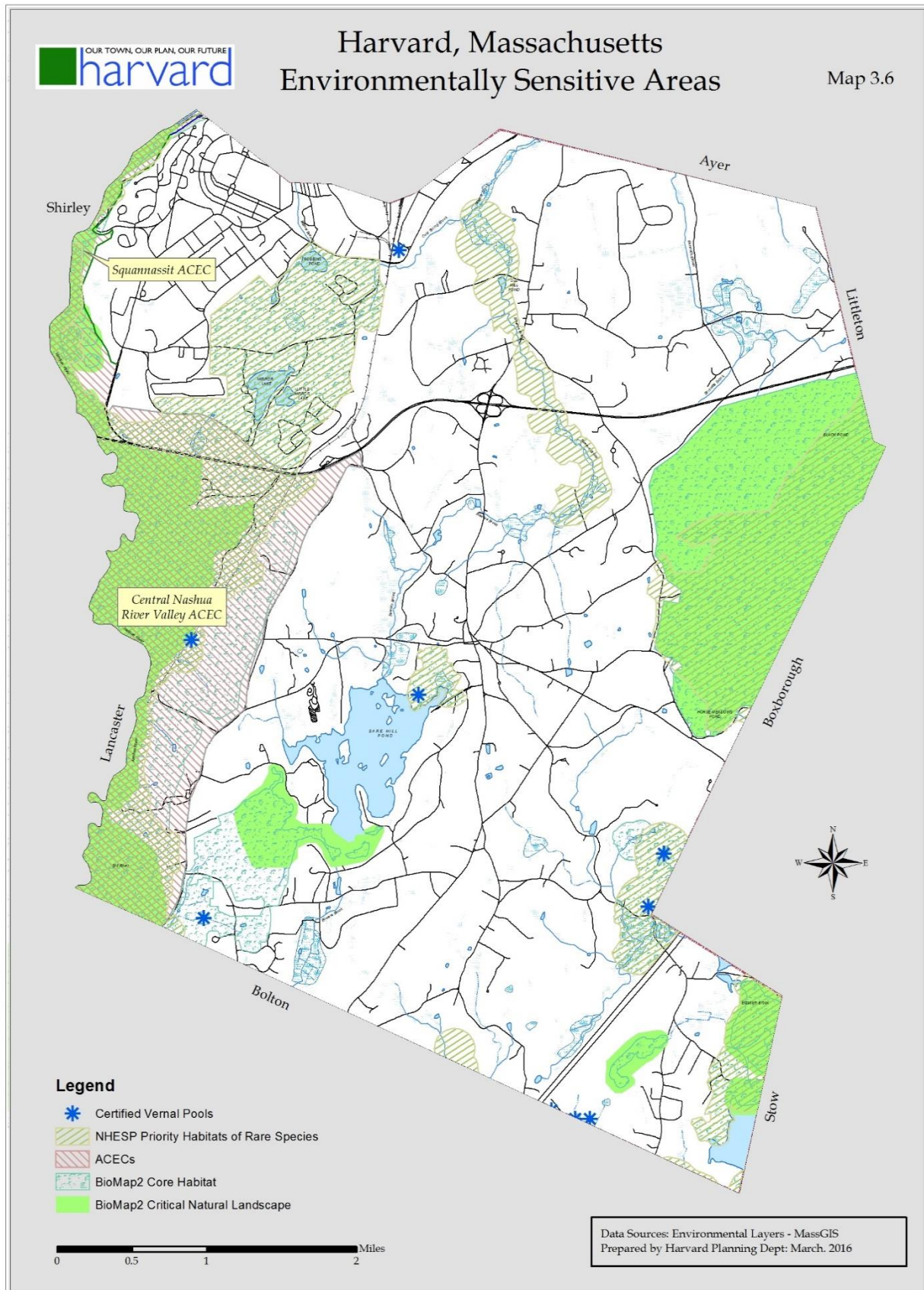
Harvard has 5,726 acres of land in areas with known ecological significance. They include Areas of Critical Environmental Concern (ACEC), Core and Critical Habitat from the BioMap2, and Priority Habitats of Rare Species. Not surprisingly, most of these areas overlap. (See Map 3.6) Over half (3,300 acres) are along the Nashua River and within the Oxbow National Wildlife Refuge, extending into Devens and incorporating the Mirror Lakes and Robbins Pond (1,126 acres lie within the Devens boundary). A second significant environmentally sensitive area includes 1,488 acres on the eastern side of town, extending from Black Pond to Horse Meadow Pond.

The Massachusetts Natural Heritage & Endangered Species Program (NHESP) and The Nature Conservancy's (TNC) Massachusetts Program developed BioMap2 in 2010 as a conservation plan to protect the state's biodiversity.²¹ Areas identified as Core Habitat, encompassing 4,882 acres in Harvard, are necessary to promote the long-term survival of Species of Special Concern (those listed under the Massachusetts Endangered Species Act and additional species identified in the State Wildlife Action Plan), exemplary natural communities, and intact ecosystems. BioMap2 also includes areas known as Critical Natural Landscape, or intact landscapes that support ecological processes and support a wide range of species and habitats over the long term. Pastures and power-line rights-of-way are included, too, since they provide habitat and connectivity for many species. Harvard has 2,843 acres of such landscapes (partially overlapping Core Habitat). In addition, 3,972 acres in Harvard are classified as Priority Habitats of Rare Species (also overlapping), or areas within which state-listed rare species have been observed within the last twenty-five years.²² Mapped Priority Habitats determine whether a proposed project must be reviewed by the NHESP for compliance with the Massachusetts Endangered Species Act.²³

²¹ NHESP, BioMap2 (2010), MassGIS. Harvard statistics compiled by RKG Associates Inc. August 28, 2014

²² NHESP, Priority Habitats of Rare Species (2008), MassGIS. Harvard statistics by RKG Associates Inc., August 28, 2014.

²³ Massachusetts Natural Heritage Atlas, 13th ed. (October 2008).



Area of Critical Environmental Concern (ACEC)

Areas of Critical Environmental Concern (ACEC) have been designated by the Massachusetts Secretary of Energy and Environmental Affairs (EEA) as places that receive special recognition because of the quality, uniqueness, and significance of their natural and cultural resources.²⁴ They are identified and nominated at the community level and reviewed by EEA staff. ACEC designation creates a framework for local and regional stewardship of critical resource areas and ecosystems. Due to efforts by officials in Harvard, Bolton, Lancaster, and Leominster, 12,884 acres of the Central Nashua River watershed won designation as an ACEC in 1996, including 2,109 acres in Harvard. The Central Nashua River Valley ACEC includes considerable open space – approximately 61 percent of the entire area – and much of it is protected: the Oxbow National Wildlife Refuge, Bolton Flats Wildlife Management Area, and over 1,000 acres of public and private conservation and recreation lands. According to state data, the total amount of open space within the ACEC is approximately 7,900 acres.²⁵

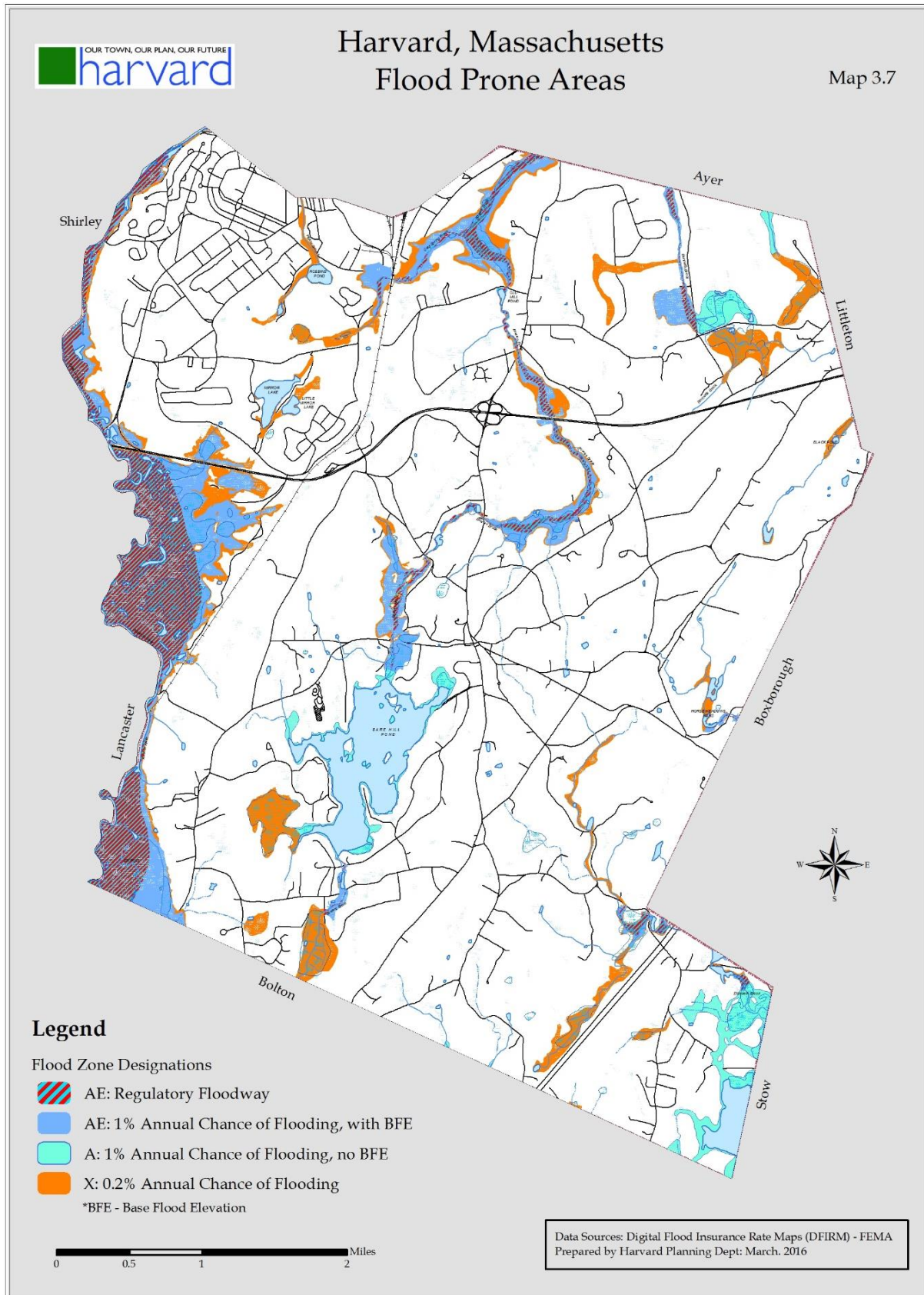
Floodplain

There is a strong correlation between environmentally sensitive areas and areas prone to flooding. Floodplains support wildlife habitat, aquifer recharge, flood storage, and water purification, and they are critical to the health of streams, ponds, and bordering vegetated wetlands. Map 3.7 shows the flood zones delineated by the National Flood Insurance Program (NFIP) in Harvard, and they are the basis for floodplain management and mitigation. There are four categories of flood prone areas: the floodway, two categories where there is a one percent chance of flooding in any given year, and the area adjacent to that where there is a lower chance of flooding. These areas perform different functions in a major storm event and they are subject to different degrees of regulatory protection. The floodway is the zone where the majority of water flows during a flood event, including the river or stream channel and the lowest lying areas along the banks. The two categories with a 1 percent annual chance of flooding (formerly known as the “100 year” floodplain) are differentiated by the presence or absence of base flood elevation data. Those areas with such data can be delineated more precisely. The fourth category, formerly known as the “500 year” floodplain, has a 0.2 percent chance of flooding in any given year.

Extensive flood prone areas in Harvard lie along the Nashua River and associated wetlands systems. Narrow flood plains lie along Bowers Brook Bare Hill Pond, and Cold Spring Brook in the Nashua River Basin, Bennetts Brook in the Merrimack River Basin, and Elizabeth Brook, which flows into the flood control ponds in the Delaney Wildlife Management Area in the SUASCO Basin. In all, there are 2,796 acres of flood prone areas in Harvard: 784 acres within the floodway, 1,249 acres of areas with a one percent annual chance of flooding (including 613 acres in ponds), and 763 acres of areas with a 0.2 percent annual chance of flooding. Harvard’s Zoning Bylaw includes provisions to minimize adverse impacts due to flooding. The Town complies with the National Flood Insurance Program, which qualifies property owners within flood plains for federal flood insurance.

²⁴ MassGIS website, <http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/acecs.html> (downloaded 8/2014); Harvard statistics by RKG Associates Inc. 8/24/2014

²⁵ Massachusetts Department of Energy and Environmental Affairs, “Central Nashua River Valley Resource Summary,” and “Designation of the Central Nashua River Valley Area of Critical Environmental Concern,” January 29, 1996.



4. OPEN SPACE

Protected Open Space

Over 25 percent of the Town (excluding Devens) is protected in some way for conservation purposes. According to an open space inventory maintained by the Town, the Town and Land Trusts own and manage approximately 1,900 acres,²⁶ state and federal agencies control about 1,350 acres, and land with an APR or CR total over 500 acres. The inventory of protected land includes some fairly large properties, such as the Great Elms (69 acres), Prospect Hill (61 acres), and the Bare Hill Wildlife Sanctuary on Bolton Road and the Clapp Land on Still River Road (44 acres each).

Harvard has historically been recognized as a leader in open space protection. Acquisitions, gifts, tax title takings, land swaps and other means of securing conservation land have been pursued in Harvard since at least 1962. Half a century of land preservation efforts have resulted in 4,245 acres of land in some form of permanent protection from development, or one quarter of Harvard's total area.²⁷ Since the 2002 Master Plan, Harvard has added over 700 acres of land in permanent protection. According to data provided by MassGIS, the protected open space in Harvard includes the following:

- 1,770 acres owned by the Town and 321 acres of Bare Hill Pond, a State-designated Great Pond;
- 866 acres within the Oxbow National Wildlife Refuge, owned by U.S. Fish & Wildlife Service;
- 483 acres owned by the Commonwealth of Massachusetts;
- 221 acres owned by the Harvard Conservation Trust and New England Forestry Foundation;
- 216 acres owned by various entities and protected with agricultural preservation restrictions (APR); and
- 306 acres owned by various entities and protected with conservation restrictions (CR).

As shown in Map 3.8, these are widespread across Harvard (including Devens) and largely disconnected. Individual parcels range in size from under one acre to over seventy acres.

Efforts to protect open space in Harvard have been and continue to be led by the Conservation Commission and the Harvard Conservation Trust (HCT). Incorporated in 1973, HCT has worked closely with the Conservation Commission and other groups to protect land and preserve Harvard's rural character. As an independent entity, HCT can respond quickly to land acquisition and disposition opportunities. HCT holds Conservation Restrictions or Agricultural Preservation Restrictions (APR) on approximately 250 acres in Harvard.

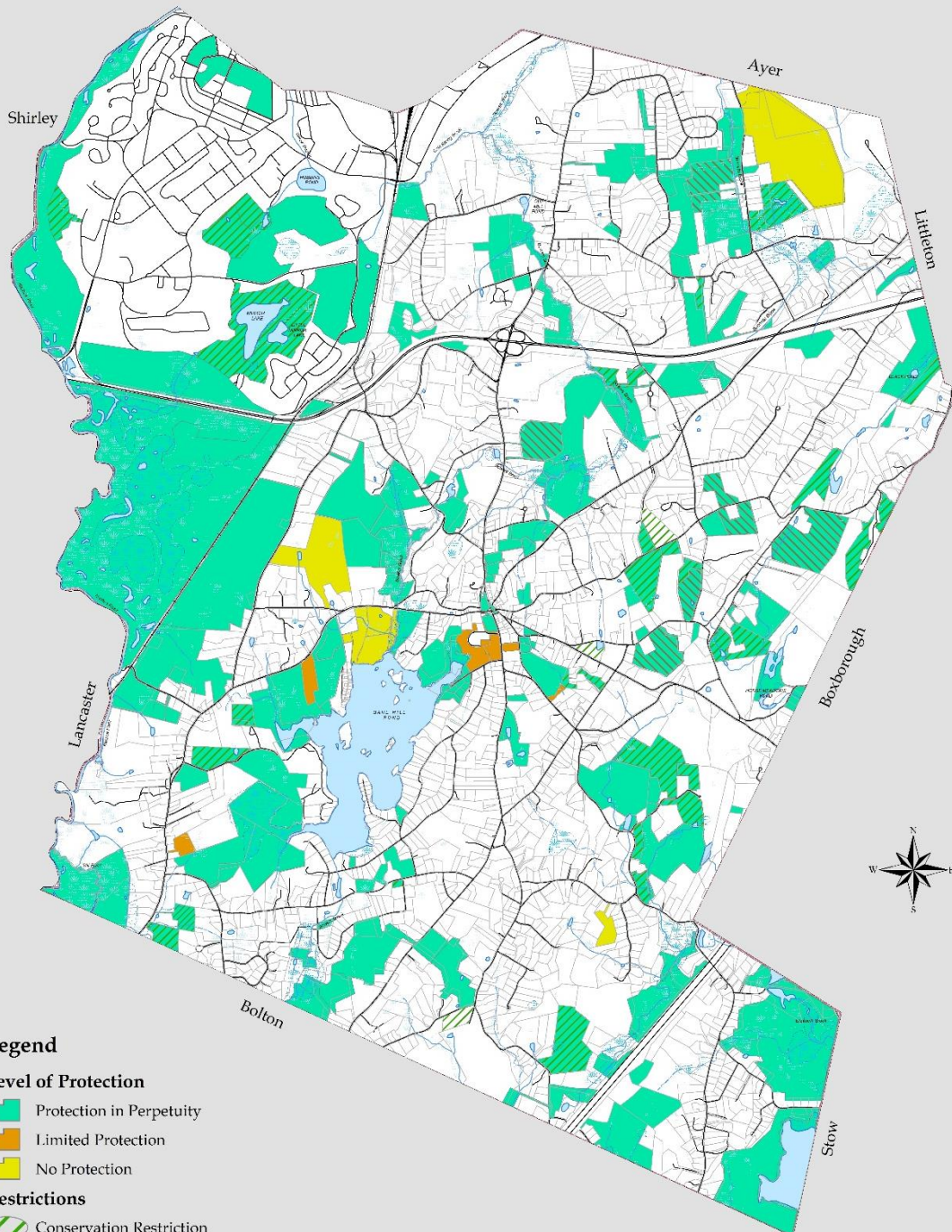
²⁶ Liz Allard, Land Use Administrator/Conservation Agent, and Open Space and Recreation Plan (2008).

²⁷ Liz Allard, Land Use Administrator/Conservation Agent, and Open Space and Recreation Plan (2008).



Harvard, Massachusetts Protected Open Space

Map 3.8



Legend

Level of Protection

- Protection in Perpetuity
- Limited Protection
- No Protection

Restrictions

- Conservation Restriction
- Agricultural Preservation Restriction

0 0.5 1 2 Miles

Data Sources: Open Space - MassGIS; Parcels - Harvard Assessors
Prepared by Harvard Planning Dept: March, 2016

Unprotected Open Space

Some of Harvard's most striking open space features are completely unprotected, which means they could be developed at any time; however, while development pressure remains low, such properties are at little risk for change.

- Land temporarily protected under the Chapter 61 program reduces property tax obligations for owners of land in forestry use. According to Harvard's 2016 Open Space and Recreation Plan, there are 694 acres under Chapter 61 agreements with the Town. When the owners of Chapter 61 land decide to sell their property to a developer or change the use of their land to non-forestry purposes, the Town has a right of first refusal to purchase the property and protect it as open space.
- Land temporarily protected under the Chapter 61A program reduces property tax obligations for owners of land in active agricultural use. Harvard currently has about 1,534 acres of Chapter 61A land. The same right of first refusal applies to the sale of Chapter 61A properties.
- Land temporarily protected under the Chapter 61B program helps to protect land in recreational use by reducing the owner's property tax obligations. In 2016, Harvard has 410 acres enrolled in the Chapter 61B program.
- Large institutional holdings include 40 acres owned by the Sisters of Saint Benedict Center in Still River Village, 67 acres owned by the Saint Benedict Priory in Still River Village. Harvard University's 37-acre Oak Hill Observatory, and 52 acres of camp properties around Bare Hill Pond.
- Town-owned land amounts to approximately 230 acres, including land used for Town and school facilities and park and recreation areas.

Devens' Open Space

The 1994 Devens Reuse Plan called for a substantial open space component, comprised of active recreational areas, passive recreational areas, and conservation areas. The mixture of open space types and ownership that resulted is rather similar to the mixture that exists within Residential Harvard; thus, resuming jurisdiction is expected to essentially result in an extension of a natural resource and open space mosaic that Harvard is accustomed to, complementing Harvard's overall open space acreage and diversity. Regardless of the disposition outcome, many natural resources, such as the Nashua River, have regional importance from both protection/conservation and stewardship perspectives and should be appropriately addressed in the Town of Harvard's various land use documents.

Assuming jurisdiction would afford a combined Harvard and Devens greater say over the protection of viewsheds and natural resources within the Town's boundaries, furthering the goals of preserving Harvard's "defining landscapes" and resources. Devens' position on the landscape, directly west of Residential Harvard and at a lower elevation, places it within the viewshed of much of Residential Harvard, including Fruitlands and Prospect Hill. Likewise, natural resources such as aquifers and wetland/stream systems (including the Nashua River) cross the Harvard-

Devens border, and their integrity can be affected by land use activities on either side of this line. While the Town might not have exclusive say over viewshed and natural resource issues in all cases (for example, federal and state jurisdiction could still supersede local rule), assuming jurisdiction of Devens would provide increased regulatory oversight by Harvard's land use boards including the Planning Board and Conservation Commission. Having greater say in these cases would provide Harvard with greater assurance that development and conservation will proceed in line with the Town's stated goals. However, such oversight would result in a greater workload than is currently experienced in Harvard and may require additional resources.

CHAPTER 4 POPULATION & HOUSING

Consistent with its zoning Harvard is a community dominated by single-family dwellings on large lots. A limited number of condominiums and subsidized rental units have been built over the past 20 years, permitted under the state's affordable housing law, Chapter 40B, as part of an Ayer Road Village Special Permit, and within Devens. Typically new development, however, consists of large residences on large lots. This is true even though Harvard's households are getting smaller, a trend seen in most towns. Homebuyers seem to want the spacious homes, good schools, and residential amenities that Harvard has to offer. A combination of restrictive zoning, market demand, high land costs, and a dependence on wells and septic systems in most of the Town help to explain why the non-Chapter 40B housing pipeline is limited and fairly homogenous.

Housing was a major focus area in Phase I of the Master Plan, and has been a topic of great concern among Harvard residents for many years. The high cost of housing and the lack of housing diversity have limited the opportunities for those of modest means to afford to live in Town. In particular, Phase 1 noted the lack of housing alternatives for seniors who may have lived in Harvard for most of their adult lives in a detached single family home, but now wish to move to smaller quarters with less maintenance responsibilities or perhaps to live in a community of their peers. Long-time residents may have to leave Harvard to find an acceptable housing option. To meet changing housing needs, the report concluded that the Town should investigate ways to create smaller houses for seniors, non-family households, and first-time homebuyers. The report also identified a need for more affordable housing as a means of fostering diversity of age, income and household make-up. The analysis contained in this chapter supports the conclusions of Phase I and offers actions that can begin to overcome the lack of housing alternatives in Harvard.

1. POPULATION AND HOUSEHOLD TRENDS

Harvard is home to about 5,000 people and 1,800 households. Table 4.1 shows that from 1930 to 2000, population growth in Residential Harvard (excluding Devens) consistently outpaced that of Central Massachusetts; however this trend was reversed over the previous decade (2000-2010), as the Town's population dropped slightly while the County as a whole grew by over 6%. Harvard is not alone. Many of the state's developing suburbs that grew quickly for several decades have also experienced a significant slowdown in population growth since 2000. Many of the state's most affluent communities have also seen their populations stagnate or decline as the result of shrinking household size and limited new construction.

Table 4.1 - Population Change in Harvard, 1930-2010

Year	Local Population (Without Devens)	Percent Change	Worcester County Population	Percent Change
1930	987		490,737	
1940	1,119	13.4%	504,470	2.8%
1950	1,315	17.5%	546,401	8.3%
1960	1,840	39.9%	583,228	6.7%
1970	2,962	61.0%	638,114	9.4%
1980	3,744	26.4%	646,352	1.3%
1990	4,662	24.5%	709,705	9.8%
2000	5,230	12.2%	750,963	5.8%
2010	5,063	-3.2%	798,552	6.3%
Source: Harvard Master Plan 2002, Table 2.6; Census 2010, and RKG Associates, Inc.				

Table 4.1 does not account for the entire population of Harvard today. It updates a similar table from the 2002 Master Plan that excluded Devens' population in order to report changes that relate to zoning and infrastructure policies that Harvard actually controls. In the 2010 Census, Devens had a population of 1,457 people, of which 1,238 lived in group quarters and 219 lived in households. When Devens is included in the Town's demographic data, Harvard experienced a slight population gain (1.8 percent). Devens hosts a Federal Medical Center, part of the Federal Bureau of Prisons, for male inmates in an administrative security facility and in an adjacent minimum security satellite camp. The Census Bureau includes all 1,194 inmates in Harvard's total population count.

In 2000, Harvard consisted of two census tracts, but with the loss of military personnel at Fort Devens, the Census Bureau combined the two tracts into one with six block groups, one of which (block group 6) includes Harvard's land at Devens (Fig. 2.1). This reunification for census purposes provides a more complete picture of the Town's residents but makes it harder to compare current conditions with those reported in previous plans and studies.

Race

Harvard has few people of color living within its borders – in or outside of Devens. There are 126 minority households in Harvard, including twelve living at Devens. Most are Asian families. By contrast, the Town has only eleven African American families. Of the 264 African American people living in Harvard today, 244 reside at Devens and 230 are inmates at the federal prison. The residential population remains almost exclusively white, non-Hispanic, as it was in 2000. In 2010, Harvard had 264 Hispanic individuals, 219 of whom were white; most of the Hispanics, 166, lived in Devens, of whom 147 were white.

Population Density

Except for small pockets of compact development in the historic villages, Harvard is a low-density town. At 206 people per sq. mi., Harvard's population density is much lower than that of adjacent towns, with only Bolton approximating Harvard. By contrast, the population density of Ayer is 832 people per sq. mi. and Boxborough, a town with similar rural-residential characteristics, has 486 people per sq. mi. Harvard's low density is a result of its scarcity of water and sewer infrastructure and 1.5-acre minimum lot size throughout Town. In the Town Center, which developed prior to the adoption of zoning and now has water and sewer systems, the median lot size of single family homes, is ½ acre.

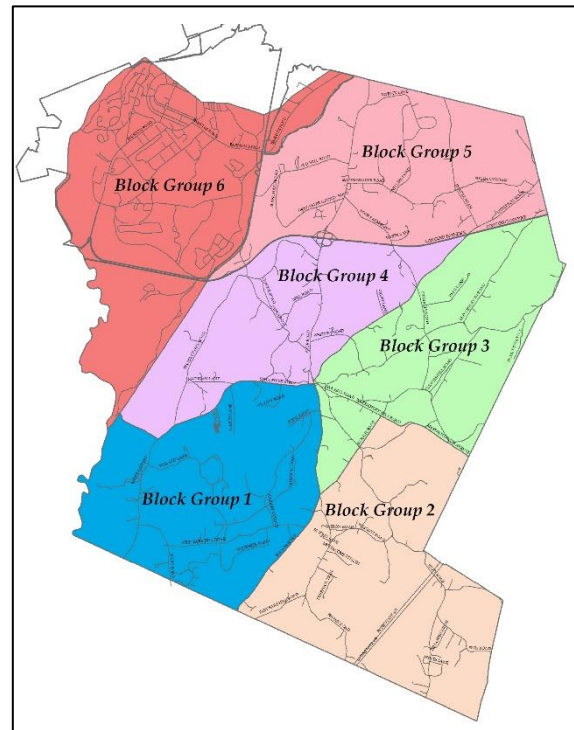


Figure 4.1 - Census 2010 Block Groups

Table 4.2 - Population Density (2010)

Location	Population	Land Area (sq. mi.)	Population Density (per sq. mi.)
HARVARD			
Residential Harvard	5,063	24.6	205.8
Total (including Devens*)	6,520	26.4	246.6
Ayer	7,427	8.9	832.2
Bolton	4,897	20.0	245.4
Boxborough	4,996	19.3	485.7
Lancaster	8,055	27.5	293.3
Littleton	8,924	16.5	540.1
Shirley	7,211	15.9	454.8
Stow	6,590	17.3	380.6
Source: U.S. Census, Census 2010.			
*Devens population includes federal prison inmates.			

Population Age

Harvard's demographic profile has long differed from that of the Commonwealth and region in terms of distribution by age. School-age children have traditionally made up larger shares of Harvard's population, and this remains true today. However, school enrollments have begun to fall because the youngest age cohort – children under 5 years – was already shrinking when the last federal census occurred in April 2010. As shown in Table 4.3, in 1980 5.9% of the population was under 5 years; by 2010, it dropped to 3.4%. A contributing factor is the decline in the young adult population (ages 25-34), which decreased from 15.4% in 1980 to just 3.6% in 2010. This is perhaps due to the high cost of housing in Harvard, which puts the Town beyond the reach of young, newly formed households. Adults in the 35-54 age cohort make up almost 1/3 of the population, attracted in part by Harvard's excellent schools. New housing under construction in 2016 at Devens, as well as turnover in the existing housing stock as long-time residents leave their homes, may cause a reversal of the decline of school-age population in the coming years.

As the number of householders of child rearing age have decreased, the number of "Baby Boom" empty nesters and retirees have increased in Harvard over the previous ten years. Those 65 and over comprised 12.7% of Harvard households in 2010, up from 5.6% in 1980. The leading edge of Boomers, those born in 1946, turned 65 in 2011. Data from the 2020 Census will undoubtedly show the growth in the 65+ population continuing as residents age in place and new housing starts remain low. The 2010 Census had Harvard's 55-64 age cohort at 18.8%, which is over 6% greater than the statewide percentage (12.3%).

Table 4.3 - Population by Age in Harvard

	1980		1990		2000		2010	
Age Cohort	Harvard	State	Harvard	State	Harvard	State	Harvard	State
<5	5.9%	5.6%	6.5%	6.9%	6.5%	6.3%	3.4%	5.6%
5 to 14	19.5%	14.2%	15.6%	12.1%	19.0%	13.6%	17.6%	12.1%
15-19	9.5%	9.4%	7.2%	6.8%	6.4%	6.5%	8.4%	7.1%
20-24	4.2%	16.2%	4.5%	8.5%	2.0%	6.4%	2.9%	7.3%
25-34	15.4%	16.3%	9.5%	18.3%	5.8%	14.6%	3.6%	12.9%
35-54	34.1%	21.2%	41.6%	25.2%	39.7%	30.5%	32.6%	29.0%
55-64	5.6%	10.6%	8.0%	8.6%	12.2%	8.6%	18.8%	12.3%
65+	5.6%	13.2%	7.0%	13.6%	8.5%	13.5%	12.7%	13.8%
Sources: Harvard Master Plan, Table 2.8; Census 2010, and RKG Associates, Inc.								

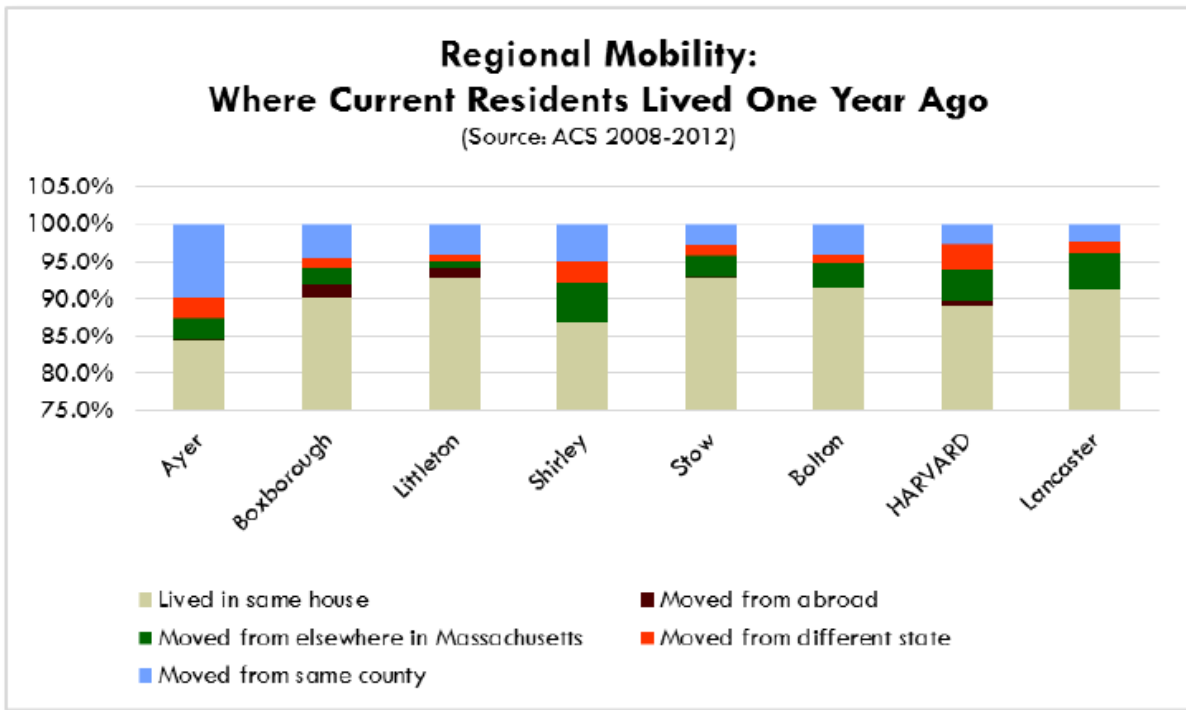
Disability

Approximately 6.4 percent of Harvard's population (about 350 people) has some type of disability: a long-lasting physical, mental, or emotional condition that severely limits activities such as walking, dressing, bathing, learning, or remembering. A disability can make it very difficult or impossible for people to leave their home alone or go to work. In Harvard, seniors make up about 40 percent of the total disability population. Providing housing for people with disabilities should be part of the Town's long-range housing policy. In 2016 Town Meeting approved a Zoning Bylaw amendment to allow assisted living facilities in the Commercial District within an Ayer Road Village Special Permit development.

Geographic Mobility

Harvard's population is generally stable, but compared with surrounding towns, Harvard has a somewhat higher rate of population mobility, i.e., in- and out-migration. Fig. 4.2 indicates that Harvard residents are somewhat more likely to move to Harvard from another part of Massachusetts, outside of Worcester County, and also more likely to move from another state. During planning workshops for this plan, participants reported that families may move to Harvard for its high educational quality, then move out of town once their children pass through the school system to avoid large property tax payments.

Figure 4.2 - Regional Mobility

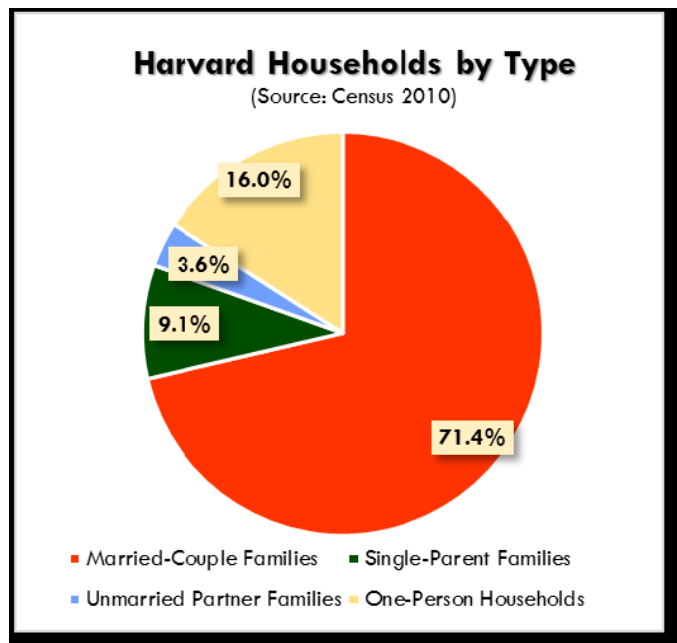


Household Types

According to the Census Bureau, Harvard's 1,893 households (including Devens) are predominantly families, especially married-couple families. "Family" is a household of two or more people related by blood, marriage, or adoption, or an unmarried partner household, living together in the same house. It is clear that Harvard's great schools draw families to the Town because almost half of Harvard's married-couple families and 35 percent of all other families have children under 18.²⁸

There are remarkably few nonfamily households in Harvard – mainly senior citizens living alone. In fact the Town has the smallest percentage of nonfamily households of any town in the region (19.5%). The aging of Harvard's population goes hand-in-

Figure 4.3 - Households by Type



²⁸ Census 2010, Tables PCT15, P38.

hand with the aging of its householders: the person who owns or rents a housing unit (sometimes referred to as the head of the household). Over half of Harvard's 1,665 owner households and 43 percent of its 148 renter households are headed by someone 55 years or older. The trend toward older householders has implications for everything from demands on municipal services and school enrollments to residents' willingness to pay for essential services when they move from the labor force and earnings to retirement and fixed incomes. Devens residents tend to be somewhat younger reflecting the fact that housing at Devens is priced for a broader range of incomes.

Table 4.4 - Householder Ages: Harvard and Devens

	Residential Harvard		Devens	
Householder Age Cohort	Total	Percent	Total	Percent
15 to 24	8	0.4%	0	0.0%
25 to 34	51	2.8%	2	2.5%
35 to 44	244	13.5%	18	22.5%
45 to 54	588	32.4%	31	38.8%
54 to 64	531	29.3%	16	20.0%
65 to 74	269	14.8%	9	11.3%
75 and over	122	6.7%	4	5.0%
Total	1,813	100.%	80	100.%
Source: Census 2010, RKG Associates, Inc.				

Income And Poverty

Harvard has evolved from an agricultural enclave to a prestigious, low-density suburb within the orbit of the Boston and Worcester metro areas. Not surprisingly, the economic position of Harvard households is higher than that of households in most Worcester County towns. Overall, Harvard residents have higher levels of educational attainment and better-paying jobs, and they are more likely to have more wage earners, too. Table 4.5 presents a set of standard wealth indicators for Harvard, Worcester County, and the state, and compares today's statistics with those published in the last Master Plan. Harvard remains a town with high household income and high housing values despite the recent recession. Despite this affluence, a number of residents live in poverty (earning less than \$11,770 for a single individual, \$20,090 for a family of three in 2015). The most recent data from the U.S. Census Bureau estimate that 95 Harvard families (6.2%) lived below the federal poverty threshold in 2014, and most of these (63) owned

their homes. Of the 499 residents living in poverty, 209 were children under the age of 18; only 39 were 65 or older.²⁹

Table 4.5 - Comparative Economic Indicators

Indicator	2002 Master Plan			Harvard in 2014		
	Harvard	Worcester County	State	Harvard	Worcester County	State
Median Family Income	\$119,352	\$58,394	\$61,664	\$150,859	\$82,736	\$86,132
Per Capita Income	\$40,867	\$22,983	\$25,952	\$50,853	\$32,072	\$36,441
Median Home Value	\$368,700	\$146,000	\$185,700	\$552,300	\$255,600	\$329,900
% Population with College Education or Higher	65.1%	26.9%	33.2%	62.5%	31.4%	40.0%
% Management, Business Science and Arts Employment	73.9%	37.6%	41.1%	64.9%	40.7%	43.9%
Sources: Master Plan 2002, Table 2-7; American Community Survey Five-Year Estimates, 2010-2014.						

2. HOUSING CHARACTERISTICS

Physical Characteristics of Housing in Harvard

Excluding Devens, almost 96 percent of the housing units in Harvard are detached single-unit homes. Homes here are generally larger than those found in all of the adjacent towns. Over 80 percent of the homes in Harvard have three or four bedrooms, and 10 percent have five or more bedrooms.³⁰ Harvard has only a few multi-unit housing structures in older two-family and multifamily dwellings, two apartment buildings for seniors, and condominiums in 2-, 3- or 4-unit buildings. Variety and greater density can generally be found in the Town Center, around Bare Hill Pond, Still River Village, the Shaker Village area, and in newer neighborhoods around Ayer Road north of Route 2, where several mixed-income properties have been developed.

²⁹ U.S. Census; ACS 2010-2014, 5 Year Estimates There is a high incidence of poverty (36.2%) among residents – all male – living in “other living arrangements,” most likely the supportive (transitional) housing for veterans at Devens.

³⁰ U.S. Census; ACS 2005-2009, 5 Year Estimates, DP-04

Devens has a mix of dwelling units. An early phase renovated 102 units that were originally built for military families. In 2012, Transformations, Inc. completed construction of eight moderately-priced zero net energy single family homes on Adams Circle, and near-by, Metric Corp. completed 20 energy-efficient townhouses in 2014. In 2015 MassDevelopment approved Emerson Green, a 124-unit development of single family homes and duplexes for sale and multifamily homes for rent, configured in a traditional neighborhood design (compact lots, sidewalks, shared public space, and rear entry driveways). Build-out of this project will approach the 282-unit limit allowed under the Devens Reuse Plan. Finally, in 2015, Harvard, Ayer and Shirley approved a re-zoning in Shirley's portion of Devens to allow a 120-unit Senior Residential Development whose units are outside of the 282-unit cap.



Housing in Devens

Appendix 1 contains a detailed Development Suitability Analysis. The physical characteristics of Harvard make development difficult. The analysis takes into account environmentally sensitive areas that are not suitable for building, such as wetlands, floodplains, and BioMap core habitats, as well as areas where development may harm important resources, such as water supply protection areas and prime farmland soils. Removing such lands from consideration leaves 1,471 acres that are not currently developed, are not protected from development, do not have environmental constraints, and are potentially developable based on size and access. Of this total, about 1,000 acres are enrolled in a Chapter 61 tax abatement program for forestry management, agricultural production, or recreation. Owners temporarily enjoy benefits of lower taxes but may remove the property for development at any time. These unconstrained lands may be suitable for higher residential density to help meet local housing needs. See Appendix 1 for more information on the methodology behind the analysis.

Age and Location of Housing

Harvard generally has a newer housing stock than most of its neighbors, with the exception of Boxborough and Bolton. Almost 59 percent of homes Town-wide (including Devens) were built after 1970 and over 18% were built since 1990.³¹ Harvard also has a substantially newer housing stock than either the county or the state: 16.9 percent of Harvard homes were built prior to 1940 compared to 32.9 percent of the homes in Worcester County and 34.3 percent of homes statewide. There are also many inter-war (1920-1940) houses and treasured historic homes in Harvard's housing supply, and they account for 19.3 percent of all units (excluding Devens).³²

There is a marked difference in the location and concentration of housing by age in Harvard. Most homes dating from the eighteenth and nineteenth centuries are located relatively close to each other in the village centers or along the original roads that crossed the Town. Mid- to late-twentieth century development spread to all sections of town, first in a lot-by-lot pattern in areas south of the Town Center, and eventually in the form of subdivisions of larger areas, e.g., Ann

³¹ U.S. Census; ACS 2010-2014. Census Tract 7614.

³² Harvard Assessor's Parcel Database (2014).

Lee Road and along Littleton Road. By the 1990s, single-family home development reverted to the pattern of separate, individual lots (typically created as “Approval Not Required” or ANR lots), supplemented by multi-family production through comprehensive permits.

While renovations and additions are common in Harvard, “teardowns” have been limited; in fact, the Town issued just seven demolition/rebuild permits (2004-2013).³³ While older homes usually present greater maintenance and cost issues for owners, the oldest are often either protected by preservation covenants or present a high enough building value to stave off demolition. Moreover, Harvard has buildable land available, so the demolition/rebuild trend experienced in towns closer to Boston has not yet been felt in Harvard.

Housing Size and Density

The median number of rooms (a common measure of housing unit size) in Harvard is the second highest among neighboring towns, and is considerably more than county and state averages. The median number of rooms per unit in Harvard is 8.0. Forty-seven percent of Harvard homes have four bedrooms compared with just 16.3 percent in Worcester County, 34.1 percent in Boxborough, and 11.5 percent in Ayer, both communities with substantially greater shares of rental apartments and condominiums.

Table 4.6 - Distribution of Housing by Number of Bedrooms (Estimated; 2012)

	Number of Bedrooms			
Location	2 Bedroom	3 Bedroom	4 Bedroom	5+ Bedroom
HARVARD (Excluding Devens)	5.6%	34.4%	47.0%	10.2%
Devens	0	59%	0	0
Shirley	30.2%	40.6%	18.1%	2.9%
Ayer	38.6%	27.3%	11.5%	2.2%
Littleton	18.1%	43.0%	25.9%	2.6%
Boxborough	23.5%	26.1%	34.1%	3.4%
Stow	16.0%	38.8%	37.6%	4.8%
Bolton	7.5%	27.1%	51.3%	8.4%
Lancaster	21.8%	42.4%	22.2%	2.6%
Worcester County	27.2%	39.2%	16.3%	3.8%
Source: U.S. Census; ACS 2008-2012, 5-Year Estimates, DP-04				
*In Devens, 31% of the units are one-bedroom units.				

Tenure and Occupancy

Residential Harvard has an extremely high rate of owner-occupancy (92 percent), well above the

³³ “Building Permits,” CY 2004 to 2013, from Harvard Planning Department.

Worcester County rate and higher than all neighboring towns except Bolton. The homeownership rate has been relatively stable, but it is up modestly from 90.5 percent since 2000.

Due to Harvard's distance from Boston (35 miles) and major employment centers, its lack of public transportation, few local employment options, limited public water and sewer systems, and zoning that does not allow multifamily housing anywhere in town (as of-right), it is not surprising that rental options are limited. Other than two senior rental housing developments on Ayer Road (the 24 unit Foxglove and 42 unit Bowers Brook apartments), most renters live in 1-4 unit dwellings: two-thirds rent single family houses and another 17 percent rent in small structures of 2-4 units. With such a limited supply, the few units that are available rent quickly. Real estate listings in March 2014 indicate zero vacancy in the rental market. Construction is expected to start in the spring of 2016 on the proposed nine rental family units at Great Elms on Stow Road but these are replacement units for units previously removed from the Subsidized Housing Inventory.

Table 4.7 – Households and Household Size by Tenure

		Occupied Units (Households)			Average Household Size	
Location	Total Housing Units	Total	Owner-Occupied	Renter-Occupied	Owner-Occupied	Renter-Occupied
Harvard						
Residential Harvard	1,965	1,813	1,665	148	2.84	1.89
Devens	82	80	65	15	2.69	2.93
Total	2,047	1,893	1,730	163	2.84	1.98
Ayer	3,462	3,118	1,861	1,257	2.53	1.96
Shirley	1,738	1,670	1,542	128	3.01	2.05
Littleton	2,073	1,949	1,532	417	2.77	1.79
Boxborough	2,614	2,409	1,932	477	2.76	2.22
Stow	3,477	3,297	2,804	493	2.81	1.81
Bolton	2,427	2,264	1,669	595	2.71	2.09
Lancaster	2,526	2,429	2,158	271	2.82	1.82
Worcester County	326,788	303,080	200,322	102,758	2.71	2.23
Census 2010, RKG Associates, Inc.						

Within owner-occupied units, Harvard has the highest average family size, 3.10 people per family, and the highest under-18 population percent among neighboring towns. This can be connected to the strong demand for Harvard schools, and also correlates to the large house size.

Housing Development Trends

Between 2004 and 2014, the Harvard Building Department issued 69 new building permits for single-family homes, including seven demolition/rebuilds (Table 4.8). In addition, 14 permits were given to multi-unit structures with a combined total of sixty-eight new units.

Table 4.8 - Residential Construction Permits in Harvard

Year	Single-Family Home	Multi-Unit Dwelling	Demolition/ Rebuild
2004	8	0	4
2005	10	0	0
2006	5	2	0
2007	10	2	0
2008	5	1	1
2009	4	2	0
2010	5	2	0
2011	6	1	0
2012	8	0	0
2013	3	2	0
2014	5	2	0
Total	69	14	5
Source: Town of Harvard, Building Permits Database, 2004-2014			

According to building permit records from the Town, eight new homes and four 2-unit condominium structures at Trail Ridge were permitted from 2013 - 2014. Except for an occasional comprehensive permit project, the long-term trend indicates a low rate of housing growth, which is not likely to change given the high cost and limited supply of buildable land and zoning that favors single family homes.

3. HOUSING MARKET

Housing Values

As shown in Table 4.9, the 2010 - 2014 American Community Survey (ACS) estimated Harvard's median owner-occupied housing value at \$552,300, which is greater than neighboring towns of Ayer, Shirley, and Boxborough. Among towns with high housing values west of Boston, Harvard is at the lower end of the range because it is considerably west of the city. Between 2000 and 2014, the median housing value in Harvard increased by 50%, which was greater than Boxborough

(38%) and Lincoln (44%); Carlisle had the greatest percentage gain (61%) and one of the highest median values among comparable communities, \$735,600. The supply of housing in Harvard has been relatively low, adding to the substantial rise in overall value.

Table 4.9 - Comparison of Median Housing Values in Selected Suburbs

Location	Median Housing Value (2014)	Median Housing Value (2000)	Change in Housing Value (2000-2014)
Shirley	\$268,900	\$163,400	65%
Ayer	\$288,600	\$171,000	69%
Acton	\$502,000	\$332,400	+51%
Boxborough	\$511,400	\$371,000	+38%
HARVARD*	\$552,300	\$368,700	+50%
Concord	\$668,300	\$453,400	+52%
Carlisle	\$735,600	\$456,000	+61%
Lincoln	\$847,200	\$590,300	+44%
Weston	\$1,000,000+	\$739,200	n/a
Source: U.S. Census; ACS 2010-2014 DP-04, Census 2000 DP-4 (SF-3)			
*Including Devens			

Based on sales figures from 2013, the age, location and lot size of housing have an important and contrasting impact on housing values. Houses on small lots around Bare Hill Pond, in Still River and Town Center generally command higher prices per square foot (sq. ft.) and per acre. Historic homes dating to the early to mid-nineteenth century are quite valuable on a per acre basis. Large single family homes on the minimum 1.5-acre lots tend to have the highest absolute values. In 2013, eight market-rate units at the Harvard Common condominiums on Littleton Road sold for \$299,000 - \$640,000 for units ranging in size from 1,400 sq. ft. to 3,200 sq. ft., for an average of \$193 per sq. ft.³⁴

Housing Sales

The recession of the late 2000s significantly lowered Harvard housing sales prices, and the median single family sales price is still below the peak in 2005. Worcester County was affected in a greater way by the “Great Recession” because of its location west of metropolitan Boston and lower housing demand. Sales activity in Harvard began to pick up in 2013, and prices, while recovering have not yet rebounded to the high before the recession. Housing values in communities similar to Harvard but closer to the metro area have

³⁴ Trulia.com

recovered faster than Harvard; as a result, with good schools and plentiful open space, Harvard's comparatively lower cost housing provides good value for those willing to accept a longer commute.

Table 4.10 - Housing Sale Prices, Number of Sales, and Percent Change in Harvard

	Median Sale Price						
	2000	2006	2012	2013	% Change 2000-2013	% Change 2012-2013	% Change 2006-2013
Median Sale Price	420,500	567,500	412,335	425,000	1.1%	3.1%	-25.1%
	Number of Sales						
Single Family Homes	80	46	47	66	-17.5%	40.4%	43.5%
Condominium Units	12	12	15	16	33.3%	6.7%	33.3%
Other	36	18	27	31			
Total	128	76	89	113	-11.7%	27%	48.7%
Source: The Warren Group, Town Stats.							

Market Rents

Only 8 percent of all occupied housing units in Harvard are occupied by renters. The median household size of Harvard's renter households is 1.89 people. The average gross median rent is \$1,305, which is a 35 percent increase from \$964 in 2000.³⁵ The majority of rental units (75 of an estimated 148 rental units (2010-2014 ACS)) qualify as "affordable" units on the Subsidized Housing Inventory (SHI). These 75 affordable rentals represent more than two-thirds of the town's 110 affordable units counted on the SHI as of December 2014.³⁶ The comprehensive permit process is the primary vehicle for building rental units in Harvard.

4. CURRENT DEVELOPMENTS IN HARVARD

Trail Ridge: Trail Ridge is a 52-unit residential condominium complex developed by Northwest Communities, LLC. The project is located on a new cul-de-sac, Trail Ridge Way, off of Littleton County Road near the Boxborough line. The complex is comprised of 2- and 4-unit structures, 24 of which are age-restricted residents aged fifty-five and older. Trail Ridge received a comprehensive permit from the Board of Appeals, and 13 units (25%) will qualify as affordable units on the SHI. As of 2014, twenty-eight units had received building permits. Work on Trail Ridge began in 2006, but was slowed by the recession. Six of the planned 13 affordable units were on the December 2014 SHI. The affordable units will be split proportionately between the age-

³⁵ U.S. Census 2000 (SF3), Selected Housing Characteristics, ACS 2005-2009

³⁶ MA Department of Housing and Community Development (DHCD) Chapter 40B Subsidized Housing Inventory (SHI)

restricted units and the non-restricted units. Trail Ridge is the only new multi-unit housing development currently being built in Harvard.

The Elms: The existing 5-unit rental complex in the historic farmhouse at The Elms is now being planned for re-development. The property was in risk of foreclosure and sold in September 2013 to CHOICE, the non-profit arm of the Chelmsford Housing Authority, to be redeveloped as nine family rental units. Originally proposed as rehab/new construction, the project will now be entirely new development. All units in the project will be affordable, i.e. restricted to households earning no more than 80% of the area median income (AMI). Four new units created on the site will replace those lost when the Harvard Inn went into foreclosure, and the affordable units located there were converted to market-rate. The historic barn was not preserved on the property, but re-located off-site and the existing farmhouse (with three units) will be demolished. The nine apartment units at The Elms represent a zero net increase from the Great Elms/Harvard Inn project.

Village Green: In 2015 MassDevelopment approved Village Green, a 124-unit Innovative Residential Development in the Grant Road area of Devens. The project design will promote a compact, walkable, neighborhood with a variety of dwelling types, including 40 multi-family units, 19 townhouse units, 22 duplex units, and 43 single-small homes. The multi-family units will be rental and the remainder will be for sale. The 32.7-acre property has a density of 4.3 units per acre in contrast to Harvard's .67 units per acre. The project offers park and open space amenities, energy conservation construction, and "low impact development" storm water management strategies.

The Devens Reuse Plan calls for 25% of the units to be affordable, that is, affordable to households earning less than 80% of the Area Median Income. In this way, Harvard will gain units on the Subsidized Housing Inventory (SHI) and make progress toward achieving its goal of providing 10% of its housing stock as affordable as required by MGL Chapter 40B. However, this project does not comply with the Reuse Plan. It will provide 27 units to middle income households i.e. those earning between 80% and 100% of the AMI; thus, none of the units will qualify as affordable housing. The Municipal Affordable Housing Trust (MAHT) will contribute a cash payment of \$140,000 to the developer to make 25% of the rental units (10 units) available to households earning less than 80% of the AMI. Under the state's affordable housing regulations, all 40 rental units would then count toward the Town's 10% goal.

Pine Hill Village (Transformations, Inc.): The Board of Appeals approved a comprehensive permit for Pine Hill Village in 2008, and the project will likely get underway in 2016. The 20.5-acre development consists of 24 condominium units in 17 buildings. Six of the units (25%) will be sold to households earning less than 80% of the AMI. Homes contain two or three bedrooms and range in area from 900 to 2300 square feet; by Harvard standards these are small units and will help to fill a niche for buyers looking for homes of moderate size and for empty-nesters to move from their large single family homes. These will be zero net energy homes with high insulation values (R-value of 45), roof-top solar electric, and triple-glazed windows.

5. HOUSING AFFORDABILITY

Defining Housing Affordability

There are many ways to define affordable housing, but the most widely accepted definition is that used by the federal government. The U.S. Department of Housing and Urban Development

(HUD) calls housing costs — rent plus basic utilities or mortgage, tax and insurance payments — affordable when they consume no more than 30% of a household's income. Households are deemed by HUD to have an affordability problem, or cost burden, if they pay more than 30% of income for housing; those paying over 50% are said to have a severe cost burden.

Housing Cost Burden

The Census Bureau estimates that of Harvard's 1,675 homeowners, about 130 (8 percent) have low or moderate incomes and 92 percent of them (120 households) are housing cost burdened.³⁷ Among the 125 renter households, seventy-nine (63 percent) have low or moderate incomes, but only 57 percent (45 households) are housing cost burdened. The lower rate of rental housing cost burden can be attributed to the larger percentage of affordable apartments available than affordable for-sale dwellings.

The percentage of cost-burdened households (owners and renters) has changed very little, though the percentage with severe housing cost burdens (over 50 percent of gross income) increased from about 5 percent to 14 percent between 2000 and 2010. The number and share of low or moderate income homeowners has not changed since 2000 (133 households, 8 percent). Among renters, however, there was a substantial rise in the proportion of low and moderate income households from 47 percent in 2000 to 63 percent in 2010.³⁸

Low and Moderate-Income Housing

Most housing assistance programs are targeted to low and moderate income households, defined by HUD until the mid-1990s as those earning up to 80% of the area median. HUD now considers 80% the ceiling for low income (and classifies as moderate income those earning up to 95%). In common usage, and under the Massachusetts Comprehensive Permit Law (MGL Chapter 40B), those earning less than 80% of median income are still considered low and moderate income.

Housing may be affordable without being subsidized under a specific state or federal program, and most low income families do not live in subsidized housing. Many towns have some modestly priced housing, such as small, post-war single-family homes, multi-family units, or lakeside cottages converted for year-round occupancy. These units fill an important market niche, but they are subject to the vagaries of the market. They do not represent a predictable permanent affordable housing resource. Moreover, there are no requirements that such units serve low income households nor that they be fairly and affirmatively marketed. They do not carry any implied warranty as to condition or accessibility. To ensure that the state had an adequate supply of low and moderate income housing, Massachusetts enacted "An Act Providing for the Construction of Low and Moderate Income Housing in Cities and Towns in Which Local Restrictions Hamper Such Construction" in 1969 as Sections 20-23 of MGL Chapter 40B, the state's Regional Planning Law, to increase the supply and improve the distribution of housing for low and moderate income families.

Chapter 40B

Under Chapter 40B, the state's affordable housing law, all communities are supposed to have housing that remains affordable to low- or moderate-income households even when home values

³⁷ Comprehensive Housing Affordability Strategy (CHAS) data from HUD, 2010. Harvard figures include Devens.

³⁸ CHAS, 2000, 2010

appreciate under robust market conditions. The units retain their affordability under a deed restriction that lasts for many years, if not in perpetuity. Both types of affordable housing meet a variety of needs. However, the market determines the price of unrestricted affordable units while a recorded legal instrument regulates the price of deed restricted units. Any household (regardless of income) may purchase or rent an unrestricted unit, but only a low- or moderate-income household may purchase or rent a deed restricted unit.

Chapter 40B allows developers of subsidized housing to apply to the Board of Appeals for all necessary approvals in the form of a single (comprehensive) permit and to request overrides of local zoning and other restrictions if necessary to make the housing economically feasible. When less than 10 percent of a town's year-round housing is restricted for occupancy lower-income households at prices they can afford, Chapter 40B all but requires approval of comprehensive permits for affordable or mixed-income housing developments.³⁹ Under Chapter 40B, the Board of Appeals may approve, conditionally approve, or deny a comprehensive permit, but in communities that do not meet the 10 percent statutory minimum, developers may appeal to the state Housing Appeals Committee (HAC). The HAC, in turn, may overturn local denials of a comprehensive permit or the imposition of conditions they believe make a project infeasible, absent a finding that the project presents serious health or safety hazards.

Because the comprehensive permit allows an override of local zoning and other regulations for eligible subsidized housing development, its use has been controversial since its enactment more than 45 years ago. It remains the principal production engine for the creation of low and moderate income housing, however, in many suburban and rural communities – like Harvard – where multi-family housing and other compact forms of development are generally not allowed. By facilitating the development of mixed income housing, 40B is now responsible for much of the region's market rate multi-family development as well as its affordable development. As Harvard advances toward meeting its 10% goal, "friendly" 40B developments can provide housing for a variety of target groups, including seniors, families, disabled persons, and apartment dwellers that otherwise would not be permitted.

To qualify as affordable under the Comprehensive Permit Law, the housing must involve some government subsidy, even if just in the form of state-rendered technical assistance. This statute, enacted more than 30 years ago to facilitate development of low and moderate income housing, established an affordable housing goal of 10% for every community in the Commonwealth. For purposes of determining whether a community has met the 10% standard, the State defines affordable, or low or moderate income housing, as housing developed with a state or federal subsidy or financing mechanism, in which at least 25% of the units are reserved for households with incomes not exceeding 80% of the area median income and which restricts rents or home prices for a specific period of time (generally at least 30 years for new construction and 15 years for rehabilitation). Proponents must provide open and fair marketing. Donation of town-owned land or technical assistance provided by the Massachusetts Department of Housing and Community Development (DHCD), in conjunction with the Local Initiative Program, are also considered eligible forms of public subsidy.

³⁹ "Year-round housing" is the Town's total number of housing units minus the number of seasonal or vacation units, as determined by the decennial census.

The Massachusetts Department of Housing and Community Development (DHCD) maintains the official tally of units that qualify as affordable housing on its Subsidized Housing Inventory (SHI, or “40B” list). These are the units that count toward a municipality’s 10 percent goal under Massachusetts General Law Chapter 40B. To be included on the SHI, housing must involve some government subsidy, even if just in the form of technical assistance. What constitutes an eligible “subsidy program” has changed over time, as have the production tools, but it is now broadly defined to include local initiatives that involve only minimal technical support provided by DHCD and developments financed by conventional lenders under the Federal Home Loan Bank of Boston’s New England Fund in addition to traditional government subsidy programs.

The inventory may include rental as well as ownership housing, group homes for populations with special needs, and existing homes that are repaired or upgraded using state or federal resources, as long as the occupant is income eligible. In rental projects, all units count, including the market rate ones; in homeownership projects, only the affordable units count. Households subsidized with tenant based rental assistance are not included in the Inventory.

The SHI dated December 2014 credits Harvard with 110 low- or moderate-income units, as reported in Table 4.11. This includes 13 affordable units at Devens located within Harvard’s borders. To reach the 10 percent minimum, Harvard would need another ninety-four qualified units. Today, nearly 70 percent of the units in Harvard’s SHI are located in or very close to the C district on Ayer Road. Residents of North Harvard have expressed concern about the concentration of affordable housing in their part of town. Map 4.1 shows the locations of the existing and approved affordable housing projects in Harvard.

The Devens Reuse Plan stipulates that 25 percent of the housing units shall be affordable, but this has not happened thus far. Compliance with the requirement would boost the Town’s record of meeting its Chapter 40B obligation since the law requires 10 percent of the units to be affordable. But if 10 percent of the units at Devens do not qualify as affordable under Chapter 40B, Harvard will have to compensate by creating more affordable units elsewhere within its borders.

Accessory Apartments

The Zoning Bylaw allows accessory apartments in the AR district by special permit of the Board of Appeals. This technique is an important means of providing small rental units without undue impacts on surrounding property. While such units do not qualify for placement on the SHI, they help to diversify the rental housing stock. The Bylaw does not require an “in-law” relationship between the parties. The accessory apartment may be within the single family home or in a detached structure on the property, and the Bylaw allows up to 1200 square feet but not more than 1/3 of the combined floor area of both units. However, just a few owners have taken advantage of the provision. Some changes that would make it more “user-friendly” include eliminating the provision that the main dwelling must be in existence for five years prior to submitting an application, and allowing such apartments as a by-right use within a dwelling but still require a special permit for units in detached buildings.

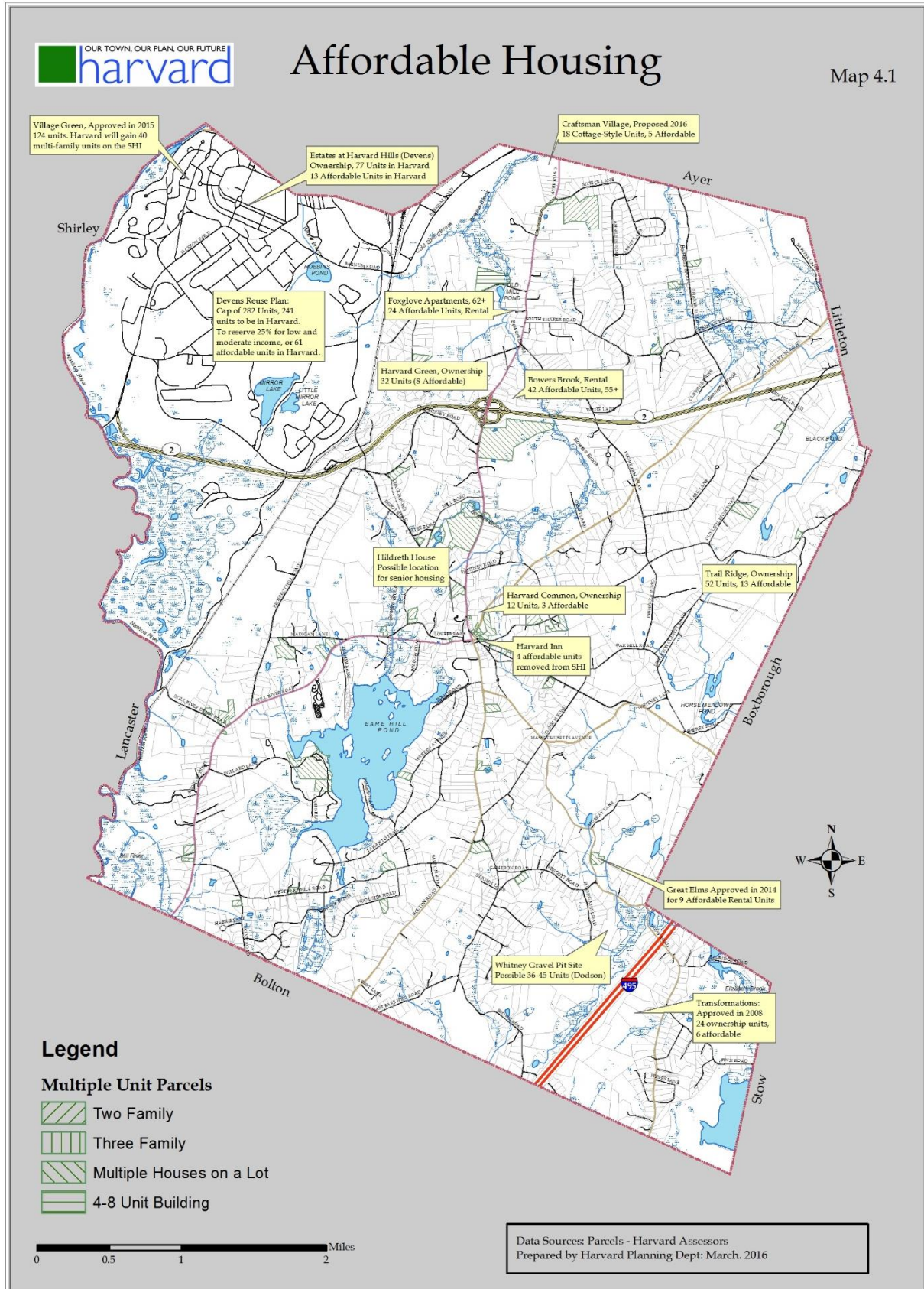
Harvard’s Zoning Bylaw also includes an “affordable accessory apartment” provision (§125-18.2). Its intent is to create units for low and moderate income households that would qualify for placement on the SHI. Applicants must apply for a special permit from the Board of Appeals. The unit must comply with the state’s guidelines under the Local Initiative Program (LIP) and have a restrictive covenant recorded to remain in effect for a minimum of 15 years. To encourage use of

the provision, the MAHT may provide a \$10,000 payment to account for any difference between market and affordable rents. To-date, no applicants have sought permission to create an affordable accessory apartment.

Table 4.11 - Chapter 40B Subsidized Housing Inventory

Project Name	Address	Type	Restrictions	Number of SHI Units	Total Units in project
Great Elms (1) (aka The Elms)	105 Stow Rd.	Rental		5	5
Harvard Inn (1)	11 Fairbank St.	Rental		4	4
Harvard Elderly / Foxglove Apartments	253, 453 Ayer Rd.	Rental	Over age 62; or disabled of any age	24	24
Harvard Green (LIP)	Lancaster County Rd.	Ownership		8	32
Estates at Harvard Hills	Walnut St. and Elm Rd. Devens)	Ownership		13	77
Harvard HOR Program	Ayer Rd.	Ownership		1	1
Harvard HOR Program	Old Mill Rd.	Ownership		1	1
Harvard HOR Program	Withington Lane	Ownership		1	1
Harvard HOR Program	Littleton Rd.	Ownership		1	1
Harvard HOR Program	Massachusetts Ave.	Ownership		1	1
Trail Ridge (2)	Littleton County Rd.	Ownership	50 percent: Age 55+	6	20
Harvard Commons Condominiums	15 Littleton Rd.	Ownership		3	12
Bowers Brook	196 Ayer Rd.	Rental	Age 55+	42	42
Total Units				110	221
Percent of Year-Round Housing Stock				5.55%	
<p>Source: DHCD, March 2014.</p> <p>1. Great Elms and Harvard Inn are listed together on the DHCD inventory, but kept separate on this list to reflect current changes. The Harvard Inn was sold for market-rate housing after foreclosure of the property in 2012, and will come off the SHI. Four new units are planned for The Elms to replace those lost at the Harvard Inn.</p> <p>2. Trail Ridge is still under construction. Planned build-out: 52 units (13 affordable).</p>					

6



6. MEETING HARVARD'S AFFORDABLE HOUSING NEEDS

Affordable Housing Planning

Harvard created an Affordable Housing Plan in 2004 and updated it in 2011. These plans have been approved by the Massachusetts Department of Housing and Community Development (DHCD). They were prepared as part of a DHCD-sanctioned Housing Production Planning (HPP) process, which encourages municipalities to plan and develop affordable housing that is consistent with their community planning goals. It is intended to encourage communities to take a proactive approach to meeting their affordable housing obligations under the Chapter 40B statute. It gives municipalities that are under the 10 percent threshold, but who are making steady progress in producing affordable housing on an annual basis, more control over comprehensive permit applications. If a municipality has a DHCD-approved affordable housing plan *and* certification from the agency that it has complied with that plan by having produced qualified units equal to at least 1/2 of one percent of its year round housing stock in a calendar year can get a one year reprieve from comprehensive permit petitions that are inconsistent with their plan; if it has produced 1.0 percent, it can get a two year reprieve.⁴⁰

The Plan includes a needs assessment for affordable housing in Harvard and outlines possible ways to create housing in the Town. It also identifies opportunities and describes strategies for providing affordable housing for various household types and ages. According to the plan, the Town's greatest affordable housing need is for "smaller, moderately priced ownership units and rentals in a range of price levels" by young individuals and families who "work in the area but cannot afford to buy" and by "older homeowners wishing to downsize." The 2004 plan and the 2011 update relied upon 2000 Census data. Harvard should perform a new analysis based upon 2010 Census data and the latest American Community Survey information.

The Affordable Housing Plan sets an annual production goal of at least eleven qualified, affordable housing units each year. It outlines actions the Town could implement, including amending the Zoning Bylaw, providing public land for housing, and supporting private development that helps create affordable housing units. The zoning concepts outlined in the plan include revisiting several existing and potential provisions, e.g., accessory apartments, cluster zoning, conversion for multiple residences, and mixed-use development in the Commercial District. Furthermore, it outlines "preservation strategies" that include maintaining the affordability of all existing Chapter 40B units, physically maintaining the properties, and exploring zoning changes to "allow the subdivision of older farmsteads and larger homes into one and two bedroom affordable units." Lastly, it promotes effective use of Harvard's Municipal Affordable Housing Trust and Community Preservation Act (CPA) revenues.

Financial Support for Affordable Housing

Harvard was one of the first communities to adopt the provisions of the Community Preservation Act (CPA). Established by the Legislature in 2000, the CPA allows municipalities to create a local Community Preservation Fund through the imposition of a surcharge of up to 3 percent of the tax levy against real property. The funds may be used to preserve open space and historic sites,

⁴⁰ The current HPP regulation (760 CMR 56.03(4)) became effective in 2008, replacing a similar regulation, the Planned Production Plan that had been adopted in 2002. The Housing Production Plan regulation is found at (760 CMR 56.03(4))

create affordable housing, and develop outdoor recreational facilities. The legislation also created a statewide Community Preservation Trust Fund, administered by the Department of Revenue, which provides distributions each year to communities that have adopted the CPA. Each CPA community is required to spend, or reserve for future spending, a minimum of 10 percent of the CPA funds collected each year (including state match) for each of the following community preservation purposes: open space; historic preservation; and community housing. Harvard adopted a 1.1 percent surcharge in 2002. In FY 2016, the surcharge generated \$204,723; with the state match of \$60,702, Harvard had \$265,425 for community preservation purposes. Most of the housing funds have been transferred to the Harvard Municipal Affordable Housing Trust Fund (MAHTF).

Harvard Municipal Affordable Housing Trust Fund

The Municipal Affordable Housing Trust (MAHT) was created in 2006 pursuant to Chapter 491 of the Acts of 2004, to create and preserve affordable housing for low and moderate income households. As a quasi-government agency the MAHT is capable of acting quickly and decisively to take advantage of opportunities to create or preserve affordable housing. Since it was established the MAHTF has contributed to the support of a number of affordable housing initiatives, including:

- A \$200,000 loan to assist in the development of Bowers Brook, a Low Income Housing Tax Credit development in the Ayer Road Commercial District (year);
- Acquisition of 28 acres of land on Littleton Road, for the purpose of developing mixed income housing. The MAHT issued a Request for Proposals (RFP) in 2014 to develop this site, but the project was subsequently abandoned.
- The Trust will provide a \$140,000 subsidy to the developers of Emerson Green in Devens to write-down the cost of constructing ten rental units. The subsidy will help to lower rents to levels that will qualify the units for inclusion on the SHI.

The MAHT should continue to seek out opportunities to develop affordable housing, both rental and owner, to increase the supply of alternatives to conventional single-family homes. The MAHT should be sensitive to the concerns of residents on the effect of dense developments on their property values, but careful site design and building treatments reflective of Harvard's rural agricultural heritage can help integrate a development into its neighborhood without harming adjacent properties. The former Whitney Gravel Pit and Hildreth House site are possible candidates for town-sponsored housing.

7. DEVENS' EFFECT ON HOUSING

Resuming jurisdiction of Devens would assist with diversifying Harvard's overall available housing stock, a Master Plan goal, due to Devens' existing residential developments. Devens contains a mix of neighborhoods comprised of both former military housing and new housing constructed as part of redevelopment efforts. The newest, and one of the largest developments (at 124 units), is Emerson Green, also known as "Grant Road".

The addition of existing and permitted affordable housing within Devens assists Harvard in meeting its affordable housing goals. While only limited additional housing (after construction of the Grant Road development) would be permitted under Devens' existing housing cap of 282 total residential units, the remaining allowable units would provide some opportunity for additional housing stock diversity. The housing cap could conceivably be revisited at some time

in the future, and if this were to happen, Devens could potentially provide opportunities for additional developments similar to Grant Road, or potentially for other affordable, age-restricted, or multi-family housing.

Harvard should consider studying various residential “build-out” scenarios that achieve desired (or target) levels of housing proportions for various housing types (such as affordable housing and senior housing). This would allow for a better understanding of what actions and numbers of units would be needed to meet required/desired housing stock percentage goals, and could be helpful in planning for Harvard’s future growth under various disposition outcomes. In lieu of resuming jurisdiction of Devens, Harvard could also consider overlay zones or special development districts to help allow for housing stock diversity in the future.

Devens residents who live within Harvard’s historical boundaries are currently included in evaluations of Harvard’s affordable housing goals. A study should be conducted to determine the impact on Residential Harvard’s affordable housing goals if jurisdiction is not resumed and these residents are no longer included within such evaluations.

To assist with the stated goal of ensuring that new housing is harmonious with community character, existing neighborhoods within Devens should be kept intact to the extent practical. Since some neighborhoods cross historic town boundaries, special or additional provisions may be required during the disposition process, in lieu of host towns each resuming jurisdiction of their portion of Devens, to ensure that these neighborhoods do not become split by jurisdictional lines. For this, and other housing-related issues, extensive public feedback should be solicited from the residents and landowners.

8. SUMMARY OF HOUSING NEEDS

Senior Housing Needs: Harvard’s changing demographics show a clear trend toward an increase in the senior population. As noted in Table 4.3, in 1980 5.6% of the Town’s population was 65 years and older, and in 2010, the percentage had increased to 12.7%. As people age, their housing needs change. Many seniors bought large single family homes in Harvard to raise families, and as empty-nesters today, they no longer have need of a large home or care little for the demands of house and yard maintenance. Health issues may also affect seniors’ ability to manage stairs. As noted previously, many seniors live alone and may desire a setting with greater social interaction. Thus, housing needs for seniors point to a potential demand for various housing alternatives:

- ❖ Smaller housing units for seniors who wish to stay in Harvard but no longer need a large single family home;
- ❖ Assisted living, where low-level medical services can help seniors with less serious medical conditions to live semi-independently; and
- ❖ Retirement housing, where seniors with common interests can enjoy social interactions and down-size to a smaller unit with minimal yard and house maintenance responsibilities;

Providing housing alternatives for seniors has the added benefit of creating greater turnover in the housing market. Detached houses that accommodated families will once again become available for new families to help fill a need for that occupancy. Resuming jurisdiction of Devens would potentially assist Harvard in addressing senior housing needs.

Family Housing Needs: As noted in Table 4.9 it is expensive to enter Harvard's housing market. For a 2014 median priced home valued at \$552,300, first-time buyers would need a 20% down payment of \$110,460. Principal and interest for a 30-year mortgage at 4% on the balance would amount to \$2,100 per month; taxes and insurance would add to the burden. Few first time home buyers can afford a single family home given the current housing market dynamics. While there is little the Town can do to affect single family housing prices in eastern Massachusetts, the Town can pursue the following strategies to help meet the need for family housing:

- ❖ Revise standards for the Open Space Community-Planned Residential Development Bylaw to simplify the approval process while still insuring the development provides resource protection and open space benefits to the Town.
- ❖ Consider expanding the use of communal sewage treatment systems, which are now allowed only in Ayer Road Village Special Permit developments and in Open Space developments.
- ❖ With Community Preservation Act (CPA) funds conduct planning studies of Town-owned lands that may be appropriate sites for family housing. Provide an open participation process at the outset to involve neighborhood residents in discussions of density and design to minimize impacts on surrounding neighborhoods.
- ❖ With CPA funds, provide a subsidy to write-down the cost of market rate units in return for guarantees that units will remain affordable for low- and moderate-income families.
- ❖ Resuming jurisdiction of Devens could potentially assist Harvard in addressing family housing needs by providing additional, more diversified housing options.

Chapter 40B Developments: Many communities resent Chapter 40B because of its heavy-handed manner of over-riding local zoning to enable the production of affordable housing. Harvard, on the other hand, has benefited from this approach by obtaining needed housing that would not otherwise be possible without the financial assistance from state and federal funding sources. This tool has allowed developers to submit applications for medium size projects that have not over-whelmed neighborhood scale or created unwanted traffic or school impacts. As Harvard advances toward meeting its 10% goal, 40B developments can provide housing for a variety of target groups, including seniors, families, disabled persons, and apartment dwellers who cannot afford the cost of entry into Harvard's expensive housing market. A more culturally diverse community will result.

Harvard has made use of the Local Initiative Program (LIP) to encourage developers to work with local officials to provide housing that meets local needs. Designation by the Board of Selectmen as a LIP project (often referred to as a friendly 40B) will create a smoother approval process and flexible consideration of developer requests in matters of density and design. According to the Town's adopted LIP criteria, benefits to the Town include innovative site design, units in excess of the 25% minimum, enhancements to the site and surrounding neighborhood, and energy efficient design and construction. Harvard Green received the Selectmen's approval as a LIP, which allowed development of 32 units on 22 acres and provided eight affordable units (25%).

Resuming jurisdiction of Devens will assist Harvard in addressing Chapter 40B housing needs due to housing stock requirements within the 1994 Reuse Plan.

CHAPTER 5

HARVARD'S ECONOMY

A community's economy is influenced by the types of industries it attracts and the jobs they offer, the uses of its land, and the wealth of its households. Each town is part of an economic region, or larger area connected by population, employment, trade characteristics, and labor force. Harvard lies along the boundary of two federally defined economic regions: the Boston New England City and Town Area (NECTA) and the Worcester Metropolitan Statistical Area (MSA), which is coterminous with Worcester County. Harvard residents have access to Boston, Cambridge, and Boston Metro employment centers along Interstate Route 495 (I-495), Route 2, and Route 128 (I-95) and Worcester is roughly a half-hour away.

By any measure, Harvard's economy is quite small. There is some economic activity taking place in Harvard that cannot be measured and reported with available data, but there is very little land developed for commercial or industrial purposes. In some cases, there appears to be quite a bit of vacant space in properties that have been developed for commercial use. Moreover, 95 percent of Harvard's tax base is residential, and the commercial and industrial properties that do exist provide little in the way of tax revenue. Economic development is not only about tax revenue. Harvard has still-operating large farms and orchards that are doing quite well – establishments that clearly play a role in the Town's employment base – yet they generate relatively little property tax revenue. Still, tax base characteristics do shed some light on the extent of a community's nonresidential development. For Harvard, tax base, employment, and sales data largely reinforce what can be seen from the road: commercial activity is very small-scale, generally modest in value, and not a major contributor to the quality of life in the Town.

Resuming jurisdiction of Devens would significantly shift the makeup of Harvard's tax base, and would greatly, and immediately, increase the percentage of land available to commercial and industrial uses within the Town. Notably, this would occur without directly affecting any zoning within Residential Harvard, or within the Commercial District. In addition to the approximately 3.5 million square feet of commercial and industrial space that currently exists in Devens (as of late 2015), there is a potential for an additional 4.5 million square feet per the 1994 Reuse Plan. Expedited permitting within Devens, if continued post-disposition, may be helpful for promoting development. Harvard could also have greater local representation if jurisdiction is resumed. Both of these factors would provide for a business-friendly atmosphere that can assist with both continued economic activity.

1. LABOR FORCE

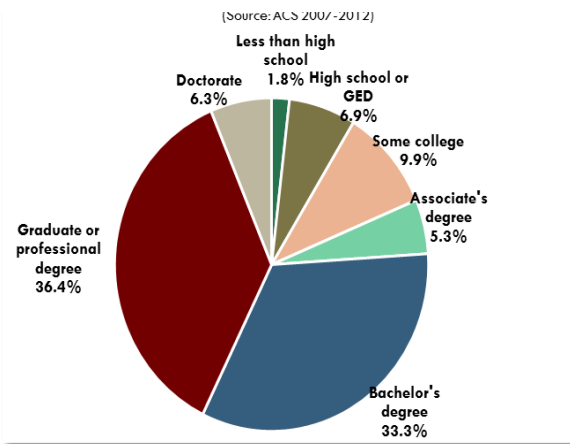
Harvard is not a place that many people commute to for work, but rather a place that people call home. While approximately 14 percent of residents do work from home, most residents commute to jobs in nearby cities in the north-central region, Devens, or major employment centers along Route 128. In Residential Harvard (excluding Devens), there is a very small employment base, not many businesses, and a small percentage of residents working for local employers. For most people, living in Harvard means traveling to other locations for their livelihood, goods and services, health care, and entertainment. The absence of a noticeable commercial base reflects Harvard's land use policies and lack of infrastructure. Out of concern that commercial development might change Harvard's appearance in unsuitable ways, the Town has not made it easy to establish and operate thriving businesses. Although Harvard has a commercial zoning

district along Ayer Road north of the Route 2 interchange, the land is physically and environmentally challenged and not “construction ready” for large-scale economic development.

Approximately 71 percent of Harvard’s over-16 population is in the civilian labor force, which is on par with virtually all of the surrounding communities. A community’s labor force includes its resident population 16 years and over employed or looking for work. It is difficult to pinpoint Harvard’s labor force participation rate because economic statistics for the Town include both the household and institutional populations at Devens, but the estimate of 71 percent is regionally consistent and will be used for purposes of this Master Plan.⁴¹

Compared with most neighboring towns, Harvard has a highly educated labor force that can compete for the region’s high-wage jobs. Over 70 percent of the population age 25 and over in Harvard has at least a college degree, and 43 percent have graduate or professional degrees.⁴² These kinds of statistics place Harvard ahead of its neighbors for educational attainment and help to explain the high incomes of so many Harvard households. According to the Census Bureau, the median annual earnings for Harvard men with full-time jobs is almost \$110,000, and for women with full-time jobs, \$85,000.⁴³ In turn, Harvard’s regionally low unemployment rate of 6.3 percent (average) reflects, at least in part, the education and incomes of its working-age population.

**Figure 5.1 -
Educational Attainment, Population 25+**

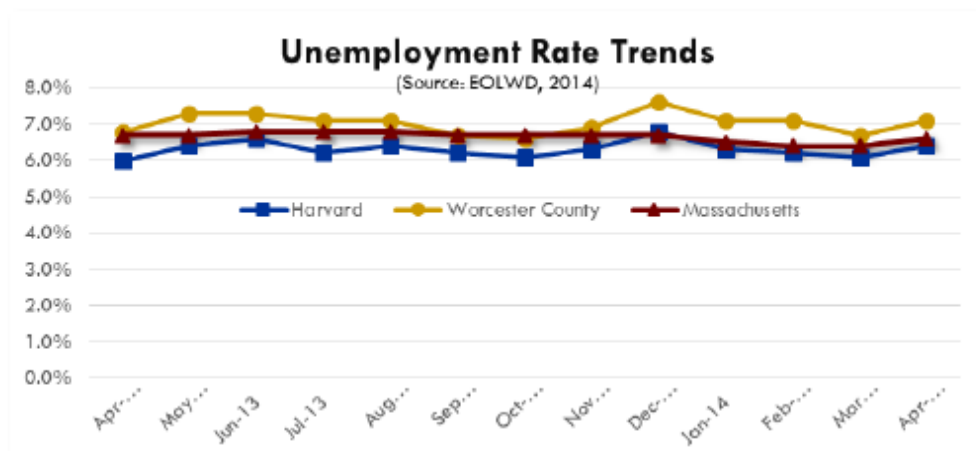


⁴¹ The estimate is based on deducting the federal prison inmates at Devens from the total population 16 and over. Source: American Community Survey (ACS) Five-Year Estimates, 2007-2012.

⁴² ACS Five-Year Estimates, 2007-2012, B15003.

⁴³ ACS Five-Year Estimates, 2007-2012, DP-03.

Figure 5.2 - Unemployment Rate Trends



2. EMPLOYMENT BASE

Harvard's employment base is small and not very diverse. According to available employment and wage data, Harvard's 245 employer establishments (excluding companies at Devens) are mainly service-providing industries that provide jobs to about 1,000 wage and salary workers.⁴⁴ An employer establishment is an entity with wage or salary employees. It excludes self-employed individuals (sole proprietors) and some employers that are exempt from paying unemployment compensation insurance. As a result, economic statistics from public and private sources do not always provide a good picture of how residents support themselves, in small towns like Harvard. Organizations that report employment in cities and towns (including self-employed people and exempt establishments) estimate that Harvard has about 420 businesses, most of which are micro-businesses, e.g., people working part-time out of a home office and a variety of self-employed personal service establishments. These types of employment provide income for the individual doing the work, but labor economists exclude them from the local employment base because they do not provide job opportunities in the labor market.

The vast majority of Harvard's non-farm employment is supplied by establishments in the professional or technical services, education and health care, and personal services sectors. While the number of such establishments may be high, they may not necessarily provide many jobs.

Since published employment statistics do not include self-employed individuals, the data tends to under-count the actual level of employment in Harvard. With high educational attainment, many Harvard residents perform professional services in a home office setting and are able to earn incomes that support the high cost of housing. If a business thrives, the proprietor may create new jobs and seek space in one of Harvard's professional office buildings. Poor cell phone reception in sections of Harvard and slow internet speeds can create difficulties for professionals

⁴⁴ Business statistics for Harvard are presumed to exclude the businesses located at Devens. The employment base data cited in this section are tied to zip codes, so the number of businesses and employees should be Harvard-specific. However, it is important to note that even when controlling for zip codes, the number of businesses and jobs reported for Harvard varies by year, season, and source.

working at home. Cell phone reception is generally good along major roadways, but the hilly topography creates dead zones in more remote locations. Providing more reliable coverage and faster telecommunications would benefit self-employed individuals working out of a home office.

MassDOT's Planning Division prepared employment projections for a transportation model to predict where future traffic growth is likely to occur and where transportation improvements will be necessary. Table 5.1 shows the employment projections for Harvard from 2010 to 2040. MassDOT projects a healthy percentage gain for Harvard, 29%, during the 30-year period, with a growth of 270 jobs. In comparison, the Metropolitan Planning Organization (MPO) for the Montachusett Region shows just a 6% increase. The Town's location seems to be the primary reason for Harvard's assumed gain, as communities on the eastern edge of the Region show positive gains (Groton: 28%, Lancaster: 28%, Shirley: 28%), and towns to the west show employment losses (Gardner: -2%, Leominster: -2%, Westminster: -2%). This rationale is encouraging since it denotes a strategic location for Harvard that will help drive business to the Town.

Table 5.1 - MassDOT Employment Projections

	Employment				Change 2010 - 2040	
	2010	2020	2030	2040	Employment Change	Percent Change
Harvard	926	1,085	1,158	1,196	270	29%
Region	77,718	84,267	83,728	82,721	5,003	6%

Location Quotients

The make-up of Harvard's employment base differs significantly from that of its closest economic region, Worcester County, and even more from the make-up of the Boston Metro employment base. The most useful way to analyze a city or town employment base is to compare it with a larger reference economy, such as a county or metro area, a labor market area, or a state. By determining the percentage of local jobs by industry sector and dividing it by the percentage of the same sector's jobs in the reference economy, one can see relative strengths and weaknesses in or specialized aspects of a community's employment base.

The resulting ratio is known as a location quotient. A location quotient of 1.00 means that an industry provides the same share of jobs in the locality as in the region. By contrast, a location quotient of 1.10 or more indicates that an industry is stronger locally than regionally, and a location quotient of less than .90 indicates an industry that is stronger regionally than locally. Sometimes a very high quotient can be problematic, e.g., the "one-company town" problem that toppled small industrial centers during the Great Depression in the 1930s, but it also can point to an economic niche.

Table 5.2 compares employment in Harvard and Worcester County by sector. It shows that agriculture, with a location quotient of 16.658, provides over 16 times as many jobs in Harvard as in the reference economy, Worcester County. Clearly, Harvard's orchards are a significant part of the Town's economy even though the actual number of jobs is small. In contrast, Harvard's manufacturing location of .261 shows a relatively weak employment in manufacturing compared to Worcester County. Other sectors that show employment strength in Harvard (i.e. a location

quotient greater than 1.1) are real estate sales and leasing (6.374), information (3.556), arts and recreation (2.487), professional, scientific, and technical services (2.483), public administration (2.221), personal services (1.754), wholesale trade (1.553), and construction (1.412).

Table 5.2 - Location Quotients for Harvard Employment Base

	Harvard Jobs	Percent	Worcester County Jobs	Percent	Location Quotient
Agriculture, Forestry, Fishing and Hunting	31	2.2%	310	0.1%	16.658
Real Estate and Rental and Leasing	59	4.2%	1,542	0.7%	6.374
Information	86	6.1%	4,029	1.7%	3.556
Arts, Entertainment, and Recreation	58	4.1%	3,885	1.7%	2.487
Professional, Scientific, Technical Services	171	12.1%	11,471	4.9%	2.483
Public Administration	112	7.9%	8,399	3.6%	2.221
Other Services (Personal Services)	79	5.6%	7,504	3.2%	1.754
Wholesale Trade	89	6.3%	9,547	4.1%	1.553
Construction	77	5.5%	9,087	3.9%	1.412
Educational Services	184	13.1%	29,131	12.4%	1.052
Retail Trade	133	9.4%	26,691	11.4%	0.830
Accommodation and Food Services	69	4.9%	17,386	7.4%	0.661
Healthcare and Social Assistance	163	11.6%	48,635	20.7%	0.558
Transportation and Warehousing	29	2.1%	9,169	3.9%	0.527
Finance and Insurance	32	2.3%	11,539	4.9%	0.462
Manufacturing	34	2.4%	21,697	9.2%	0.261
Management of Companies & Enterprises	3	0.2%	2,825	1.2%	0.177
Mining	0	0.0%	130	0.1%	0.000
Utilities	0	0.0%	1,442	0.6%	0.000
Administration and Waste Services	0	0.0%	10,296	4.4%	0.000
Sources: Executive Office of Labor and Workforce Development, ES-202, and Nielsen Claritas Site Reports (2014). Note that Harvard may have some employment in industries reported as "0." Very small numbers of jobs are often unreported by government and proprietary sources for confidentiality reasons.					

Local Wages

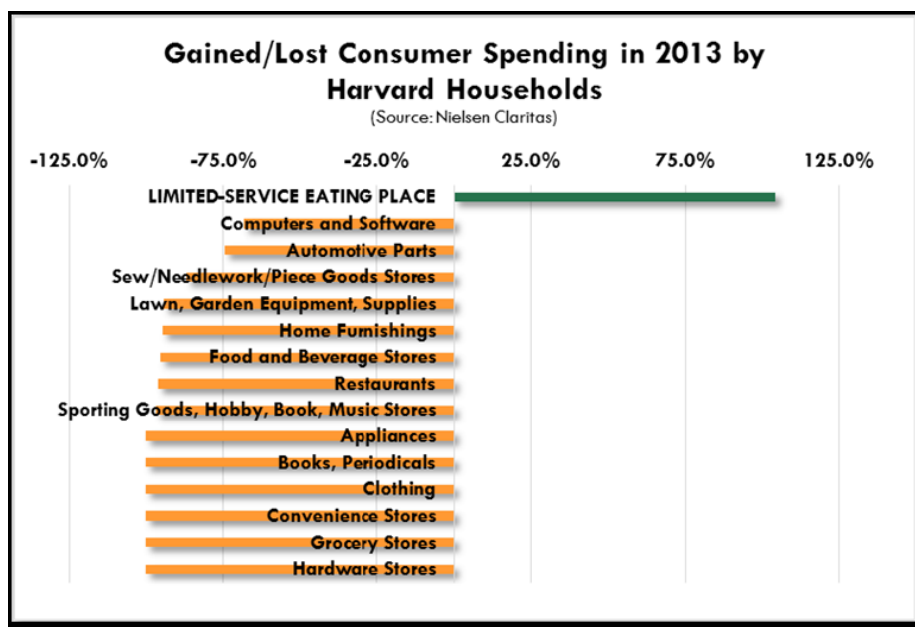
Harvard employers pay an average weekly wage of \$1,129. While higher than the average for Worcester County, the average wage in Harvard is only 88 percent of the Boston Metro average.⁴⁵

It is not surprising that many Harvard residents commute to jobs in Eastern Massachusetts, where wages are generally higher than in the central part of the state. Harvard's highest-wage jobs are in the construction trades, professional services, wholesale trade, and administrative services to private companies (an industry that includes a wide range of support services for companies: personnel services, accounting, security, grounds keeping, and so forth). While some of Harvard's strongest industries pay high wages, other industries that have large shares of local employment pay comparatively low wages, such as information, arts and recreation, and personal services.⁴⁶

3. GOODS & SERVICES

Harvard is unusual for its limited offering of consumer goods and services. For basic purchases such as groceries, hardware, clothing, and personal care products, Harvard residents have to go to stores in nearby towns because the local retail base is so small. Since there are so few options for local consumer purchases, Harvard's retail and food service establishments capture just 19 percent of all such purchases made by Harvard households each year. Most towns "leak" some retail sales to non-local establishments, but Harvard leaks an unusually large percentage of sales. The only type of retail with sales that exceed local demand is limited-service eating establishments, due no doubt to the Dunkin Donuts on Ayer Road.

Figure 5.3 - Consumer Spending in 2013

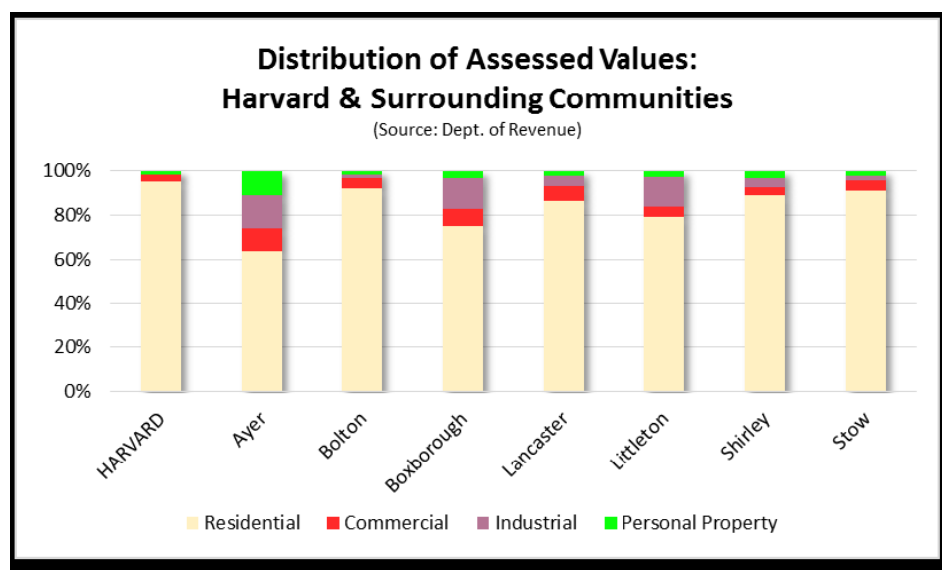


⁴⁵ Executive Office of Labor and Workforce Development, ES-202, 2012 Annual Report.

⁴⁶ Ibid, and Nielsen Claritas Site Reports.

Due to its small commercial base, Harvard is dependent on residential property values to fund local services. According to information from the Mass. Department of Revenue, the value of residential property comprises 95% of Harvard's total assessed value. Commercial, Industrial, and Personal Property (CIP) makes up the other 5%. Home values are quite high in Harvard, and the lack of a commercial tax base means that homeowners bear the brunt of education and municipal expenses. Figure 5.4 provides a comparison with adjoining towns. Harvard has the highest percentage of residential values, although Bolton (92%), Shirley (89%), and Stow (91%) are similar. Ayer has the highest percentage of CIP values at 37%, followed by Boxborough (24%), Littleton (20%), and Lancaster (15%). Expanding the tax base with high value commercial property to provide some tax relief is an important goal of this Master Plan.

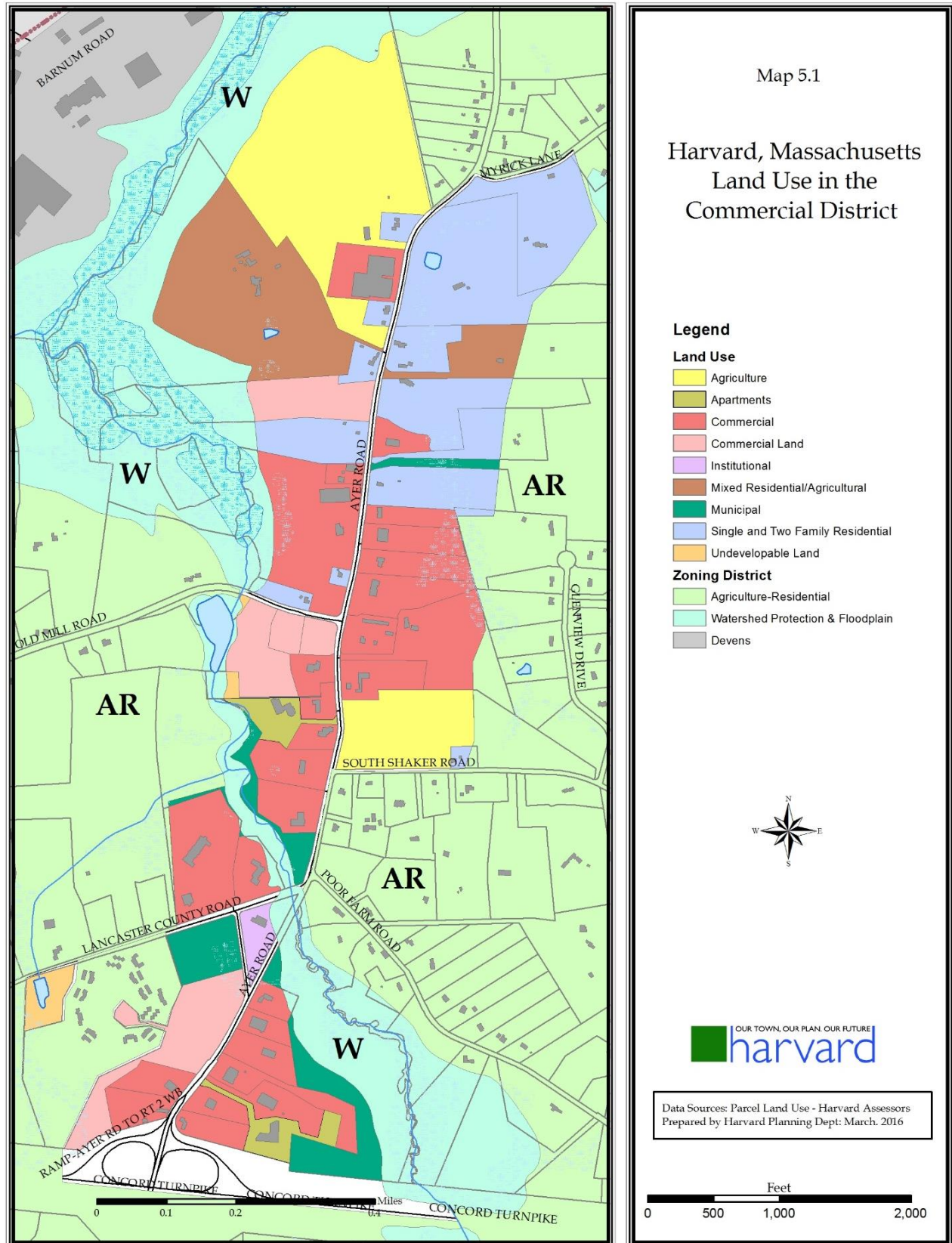
Figure 5.4 - Distribution of Assessed Values



4. AYER ROAD COMMERCIAL DISTRICT

Harvard has a few businesses in the Town Center, but the area zoned and intended for commercial purposes is the C District on Ayer Road. The C District is a linear business zone that extends approximately 1.4 miles on Ayer Road between the Route 2 interchange and Myrick Lane. Map 5.1 shows that many of the parcels in the C District – especially the large parcels – are split by zoning district boundaries. So-called split lots are common in low-density towns, but Harvard's zoning does not address how development can occur on them. The other districts that include portions of the parcels in the C District are the Watershed Protection and Floodplain (W) District and the Agricultural-Residential (AR) District. Businesses are not allowed in either of these districts.

Table 5.3 shows that the sum of land that is undeveloped, dedicated to conservation, used for agriculture or recreation, or currently in residential use is 60.9 percent of the C District's 344.5 acres (or 70.9 percent if the road right-of-way is included). As a result, only 29.5 percent of the acreage in the C District is currently in some form of commercial use. The actual percentage of land developed with commercial uses is even less, however: 12.5 percent. These figures mean that the C District is



a substantially underutilized business zone. The Phase 1 report noted that lack of water and sewer infrastructure, market potential, and size of existing lots (some are undersized) all contribute to the limited amount of development that exists along Ayer Road. The Town's complicated zoning regulations and reliance on special permits for all but small projects discourage investment too. It is important to note that most of Harvard's nonresidential tax revenue comes from properties in the C District.⁴⁷ Town Meeting in 2016 modified some of the dimensional requirements for the C District that added unnecessary complexity to commercial development. The changes should allow the district to achieve its development potential and meet the Town's needs for goods and services.

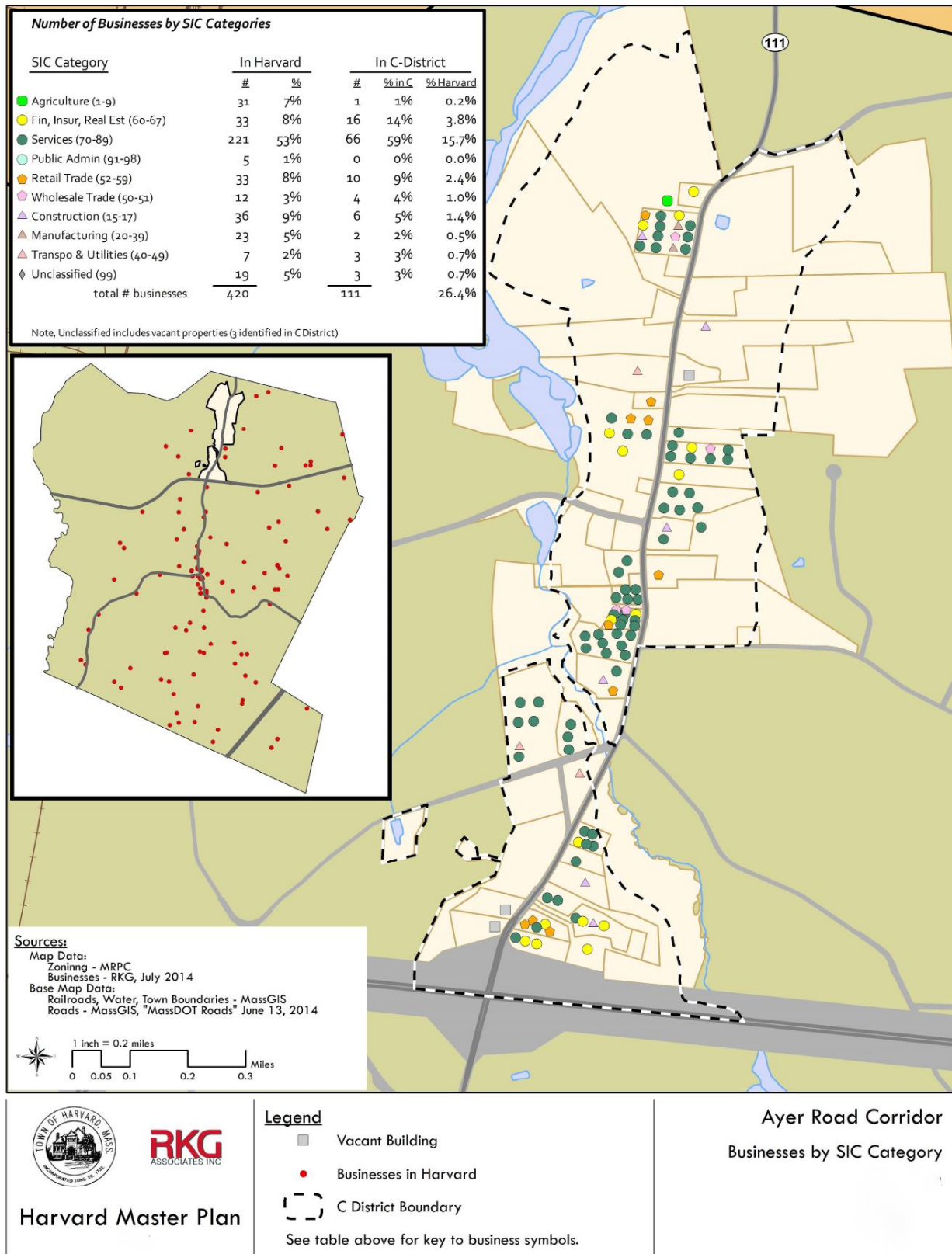
Table 5.3 - Existing Land Uses Within the C District

Use Category	Acres	Number of Parcels	Percentage of Total District
Conservation	13.1	3	3.8%
Agriculture	92.7	4	26.9%
Recreation	4.8	1	1.4%
Residential	75.9	16	22.0%
Commercial	101.5	28	29.5%
Vacant	23.4	7	6.8%
Right-of-Way	33.2	1	9.6%
Total:	344.5	60	100.0%
Source: RKG Associates analysis of GIS data, July 2014			

Despite recommendations from the Fiscal Impact Analysis Team (FIAT) in 2009 and more recently, the Economic Development Committee (EDC), Harvard residents and many local officials have been reluctant to embrace ideas for reducing zoning obstacles to commercial development in this part of town. In public forums held during the Phase 1 process for this plan, participants in several discussion groups lamented the lack of small businesses and stores for basic necessities, yet they also worried about the traffic, environmental, and neighborhood impacts of "overdevelopment" in the C District. Residents said the Town needs a "credible analysis of potential benefits and risks" of more commercial development, but they also seemed to support – at least in concept – developments with a mix of uses in the C District, including housing.

Data available from public and proprietary sources indicate that approximately 111 businesses operate in the C District. Fifty-nine percent involve some type of personal or business service, and 14% are in the financial, insurance, and real estate industries. Retail stores make up only 9% of the C District's businesses, which may explain why many residents think Harvard needs more goods and services provided by small, independent establishments. Map 5.1 displays the location of these businesses in the district and the number and percent of establishments by SIC (standard industrial classification) code.

⁴⁷ Massachusetts Department of Revenue, Division of Local Services, Municipal Data Bank (2014).



Economic development in the C District is limited by the lack of water and sewer infrastructure. Such systems exist in Devens, and could one day be brought to the C District, but the cost makes this unlikely in the near term. Private wells and septic systems are still adequate to serve the kind of development Harvard residents prefer for the area. Zoning permits package sewage treatment plants in an Ayer Road Village Special Permit (ARV-SP), which may allow greater intensity in specific locations where landowners can navigate state and local permitting processes. An ARV-SP requires a mix of land uses, which would foster additional multi-family development in the District. The Planning Board approved one ARV-SP that resulted in a medical building and the Bowers Brook senior apartments at 200 Ayer Road near the Route 2 interchange.

It may be that the additional costs of state and local permitting over-shadows the incentives a developer might achieve. There are only about six undeveloped parcels with the required 300 feet of frontage, and two others where, if parcels were combined, the frontage could be met. One is at the northwest corner of the interchange of Route 2. In this case, the existing buildings would likely be demolished and the site completely redeveloped. There is a reasonable expectation that four of the six parcels which are currently eligible for the special permit would be developed as such. These include the orchard at the north end of the district, the farm field in the middle of the district, the vacant land in front of Harvard Green, and the plaza at 285 Ayer Road (Sorrento's Pizza). There are other properties where the mixed-use concept would make sense in the C District, but they are not eligible because they lack the required 300 feet of frontage on Ayer Road.

An opportunity exists to connect the C-District to Devens' sewer and water infrastructure. The Town should update previous analyses or perform new studies to assess costs and impacts of installing infrastructure connections to Devens.

5. AGRICULTURE AND TOURISM

Harvard's natural and historic resources provide a foundation for tourism. Businesses benefit from visitors that come to Harvard for recreation and relaxation and contribute to the local economy through the purchase of goods and services. Harvard's scenic roads attract large numbers of bicyclists who enjoy the challenges of the hills and vistas across the countryside. Harvard's numerous hiking trails afford opportunities for healthy exercise, study of natural habitats, and enjoyment of winter snowfalls. The productive farms and orchards help retain a sense of the Town's roots, and farm stands offer seasonal produce of high quality.

It is difficult to measure the impact of agriculture on Harvard's economy. While there are numerous farms in production, most are family operations and the payroll of non-family members is limited. Chapter 2 notes the important contributions the Town's three large orchards have on the economy (Carlson Orchards, Doe Orchards, and Westward Orchards). Orchards and farms enjoy a robust business during the growing season. Residents benefit from easy access to fresh produce at local farm stands and the seasonal farmers market. Locally grown produce is one way Harvard promotes sustainability. Map 2.1, Land Use, shows locations of farming in Harvard.

Agriculture enjoys broad protection under the state Zoning Act and Harvard has not tried to restrict farming operations. Indeed, 82 percent of the Town (excluding Devens) is zoned Agricultural-Residential. Harvard is a Right-to-Farm community and offers deference to farmers to conduct operations without fear of interference from residents who might experience inconvenience from impacts such as tractor noise and manure odors.

On the other hand, Harvard's zoning regulations are not particularly conducive to promoting tourist activities. Bed and breakfast inns, for example, are only permitted in the Commercial District on Ayer Road, a location that is not especially attractive to tourists seeking an authentic New England experience. Antique stores are typically found in rural locations but Harvard does not permit them in the AR district. Recreational businesses are also only allowed in the C District. The Town Center is the focus of numerous civic and cultural events, but business uses are not permitted. The General Store, a non-conforming use and structure, exists solely by virtue of its long tenure before the advent of zoning. The General Store is important to the image of the Town Center as the central gathering point for civic life. The Town Center would be a logical location for restaurants, book stores, and other retail uses that could capture tourist dollars. With the support of residents, adoption of a new zoning district could allow low impact uses, create a small number of jobs, and bring existing uses and small lots into conformance with the Zoning Bylaw's use and dimensional regulations.

It is not possible to quantify the economic impact of tourism on the local economy in terms of jobs supported or dollars spent by non-residents. Table 5.4 list some of the notable tourist and outdoor attractions in Harvard that contribute positively to the economy.

Table 5.4 – Harvard Tourism and Agricultural Related Businesses

- Fruitlands Museum (and National Register Historic District)
- Oxbow National Wildlife Refuge
- Crew races, fishing, kayaking, and boating on Bare Hill Pond
- The General Store and CK Bikes
- Shaker Hills Golf Course
- The annual Central Mass Longboard Festival
- Harvard Public Library
- McCurdy Track
- Friendly Crossways – retreat center, wedding venue, and hostel facility (advertised as the longest continually operating hostel in the U.S.)
- Harvard Snowmobile Club and Trails
- Westward Orchards and Farm Store
- National Register Historic Districts in the Town Center and Shaker Village (See Chapter 6 for a more complete discussion of historic resources in Harvard)
- Harvard Historical Society Museum in Still River
- Doe Orchards – pick your own fruit and berries
- Carlson Orchards – pick your own fruit and berries
- Willard Farm Stand
- Old Frog Pond Farm & Studio – certified organic orchard
- Camp Green Eyrie on Bare Hill Pond

- Oak Ridge Observatory on Pinnacle Road (Optical SETI Telescope)
- Still River Winery
- Still River Brewery

The many tourist destinations suggest an economic development strategy to actively promote Harvard's natural and cultural resources. This may take the form of preparing a brochure that describes the Town's noteworthy features and contains a tourist trail map for easy discovery of destinations. Local officials could work with bicycle, boating, snowmobile and longboarding organizations to map out scenic routes and promote sporting events on a seasonal basis, but also establish guidelines to minimize impacts on neighborhoods. The Town's web site could devote a page to inform visitors of attractions, hours of operation, and locations of restaurants and businesses. Finally, changes to zoning could allow tourist oriented businesses in the Town Center and AR district to create additional business opportunities for uses that have low impacts on the Town or neighborhood.

6. ECONOMIC DEVELOPMENT AGENDA

A. Zoning Recommendations

1. Adopt a new zoning district for the Town Center, either as an overlay district or a conventional district. Modify use regulations to allow small scale businesses to enhance the role of the area as a central gathering spot for the Town. Modify dimensional regulations to make a high percentage of the lots dimensionally conforming. Allow structures to contain a mix of uses, such as apartments above offices and shops.
2. Allow tourist oriented business in the AR district, such as antique shops, bed and breakfast inns, recreation businesses, tea rooms, etc.
3. Modify dimensional requirements in the Commercial District to promote a Main Street style of development. These include reducing the front setback to allow buildings closer to the street, restricting parking in the front of buildings, eliminating the floor area ratio standard, reducing the open space standard to perhaps 25% of the lot area, and eliminating the minimum lot width circle requirement.
4. Review the provisions of the Ayer Road Village Special Permit provision to make sure the bylaw achieves the purposes of promoting mixed uses and village-style development in the C District. Consider allowing mixed use development as a by-right use to place it on an equal footing with uses that do not require a special permit.
5. The two largest parcels available for economic development in the C District are in active agricultural use. Assess the owners' future intentions for development and if they agree, purchase agricultural preservation restrictions (APRs) to prevent loss of productive farmland.
6. Adopt a split lot provision to assist lots divided by a zoning boundary.

B. Non-Zoning Recommendations

1. Implement a Design Review process with preferred Development Guidelines for the C District to assist the Planning Board in approving development proposals that encourage compact and connected development and discourage isolated commercial sprawl.
2. Promote tourism by preparing informational materials of things to do in Harvard while

identifying businesses for tourists to patronize.

3. Devote a page on the Town's website to extoll economic development opportunities in Harvard. Place useful information developers expect to see such as how Harvard fares on key economic indicators, zoning, available land and building space, and local contacts. Identify a point person on the site to contact for information and assistance.
4. The Economic Development Committee disbanded in 2016. The Town should explore other models for promoting economic development in Harvard.
5. Assess how Town departments interact with small business owners and work to improve communication and delivery of services businesses may need in a timely manner. Hold annual round table discussions to understand business needs and take corrective action where appropriate.
6. Develop a strategic plan and marketing approach for the C District, supported by a public-private partnership that promotes the district for medical and professional offices (finance, insurance, and real estate), custom retail, restaurants, and personal and trade services.
7. Work with cell phone providers to enhance service in areas of Harvard with poor reception.
8. With demographic shifts resulting in a greater percentage of senior households, promote a cluster of services that elder residents may need.
9. Periodically assess the feasibility of extending water and sewer services from Devens into the C District.
10. Participate in regional economic development organizations such as the MRPC, chambers of commerce, and the 495/MetroWest Partnership.
11. Given the proximity of Devens, a major economic engine for Central Massachusetts, identify support services needed by the large employers there that small businesses in Harvard may be able to fulfill.
12. Investigate how resuming jurisdiction of Devens and the additional commercial and industrial areas located there would impact the existing C-district.

CHAPTER 6

CULTURAL RESOURCES

Harvard is the product of its Native American heritage, its relationship with the Nashua River, its natural history and environment, its colonial ancestors, its religious and experimental communities, and its location in northern Worcester County. These influences have shaped Harvard's unique features and enduring beauty, and they should be accounted for in any future development.

1. INVENTORY OF HISTORIC RESOURCES

Places

Four centuries of history are visually articulated in Harvard's built environment, from its early seventeenth century development as three small villages surrounded by farmsteads to its later popularity as a twentieth century summer destination with estate homes and cottages set amidst scenic landscapes. Prior to European settlement, the Native American Nashoway tribe called the land of Harvard home. While their occupation of the land is not as apparent as those who settled after them, Harvard retains remnants of their legacy, including local nomenclature such as "Bare Hill," which was bare because of the native American's custom of setting fire to the underbrush through the woodlands in that area. Harvard has been able to preserve its rural and historic character through private initiatives and public efforts. Today, each historic area in Harvard presents unique resources and unique opportunities and challenges.

Harvard Center developed as the Town's civic, cultural, and institutional center around a crossroads of early roadways. Today, it is a quintessential New England village with a town green surrounded by historic churches, private homes, a town hall, cemetery, and civic monuments. Recognizing the village's historic significance, the Town has designated portions of the Town Center as a local historic district and a National Register Historic District.

Unlike Harvard Center, where development clustered around a public common, **Still River Village** developed as a linear hamlet along the early Lancaster-Groton road established by the first settlers in the seventeenth century. Today, Still River Village contains private homes, historic and religious institutions, and agricultural enterprises surrounded by many acres of protected conservation land, which provide unparalleled scenic vistas from the road. Despite widespread recognition of Still River's historic significance, the recommendations of previous plans, and past designation attempts by the Town, the historic resources of this village remain unprotected and potentially at risk.

Shaker Village developed as a cultural enclave in the late eighteenth century, when devotees of the Shaker religion established a communal village in 1791 on land associated with their leader, Mother Ann Lee. Located in the northeastern section of Harvard, the village served as home to the Shaker community until 1918.⁴⁸ Today, this well-



⁴⁸ Ibid.

preserved village, which extends along Shaker and South Shaker Roads, constitutes one of the nation's most important collections of buildings, structures, objects, and landscapes representing the craftsmanship and design work of the Shaker community. Harvard has designated the Shaker Village as a local historic district, nominated it (successfully) to the National Register of Historic Places, and protected much of the surrounding open space.

In addition to the Shakers, Harvard's scenic beauty and natural resources attracted others who sought to create utopian communities devoted to religious, social, or political purposes. The Fruitlands Consociate Society was originally established in the 1840s by Bronson Alcott as a transcendental experiment. Today, the original farmhouse is now part of the private **Fruitlands Museum**, founded by Clara Endicott Sears. In the early twentieth century, wealthy Bostonian Edward Fiske Warren established the single tax enclave known as **Tahanto**, where he and other local residents and members of the Massachusetts elite constructed homes and secondary buildings around Bare Hill Pond. By the 1930s, Tahanto included more than 2,000 acres of land, more than 15 percent of Harvard's total land area.⁴⁹ Today, only Warren's Shingle Style home is listed in the National Register.

North of Still River is the former military installment of Fort Devens. Originally established in 1917 as a temporary cantonment for training and housing soldiers during World War I, the permanent installation of Fort Devens was created by the U. S. War Department in the 1930s and included 6,000 acres of land in Harvard, Shirley, Ayer and Lancaster. The north and main posts of Fort Devens were decommissioned in 1996 and MassDevelopment (then called the Massachusetts Government Land Bank) acquired the property. As part of the decommissioning process, 300 acres, including **Vicksburg Square** and the **Roger's Field** parade ground, were designated as a local historic district. The majority of these 300 acres are located within Harvard's municipal boundaries.

Historic Buildings

Harvard has a varied collection of historic buildings that span more than three centuries of architecture. These buildings include late eighteenth and early nineteenth century Georgian, Federal, and Greek Revival styles; mid-nineteenth century Second Empire and Italianate styles; late nineteenth century Queen Anne and Shingle Styles; and early twentieth century Revival styles. They provide a diversity of decorative ornamentation seen throughout the community. These styles are represented in "high-style" architect-designed buildings and more modest "vernacular" versions constructed by local builders, and they are rendered on a variety of building forms, including residential, commercial, religious, institutional, and governmental buildings.

Residential Buildings

Residential construction dominates Harvard's historic building fabric; the image of well-preserved homes set amidst scenic landscapes of open fields and wooded vistas defines Harvard's special character. The Town's eighteenth and early nineteenth century homes and farmsteads are particularly noteworthy, with important examples of Federal style center entrance homes dispersed throughout the Town. Collections of Greek Revival and Italianate style cottages and later Victorian-era homes line the streetscapes of Harvard Center and Still River Village.

⁴⁹ Demsey & Fitzpatrick, "Form B - Building: Fiske Warren House", March 1994.

While more limited in numbers, Harvard's collection of turn-of-the-century homes is no less impressive than its earlier architecture. The Shingle style Hildreth House as well as Queen Anne, Shingle, and Colonial Revival style homes near the Town Center are examples of Harvard's popularity as a summer destination. Harvard residents take great pride in their homes, restoring and preserving these architectural gems.

Civic Buildings and Adaptive Use

The Town of Harvard owns an impressive collection of architecturally and historically significant buildings, including a town hall, former public library and school buildings, and a former summer estate house. While the Town continues to use Town Hall for its original intended purpose, it has converted the other buildings to new civic uses while respecting the architectural integrity of each structure. In several instances, adaptation of these buildings for new uses has required construction of additions to address programming needs and the civil rights requirements of the Americans with Disabilities Act (ADA) while still preserving the building's historic features. Most of the Town's historic civic buildings are located in Harvard Center and several are included in the Center's local historic district. (See also, Chapter 7, Community Services and Facilities.) The Harvard Historical Commission (HHC) has documented many historic resources on historic resource inventory forms. Unless noted otherwise, these inventory forms are the main source of historic and architectural information in this plan. Resources with an inventory form are noted by an asterisk (*).

- **Town Hall***, (1872), 13 Ayer Road. Harvard Town Hall is situated at the northern edge of the Town Common. The two-and-one-half story wood-frame building is elaborately detailed with Italianate style trim, including paired cornice brackets, corner quoins, paired round-headed windows with drip molding, and an open entrance porch supported by square posts with arched braces.⁵⁰ The building is located in the Harvard Center and Harvard Common Historic Districts. Restoration of the Town Hall in 2015-16 will ensure it remains the focal point of town government well into this century.
- **Edwin Hildreth House*** (ca. 1900), 15 Elm Street. This Shingle style former summer residence now serves as the Council on Aging (COA) headquarters. It features a shingled exterior, expansive gambrel roof, wrap-around porch, and massive ashlar granite block chimneys. The Hildreth House is located in the Harvard Center National Register Historic District. The Town has utilized Community Preservation Act (CPA) funds in the past to complete repairs at the Hildreth House and received a \$10,000 state grant to develop a Historic Landscape Preservation Master Plan for the building's grounds.⁵¹ In 2015, Town Meeting appropriated funds for a limited



⁵⁰ LLB Architects, Town Hall Report, May 2012.

⁵¹ Bluestone Planning Group, Town Center Action Plan, 2005.

restoration and architectural barrier removal plan for the COA. A future phase will expand the facility to meet the needs of the Town's growing senior population.

- **Old Library*** (1886), 7 Fairbank Street. Constructed in 1886 and expanded in 1904 (Hapgood Room), this red brick and sandstone former library building features elaborate Romanesque Revival style detailing. The one and one-half story building features a pyramidal-hipped slate roof, an asymmetrical façade with central gabled dormer and round turreted corner bay, and decorative brick corbelling along the building's cornice and above its rounded windows. Located in both the local historic district and National Register district, the building was vacated when the Library relocated to the former Bromfield Academy building in 2007. It served for a time as a community arts center operated by the non-profit organization Center on the Common. In 2015 it serves as the temporary home of municipal offices while the Town Hall is undergoing renovation. Its future has yet to be decided.
- **Bromfield Academy*** (1878), 24 Massachusetts Avenue. The Old Bromfield is a beloved landmark located just south of the Town Common in Harvard Center. Given to the Town for educational purposes by the Bromfield family, summer residents who were generous benefactors to the Town, the elegant red brick building was designed by the renowned architectural firm of Peabody & Stearns in the Romanesque Revival style. The building's exterior features distinctive arched entrances, brick corbelling, and a corner turret, while its interior features elaborate oak woodwork. Located in the Harvard Common and Harvard Center Historic Districts, the Academy was closed by the Town in 2003 and remained vacant until 2007, when it was renovated and expanded as Harvard's new public library. The award-winning reuse project included restoration of the historic Old Bromfield school building and a sensitively designed new addition. Today, Bromfield's restored second floor classroom with its distinctive oak ceiling trusses serves as Volunteer Hall, a community meeting space.
- **Bromfield House***, (ca. 1914), 39 Massachusetts Avenue. This center entrance Colonial Revival style house was originally constructed to serve as the residence for the principal of the Bromfield School. The wood-frame, hipped-roof building features a deep bracketed cornice, corner paneled pilasters, and an elegant front porch supported by thick Tuscan columns. The building now serves as administrative offices for the Harvard Public Schools Superintendent. The Town commissioned an inspection of the Bromfield House in 2011 to identify building conditions. The report noted that the building was "lacking maintenance somewhat" and specified specific structural and critical repairs.⁵² In 2013, Town Meeting authorized \$75,000 for a structural assessment and repairs of the Bromfield House, which were completed in 2015. The structural assessment identified further work to maintain the building as well as recommendations for making the building ADA compliant. Plans and funding for this work have yet to be determined.

⁵² Galeota Associates, Inc., Hildreth House Building Inspection Report, December 2011.

Churches

The white spires and traditional meetinghouse facades of Harvard's ecclesiastical buildings play a key role in defining the Town's visual character. Within the Town Center, the continued presence of three local churches, the Congregational Church of Harvard* (1821) at 5 Still River Road, Harvard Unitarian Universalist Church* (1967) at 9 Ayer Road, and Saint Theresa's Roman Catholic Church* (1926) at 17 Still River Road, help to maintain this village's tradition as the Town's institutional and cultural center. The Congregational Church and Unitarian Church are both located within the Harvard Common local historic district. The former Still River Baptist Church in the Village of Still River serves today as the Harvard Historical Society Museum. While Harvard's churches remain private institutions, they continue to provide social and community programs.



Harvard Historical Society

Museums

Harvard has two privately owned and operated museums that celebrate the Town's heritage: the Harvard Historical Society Museum and the Fruitlands Museum.

- **The Harvard Historical Society Museum** preserves and presents artifacts, memorabilia, and other ephemera relating to Harvard's history. Located in the former Still River Baptist Church, the museum contains an archive and research library with historic maps, photos, books, documents, town reports, personal narratives, and genealogical resources. An attached single-story ell houses the Society's archive with additional material stored in the church's attic. Three rooms in the historic meeting house are preserved for permanent and rotating exhibits and community events. The main sanctuary includes an 1870 Stevens & Company organ, the largest remaining single manual organ produced by George Stevens. The Museum property also includes a rental cottage and a small building with workroom and archival storage. In 2006, the Society received CPA funds to replace the building's roof. At that time, a preservation restriction was placed on the property. In 2008, after a fire damaged portions of the building, the Historical Society completed an interior restoration of the museum space.
- **Fruitlands Museum** includes a collection of buildings sited on the failed transcendentalist community of the Fruitlands Consociate Society. In 1914, two years after she built her home, 'The Pergolas' on Prospect Hill Road, Clara Endicott Sears purchased Fruitland's farmhouse and grounds and established one of the nation's first outdoor museums. Today, the complex includes two historic buildings - the original Fruitlands farmhouse set up as a house museum and the Shaker Museum building, a 1796 Shaker office building moved to the site in 1920 - and a Native American Museum, an art gallery, a visitors' center, and a cafe. The Art Museum includes a collection of over 100 Hudson River School landscape paintings and over 230 nineteenth century vernacular portraits, believed to be the second largest collection in the country.

Historic Structures

Harvard has documented sixty-four structures on historic resource inventory forms, including both private and public outbuildings, bridges, landscapes, memorials, mill and building remnants, and stone walls. In addition to civic structures, this varied collection also includes remnants from the Town's Shaker community, early industrial enterprises such as slate quarries, and the Fort Devens military installment. Documented Town-owned structures include a powder house, town pound, and cemetery outbuilding all located in Harvard Center within the local historic district. The brick **Powder House*** (1812), located at the northern edge of the Town Common, is a simple, square, one-story structure with a single opening and hipped roof. A small plaque on an adjacent boulder identifies the structure. In 2006, the Town approved CPA funds for restoration work on the Powder House, but in early 2014 the structure was severely damaged by a vehicle. The Town stabilized the structure, which features a distinctive interlocking brick bond pattern and early lime-based mortar that requires specialized restoration expertise.

Other Town-owned structures include resources located on or adjacent to protected conservation land. The **Shaker Herb Drying Shed** on Shaker Road is a stone structure partially restored through a series of CPA allocations beginning in 2002. An additional Town-owned structure, the **Shaker Spring House** located off Green Road on conservation land, was identified in the Freedom's Way Landscape Inventory as a priority site, but this resource has not been surveyed or historically designated.

One of the most picturesque structures in Harvard is found in Shaker Village. The **South Shaker Stone Barn Foundation** is the remains of a massive stone barn built in 1835 that collapsed in 1975. Privately-owned, the structure is protected by a preservation restriction held by the Harvard Conservation Trust. The owners of the property recently requested community preservation funds to stabilize the structure but the application was denied due to a lack of public access to the site.

Other documented structures include Holy Hill of Zion (1845); Harvard Common (1732); Mill Sites 1-5 (1830, 1735, 1817, 1750, 1794) on Ayer Road, Depot Road and Mill Road; Stone Walls on Maple Lane, Shaker Road and South Shaker Roads (1750); Harvard Cemetery Caretaker's Outbuilding; Maple Lane Bridge over Bennett's Brook (1850); Harvard Town Pound (1870), 15 Elm Street; and Pin Hill Blue Slate Ridge, Ayer Road.

Heritage Landscapes

Heritage landscapes are created by human interaction with the land. The Massachusetts Department of Conservation and Recreation (DCR) manages the Historic Landscape Inventory Program, which completed Heritage Landscape Studies for communities in the Freedom's Way Heritage Area, including Harvard, in 2006. While other towns selected specific heritage landscapes for study, Harvard's Heritage Landscape Report concentrated on broader categories of concern, including historic resources, agricultural landscapes, and scenic roads.⁵³ Appendix 2 contains the complete inventory of properties identified in the study.

Harvard's historic town common, originally established in 1733 as a 30-acre common, is now represented in three individual green spaces that total approximately three acres. The Main Common is a two-acre green on Ayer Road that includes well-preserved elm trees, the Town

⁵³ MA Department of Conservation and Recreation, Massachusetts Heritage Landscape Inventory Program: Harvard Reconnaissance Report, 2006.

Pound, Powder House and mill stone. The Civil War Common is a one-half-acre triangular green that includes the Town's Civil War Memorial, while the Little Common is a one-half-acre green between Fairbank Street and Oakland Road. The actual boundaries of these public green spaces include portions of the front yards of abutting houses, which have encroached onto the public space over the past two and one-half centuries.⁵⁴

Other heritage landscapes in Harvard represent associations with Harvard's first mill, an early slate quarry, and an outdoor religious area. Old Mill Pond on Old Mill Road is important as the site of the first mill built in Harvard. The 75-acre landscape of the former Slate Quarry on Pin Hill contains artifacts from the Town's nineteenth century slate quarrying ventures as well as nineteenth century mill foundations and scenic rock outcroppings. The landscape of the Holy Hill of Zion on South Shaker Road was established by the Shakers as an outdoor worship area. The Town acquired the property in 1972 and it is protected as conservation land under the management of the Conservation Commission.

Some of Harvard's largest heritage landscapes are part of institutional uses and include a tapestry of historic and modern buildings and structures set amidst some of Harvard's most scenic and environmentally significant landscapes. The 175-acre heritage landscape of St. Benedict's Abbey Complex on Still River Road provides an important visual and cultural element to Still River Village. This religious community was established in 1958 and includes a monastery, convent, and retreat center in both historic and contemporary buildings. The land continues to be farmed and the Abbey operates a small farm stand during the summer. Another institutional landscape in Harvard is the Green Eyrie Girl Scout Camp, a 52-acre camp between Bare Hill Pond and Still River Road, which was once part of Tahanto, Fiske Warren's single tax enclave. Most of these institutional landscapes are not protected and are potentially vulnerable to adverse development. In 2016, the Board at Fruitlands voted to integrate operations with the Trustees of Reservations to provide stronger financial stability and allow for future expansion; its 210 acres will be permanently protected.

Further study should occur to identify and characterize possible historic landscapes within Devens, which was not included in the Freedom's Way Historic Landscape Inventory.

Historic Agricultural Landscapes

Harvard was established as an agrarian community and its identity remains inextricably linked to agriculture. Its agricultural history is represented in the Town's working farms and orchards, and local residents say they value this way of life. Many of the farms include historic resources such as houses, outbuildings, structures, and stone walls in addition to active and fallow fields. The Freedom's Way Landscape Inventory catalogs specific agricultural landscapes in Harvard, noting the presence of historic features at some farms (Table 6.1.) Harvard has documented some of these landscapes on historic inventory forms, but most forms include only information on historic building features

⁵⁴ OSRP, 66.

Table 6.1 - Farms Identified in Freedom's Way Landscape Inventory

Name	Location	Description	Protected
Calkin Farm	146 Littleton County Road	Historic Hosmer-Calkin Farm, now part of Westward Orchards. Includes 1830s Federal style house, barn, dormitory, apple orchard, two ponds and streams	67 acres of orchard in APR
Charlie Brown Farm	Murray Lane	Property includes early grave, adjacent to conservation land	Purchased 2013 by HCT
Community Harvest Project	115 Prospect Hill Road	Non-profit farm that uses volunteers to provide fresh food for hunger relief	No
Doe Orchards	327 Ayer Road	63-acre orchard	No
Great Elms Farm	Stow Road	Farmhouse will be demolished to make way for an affordable housing development by CHOICE (housing non-profit of the Chelmsford Housing Authority)	Est. 70 acres (Conservation Commission)
Sheehan's Farm	177 Mass Avenue	Commercial orchard with ca. 1900 farmhouse, barn and orchards that have been subdivided and sold for house lots	
Westward Orchards	90 Oak Hill Road	Houghton-Hermann Farm on top of Oak Hill. 18th century center chimney farmhouse, many outbuildings	Part in APR
Whitney Lane Farm	Littleton County Rd/ Whitney Lane	Ca. 1802 brick Federal house, late nineteenth century planted with fruit trees, now a horse farm.	
Willard-Watt Farm	12 Still River Depot Road	Federal ca. 1800 house, dairy barn, outbuildings and fields.	U.S. Fish & Wildlife (except for Watt homes)
Williams Farm	Stow Road	Ca. 1790 Federal style Jonathan Sawyer House, was dairy, later orchard	

Designed Landscapes

Harvard's collection of designed landscapes is limited, but there are several enduring examples from turn-of-the-century summer estates, including remains of a formal garden at Fruitlands. Currently, these designed gardens are undocumented and not well understood. Furthermore, most are overgrown with only hints of their original design intent. The Fruitlands Museum has expressed interest in restoring the original gardens of Clara Endicott Sears' summer estate, The Pergolas.

Burial Grounds

Harvard owns three cemeteries, each with historically significant collections of funerary markers and other resources that represent specific eras in the evolution of cemetery design. The slate headstones in Harvard Center Cemetery and the cast iron “lollipop” markers in Shaker Village Cemetery are rare and notable examples of their type, while Bellevue Cemetery represents a Victorian-era cemetery with marble monuments and a park-like design. The Harvard Cemetery Commission maintains all three cemeteries, with recent restoration work completed on the Shaker Cemetery’s cast iron markers. The Town has documented all three cemeteries on historic inventory forms, but only individual burials at the Shaker Cemetery have been catalogued. A cemetery at Fort Devens was also documented on an inventory form. The Freedom’s Way Landscape Inventory notes two additional gravesites: a grave by Charlie Brown Farm and a smallpox gravesite with a single headstone, located on conservation land off Poor Farm Hill Road.

Harvard Center Cemetery* (est. 1734) was once part of the original 30-acre Common. The Cemetery includes an impressive collection of slate markers, some carved by well-known Harvard stone carvers, Thomas Park and Jonathan Worster, from slate quarried from Pin Hill. Other historic features include granite ashlar stone walls, granite vaults, and two small caretaker outbuildings.

Shaker Cemetery* (est. 1792) is located directly adjacent to South Shaker Road in Shaker Village. This 0.85-acre burial ground includes the remains of 300 members of the Shaker community. Each burial site is identified by a distinctive cast iron grave marker in “lollipop” shape. Several markers were damaged when “volunteer” pine trees located within the cemetery fell during a wind storm, and others have been lost to vandalism and theft. The Cemetery Commission replaced missing markers and restored remaining markers with new powdercoating. The Commission plans to remove pine trees still present in the cemetery or located within close proximity to the cemetery boundaries.

Bellevue Cemetery* (est. 1892) on Still River Road is a late nineteenth century cemetery characterized by curvilinear paths, expansive landscaping, a dressed ashlar stone wall and entrance gates, and large, elaborate monuments, including those of Harvard’s most prominent residents.

Scenic Roads

Harvard’s winding historic roadways, with narrow pavement and adjoining vegetation, provide tangible reminders of the Town’s past. Scenic roads play an important role in defining Harvard’s rural character. In 1974, Town Meeting approved a Scenic Roads Bylaw (Chapter 90 of the Town Code) and adopted the provisions of G.L. c. 40 §15C. The bylaw originally designated forty-nine local roadways as scenic roads, and the Town added Littleton Road to the list in 1977. As part of the Heritage Landscape Inventory prepared by DCR, Harvard completed a scenic roads inventory and developed policies for road maintenance and reconstruction that were adopted at Town Meeting.⁵⁵ DCR’s report identifies three notable historic roadways in Harvard: Ayer Road, which serves as a scenic gateway into the Town Center from Route 2; Littleton County Road, notable as a scenic road with farms and woodlands, great views across orchards and open land, and a tree canopy; and Stow Road, with rolling meadows, open fields, and stone walls and

⁵⁵ Massachusetts Department of Conservation and Recreation, Harvard Roads Inventory, April 2007.

resources such as Williams Pond and Great Elms Farm. The Planning Board has adopted regulations (in Chapter 133 of the Town Code) to grant Scenic Road Consent for actions subject to review, with enforcement of violations subject to non-criminal disposition procedures.

Further study should occur to identify possible scenic roadways within Devens.

Historic Objects

Harvard's historic objects span almost 300 years and include millstones, boundary markers, and monuments that represent the Town's agricultural, industrial, cultural, and military heritage. The Town has documented twenty-four objects on historic resource inventory forms. Except for resources located at the former Fort Devens and two statues at Fruitlands, all documented historic objects are owned by the Town of Harvard. Many of the objects are located in or around the Town Common. Particularly noteworthy is the Town's **Civil War Memorial*** (1880) located in the Civil War Common in Harvard Center. The memorial features a white marble draped female figure "Memory" positioned with head bent downward as she strews flowers upon the names of soldiers who died during the war that are inscribed below in a polished granite pedestal with hammered granite base. Harvard completed an SOS (Save Our Sculpture) Questionnaire in 1997, noting some organic growth and graffiti on the statue at the time. A project to professionally clean the Civil War memorial was completed using CPA funding in 2012.

Other documented objects include:

- **Boundary Markers:** Harvard-Ayer Town Boundary Marker (1850), Shaker Road; Harvard-Bolton Boundary Marker, Still River Road; Harvard-Boxborough Boundary Marker(1829), Codman Hill Road; Harvard-Lancaster Town Boundary Marker, Still River Depot Road; Harvard-Littleton Boundary Marker, Old Littleton Road; Harvard-Littleton Boundary Marker (1831), Littleton County Road; Harvard-Stow Boundary Marker, Eldrich Road; and the Harvard-Stow Boundary Marker, Finn Road.
- **Agricultural Objects:** Harvard Horse Trough (1915) at 20 Ayer Road
- **Industrial Objects:** John Preston Millstone (1668), Ayer Road
- **Commemorative:** Civil War Memorial (1880) Ayer Road; World War I Memorial (1920), Ayer Road; Other Wars Monument, Ayer Road; Harvard Common Water Fountain, Ayer Road; Powder House Marker (1812), 11 Elm Street.
- **Cultural (Fruitlands Museum):** Pumunangwet Statue (1931), 102 Prospect Hill Road; and Wo Peen Statue (1938), 102 Prospect Hill Road.

Other known objects in Harvard that have not been documented include the Shaker Whipping Stone, an engraved stone marker at the entrance to 36 South Shaker Road that memorializes the location of Shaker persecution by local residents in the late eighteenth century.

Archaeological Resources

Harvard does not have a community-wide archaeological reconnaissance survey, but it has identified both historic and pre-historic archaeological sites and resources in Harvard (those dating from post European settlement and sites dating from Native American settlements). Due to the Town's settlement history and its vast acreages of undisturbed land, it is realistic to imagine that additional significant archaeological resources exist in Harvard. All significant archaeological sites identified in Harvard are included in the Massachusetts Historical

Commission (MHC) Inventory of Archaeological Assets of the Commonwealth. This confidential inventory contains sensitive information and is not a public record as required under M.G.L. c.9, s. 26A (1).

Historic Resources of Fort Devens

The historic resources at Devens are associated with the development of Fort Devens as a permanent military facility between 1929 and the early 1940s. These resources include an impressive collection of historic buildings, objects, landscapes, structures, and a cemetery, all listed in the National Register of Historic Places and protected through local historic district designation. Most these resources are well-preserved and continue in use; however, the buildings of Vicksburg Square are vacant and in serious disrepair.

- Rogers Field and Parade Grounds
- Vicksburg Square, an historic quadrangle comprised of three, four-story brick and concrete buildings constructed as barrack housing between 1929 and 1940.⁵⁶ Despite several private proposals to renovate the buildings for new uses, these buildings are currently vacant, in deteriorated condition, and may pose risk of hazardous materials contamination. Preservation of these structures may warrant special provisions and significant funding in order to adapt these building to new uses.
- Officers' Housing, a well-preserved collection of brick Georgian Revival style buildings forms a horseshoe-shaped cluster surrounding the central Parade Ground. These buildings, which include officers' housing, enlisted housing, administration buildings, and warehouses, continue to provide housing for families.
- Fort Devens Cemetery* (1939) is a two-acre square burial ground located on Patton Road. Surrounded by a fieldstone wall with integral caretaker's shed, the cemetery features fieldstone entrance pillars with ornate iron gates, mature trees, and white marble gravestones with simple capitalized lettering.

Other historic resources present on the former military base include a collection of historic structures such as water tanks, fields, reviewing stands, a park, carport, alley, and a garden, as well as the following historic objects: Luther Burbank Water Trough (1850), Antietam Street; Fort Henry Cannons (1940), Buena Vista Road; Roger's Field Commemorative Boulder (1934), Buena Vista Road; Sweetheart Monument (1918), MacArthur Avenue; Willard Farm Commemorative Boulder (1935), Sherman Avenue; General Verbeck Commemorative Boulder (1967), Sherman Avenue; and Flagpole (1940), Sherman Avenue.

2. LOCAL REGULATIONS AND POLICIES

Historic Resources Inventory: To date, Harvard has submitted inventory forms for more than 500 properties to MHC's Inventory of Historic and Archaeological Assets of the Commonwealth. Completed through the voluntary efforts of Harvard Historical Commission members, these forms document 392 buildings, 24 objects, 64 structures, and 4 cemeteries in Harvard. Most of the Town's inventory forms are available to view and download on the HHC's website and on the Massachusetts Historical Commission's searchable MACRIS database at <http://mhc-macris.net>.

⁵⁶ FWHHA website, Friedberg, Betsy, "MHC Opinion for National Register", July 15, 1986.

State Register of Historic Places: The State Register of Historic Places is a compendium of all properties in Massachusetts that are afforded some level of preservation protection through historic designation. In Harvard, nine resources are included in the State Register as shown in Table 6.2, but Fruitlands is listed twice: once for the historic Fruitlands farmhouse and once for the entire Fruitlands complex.

National Register of Historic Places: The National Register of Historic Places is the official federal list of districts, sites, buildings, structures, and objects deemed significant in America history, architecture, archaeology, engineering, and culture. Harvard has four National Register Districts: Fruitlands Museum, Harvard Center, Shaker Village, and Vicksburg Square at Fort Devens. Three additional properties are individually listed in the National Register: the South Shaker Stone Barn Foundation, Still River Baptist Church, and the Frederick Fiske and Gretchen Osgood Warren House.⁵⁷ (Table 6.2) Listing in the National Register is primarily an honorary designation; it does not restrict private property owners from undertaking privately-funded alterations that do not require Federal permits or licenses.

Historic Landmarks: Harvard has one property, the Fruitlands farmhouse, designated as a National Historic Landmark and a State Historic Landmark. Designated by the Secretary of the Interior, National Historic Landmarks (NHL) are nationally significant historic places that possess exceptional value or quality in illustrating or interpreting the heritage of the United States. Fewer than 2,500 historic places in the United States have been honored with this national distinction.

Local Historic Districts: Harvard has designated two local historic districts under MGL Chapter 40C legislation: the **Harvard Common Historic District** and the **Harvard Shaker Village Historic District**. These districts protect a total of seventy-two historic properties. In a local historic district, building alterations subject to public view require approval from the Historical Commission through a public hearing process. Attempts to designate Still River Village as a local historic district have been unsuccessful.

Preservation Restrictions: Three private properties in Harvard are protected by historic preservation restrictions under M.G.L. c. 184, §§ 31-33: Fruitlands, South Shaker Stone Barn Foundation, and Still River Baptist Church. A preservation restriction is attached to the deed of a property and it is one of the strongest preservation tools available. All of Harvard's preservation restrictions run in perpetuity, with no expiration date. The 2006 Heritage Landscape Report noted a fourth preservation restriction for the Orsamus Willard-Watt House, but this restriction expired in 2004 after its fifteen-year term elapsed.

If Harvard resumes jurisdiction of Devens and a demolition delay bylaw is formally considered, the costs and benefits of preserving and protecting Devens' historical and cultural resources should be considered. Special provisions for specific resources, Vicksburg Square in particular, may be warranted, as their futures are currently uncertain and if they are to be preserved, significant funding may be required.

⁵⁷ Massachusetts Historical Commission, State Register of Historic Places 2012.

Table 6.2 - Harvard Properties Listed in the State Register of Historic Places

Name	Location	Designation	# of Properties	Date of Designation
Fort Devens	Harvard/Ayer	NRDIS	95	6/10/1993
		LHD	95	11/18/1994
Fruitlands	102 Prospect Hill Rd	MA/HL	1	4/1/1966
		PR	1	4/1/1966
		NHL	1	3/19/1974
		NRIND	1	3/19/1974
		NRDIS ⁵⁸	3	5/23/1997
		PR		3/10/1998
Fruitlands Museum		NRDIS	31	5/23/1997
Harvard Center		NRDIS	125	9/22/1997
Harvard Common		LHD	32	3/27/1975
Harvard Shaker Village		LHD	40	4/26/1974
		NRDIS	40	10/30/1980
South Shaker Stone Barn Foundation	South Shaker Road	LHD/NRDIS ⁵⁹ PR	1	12/16/1996
Still River Baptist Church	213 Still River Road	NRIND	5	12/13/1996
		PR	5	6/21/2001
Frederick Fiske and Gretchen Osgood Warren House	42 Bolton Road	NRIND	5	12/6/1996
Source: State Register of Historic Places 2012				
NRDIS: National Register District NRIND: National Register Individually-Listed Property NHL: National Historic Landmark LHD: Local Historic District (M.G.L. Ch. 40C) PR: Preservation Restriction MA/HL: State Historic Landmark				

⁵⁸ This resource is included in the Fruitlands Museum National Register Historic District

⁵⁹ This individual resource is also designated within the Harvard Shaker Village Historic District.

Community Preservation Act: Harvard adopted the CPA in 2001, with a 1.1 percent surcharge. This statewide enabling legislation allows cities and towns to raise funds dedicated for historic preservation, open space, affordable housing, and recreation. As shown in Table 6.3 below, Harvard Town Meeting has approved multiple allocations of CPA funds for several town-owned resources, including Town Hall, Hildreth House, preservation of town documents, and the Shaker Herb House. Other resources have received single allocations. The Commonwealth matches local CPA funds with recording fees at the Registry of Deeds. As more communities have adopted the program, the state match has decreased considerably. With a strong track record of implementing many worthwhile community projects, the Community Preservation Committee may wish to ask Town Meeting to increase the surcharge percentage.

Preservation of Historic Documents: A community's historic documents tell a collective story of local heritage. Town reports, private journals, historical narratives and books, period photographs and postcards, old maps, and other ephemera all provide an invaluable glimpse into the past. In many instances, these primary sources are fragile artifacts in need of conservation. Harvard's historic documents are contained within various public and private repositories, including the Town Clerk's office, the Public Library, the Harvard Historical Society, and the Fruitlands Museum. The HHS has catalogued its collection and placed most of its resources in archival storage. The Town Clerk and the Fruitlands Museum have both utilized CPA funds to preserve their historic documents.

Table 6.3 - Historic Preservation Projects Funded Through CPA

Project	Date	Description	Recipient	Status	Funds Allocated
Bromfield School Stone Wall	2013	Restoration of wall	Parks & Recreation	In progress	\$55,000
Town Historic Documents	2013	Preservation of historic documents	Town Clerk	In progress	\$16,000
	2012	Preservation of historic documents		In progress	\$24,000
	2011	Preservation of historic documents		Complete	\$21,302
	2010	Preservation of historic documents		Complete	\$24,413
Town Hall	2010	Exterior restoration		Complete	\$10,000
	2003	Restoration of rooms for meeting space		Complete	\$78,649
	2015	Major building restoration		Complete	
Fruitlands Historic Documents	2010	Preservation of historic documents	Fruitlands Museum	Complete	\$7,000

Project	Date	Description	Recipient	Status	Funds Allocated
Shaker Cemetery Grave Markers	2010	Restoration of Grave Markers	Cemetery Commission	Complete	
Historic District Signage	2009	Purchase signage for two historic districts	Historical Commission	Complete	\$7,150
Shaker Herb House	2008	Restore doors	Historical Commission	Complete	\$3,000
	2007	Ongoing restoration of Drying House		Complete	
	2006	Ongoing restoration		Complete	
	2004	Restoration		Complete	\$6,000
	2002	Historic structures study and preservation plan		Complete	\$3,100
Hildreth House	2008	Restore & preserve exterior trim	Council on Aging	Complete	\$12,700
	2006	Supplemental funding for restoration and preservation		Complete	\$64,520
	2005	Restoration of pathway		Complete	\$5,340
	2002	Landscape restoration planning		Complete	\$10,000
	2003	Restoration of roof and exterior walls		Complete	\$79,850
Boat House Study	2007	Structural/foundation study	Bare Hill Rowing Assoc.	Complete	\$3,383*
Still River Baptist Church	2006	Renovation of church roof		Complete	\$14,078
Powder House	2006	Restoration		Complete	\$903
Source: Community Preservation Coalition website, accessed February 4, 2014. *Funds allocated from recreation apportion of Community Preservation Fund					

CHAPTER 7

COMMUNITY SERVICES & FACILITIES

Municipal services are local government services that residents and businesses receive as taxpayers, rate payers, or fee-paying participants in a town program or activity. Like most towns in Massachusetts, Harvard offers more services than the state actually requires. Over time, the duties of local governments everywhere have changed due to new federal and state laws, expectations tied to state aid and discretionary grants, changing social needs, and changing ideas about the responsibilities of government.

In some communities, local governments and non-profit organizations work as partners to provide services or carry out special projects. In Harvard, a good example is the relationship between the Harvard Conservation Trust and the Conservation Commission. Harvard also receives some municipal services through regional organizations, e.g., the Nashoba Valley Boards of Health. In 2013, Harvard joined the Nashoba Valley Regional Dispatch District located in Devens, which serves Lunenburg, Lancaster, and Devens; such regional collaboration offers lower costs and operational efficiencies beyond what a single community can provide.

1. MUNICIPAL SERVICES

Harvard's town government is a highly decentralized \$24 million organization led by a five-member Board of Selectmen. Decision-making is distributed across nine elected boards, four elected officers, and approximately twenty-five appointed boards and committees. Some town departments have full- or part-time professional staff and support personnel to carry out the duties and directives of the elected or appointed officials they serve. Harvard has a small population and low-density development pattern. Many departments rely upon part-time staff while others may have just one or two people handling a large volume of work. Harvard lacks the economies of scale that sometimes present advantages to larger towns. However, Harvard's trade-off for efficiency is a size that works for spirited debate – a style of governance that townspeople have valued for decades.

Should Harvard resume jurisdiction of Devens, the current governmental structure will require additional capacity and resources. Throughout Devens' redevelopment, support services comparable to typical municipal services have been provided by MassDevelopment, either directly or through a contract-based arrangement. A comprehensive study of the governmental structures of towns similar to a combined Harvard and Devens should be performed to assess the extent of resources that would be needed, along with any potential structural changes in governmental operations.

Additionally, a detailed department-based analysis is needed to fully assess current staffing levels and the staffing that would be required to adequately provide services. Regionalization efforts, with the recent shared emergency dispatch center as a model, could significantly assist with maintaining Harvard's current structure and reduce associated costs.

General Government

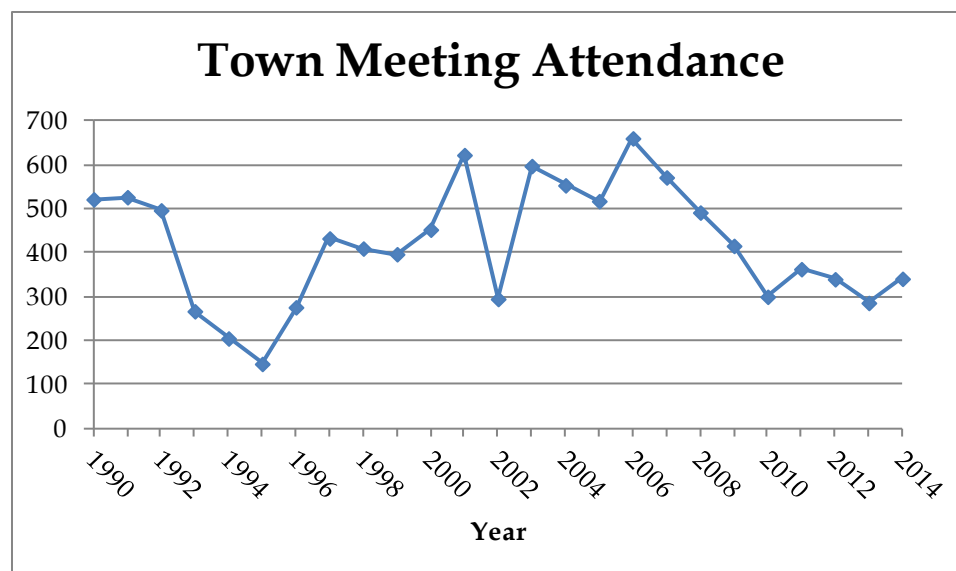
In the standard classification system used in government finance, "general government" consists of the central administrative services that a community needs in order to carry out its statutory obligations. For Harvard, this includes the Board of Selectmen and Town Administrator, financial

operations (Accounting and Finance Department, Treasurer/Collector, and Assessors), the Town Clerk, land use and permitting (Planning, Conservation, and Board of Appeals), and the legislative arm of government, Town Meeting. Harvard presently spends a combined total of \$1.2 million on general government functions.

- **Administration & Finance:** Harvard's chief administrative officer, the Town Administrator, directs the day-to-day work of town government, carries out policies of the Board of Selectmen, and coordinates with departments not directly under the selectmen's purview. The Board of Selectmen/Town Administrator office has two full-time staff, including the Town Administrator and an administrative assistant, and a part-time Assistant Town Administrator/Human Resources Director. Harvard also has a Finance Director whose time is shared by the Town and Harvard Public Schools. The Finance Department is comprehensive in that it includes the accounting, treasurer-collector, and assessing functions. The Town receives assessing and appraisal support services under a vendor contract with Regional Resource Group, Inc.
- **Town Clerk:** In any city or town, the Clerk is the official keeper of records. Harvard residents probably come into more contact with the Town Clerk than with any other elected or appointed official. Many town officials have frequent contact with the Town Clerk's office, too, because of the types of records held there. The Town Clerk is responsible not only for maintaining and certifying documents, but also for conducting local, state, and federal elections, issuing a variety of licenses and certificates, administering the annual town census, maintaining records of permitting and licensing decisions by town boards, and serving as sales agent for cemetery lots.
- **Land Use & Permitting:** The Planning Board, Board of Appeals, and Conservation Commission have development review and permitting responsibilities prescribed by state law and local bylaws. The decisions they make have far-reaching consequences for the Town.
 - The Planning Board has statutory responsibility for preparing a Master Plan, reviewing proposed zoning changes and reporting on them to Town Meeting, reviewing and approving subdivisions of land, and endorsing plans for lots not subject to the Subdivision Control Law. Harvard's Planning Board is also responsible for reviewing and acting upon site plan applications, alterations to scenic roads, and some special permits. Acting on a recommendation of 2002 Master Plan, Harvard funded the position of town planner in 2013 for the first time, although as a contracted service rather than as a town employee. Creating a town planner position was among the recommendations of the 2002 Master Plan. The planning office is currently staffed by the contracted part-time town planner and a part-time Land Use Administrator.
 - The Board of Appeals has statutory authority to grant zoning exceptions and relief, to hear appeals of actions taken by the Building Commissioner, and to act on comprehensive permits filed under M.G.L. c. 40B. Harvard (like most towns) assigns a majority of the special permits to the Board of Appeals.
 - The Conservation Commission administers both the Massachusetts Wetlands Protection Act (M.G.L. c. 131, s. 40) and the Harvard Wetlands Bylaw. It also has management responsibility for the Town's open space, for which the Land Stewardship subcommittee takes the lead. The Commission works with the non-profit

Harvard Conservation Trust to acquire, protect, and care for conservation land. The Conservation Department manages the Town's conservation land and oversees periodic updates of the Open Space and Recreation Plan. The Commission receives staff support from a shared Conservation Agent/Land Use Administrator.

- **Town Meeting:** Harvard typically holds its annual town meeting in early spring (March or April), when residents vote on the Town budget, capital projects and land acquisitions, local bylaws, and other matters requiring approval by the local legislative body. Harvard's is an open town meeting, which means that any registered voter can vote on matters requiring town meeting approval. There is no requirement for a quorum to open the Town meeting. Town Elections are held the Tuesday following annual town meeting. As the Legislative body of the Town, it is important that citizens fully participate in decision making to insure items such as budgets, bylaws, and capital expenses reflect the will of the majority of residents. However, as the chart below shows, attendance has declined in recent years. For example, attendance for the five-year period from 2010 to 2014 averaged 326 voters compared to the five-year average of 518 from 2001 to 2005. With numerous demands placed upon families today, interest in local government has waned. Using outlets such as televised board meetings, the Harvard Press, public forums, and social media, Town officials should strive to raise awareness of the benefits of widespread participation in Town Meeting decisions.



Public Safety

The Police Department, Fire Department, Ambulance Squad, and Building Commissioner form the backbone of public safety services in Harvard. The Town presently spends \$1.6 million on these public safety operations.

- The **Police Department** is a small organization with a full-time chief, two sergeants, a detective, four patrol officers, and several reserve officers. According to local records, the Police Department responds to approximately 12,000 calls per year.

- In 2013, the **Nashoba Valley Regional Dispatch District** opened at Devens. It provides dispatch service for police, fire, and emergency medical calls from within Devens and in Harvard, Lancaster, and Lunenburg.
- The **Fire Department** includes a full-time fire chief and thirty-six on-call personnel, including a deputy chief, three lieutenants, and twenty-six firefighters, several of whom are also EMT-certified. In 2013, Harvard's call firefighters responded to 255 emergency calls ranging from car accidents to fire alarms, and issued approximately 250 permits. Though it is a call department, Harvard's firefighters provided mutual aid for emergencies in other towns on nineteen occasions and also sought mutual aid for emergencies in Harvard ten times in 2013. In addition, the Fire Department has statutory responsibility for certain types of safety inspections. The annual demand is about 300 inspections and 250 permits and licenses.
- The **Harvard Ambulance Squad** is an all-volunteer organization with approximately sixty members, all EMT certified. Under a special provision from the state, Harvard sponsors a "cadet" program for Bromfield School students to respond to calls with an adult EMT member of the Ambulance Squad. The annual demand for service is about 300 calls, the majority occurring during daytime hours.
- The **Inspectional Services Department** includes a part-time building inspector, part-time administrative assistant, and part-time plumbing and wiring inspectors. The Building Commissioner also serves as Harvard's zoning enforcement officer, authorized to withhold building permits for structures that fail to comply with zoning, respond to zoning violations, and issue cease-and-desist orders for zoning violations.

Public Works

Harvard has a Department of Public Works (DPW) that manages most traditional public works functions. The DPW takes care of sixty-five miles of public roads, including paving and pavement repairs, cleaning drainage systems, trimming roadside vegetation, installing and replacing signs, and plowing, sanding, and street sweeping. In addition, the DPW oversees solid waste disposal and recycling services at the Transfer Station, maintains the Town's parks and playing fields (which are managed by an elected Park and Recreation Commission), maintains the school fields for the School Department, mows some fields on conservation lands, provides support to the Bare Hill Pond Committee, and maintains the cemeteries (which are overseen and regulated by an elected Cemetery Commission). The Town spends approximately \$1.3 million per year on public works-related functions. In 2015, the DPW assumed responsibility for the operation of the pumping station at Bare Hill Pond. Following its recommendations, electricity use was minimized through a more efficient pumping management approach, leading to significant energy savings.

Water and Sewer Services: The Water Department, which is under the auspices of the DPW, provides drinking water to a small service area of about eighty properties within the Town Center. Water is pumped from two bedrock wells located east of Bare Hill Pond, both drilled to a depth of approximately 500 feet, and delivered to customers through a 13-mile network of recently upgraded water mains. A third well on Bolton Road is available for emergency backup, but it is rarely used, and activating it requires Mass. Department of Environmental Protection (MassDEP) approval. Since the actual aquifer recharge area for these wells has not been identified, MassDEP has assigned an Interim Wellhead Protection Area (IWPA) to each well, which varies

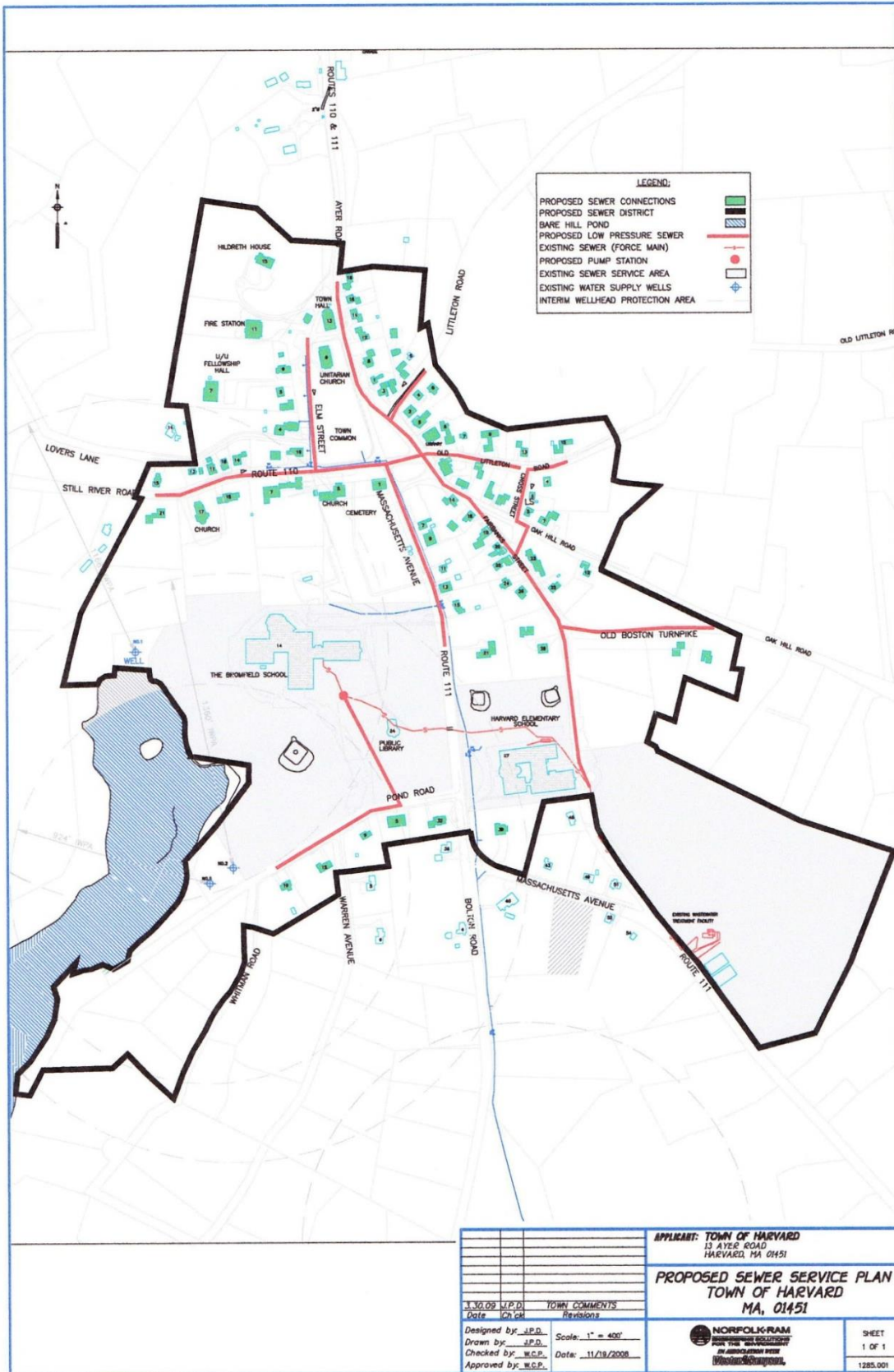
with the well's pumping rate. The Town pumps approximately 7 million gallons per year from the two wells combined. MassDEP considers both water supplies to be at moderate or high risk of contamination due to their proximity to underground fuel tanks, storage of hazardous materials, lawns, and septic systems. Though operated by the DPW, the public drinking water system is regulated by an appointed Water and Sewer Commissions, which has authority to set water rates for customers in the Town Center.

In 2015 Harvard began to investigate options for developing an additional water supply in the Town Center. The intent is to identify a new well site that will be less susceptible to contamination than the existing wells because of the Center's concentrated development, including recreation fields, school sites, and residences. Previous searches revealed high levels of radon in the groundwater that would require expensive treatment to meet acceptable drinking water limits. The Town Center does not have an underlying sand and gravel aquifer, and most likely a new source would drill into bedrock. The Water Study Committee intends to issue its report in 2016. The Committee's charge is restricted to the Town Center, and does not include an analysis of developing water sources in other parts of Town.

The **Water and Sewer Commissions** also oversees a new sewer district that Harvard established with approval from the state Legislature (Chapter 37, Acts of 2010. The district closely mirrors the water district and includes portions of Ayer Road, Massachusetts Avenue, Elm Street, Pond Street, Still River Road, and Fairbank Street in the Town Center. Its service area is limited to 12 nonresidential properties, 43 multifamily dwelling units, 38 single-family homes, and 8 public buildings. (Map 6.1 displays the sewer district boundaries in the Town Center.)

The sewer system has an excess capacity of approximately 3,000 gallons per day. Its intent was primarily to provide existing uses in the Town Center with reliable treatment and to remove failing septic systems that posed a threat to the municipal wells. Chapter 37 specifically restricts connections of a new use, a use that has been reconstructed resulting in a greater flow, or a facility that has undergone a change in use to the wastewater system, and prohibits an increase in the design flow of an existing facility unless it could have met Title 5 standards for a new septic system. However the Commission may make exceptions if a connection is necessary for the public health and safety or creates a demonstrable benefit to the Town. Practically speaking, the system will not allow a significant increase in residential density or promote new commercial growth. One possible use of the remaining capacity is to provide treatment for a proposed senior housing project at the site of the Senior Center; this would of course provide a "demonstrable benefit" to the Town.

Regardless of Devens' disposition, additional consideration should be given to a tie-in of water and sewer systems between Devens and Residential Harvard. Tie-in of one or both systems could provide Harvard with significantly more "freeboard" in future development options and with sustainability of the Town's current development patterns.



Human Services

In local government, “human services” typically includes the Board of Health, Council on Aging, and Veterans Agent. In Harvard, these are very small organizations. Total spending on human services functions in FY 2015 is approximately \$170,000.

- The **Board of Health** is an elected, three-member board responsible for regulating wastewater disposal and private water supplies, identifying and reporting communicable diseases and public health hazards, and enforcing the State Sanitary Code. Septic system and food service inspections are handled by the Nashoba Associated Boards of Health, an organization serving fifteen towns in the north-central section of the state. The Board of Health has a part-time administrative assistant at Town Hall.
- The **Council on Aging** offers information services, transportation assistance, and social, recreational, educational, and health programs to people with disabilities and to Harvard’s 60 and over population, which in 2014 represented 20% of the Harvard plus Devens population.⁶⁰ The Council’s offices and program space are located at the Hildreth House, a historic building situated on a hill overlooking the Town Hall. Nearly 700 seniors use services sponsored by the Council on Aging, with wellness, educational, and cultural programs attracting the largest number of participants. The Council on Aging is supported by a combination of local revenue, fees, and state grants, as well as fundraising by the Friends of the Council on Aging. Current staffing includes a full-time Director, part-time outreach and program coordinators, and a receptionist/dispatcher. Currently, no paid COA social work or outreach services are provided to Devens residents. The Town could consider providing such services under a contract, in a similar fashion to the way MassDevelopment contracts for school services for Devens students.
- The **Veterans Agent** is a part-time official appointed by the Board of Selectmen. In Massachusetts, communities are required to provide medical and burial assistance to local veterans, but the state reimburses seventy-five percent of claims paid by the Town.

Culture And Recreation

Harvard has several boards, commissions, and departments with responsibility for cultural programs and recreation activities. The Town spends approximately \$595,000 per year on these services.

- The **Harvard Public Library** is governed by a Board of Library Trustees with six elected members. Its collection includes books, periodicals, compact discs, audio books, videos, and databases, and a wealth of online resources. The library also provides lectures, book discussion groups, fine arts displays, musical performances, film screenings, museum passes, computers with internet access, and full-service programs for children. It also offers access to the C/W MARS Network, a consortium of public and academic libraries in Worcester County and Western Massachusetts. The Library is supported by a combination of local revenue, state library funds, and contributions from the Friends of the Library, Inc. It has a full-time library director and eleven full- and part-time library staff.

⁶⁰ 2010-2014 ACS, Table S0101

- Harvard does not have a permanently staffed recreation department but does have a Beach Director for the summer season. Its five-member **Park and Recreation Commission** oversees the recreation programs offered to Harvard residents, manages and regulates the use of the public beach at Bare Hill Pond and the Town's playing fields, hires and oversees lifeguards, and manages the Town Common. A volunteer organization, Harvard Athletic Association, offers a variety of youth sports programs throughout the year. School sports teams also use the fields, and students play on the fields during the school day for recess, intra-murals and physical education classes.
- The **Harvard Historical Commission** has planning, advocacy, and permitting responsibilities. It identifies properties and areas that are eligible for listing on the National Register of Historic Places, prepares National Register nominations, conducts planning studies to establish local historic districts, and generally oversees historic preservation survey and planning work. In addition, the Harvard Historical Commission functions as a local historic district commission, which means it has authority to review and decide on proposed building alterations in two local districts: the Shaker Village and the Harvard Common Historic Districts. The Commission operates without a budget or dedicated staff support. The Commission receives substantial support from the non-profit Harvard Historical Society, which holds a vast collection of historical materials in a museum in Still River.
- Harvard is one of 158 communities that have adopted the **Community Preservation Act (CPA)**, a law that went into effect in September 2000. CPA helps cities and towns pay for projects that provide open space, recreation, historic preservation, and affordable housing. Toward these ends, the law allows communities that adopt CPA (M.G.L. c. 44B) to impose a surcharge on property tax bills and dedicate the funds to projects that are eligible by law. Harvard's surcharge of 1.1 percent is well below the maximum 3 percent allowed by state law, which limits the state matching funds the Town receives. Of the 158 communities that have adopted CPA, 122 have opted for a higher percentage than Harvard's 1.1%. Harvard's Community Preservation Committee (CPC) includes both elected and appointed members. The CPC has adopted broad community preservation goals and considers requests for CPA funds prior to each annual town meeting. Based on Department of Revenue data, Harvard's surcharge netted \$105,154 in FY 2002, which increased to \$204,723 in FY 2016. The state match has steadily declined over the years, and in FY 2016 amounted to 29.7%, or \$60,746. Harvard should consider increasing its surcharge percentage in order to restore a level of funding that would accomplish a greater number of worthwhile community projects.
- The **Center on the Common** was a community-based arts and cultural non-profit organization that operated in the Hapgood Library when the space became available. It offered a variety of educational programs for youth and adults and provided a central venue for exhibitions and performances. Unfortunately, the organization was unable to sustain operations and shut down in 2015. Its demise left a gap in arts and cultural offerings in the Town. Another non-profit arts organization, the **Harvard Cultural Collaborative**, is seeking to lease the space when municipal offices move back to the renovated Town Hall.

- Harvard's Community Education program offers a wide variety of courses for residents to expand their educational horizons and explore new interests. Operated through the Harvard School Department, adults may learn new skills, explore creative arts, learn a musical instrument, or expand career proficiencies. Children also benefit from a dynamic summer program, which includes a variety of recreational and artistic activities.
- The **Warner Free Lecture Trustees** sponsor educational forums several times a year on a wide variety of cultural topics. The series honors the wishes of Henry Warner, who established a fund in 1890 to offer stipends to renowned speakers to offer free lectures and programs in the community.

2. MUNICIPAL FACILITIES

Harvard is responsible for twelve town-owned buildings and structures with a combined assessed value of over \$7 million.⁶¹ Several of Harvard's public facilities are historically significant, which create challenges for balancing modern uses and code requirements with the constraints of these local landmarks. Harvard provides most government services in buildings situated within the Town center, a residential and institutional enclave that is the heart of the Town. In addition to traditional government office buildings, Harvard's public facilities include three cemeteries, a pumping station for the Town center water supply, waste water treatment facility, and several parks and playgrounds.

- **Town Hall:** The Town Hall is a two-and-one-half story building with 8,000 sq. ft. of floor space.⁶² It houses administrative offices and small meeting rooms on the first and second floors, although the second floor was originally used for community events and social gatherings. Approximately twelve people work in the building on any given day. A 2012 town buildings study promoted a comprehensive upgrade of the Town Hall, restoration of the second floor for community space, and an addition to accommodate offices relocated from the second floor. Though Town Meeting approved funds for the project, it did not move forward due to construction cost increases. The Selectmen decided to use the appropriated funds to make needed structural and exterior repairs to the existing building, as well as provide handicap access improvements to comply with the Americans with Disabilities Act (ADA), but to forego the proposed addition. Hence, there is a lack of office space to accommodate new staff without incurring additional expense for further renovations. Construction began in the spring of 2015 and the building will re-open in the spring of 2016.
- **Public Safety Building:** Construction of the Public Safety Building at 40 Ayer Road had just begun when the Planning Board adopted the last Master Plan in November 2002. (The police were previously housed in space at the rear of Town Hall.) The new building consists of approximately 9,400 sq. ft. and houses the Harvard Police Department⁶³ and Harvard Ambulance Squad.

⁶¹ 60 Harvard Assessor's Property Database, FY 2013.

⁶² 61 Municipal Buildings Committee Final Report (February 2011), 16.

⁶³ Galeota Associates, "Building Inspection Report: Police Station, 40 Ayer Road" (December 2011), and Assessor's Property Database FY 2013.

- **Fire Stations:** Harvard has two fire stations: Station 1 in the Town Center, a four-bay building with 5,700 sq. ft. of floor area, and Station 2, a two-bay facility in Still River Village (about 1,800 sq. ft. of floor area). Station 1 is the newer of the two buildings, constructed ca. 1974. According to data from the assessor's office, Station 2 was built in 1948. In a recent assessment of town building conditions, deficiencies were found in both structures ranging from water damage to deferred maintenance. The 40-year old Station 1 will require modernization and expansion in order to accommodate the recent acquisition of new fire vehicles. The old ambulance building adjacent to the Town Hall currently houses the Town Clerk's vault and rescue boat for water emergencies on Bare Hill Pond and other water bodies; no plans are proposed for this property.
- **Old Library (Hapgood Library):** The Hapgood Library at 7 Fairbank Street consists of approximately 8,800 sq. ft. of floor space. Built in the late 1880s, it was the Town Library until the Old Bromfield School was renovated and enlarged for a new public library in 2007. The non-profit Center on the Common operated a community arts and cultural center in the Old Library for several years, but was unable to sustain its operations. Municipal offices moved there temporarily in 2015 until completion of the Town Hall renovation project. The building does not meet ADA requirements. Future plans for the use of the building have not been finalized, although another non-profit, the Harvard Cultural Collaborative, has presented the Selectmen with a proposal to use the building as a community arts center. That decision is pending meeting ADA requirements.
- **Bromfield House:** This two-story house with 2,800 sq. ft. of floor space is located at 39 Massachusetts Avenue. It was built in 1914 as the residence of the principal of The Bromfield School. Several years ago, the Bromfield Trustees deeded it to the Town for "educational" use. The Bromfield House currently holds administrative offices of the schools and the superintendent. In 2014, the School Committee (overseers of the property on behalf of the Town) voted to relinquish use of the Bromfield House pending the allocation of suitable alternative space, citing the cost of approximately \$800,000 to upgrade the building and make it ADA compliant. As of February 2015, the future site of the administrative offices remains undecided and the School Committee is exploring less costly options to renovate the building while still addressing accessibility issues.
- **Harvard Public Library:** The Harvard Public Library moved to the Old Bromfield School building, which was expanded in an award-winning renovation project that Harvard completed in 2007. It contains approximately 22,000 sq. ft. of floor area and includes both full-service library facilities and community meeting space. In 2014, circulation exceeded 127,000 items borrowed, nearly doubling the 65,000 items in 2001.



- **Hildreth House:** The Hildreth House is home to the Council on Aging's senior center. Acquired by the Town in 1979, the 8,700 sq. ft. Hildreth House is a former summer residence located on the edge of the Harvard Center National Register Historic District. In 2015 Town Meeting appropriated funds for a Phase 1 renovation project for handicapped accessibility improvements, parking improvement, and some interior building upgrades. Work will begin in 2016. In phase 2, The COA hopes to complete restoration of the historic building and construct a 2-story addition for a growing senior population.
- **Public Works:** The DPW's facilities are located at 47 Depot Road, including office and storage space for public works functions and the Town's solid waste transfer station. The garage is deteriorating and will soon require a significant renovation.

The 10-acre lot contains the site of the former landfill, and Town Meeting re-zoned the parcel in 2010 to place it in the Large-Scale Ground-Mounted Solar Photovoltaic Facilities Overlay District. It may be possible to develop the former landfill with a ground-mounted solar farm, with the energy generated used either to meet the needs of the adjacent DPW facility, or to provide net metering credits for the Town to reduce its energy purchases. MassDEP encourages communities to consider solar energy projects on former landfills, and a number of communities have done so.

The Water Department also operates a pumping station at 59 Massachusetts Avenue.

- **Cemeteries:** The Town maintains three cemeteries: the historic cemetery in the Town Center (established ca. 1734), the Bellevue Cemetery in Still River Village, and the Shaker burial ground off South Shaker Road in North Harvard.

3. HARVARD PUBLIC SCHOOLS

Harvard operates its own K-12 school district, which is unusual for a small town. In FY 2015, the district's operating budget was \$12.1 million, by far the largest single cost center in town government (as is the case in all towns). The district operates in two school facilities: the Bromfield School, which houses grades 6-12, and the Hildreth Elementary School, grades PreK-5.⁶⁴ The school facilities occupy a campus-style setting on both sides of Massachusetts Avenue on the south side of the Town center. The 68,732 sq. ft. Hildreth Elementary School contains thirty-five classrooms and core facilities (library, art and music rooms, auditorium/cafeteria, and so forth). Bromfield School is a 180,921-sq. ft. facility with separate middle school and high school wings, an auditorium, gymnasium, cafeteria, computer labs, library, and fifty-two classrooms, including the science laboratories. In January 2016, Harvard was accepted into the Massachusetts School Building Authority (MBSA) grant approval process for renovation of the Hildreth Elementary School. The kindergarten wing, built in the 1950's, has lacked basic upgrades due to the mandated containment of a mold hazard identified in 2002 and is now in need of a major redevelopment. Additional upgrades to the main building, built in the 1980's will also be considered to bring the entire building up to code and ADA compliance.

K-12 Enrollment Projections: Harvard's school population peaked in 2006 when total enrollment reached 1,307 students (549 at the Elementary School and 758 at the Bromfield School). This

⁶⁴ Harvard also belongs to the Montachusett Regional Vocational School District.

population exceeded recommended size limits, which are 488 at the Elementary School and up to 740 at Bromfield. With smaller household size and graying of the population, K-12 enrollments declined. Between 2006 and 2015, school population decreased by 174 students.

Over the summer of 2015 the schools experienced a sharp upswing in the number of families moving into Harvard with school-aged children (perhaps filling the homes of seniors who had been waiting for an improved real-estate market). New housing development on Grant Road in Devens is also expected to bring in an additional 60-80 students over the next 3 years, prompting some to believe that the decline in enrollment may be reversing.

Devens: Under Chapter 498, MassDevelopment is responsible for the education of school-age children living at Devens. Students have switched schools several times in the intervening years. At the time of the 2002 Master Plan, Harvard had decided not to accept Devens students because of concerns of already crowded classroom space. Harvard's enrollments were still growing at the time, including students from other towns who attended school in Harvard under the "School Choice" program. From 2006 to 2008, Shirley accepted students in grades K-5 and Harvard taught students in grades 6-12. When it was time for MassDevelopment to re-bid the school contract again, Harvard's enrollments had begun to fall. Harvard submitted the winning bid, so the 140 Devens students transferred to the Harvard Public Schools. Their continued attendance (including students anticipated under a full 282-unit residential buildout at Devens) would lessen the impact of declining enrollments. But even with all of the children from Devens plus School Choice students, Harvard should still have sufficient classroom space in both schools. The per-student payments under the terms of the contract have been a welcome supplement to the schools' operating budget, and MassDevelopment pays an additional flat fee annually to defray capital expenses.

Harvard's contract with MassDevelopment expires in 2020 unless it automatically renews for another year. If the education contract is awarded to any other district in the future, Devens students already attending school in Harvard would be able to finish in Harvard, but other students would be subject to the new contract. The Devens families that live in Harvard do not have a say about where their children attend school. MassDevelopment determines how the district's students will be educated. Devens residents have consistently expressed in surveys a high level of satisfaction with the educational experience provided to their students. The decision of where the Devens children will ultimately attend school upon resolution of the jurisdiction question is a matter of great concern to families in Devens.

If Harvard resumes jurisdiction, Devens' school-aged children will most likely attend Harvard Public Schools. Based on financial analyses done to date, the anticipated additional tax base is expected to cover these additional education costs.

The potential need for additional classrooms may require future study if Harvard schools should again approach maximum capacity.

4. PARKS AND PLAYING FIELDS

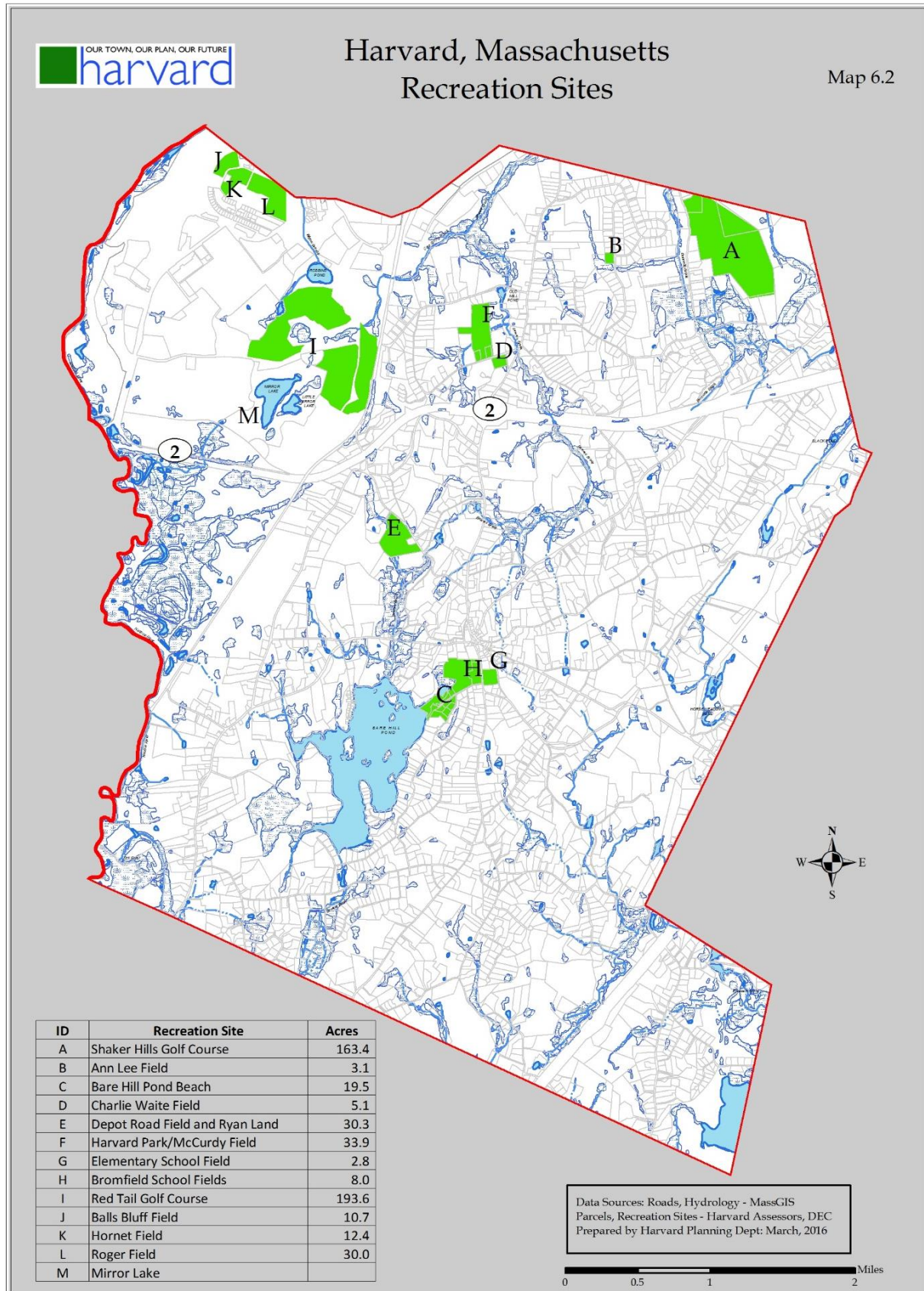
Harvard's public land holdings include about 230 acres that have been developed for active recreational use. The Park and Recreation Commission manages the use of these facilities.

- **Ann Lees Road Playing Field:** The Town owns and maintains a 3.1-acre park with soccer and softball fields at Ann Lees Road. The field has parking and a backstop.

- **Bare Hill Pond** is a year-round recreation resource, though summer (Memorial Day to Labor Day) is its peak season. Swimming, boating (including motor boats), skating, ice fishing, and ice hockey are the primary recreational uses of Bare Hill Pond, but passive activities such as bird watching are common, too. Non-motorized boating has increased in recent years while motorized boating has decreased. Harvard prohibits the launching of jet skis at the Town boat ramp.
- **The Bare Hill Pond Town Beach** consists of 19.5 acres of land along Pond Road, extending from Warren Avenue to the end of Pond Road. It includes a boat ramp, canoe racks, boat moorings, a recreational area, a swimming area with rafts, a bathhouse, and equipment storage. There is a bicycle path connection from the School Fields to the Town Beach. The Pond is home to the non-profit Bare Hill Rowing Association, which promotes participation in rowing programs for students and adults. Students from the Acton-Boxborough district have joined with Harvard students in the Bromfield/Acton – Boxborough (BAB) rowing program to offer competitive rowing at various skill levels for grades 8 – 12.
- **The Charlie Waite Field**, located on Lancaster County Road behind the Post Office, is a five-acre field used for youth soccer.
- **Depot Road Fields:** Upper and Lower Depot Field are used for multiple sporting activities including soccer and lacrosse. The field has also been used for cross country skiing, snow shoeing and snowmobiling in the winter time.
- **Harvard Park/McCurdy Field:** The Harvard Park/McCurdy Field site contains 34 acres and is a full-service recreation area with a track, playground, trails, playing fields, and restrooms. Fundraising to develop this facility was underway when the 2002 Master Plan was completed in 2002.
- **Ryan Land:** The Ryan Land consists of 30 acres next to the Depot Road Fields and the DPW. This facility has two soccer fields and two baseball diamonds.
- **School Grounds:** The playing fields at the schools total about eleven acres and include two softball fields, a baseball field, three soccer fields, four tennis courts, a basketball court, and a fitness course. Some of this land belongs to the Bromfield Trust, which allows the schools and the Town the use of it in exchange for its upkeep. This property abuts the Bare Hill Pond, the Town well, the Town cemetery, and reserve space for future school expansion.
- **Town Commons:** The Town Commons is a four-acre collection of three commons: the two-acre Main Common, the half-acre Civil War Common, and the 1.5-acre Little Common. The actual boundary of the Main Common includes the front yard of many of the houses around it. The Commons are used for town-wide events and informally by residents seeking passive recreation opportunities.

Two active recreational areas within Devens are of special note, and would require oversight in the event Harvard resumes jurisdiction: Rogers Field and Mirror Lake.

- **Rogers Field** is a large multi-use field complex within Devens that receives frequent use for athletic events such as lacrosse and soccer tournaments and instructional camps. Future development around the Field (e.g. Grant Road, Willard Heights, and Vicksburg Square) could limit some active recreational uses as competition for parking develops.



- **Mirror Lake** is a water recreation area somewhat similar to Bare Hill Pond, although its water use is under the control (as of 2015) of Mirror Lake Management, Inc. Such 3rd-Party management is an option for both ponds under a combined Harvard and Devens scenario. With Devens jurisdiction, Mirror Lake could increase recreational opportunities directly available to residents as well as provide recreational-based revenue for the Town. Devens Annual Reports estimate that 250,000 people visited Devens for active or passive recreation in FY 2010, and 300,000 in FY 2011.

5. MUNICIPAL BUILDING NEEDS

During the 10-year planning horizon of this document, the Town will face decisions for allocating tax dollars to make improvements to several of its municipal buildings. Table 7.1 below lists these projects, their relative cost, and expected timeline. (Transportation and public works-related projects are included in Chapter 8.) In the past, Harvard has not maintained its facilities as well as it should, but the recent decision to engage the services of a facilities manager should help to create a climate for better care of important assets. The project list below is in addition to normal maintenance activities, and once completed, the Town should keep on top of building needs to forestall major renovation expenses sooner than would otherwise be necessary.

Table 7.1 – Capital Facility Projects

Facility	Relative Cost	Time Frame
Hildreth House: Senior Center, Phase 1	\$\$\$	2016
Hildreth House: Senior Center, Phase 2	\$\$\$	2-4 years
Hapgood Library renovations	\$	1-3 years
Bromfield House renovation	\$\$	5-7 years
Hildreth Elementary School Study & Design	\$\$	1-2 years
Hildreth Elementary School Construction	\$\$\$	3-6 years
Develop New Water Source	\$\$\$	8 – 10 years
Develop Solar Farm at landfill in partnership with a private developer	\$	3-5 years
Prepare inventory of municipal infrastructure, including assessment of condition, life expectancy, and needed improvements	\$	2-3 years
Fire Station 1, new construction likely	\$\$\$	5-7 years
DPW Yard renovations	\$\$\$	5-7 years
Key: \$: < \$250,000; \$\$: \$250,000 - \$1,000,000; \$\$\$: > \$1,000,000		

6. TECHNOLOGY NEEDS

The pace at which communication systems are evolving is truly remarkable. Citizens today have immediate access to high-speed networks for phones and internet. Innovation produces new devices at a rapid clip and expands the range of capabilities available to citizens. Social networking did not exist when the previous Master Plan was underway, but today people with common interest can connect instantaneously and keep abreast of the latest developments. These changes have transformed the ability of local government to provide services to the public as well as for individuals to keep informed on the activities of Harvard's committees and departments.

It is imperative that Harvard's town government keep pace with advances in technology. The School Department is in the forefront of using technology to enhance learning both within and beyond classroom settings. The general government side of the Town, however, is lagging behind. It is true that municipal departments place information on the Town's web site that is of value to residents, and placing agendas and minutes on-line helps citizens stay abreast of town happenings. But more interactive platforms can enable citizens to conduct business with the Town without the need to come to Town Hall. Departments should continue to deliver services with greater efficiency by incorporating technological advances into their operating procedures. By the same token, however, decision makers for technology adoption and enablement need to be diligent in minimizing the risks of marginalizing those Harvard citizens who – whether by choice or by other circumstance – do not have access to these technologies.

The School Department has a Technology Director who manages and troubleshoots the myriad, and often discontinuous, computers and other Information Technology (IT) systems in the schools. The Director also doubles-up to work on the general government system on an as-needed basis. Under this arrangement, municipal services and departments are given short shrift when it comes to implementing new technology. The Town should consider hiring an Information Technology specialist as an employee or as a contractual service and allocate reasonable funding for computer-related improvements, for example, upgrading town hall software so all employees are on a common platform. The Town is moving in the direction of providing forms on-line and allowing digital applications for some permits. Adding on-line payments and other customer improvements will enhance the public's ability to interface with the Town for many services and minimize direct staff assistance. Developers should be able to submit plans digitally to reduce paper and printing costs, and local officials should be able to review and comment on permit applications over a network to better coordinate local approvals.

Most homes and businesses in Harvard rely upon the cable company, Charter Communications, for internet access. Having fast and dependable service is necessary for the many residents who operate businesses from their home. Complaints of poor service are common, and the Town's Community Cable Access Committee should negotiate for system upgrades to improve reliability. Fiber-optic lines now offer even greater speed and broadband capacity, and while expensive to install, offer promise to overcome existing limitations.

Similarly, cell service reception is spotty throughout Town. Cell towers provide excellent service along Route 2 and I-495, and near-by areas benefit. More remote locations, however, are not so fortunate. The ubiquity of cell phones and the amazing capabilities one holds in the palm of a hand requires that reliable service be available throughout Harvard. Wireless communications is critical for local emergency responders too, who may lose contact with headquarters, placing first

responders in jeopardy. To the extent feasible, Town departments should work with cell tower owners to place or upgrade municipal equipment. (The Zoning Bylaw allows this.) Areas lacking coverage should be mapped and owners of possible locations for stealth antennas (in barns, steeples, etc.) should be identified for a willingness to house necessary equipment.

Municipal departments hold a vast amount of data that is vital to running local government. Such data should be backed-up on a regular basis and stored in a secure off-site location. Harvard should have an Information Technology Disaster Recovery Plan that specifies the actions to prepare for a disaster in case systems go down and contains procedures to restore service to get town government back on its feet as quickly as possible. Computer room environment, hardware (networks, servers, and computers), connectivity (cable, wireless), software, and data form a complex system and restoring service must be carefully planned in advance to minimize downtime and avoid loss of data. The Town should also prepare and implement a cyber security plan, especially as more public monetary transactions are handled on-line.

Coordinated Planning is paramount. Because technologies tend to overlap in functionality and maintenance requirements, coordination of multiple needs and programs is essential to making the most of our investments and keeping costs under control. While it often seems most expedient for individual organizations to plan for and fund their own immediate needs – e.g., smartboards, monitors, iPads, and phone system in the schools; Internet and catalog terminals in the Library; Town Hall systems; NextDoor Harvard; emergency communication systems; committee agendas, meeting minutes, and streaming of proceedings; digital archiving of town records; surveys; and arguably the inevitable online voting – the creation of digital silos ultimately drives up cost and inefficiency, and may constrain digital community-building.

The state and federal governments have a role to play in setting standards and offering technical assistance. For example, the Lieutenant Governor instituted the Community Compact Cabinet in 2015 to engage communities in a supportive dialogue with the state. Each participating community selects 1-3 Best Practices and works on implementation over the course of two years. The state offers technical assistance to help implement the practice. There are a wide range of subjects which fall under the following general categories: Education, Energy and Environment, Financial Management, Housing and Economic Development, Information Technology, Regionalization/Shared Services, and Transportation/Safety. Harvard may benefit from technical assistance in the area of information technology and security to improve its efficiency in providing services and managing its data.

7. GOVERNANCE

Town Government

The desire for improvements in local government services and the need for more professional capacity collide at the budget table. The services residents want are often not what the Town can afford. There are many competing demands upon the tax levy, from the capital building needs discussed in a previous section to increases in staff to manage the ever-increasing workload of municipal departments. Administrative requirements have multiplied enormously in a vastly more complex world, and it has become difficult for volunteer boards and part-time staff to manage this complexity. Harvard has a proud history of volunteerism to provide the strategic direction to manage growth pressures while seeking to preserve Harvard's small-town look and feel. However, the evolution to more professional management need not occur at the expense of

local citizens ceding control.

Valid arguments can be made to consolidate committee functions into departments managed by professional staff. For example, many communities have a Community and Economic Development Department managed by a town planner and supported by additional staff as needed. Land use boards (Planning Board, Conservation Commission, Board of Appeals, and Board of Health) can be folded under the umbrella of such an entity, thereby improving communication among the boards and providing better service to the public in land use permitting. The Town Planner would also help implement this Master Plan and manage the Town's growth. A Conservation Agent could serve in this department to assist the Conservation Commission in its role of preserving wetlands and managing stewardship responsibilities of over 1,600 acres of conservation land. The Board of Health's agent from the Nashoba Associated Boards of Health could also be part of the staff of such a department. The Department of Public Works would benefit from a Town Engineer to design infrastructure upgrades and oversee construction, and in addition, assume the responsibility for building maintenance by hiring a Building Facility Manager to keep the town's expensive building assets in top condition. In addition, many departments that already have professional staff need more assistants to keep up with administrative routines.

The increased professionalization and reorganization of town staff and administrative functions leads to a broader discussion of the overall organization of town government. Clear reporting structures that strengthen accountability and transparency are important. Harvard should consider the administrative changes along with an examination of *how* it is organized. Adding certain positions helps to accomplish new goals and deliver better services, but it does not necessarily address the fragmented nature of government services and ease communication difficulties. Going forward, the Town should evaluate its overall organizational structure, decide how it should be reorganized, and codify the resulting reorganization. Adopting a Town Charter, as recommended in the 2002 Master Plan, would provide a vehicle for formalizing the process.

Regardless of the final disposition of Devens, to continue to function effectively and efficiently, Harvard must consider departmentalizing its boards and adding more professional staff. This would allow citizens serving on boards to spend more time on important matters such as setting policy, addressing larger issues beyond day to day management, and developing strategic, long term plans. As demands on citizens' time become more onerous, paid staff can help to relieve the burden of day-to-day coordination and administration. Setting priorities on staff hires will play out on the basis of cost and benefits to the Town and available resources to pay for the added expense. This does not mean that volunteers will lose control over governing the Town, but reflects the necessity for more professional management to provide volunteer board members with the analysis they need to make important decisions. Harvard has about 35 boards and committees and should evaluate options for consolidating functions in order to lessen communication challenges.

Governance of Devens

Resuming jurisdiction of Devens will most likely require additional changes to local governance, including opportunities to regionalize some services. Nearly every department may require additional staff. These could include police officers, fire fighters, DPW crew, financial and human resources professionals, economic development staff, building services inspectors, senior center workers, recreational programmers, and others. With an enormous tax base, the property taxes from Devens will be adequate to cover these costs. (See DEAT Report in Appendix 4.) Removing

the question of how to pay for the increased staff will allow the Town to make hiring decisions based on need. Harvard is capable of assuming management of Devens within the framework of its existing structure provided it is willing to build up its capacity for governing a large and complex community.

While the final decision ultimately rests with the State Legislature, there is no time like the present to begin transition planning. Under §23 of Chapter 498, by July 1, 2033 Ayer, Shirley, Harvard, and MassDevelopment must submit a report to the Governor and Legislature with a recommendation for a permanent government structure for the operation and administration of Devens. Thus, it is imperative that a disposition planning process be set in motion that involves the four entities. There are a vast array of questions that require attention by each town. These questions will be more readily resolved, and the parties will be able to reach acceptable outcomes through good faith negotiation if each party comes to the table with a clear understanding of its preferred outcome. If the communities cannot reach agreement, the Legislature will decide the disposition question. It is fortuitous that the three towns are all in the process of completing Master Plans. These documents provide an excellent beginning since they express the vision for their community and the Devens piece within each Town. Knowing what a community wants to accomplish in the planning horizon will help to shape discussions around mutually understood values.

During this planning process, it should be possible to transition services for Devens residents to their respective communities. For example, seniors residing at Devens are not able to participate in social services offered by Harvard's COA since local tax dollars fund the activities there, and Devens residents do not pay taxes to Harvard. However, it should be possible to negotiate with MassDevelopment a method of reimbursement for expenses that would allow Devens residents to be able participate alongside Harvard residents. The school contract is one model of how this might occur. Other areas of interest include recreation programs, historic preservation, land stewardship, inter-community trail planning, etc. As these areas become integrated into Harvard life, obstacles to reunification will slowly disappear.

An important matter to consider is the permitting of development at Devens. Chapter 498 set up a one-stop, expedited permitting process through the Devens Enterprise Commission (DEC). Many state economic development officials believe that the rapid build-out of Devens with high value companies is due to the professional approach and certain outcome of going through such a process. At the time of disposition, Devens may or may not be fully developed. If a substantial amount of development potential remains, it may make sense to allow the DEC to continue as Harvard's development arm or as a Devens-specific regional permitting entity. Large corporations may feel more comfortable working with DEC's professionals than local officials. Alternatively, the Town could incorporate the one-stop permitting approach into its permitting structure. In any case, it would be wise not to drastically change an approach that has successfully transformed a worn-out military base into an economic engine for the Commonwealth.

8. SUSTAINABILITY

The concept of Sustainability is an important theme of this Master Plan. The Vision Statement developed in Phase 1 (see also Chapter 1 of this document), specifically states that Harvard will

employ best practices for achieving long-term sustainability. As defined by the American Planning Association⁶⁵:

“Sustainability is the capability to equitably meet the vital human needs of the present without compromising the ability of future generations to meet their own needs by preserving and protecting the area's ecosystems and natural resources. The concept of sustainability describes a condition in which human use of natural resources, required for the continuation of life, is in balance with Nature's ability to replenish them.”

The Harvard Master Plan calls for the entire community to work together to research and implement practices that minimize loss of vital natural resources and encourage development techniques that preserve Harvard's essential character for future residents. Sustainability is a process, not an end-state. The recommendations in this Plan will require a participatory dialogue to modify existing policies and provide funding to enable the Town to grow in a responsible manner. While this Plan deals primarily with public policies, it is equally important for citizens to make lifestyle changes in concert with the growing world-wide realization that planet Earth is a fragile, inter-connected ecosystem.

The Town of Harvard should work to promote sustainability in the following areas:

■ Energy Independence

- Continue the work of the Energy Advisory Committee by implementing energy conservation measures and reducing use of fossil fuels in municipal buildings, facilities, and vehicles.
- Promote the use of solar, ground-source heat pumps and other renewable/alternative sources of energy on municipal and school properties.
- Reduce greenhouse gas emissions and strive for zero net energy for municipal operations.

■ Food Production

- Preserve prime farmland from development and support purchase of Agricultural Preservation Restrictions to help farmers keep their land in active production.
- Buy local produce and encourage area markets to carry locally grown and raised products to reduce energy use in long-distance transportation.
- Participate in state and regional agricultural promotion initiatives.

■ Community Facilities

- Hire a Facilities Manager and provide the resources to properly maintain capital equipment to extend the useful life of expensive town assets.
- Reuse existing buildings rather than opting for new construction to reduce the amount of raw materials.
- For new buildings, implement LEED principles.

⁶⁵ Policy Guide on Planning for Sustainability, APA, 2000, page 4.

- Make accessibility improvement in municipal buildings, facilities, and parks to provide equal access to services for disabled individuals.
- Promote greater recycling activity by residents.
- **Transportation**
 - Improve/construct accessible sidewalks in high pedestrian locations to stimulate walking to schools, shopping areas, churches, recreation areas, etc.
 - Enhance street shoulders and construct off-road paths for bicycle safety to encourage more trips by bicycle.
 - Implement road improvements to reduce congestion and vehicle idling.
 - Consider car-pooling to employment centers and shuttle services to rail stations to reduce single-occupancy vehicle travel.
 - Purchase energy efficiency vehicles and vehicles powered by renewable fuel sources when viable alternatives exist.
- **Land Use**
 - Promote more widespread use of open space development concepts to cluster buildings closer together and preserve resources on a site.
 - Encourage village-style development in the Commercial District that promotes a compact building arrangement, greater connectivity between adjacent lots, mixed uses, and high quality commercial development.
 - Diversify the Town's economic base to provide more goods and services in-town to reduce the number of trips out-of-town.
 - Allow infill development in areas of existing services and infrastructure.
- **Open Space and Natural Resources**
 - Continue open space preservation efforts and preserve lands with high ecological values.
 - Continue efforts to eradicate invasive species, restore lands with natural species, and create a diversity of habitats.
 - Reduce erosion and abate pollution from stormwater runoff through best management practices.
 - Where resources cross town lines or are regional in scope, work with other affected communities on preservation.
 - Manage conservation properties to restore degraded wetlands, maintain a diversity of habitats for wildlife, and minimize danger of wildfires.
 - Preserve ground and surface water quality through proper septic system maintenance and reduction of lawn chemicals.
 - Connect conservation lands via an integrated trail network.

■ Housing

- Diversify the housing stock to provide alternatives for households of all incomes and abilities.
- Offer incentives to encourage the provision of affordable housing.
- Consider higher density housing in areas with available infrastructure capacity and commercial services.
- Create green spaces within new development to promote greater social interaction and inter-generational activities.

CHAPTER 8

CIRCULATION & TRAFFIC

Harvard's transportation system supports safe and efficient movement of people and goods locally and throughout the region. The local road network has a crucial role to play in addressing Harvard's Master Plan goals, especially for the Town Center, the C District on Ayer Road, and Devens. It is a challenge for Harvard's roads to meet the competing demands placed on them. Scenic roadsides abound in Harvard and they are an indelible part of the Town's rural appearance. Harvard has an impressive network of conservation trails, too. However, traffic growth and the absence of sidewalks or walking paths have created an increasingly unsafe environment for local drivers, walkers, and bicyclists.

The most significant circulation and traffic issue related to the possibility of resuming jurisdiction of Devens is the lack of a direct road connection. While roads once ran between Fort Devens and what is now Residential Harvard, their permanent closure by the U.S. Army during Fort Devens' active period effectively sealed the Harvard portion of the Fort's boundary from vehicular traffic. No roads were specified for re-establishment as part of the 1994 Reuse Plan (which opted instead for a Gateway approach, using Jackson and Verbeck Gates) and as a result, no roads have been re-established during Devens' redevelopment.

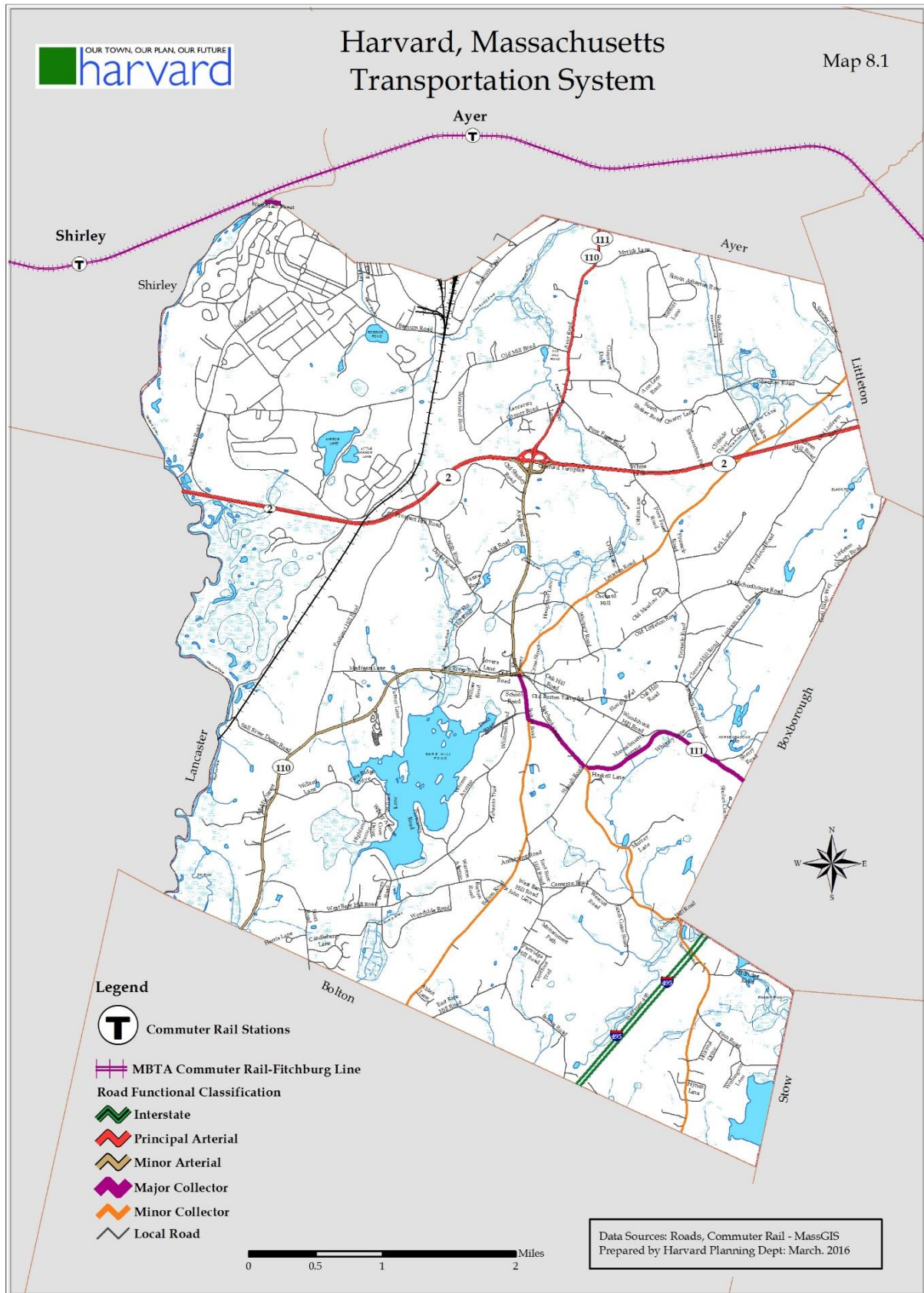
Roadway re-establishment would have some benefits to the Town. Among these would be shorter travel time and distance and fostering of a "one Harvard" community identity. As part of any road re-establishment efforts, provisions could also be included for expansion/connection of public utilities along identified route(s). Such "co-locating" could potentially assist in minimizing costs and impacts of utility expansion/connection in the future.

1. ROAD NETWORK

Overview

Regional Highways: Two major highways, Route 2 and Interstate 495, serve Harvard and connect it with the surrounding regional road network. As shown in Map 8.1, Route 2 runs in an east-west direction across the entire northern section of town and provides interchange access (No. 38) at Routes 110/111 (Ayer Road). A second interchange (No. 37) on the western edge of town connects with the main access road (Jackson Road) into Devens. Route 2 is a four-lane, limited access, divided highway with cloverleaf interchanges controlled by stop signs. It provides a major connection for Harvard to the west toward the Leominster-Fitchburg area and to the east toward I-495/Route 128 and the Greater Boston area. East of the Ayer Road interchange, Route 2 carries approximately 49,000 vehicles per day (2014). Interchange 38 has a high crash rate due to substandard acceleration and deceleration lanes and traffic merges with exiting Route 2 traffic onto Ayer Road. MassDOT plans a major upgrade of Interchange 38, which includes changes to the cloverleaf to lengthen ramps for safer access.

I-495 crosses Harvard's southeastern corner and is a less prominent highway within Harvard compared with Route 2. Although there are no I-495 interchanges inside Harvard, there is one along Route 111 just east of the Town line in Boxborough. I-495 supplies regional access to all points in eastern Massachusetts and the Massachusetts Turnpike. In the vicinity of the Route 111 interchange, I-495 carries an average of 88,000 vehicles per day (2014). Approximately 13,000 vehicles per day travel on Mass. Ave. east of the I-495/Rt. 111 interchange in Boxborough, and approximately 4,800 vehicles travel westerly of the interchange in Harvard (2014).



Major Roads: Three major roadways carry most of the local and through traffic in Harvard and provide connections to the region's highway network. They include Route 110 from Bolton north into Harvard Center, Route 111 east from Harvard Center out to I-495, and Routes 110-111 north from Harvard Center to the Route 2 rotary in Ayer. These roads are about twenty-six to thirty feet wide, with appropriate pavement striping that includes double yellow centerlines and edge lines, and are generally less steep than many of Harvard's rural roads.

Harvard Town Center is clearly the focal point of local traffic flows, as shown in Map 8.1. Several routes converge at or near the center of town, including (clockwise from the north) Ayer Road, Littleton Road, Old Littleton Road, Oak Hill Road, Fairbank Street, Massachusetts Avenue, Stow Road, Bolton Road, Pond Road/Warren Avenue/West Bare Hill Road, Still River Road, and

Depot Road. However, Ayer Road is by far the busiest road in Harvard. It carries more vehicles on the segment between Route 2 and the Ayer town line (approximately 13,000) than south of Route 2 (approximately 6,200). Traffic volumes on other major roads are shown in Table 8.1.

Other Roads: A number of minor roads provide connections through portions of Harvard, including Prospect Hill Road/Old Shirley Road, Oak Hill/Woodchuck Hill Road, West Bare Hill Road, Bolton Road, and Littleton County Road. Many of these roads have intermittent pavement markings and limited signage. Most carry daily traffic volumes of less than 1,000 vehicles per day, and some less than 500 vehicles per day. They channel traffic that is primarily local, i.e., from points within Harvard and by people who live along them. As a group, these roads do not provide a cut-through route for longer distance trips through town. Roads with traffic volumes over 1,000 are shown in Table 8.1 and the change in traffic volumes on state numbered routes is shown on Map 8.2.

Connectivity to Devens: No roads have been re-established during Devens' redevelopment since 1994. The result is a necessity to pass through either Ayer or Lancaster to travel between Harvard and Devens, which is at least undesirable from a community connectivity standpoint. Re-establishing any former through-roads would present challenges. Among these are potential environmental impacts, environmental permitting, cost, land rights (if former roads have reverted to private ownership), and impacts to landowners and/or neighborhoods within both Devens and Residential Harvard. A feasibility and traffic simulation study would be needed to properly explore any road re-establishment options.

Table 8.1 – Average Daily Traffic on Highways and Major Roads

Road	Vehicles	Location	Year
Interstate 495	88,000	South of Route 111 (Boxborough)	2014
Route 2	49,000	Littleton town line	2014
Ayer Road (Routes 110/111)	6,700	South of Route 2	2014
Ayer Road (Routes 110/111)	13,650	North of Route 2	2014
Massachusetts Avenue (Route 111)	2,800	East of Bolton Road	2014
Still River Road (Route 110)	2,500	Bolton town line	2012
Bolton Road	1,650	South of Route 111	2014
Littleton County Road	1,000	North of Route 111	2012
Poor Farm Road	1,200	East of Ayer Road	2014
Source: MassDOT Highway Division			

Functional Classification

Transportation planners group roads and highways into classes or types that reflect a road's intended service. The key characteristic defining roadway classification is the degree to which a roadway emphasizes movement through an area versus local access. The five major classifications of roads are Freeway/Expressway, Principal Arterial, Minor Arterial, Collector, and Local. These classifications can be subdivided further to acknowledge the varying degrees that a road facilitates travel mobility or local access. For example, local roads provide a greater proportion of direct access to property, while collectors and arterials provide a greater proportion of travel mobility.

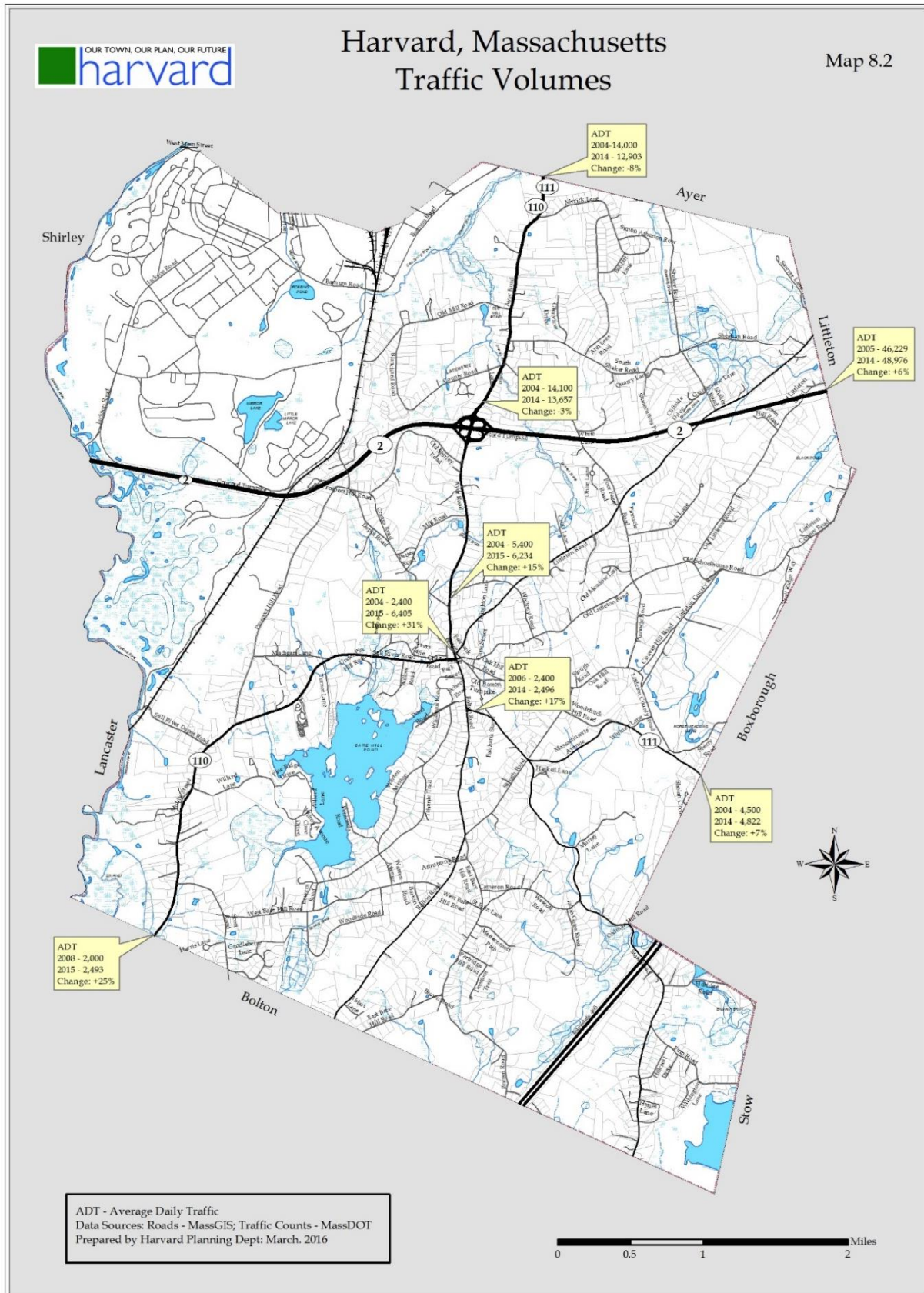


Table 8.2 – Roadway Miles by Functional Classification

Roadway Classification	Miles
Interstate	2.9
Arterial – Principal	13.5
Arterial – Minor	5.9
Collector – Major	2.4
Collector – Minor	9.3
Local	63.8
Source: Mass. Department of Transportation.	

Map 8.1 shows the functional classification of roads and highways in Harvard according to data from MassDOT, while Table 8.2 summarizes the total number of road (centerline) miles in Harvard by DOT's classification system. The specific classification of the arterials and significant collectors in Harvard can be found in Table 8.3 below. Several roads in Harvard fall under state jurisdiction (MassDOT), including Route 2 and its ramps, Route 111 (Massachusetts Avenue) from the Boxborough town line to Still River Road/Old Littleton Road, and Littleton Road from Route 2.

The primary function of each type of road in Harvard is as follows:

- **Arterial (Principal and Minor):** The arterial street functions primarily to carry large volumes of traffic through the community. These facilities provide access between the interstate and other highways, and residential and commercial areas in the community via connections to local collector roads. There are 13.5 miles of streets classified as principal arterials (including Route 2 and Ayer Road north of Rt. 2, and 5.9 miles of streets classified as rural minor arterials in Harvard (including Ayer Road south of Route 2 and Still River Road).
- **Collector (Major and Minor):** The collector street functions primarily to carry traffic from local residential roads to arterial roads. Collector streets pass through residential areas both collecting and distributing traffic from local streets. There are approximately 2.4 miles of streets classified as rural major collectors (Massachusetts Avenue) and 9.3 miles of streets classified as rural minor collectors in Harvard (Littleton Road, Bolton Road, and Stow Road). (Note: The terms 'rural' and 'urban' refer to how the Census Bureau defines an area based on density and not to its roadway characteristics.)
- **Local:** Local roads comprise the remainder of streets in Harvard. Local roads primarily provide direct access to property. The local roads also serve to carry traffic to and from the collectors and arterials. There are approximately 63.8 miles of streets classified as local in Harvard.

Table 8.3 – MassDOT Functional Classification of Roadways

Road	MassDOT Classification	Jurisdiction
Interstate 495	Interstate	MassDOT
Route 2 and ramps	Principal Arterial	MassDOT
Ayer Road (Routes 110/111) – north of Route 2	Principal Arterial	Town
Ayer Road (Routes 110/111) – south of Route 2	Rural Minor Arterial	Town
Still River Road (Route 110)	Rural Minor Arterial	Town
Massachusetts Avenue (Route 111)	Rural Major Collector	MassDOT
Littleton Road	Rural Minor Collector	Town ¹
Stow Road	Rural Minor Collector	Town
Source: MassDOT Highway Division		
1. A small stretch of Littleton Road is under MassDOT jurisdiction.		

Funding Considerations

Some roads are eligible for federal funding for reconstruction projects, based on the road's designation under either the National Highway System (NHS) or Surface Transportation Program (STP). In Harvard, Route 2 and Ayer Road (Route 110) north of Route 2 are part of the NHS. All rural arterials and rural major collectors not on the NHS are eligible for STP funding, which applies to Ayer Road south of Route 2, Still River Road, and Massachusetts Avenue. Rural minor collectors (Littleton Road and Stow Road) are eligible for limited STP funding (capped at 15 percent). MassDOT distributes federal highway funding that it receives between "regional target funding" allocated by the metropolitan planning organizations (MPOs) for regional priority projects that are eligible for federal aid, and funding that is allocated by MassDOT for application to the state-owned transportation system.⁶⁶

Scenic Roads

In Harvard, roads play an integral part in shaping and reinforcing the Town's visual character. With an eye toward preventing the gradual suburbanization of Harvard's roadsides, the Town has placed nearly all of its local streets under the protective cover of the Massachusetts Scenic Roads Act. The high scenic value of these roads reflects the Town's historic past, and they still retain a winding, rural character. Most roads in Harvard are relatively narrow, lined with trees, stonewalls, farm fences, open fields, and increasingly, with homes. As these rural byways form corridors through the countryside, they generally conform to the contours of the land and provide access to important view sheds that residents seek to preserve. However, while near-universal application of the Scenic Road designation may help to preserve the character of Harvard's roads,

⁶⁶ Massachusetts Department of Transportation (MassDOT. Office of Transportation Planning, www.massdot.state.ma.us/planning)

it can make it very difficult to implement safety and capacity improvements. Residents are generally content with this trade-off, preferring narrower roads with slower speeds over wider roads with higher capacity.

Harvard's Scenic Roads By-law, Chapter 90 of the Town code, covers the cutting or removal of trees, and the tearing down, destruction, or alteration of stone walls or portions of stone walls within the right-of-way of designated scenic roads. Written consent from the Planning Board, following a public hearing, is required for any such actions. The Planning Board considers, among other things, public safety, scenic views, preservation of historic and regional characteristics, and preservation and enhancement of natural and aesthetic qualities of the environment. As part of the Scenic Road Consent application, the applicant must identify any compensatory action or mitigation measures to the proposed cutting or trimming of trees or the tearing down or destruction of stone walls. The Planning Board will typically grant consent only when stone wall removal is beneficial and with the approval of the Tree Warden. (See Chapter 6 for additional information about scenic roads.) To insure compliance with the process, the Town should consider an enforcement mechanism that will discourage disregard of the regulations.

Truck Routes

Along with Interstate 495 and Route 2, Massachusetts Avenue (Route 111), Ayer Road (Routes 110, 111) and Littleton Road are designated truck routes, but Still River Road (Route 110) is not. This means that large trucks as defined by the Surface Transportation Assistance Act (STAA) are allowed to operate on them. This includes truck and semi-trailer combinations, sometimes referred to as 18-wheelers, with semi-trailer length up to 53 feet. Massachusetts Avenue is narrow and steep in parts, and is difficult for trucks to navigate in winter conditions. There are no existing truck exclusions on roads in Harvard. To help mitigate negative impacts of trucks while ensuring the continued delivery of goods and services, the Town should explore establishing bans on truck traffic on selected local residential streets, with permission from the MassDOT Highway Division.

Devens, with a high concentration of manufacturing and research operations, is a significant generator of truck traffic. MassDevelopment has instituted a policy that designates Jackson Gate at the Route 2 interchange as the preferred route for truck traffic oriented to Devens. Nevertheless, not all drivers adhere to the policy and anecdotal reports from residents indicate large trucks use Ayer Road as a short cut to Interchange 38 at Route 2. Ayer Road is a designated truck route, and, truckers cannot be prohibited from using it. MassDevelopment's cooperation, on-road signage of the policy, and local police presence can all contribute to managing the problem.

Travel Patterns

Outside of Harvard Center, traffic is not concentrated along any single corridor except Ayer Road through the C District north of Route 2. Here, Ayer Road absorbs a high volume of non-local trips associated with local businesses and traffic oriented toward Route 2A and the eastern portion of Devens. While the easterly part of Route 111 generally parallels Route 2 and Route 117, it carries a significantly lower volume of traffic even during commuting periods.

Several other roadways or combinations thereof provide links within Harvard and between Harvard and adjacent towns. Their rural character and the low-density land uses that surround them argue for standards of shoulder maintenance, signage, and striping that differ from what is appropriate for the Town's more traveled roadways. Though wide enough to accommodate pedestrians, bicyclists, and equestrians, many of the roads that intersect or converge with the

more prominent “spokes of the wheel” lack sidewalks or bike paths, and in many places their shoulders are constrained. Posted travel speeds along these secondary roads are low due to their narrow, curvy routes, and slower speeds are advisable due to frequent chance encounters with bicyclists, who enjoy cycling on Harvard’s scenic roads. Nevertheless, many of Harvard’s roadways experience speeds that are much higher than the posted limits. Traffic calming measures may be necessary to provide cues to drivers to slow down for safety of pedestrians, bicyclists, and vehicles exiting local driveways.

A noteworthy feature of the secondary roads between Harvard and adjacent towns is that in most cases, there are no distinctly different or contrasting land uses at the Town line. The transition between Harvard and Boxborough, dominated by a highway interchange and corporate parks, is an obvious exception.

Table 8.4 shows the modes of travel to work for Harvard residents and changes that have occurred since the 2000 Census. The proportion of workers who drove alone has decreased but still accounts for the vast majority of commute trips. Meanwhile, the proportion of residents who work at home increased to about 14 percent of all workers. This is fairly common among affluent communities with a labor force of professionals whose occupations have benefited from the rapid evolution of information technology. For those who commute to work, residents are dependent upon automobiles as the lack of public transit service and low employment base make alternative modes of travel impractical for most.

Table 8.4 – Commute to Work (2000-2012)

	Total	Percent	Change from 2000
Workers 16 years or older	2,503	100%	-9.0%
Drove alone	1,932	77.2%	-6.9%
Carpooled	103	4.1%	0.0%
Public transportation	41	1.6%	-1.6%
Walked	37	1.5%	+0.3%
Other means	34	1.4%	+0.2%
Worked at home	356	14.2%	+7.9%
Mean travel time to work	32 minutes	n/a	no change
Source: U.S. 2000 Census and American Community Survey 5-Year Estimates (2008-2012). Note: data reported here include residents of Harvard and Devens.			

Except for a brief subdivision boom in the post WW II era, the lack of conventional subdivisions is a distinguishing feature of Harvard’s road system. Unlike many neighboring towns, Harvard does not have large subdivisions with interconnecting street grids or multiple access points along one street. The Town’s development history, the physical constraints of soil, wetlands and water

features, and the regulations of the local boards help to explain the limited number of conventional subdivisions and the neighborhood street patterns they produce. Rather, it seems that most residents of Harvard live along through-roads. As a result, virtually every street in town serves at least two purposes: through streets for vehicles, and pedestrian/bicycle routes for local residents. However, the streets are not really designed for multi-modal use, and conflicts between vehicles and pedestrians/bicyclists are not uncommon.

Traffic Operations

Harvard residents perceive speeding as the primary traffic safety issue in their community. However, speed studies conducted by the Police Department generally confirm that most motorists obey posted speed limits. Speed limits are set based upon the 85th percentile of observed speeds determined by a traffic engineering study. Counter-intuitively, speed limits may need to be increased if the study shows the 85th percentile speed is actually higher than the posted speed limit. One contributing factor to the perception of excessive speeding is linked to the inadequate shoulder widths on rural roads, which creates uneasiness for pedestrians and bicyclists when passed by vehicles.

Road widening to expand travel lanes and add shoulders, while helpful to pedestrians and bicyclists, will not slow traffic since drivers typically increase speed when impediments disappear. One appropriate alternative is traffic calming. New research has documented the lowering of travel speeds when carefully designed measures are put in place that provide visual and physical cues to drivers that they are entering an area where slower speeds are advisable. Traffic calming involves geometric changes in street alignment and other physical measures to slow down traffic in the interests of safety and livability. Such measures can be implemented in school zones and village areas like Still River, where Route 110 suddenly enters an area of higher density, pedestrian activity, and houses near the road. Examples of traffic calming include:

- Curb extensions/bump outs/neck-downs;
- Narrowed travel lanes and widened shoulders with potential for bike-accommodating shoulders or lanes;
- Raised crosswalks/ speed humps/ raised intersections;
- Adding street trees and other vertical elements that appear to narrow the road; and
- Mini-roundabouts.

Where traffic calming may be a solution to speeding traffic, it is important to reach out to the affected neighborhood to discuss options, listen to concerns, and obtain support for specific measures. Public safety officials should also weigh-in to assure emergency vehicles can navigate the roadway without losing valuable response time. Each location requires an analysis of possible techniques, careful design to standards, and roadway signage for pedestrian safety.



Raised Intersection



Curb Extension

2. AYER ROAD COMMERCIAL CORRIDOR

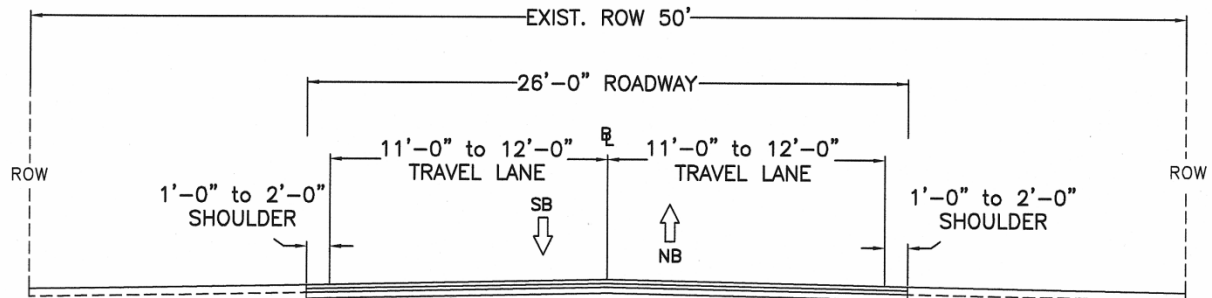
In 2007, CDM Smith studied the Ayer Road commercial corridor and outlined three alternatives for improvements.⁶⁷ All three alternatives included access management, traffic calming, and bicycle and pedestrian enhancements along the corridor, as follows:

- **Alternative 1** would slightly widen Ayer Road to provide one 11-foot travel lane with 4-foot shoulders in each direction (30 feet of pavement). In addition, a 4-foot grass buffer and 6-foot footpath would be provided on either side. This alternative would accommodate pedestrians and bicyclists throughout the corridor and without requiring corridor-wide land takings. The installation of left-turn lanes at appropriate locations could be considered with this alternative, but they will require land takings.
- **Alternative 2** would widen Ayer Road to provide a two-way left turn lane throughout the corridor. The left-turn lane would be converted to an exclusive left-turn lane for both northbound and southbound approaches at intersections and potential future development locations (based upon individual traffic studies). Again, the alternative included a provision of a 4-foot shoulder, 3-foot grass buffer and 6-foot footpath on each side. While this alternative would provide equal access to all parcels and remove left-turn lanes from the traffic flow, it requires land takings in order to widen the layout of Ayer Road to 60 feet.
- **Alternative 3** would involve the installation of a median island throughout the corridor. This alternative also includes an 11-foot travel lane and 4-foot shoulder on either side with a 3-foot grass buffer and 6-foot footpath. While left-turn lanes may be provided at the intersections, this alternative would promote roundabouts at each of the intersections. Alternative 3 would also require land takings, as the proposed layout would be 60 feet along the corridor and larger widths to accommodate the roundabouts.

The study recommended the Alternative 1 concept plan due to the extensive right-of-way takings that Alternatives 2 and 3 would require. Figures 8.1 and 8.2 compare the existing layout of Ayer Road with the recommended Alternative 1. The Plan calls for two 11-foot travel lanes and two 4-

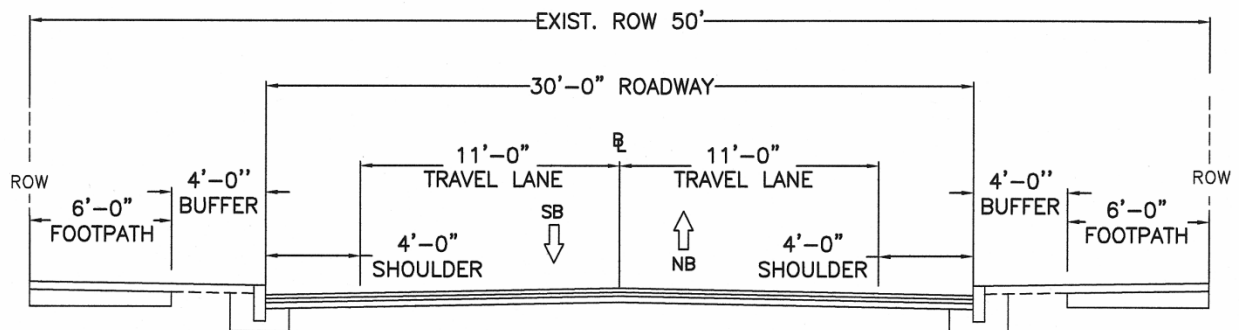
⁶⁷ Ayer Road Functional Design Report. CDM (May 2008).

Figure 8-1 - Cross Section of Ayer Road - Existing⁶⁸



TYPICAL SECTION – AYER ROAD
EXISTING LAYOUT – 50 FEET

Figure 8.2 - Cross Section of Ayer Road - Recommended Alternative 1



ALTERNATIVE 1 TYPICAL SECTION – AYER ROAD
LAYOUT – 50 FEET

⁶⁸ Source: Ayer Road Functional Design Report, CDM, 2008

foot shoulders for a total of 30 feet of pavement. The shoulders will separate bicyclists from oncoming traffic and make riding safer and more enjoyable. Adjacent to the road a 4-foot grass buffer will provide space for trees and lawns to minimize the stark, paved appearance that exists today. Adjacent to the buffer a 6-foot wide sidewalk or path will encourage pedestrian use and promote connectivity among the various businesses in the corridor as well as providing links to neighborhoods and the local trail system. Harvard has taken no action on this Plan since its completion in 2008, but its analysis and recommendations remain valid today.

As a first step, Harvard is investigating intersection alignment improvements in the vicinity of Poor Farm Road, Lancaster County Road, and Gebo Lane. Vehicles exiting Poor Farm Road in peak hours have difficulty finding breaks in Ayer Road traffic to safely enter the flow. A second major concern in this vicinity is the heavy turning movement by the Dunkin Donuts driveway, which is exacerbated by the close proximity to the Route 2 interchange and merging traffic from two lanes to one. Physical separation via raised medians, or perhaps a roundabout, may eventually be necessary to accommodate turning vehicles in both directions.

As traffic growth continues to rise with commercial development in the corridor, other troublesome intersections will no doubt require attention. Harvard should strongly consider placing a corridor-long improvement project on the Transportation Improvement Program (TIP). The TIP is a multi-year list of improvements compiled by MRPC. (MRPC is the Metropolitan Planning Organization (MPO) for the Region.) The TIP is the principal mechanism for prioritizing transportation and transit projects throughout the Region in order to receive scarce state and federal transportation dollars. Ayer Road, as a principal arterial, is a federal-aid eligible road. The first step is to submit a Project Initiation Form (PIF), which broadly outlines the problem and documents community support. An initial review by MassDOT will indicate whether the project is suitable for inclusion on the TIP. If so, Harvard is responsible for completing the design in accordance with MassDOT criteria and acquiring land for any right-of-way expansion. State and federal funds pay for all construction costs. The process may take 8 – 10 years, but the ultimate reward is a functional, safe, and attractive road that will be conducive to fostering new economic growth.

While undertaking project design, the Town should consider public realm improvements similar to the Town Center Action Plan of 2005. These should include aesthetic improvements and multi-modal aspects of accommodating pedestrians and bicyclist. In addition, placing overhead utility lines in underground conduits will yield a vast improvement in appearance. Holden, Massachusetts buried the utility lines along its commercial corridor, Route 122A, and the resulting improvement was striking indeed.

Concerns with traffic along Ayer Road have at least some linkage to Devens, especially related to truck traffic. This issue is further aggravated by the lack of direct Harvard-Devens road connections, as discussed above. The 1994 Reuse Plan noted that “several measures [would] be considered to reduce potential truck impacts on local roadways and to downtown Ayer and Route 110/111 in Harvard. These include[d] encouraging truck traffic to use Route 2 by providing easy access through improvements to Barnum and Patton Roads.” Further, “monitoring [would] be performed to assess impacts of these trucks on local streets. Additional measures such as truck restrictions at Barnum Gate [would] be considered if truck impacts on local streets require further mitigation. All new users with significant truck use at Devens [would] be required to file truck routing plans and permits may be issued stipulating truck routes.”

Several studies have documented safety and congestion concerns related to truck traffic on Ayer Road. It would be helpful to prepare a summary document to identify potential strategies to discourage but not necessarily prohibit truck traffic on Ayer Road. The Selectmen could consider additional mitigation from MassDevelopment and/or MassDOT, particularly with regard to the current policy of routing truck traffic oriented to Devens to the Jackson Road interchange.

3. SAFETY

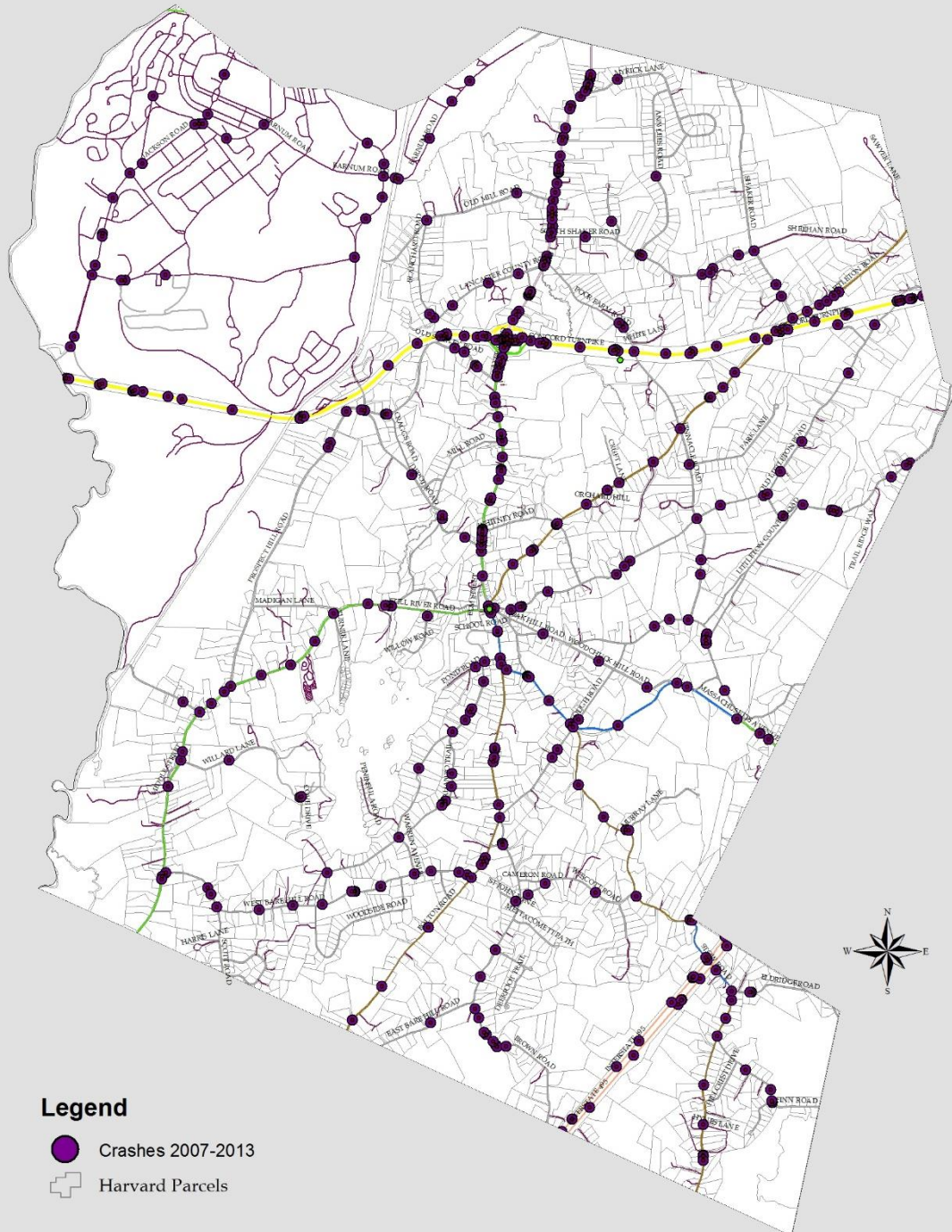
MassDOT provides crash statistics for all communities in the State. The Harvard reports show a range between 104 and 178 crashes per year town-wide. Spikes in annual accidents appear to coincide with extreme winters, when road conditions deteriorate. Two locations in Harvard appear on the MRPC list of “most dangerous intersections.” The intersection of Route 2 (Exit 38) and Ayer Road (Routes 110/111) ranks No. 2 on the list while the intersection of Ayer Road, Poor Farm Road, and Lancaster County Road ranks No. 89 (see Map 8.2). MRPC has designated both locations for further study to evaluate safety issues. While the Route 2 interchange is a MassDOT responsibility, the Poor Farm Road/Ayer Road/Lancaster County Road has become a greater congestion and safety problem in recent years. Harvard is exploring alternatives for this intersection, including constructing a roundabout or making other geometric improvements. Initial assessments indicate that sight lines for Ayer Road northbound may be impaired by a moderate rise in the roadway. There are no locations in Harvard on MassDOT’s list of Top 200 Crash Locations, however. Map 8.3 displays crash locations in Harvard between 2007 and 2013 where police reports provide specific coordinates.

A contributing factor for many crashes in Harvard is driver impatience, e.g., when a driver takes unnecessary risk entering an intersection due to perceived delay caused by congestion. The Police Department periodically performs stop sign enforcement at selected locations. The Department of Public Works (DPW) and Police Department cooperate to ensure trees and brush are cleared from roadsides to ensure visibility and prevent encroachment of vegetation into the roadway.



Harvard, Massachusetts Crash Locations: 2007-2013

Map 8.3



Data Sources: Parcels-Harvard Assessors
Crash Data: Mass. Registry of Motor Vehicles
Prepared by Harvard Planning Dept: Dec. 2015

0 1 2 Miles

4. PUBLIC TRANSPORTATION

Harvard is one of twenty-two communities that participate in the Montachusett Regional Transit Authority (MART). There is no existing fixed-route transit service in Harvard. The residential density is too low and destinations within Harvard are generally too dispersed to support conventional fixed-route service. However, MART does provide Council-on-Aging (COA) paratransit service for elderly and disabled residents within Harvard. Scheduling is administered locally by Harvard's COA office.

Public transportation options exist just outside Harvard's borders (see Map 8.1). The MBTA's Fitchburg Commuter Rail Line runs through Littleton and Ayer along Harvard's eastern and northern edges, with stations in Ayer's town center and Littleton at Route 2 and Interstate 495. The Fitchburg Line provides service seven days/week between Fitchburg Station and Boston North Station (the Fitchburg Line also serves Porter Station in Cambridge, with a direct connection to the MBTA's Red Line subway). As of spring 2014, the MBTA provides five weekday peak period trips in each direction (thirteen total trips per weekday in each direction).

Ayer Station has limited free parking available (30 spaces). Littleton/495 Station has 194 total parking spaces for daily and monthly parkers. Parking rates as of spring 2014 are \$4/day and \$70/month. Because of the limited parking at these locations, Harvard should explore a shuttle service timed to the train schedule for residents who work in the metro area. It may be possible to find convenient parking at a business property in the C district, where commuters could leave their cars for their daily commute. MART can assist the Town in the planning and execution of such a system. The transit assessment Harvard currently pays can be applied to help offset the cost of the service.

5. PEDESTRIAN NETWORK

There are very limited sidewalks within Harvard, and roadway shoulders in many cases are constrained and not adequate for pedestrians. Due to the dispersed nature of development and inadequate pedestrian facilities, walking on roads in Harvard is difficult. However, the Phase I survey and a follow-up survey for Phase II revealed that there is a desire for a more walkable Harvard. When asked if Harvard should make pedestrian and bicycle safety improvements in the Town Center, 74 percent of respondents agreed compared with 15 percent that disagreed. (See question 43 in the survey appendix.)

The Town Center, which features many Town public buildings, the Bromfield School, and the Elementary School, provides an opportunity to create a more walkable downtown. Currently the layout of these buildings and their parking generally impede pedestrian travel between buildings, since they are spaced too far apart to make walking realistic. The pedestrian paths are lacking, poorly defined, or otherwise uninviting. Ideally, parking areas could be somewhat centrally located and within reasonable walking distance of most destinations (five to ten minute walk or ¼ to ½-mile). The long distances and the lack of an adequate pedestrian environment, like safe walking surface, lighting, and wayfinding signage, impede pedestrian travel. In the 2014 survey for this Master Plan, 48 percent of participants wanted the Town to create a comprehensive downtown parking and walking plan compared with 17 percent that disagreed. (See question 38 in the survey appendix.)

In its rather large holdings of federal, state and local conservation land, numerous hiking trails provide opportunities for residents to enjoy Harvard's outdoor resources. In 2013 MRPC created an inventory of trails in Harvard. Including Devens there are about 70 miles of trails in the inventory. There will undoubtedly be opportunities to acquire additional conservation lands over time, and one objective should be to develop new trails that will connect sites to create longer distance trails and provide links to villages and points of interest in town. It may eventually be possible to create a circumferential trail around Harvard with spokes radiating to popular destinations.

In 2010 the School Department sponsored a "Safe Routes to School" study due to concern with the safety of students walking to and from schools and to destinations within the Town Center. This statewide program aims to promote the health and mobility of school-aged children while reducing congestion and air pollution from driving to school when near-by students could walk just as easily. The lack of sidewalks and off-road paths to the ballfields, Library and General Store often places students on street sides with little separation from on-coming traffic. Posted travel speed on Mass. Ave. north of the Elementary School is 20 mph, yet over 30% of vehicles exceeded 25 mph during normal school hours. The report recommended a number of measures to improve student safety:

1. Install and maintain sidewalks along all major routes.
2. Install crosswalks and ramps for students to cross at all major intersections.
3. Monitor and enforce speed limits.
4. Place warning signs in the Town Center to alert drivers of high pedestrian activity.
5. Continue to participate in the Safe Routes to School program, which qualifies the Town for engineering funds for physical improvements.

Landscaping and other aesthetic improvements could further enhance the pedestrian environment and encourage people to walk between parking areas and their destinations. The Harvard Town Center Action Plan (2005) described residents' concerns regarding pedestrian safety. The intersection of Ayer Road and Still River Road, the heart of the Town Center, has poorly defined curb edges, unclear stop lines, and poorly defined crosswalks. The existing four-way flashing red light and Stop signs may not be adequate traffic control for vehicles and pedestrians.

MRPC re-visited the Town Center traffic situation in 2015-2016 with an eye to developing a consensus circulation plan for the area. Important findings and recommendations of the study include:

1. Emphasize pedestrian circulation over traffic improvements. It is more important to make the village pedestrian friendly than to make it easy for vehicles to traverse the Center.
2. Add new sidewalks and paths to create a continuous network for pedestrian safety. Prioritize walking vectors used by school students to eliminate conflicts with automobiles.
3. Re-configure the circulation system in the municipal campus of the Town Hall - Fire-Station - Hildreth House area to clarify travel routes, improve access to Ayer Road, and organize parking in a logical fashion.

4. Make parking improvements in the area to accommodate average day demand. It is not necessary to accommodate peak day needs for community festivals and events. Improve the North Parking Lot by Bromfield (scheduled for 2016).
5. Calm traffic on Mass. Avenue by the schools.
6. Improve the right-of-way at the center intersection by installing curbing where appropriate, re-configuring crosswalks, adding pedestrian safety measures at street crossings, and reducing pavement width where feasible.
7. Improve the parking lot by the General Store (the lot is town property) and work with the Congregational Church on a traffic flow pattern that will reduce conflicts between through traffic and General Store parking traffic.

Another area in need of pedestrian improvements is the Commercial District along Ayer Road. Sidewalks are non-existent in most locations, and few visitors are willing to risk the hazard of walking along the highway with high traffic volumes and fast speeds. Harvard is re-thinking its approach to development in the district. Rather than stand-alone buildings on separate lots, each isolated from neighboring properties, new development guidelines call for connecting properties via paths and sidewalks to make the area more pedestrian-friendly. Connecting paths to pedestrian destinations, such as Dunkin Donuts and McCurdy Track, should alleviate safety concerns of walkers and bicyclists, especially children. Also as discussed above, public realm improvements in Ayer Road itself call for sidewalks separated from travel lanes with intervening green belts to make pedestrians feel protected from passing vehicles. The Planning Board can encourage pedestrian connectivity by working with developers when reviewing permit applications.

6. BICYCLE NETWORK

As is the case for pedestrian facilities, most of Harvard's rural roads do not adequately accommodate bicyclists due to constrained shoulder widths. Harvard's scenic and hilly roads are a destination for enthusiastic bicyclists from Harvard and the surrounding area. There is no existing signage for bicycle routes or for bicycle safety, but the sign graphic to the right can alert motorists to the possible presence of pedestrians and bicyclists on narrow country roads. While there is limited local demand for off-road bicycle facilities, opportunities to more safely accommodate visiting bicyclists on existing roads could be explored. The roadway shoulder is the preferred position to accommodate bicyclists on rural roads (bike lanes and other alternative treatments are more appropriate for urban and suburban contexts where there is typically more traffic). On the lowest volume roads, shoulders are not needed. As traffic speeds and volumes increase, the value of shoulders increases, too. Benefits of shoulders include:



Figure 8.3: Combined Bicycle/
Pedestrian sign appropriate
for shoulders on rural roads

- Allowing for driver error and providing space to make evasive maneuvers
- Increasing sight distance for vehicles, especially for those entering the roadway
- Providing structural support for pavement at the edge of the roadway

- Providing additional space for snow storage, maintenance operations, and signage

Shoulders intended to accommodate bicyclists should be a minimum of five feet wide, if possible. It is not advisable to mark road shoulders as bike lanes. However, widening roads to accommodate five-foot wide shoulders is inconsistent with retaining rural character. It may only be necessary when increasing traffic volumes on local roads imperil pedestrians and bicyclists.

While certainly not a substitute for direct vehicular roadway connection, the viability of a bikeway between Harvard and Devens should be investigated, regardless of Devens' disposition. This concept has been mentioned to various extents in several Town and Devens planning documents and should be further explored. Such multi-modal transportation opportunities can provide both recreational and commuting functions for at least a portion of the communities, and state and federal funding is frequently available for such projects.

7. TRANSPORTATION IMPROVEMENTS

Table 8.5 identifies the significant transportation projects confronting Harvard in the next ten years. Given the long time horizon for planning, engineering, and construction, it is important to begin the process of raising local support and working with State and regional transportation planners to get projects on the drawing boards as quickly as possible.

Table 8.5 – Transportation Projects

Facility	Relative Cost	Time Frame
Establish a Trails and Traffic Committee to shepherd projects through conceptual, engineering, and construction phases	---	2016
Make low cost sidewalk improvements in the Town Center in conformance with Town Center Circulation Plan	\$	1-3 Years
Refine the Safe Routes to School recommendations and work with the School Dept. and DPW on implementation	\$	1-3 Years
Reconfigure the traffic pattern and parking layout in the municipal campus of Town Hall, Fire Station 1, and Hildreth House	\$\$	5-7 Years
Improve parking and traffic pattern at the Elementary School	\$\$	3-5 Years
Improve the North Parking Lot in the Town Center	\$\$	2016
Prepare a bicycle guide of scenic routes and engage students to develop a mobile app for bicycle routes and hiking trails	---	2016
Complete trail from the Town Center to McCurdy Track	\$	2-3 Years
Prepare engineering plans for comprehensive circulation improvements for the Town Center	\$\$	3-5 years
With a combination of State and local funds , implement comprehensive circulation plan for the Town Center	\$\$	5-7 Years
Prepare and implement a traffic calming plan for Still River.	\$	3-5 Years
Develop plan and construct traffic solution for the Ayer Road/Poor Farm Road/Gebo Lane area	\$\$	2-3 Years
Develop engineering plans for comprehensive traffic and pedestrian improvements for Ayer Road within the C District (100% Town funds required for design)	\$\$	3-5 Years
With TIP funding from MRPC/MassDOT, implement comprehensive traffic and pedestrian improvements for Ayer Road within the C District (State funds > \$1.0 M.)	\$	8-10 Years
Key: \$: < \$250,000; \$\$: \$250,000 - \$1,000,000; \$\$\$: > \$1,000,000		

CHAPTER 9 DEVENS

1. THE DEVENS FACTOR

The Devens Regional Enterprise Zone (DREZ) is a unique instrumentality of the state. Created by Chapter 498 of the Acts of 1993, the DREZ is the legal mechanism for acquiring 4,400 acres of the former Fort Devens and redeveloping it as a regional employment center. Chapter 498 designates a quasi-public state agency, MassDevelopment,⁶⁹ as the sole entity with power to acquire, maintain, develop, and dispose of property at Devens, and the Devens Enterprise Commission (DEC) as the entity that reviews and permits development proposals. Both are subject to the Devens Reuse Plan, which Harvard, Ayer, and Shirley approved at special town meetings in September 1994. The Devens Reuse Plan is similar to an urban renewal plan in that it relies on the powers of government to restore, reorganize, and reposition property for private development. Chapter 498 also gave MassDevelopment up to \$200 million in funding to pay for infrastructure improvements that would be needed to attract and support industrial growth at Devens.

The overarching goal of the Devens Reuse Plan was to replace all of the 7,000 to 8,000 jobs that were lost as a result of base closure. Devens hosts over ninety business, non-profit, and governmental organizations that provide a combined total of over 4,000 jobs. In the earliest days of the redevelopment effort, many of the businesses that moved into Devens brought warehouse and transportation-related jobs to the region. Over time, Devens began to attract more higher-end technology businesses, and the development process accelerated. By almost any measure, Devens has been a successful economic development initiative. One of the key reasons for its success is that Chapter 498 gives significant power to MassDevelopment and the DEC. Establishments that choose Devens are guaranteed fast-track or “unified” permitting from the DEC. Unlike Harvard’s separately elected and appointed boards, the DEC is a combined “one-stop” Planning Board, Conservation Commission, Board of Health, and Historical Commission. In addition, Devens was able to attract new growth through favorable zoning, robust water, sewer, and energy infrastructure, and competitive utility rates.

There are federal agencies still operating at Devens today (2016). When Fort Devens closed in the 1990s, the land disposition process gave priority to Federal and State agencies and federally funded programs with space needs that could be met in the existing base facilities. The Army Reserve, the Federal Bureau of Prisons Medical Center, and the U.S. Fish and Wildlife Service all control property that was previously under the Army’s jurisdiction. One consequence of this arrangement is that the land at Devens is divided among several jurisdictions, i.e., MassDevelopment does not control the entire site. Another consequence is that less than 70 percent of the tenants at Devens are private for-profit employer establishments that generate property tax revenue.

The Devens Reuse Plan contemplates Devens as a large office and industrial park with recreation amenities and considerable open space. Devens is limited by law to a maximum of 282 housing units, so its residential population is very small. (A 2015 amendment to the Reuse Plan approved

⁶⁹ In 1994 when Chapter 498 took effect, MassDevelopment was known as the Massachusetts Government Land Bank.

a 120-unit senior residence in the Shirley Village Growth District outside of the 282-unit cap.) The status of families living at Devens is complicated. The vast majority actually resides in Harvard and they have the right to vote in Harvard, yet they do not have the same access to municipal, Council on Aging, and school services as residents of Residential Harvard. This is because under Chapter 498, MassDevelopment is the governing body at Devens, so MassDevelopment is responsible for providing the services that Harvard's local government provides to the rest of town. It does so through a combination of contracts for services with one of the three towns (or other towns in the region), arrangements with other state agencies, e.g., the State Police, and hiring its own personnel, such as the Devens Fire Department. The Town should continue to pursue opportunities to provide services under contract to Devens and its residents and/or to regionalize services that can realize cost savings due to economies of scale.

By July 1, 2033, a recommendation must be made to the Governor and Legislature about the future disposition of Devens. At issue is whether it will revert back to the host communities, become a new town, or operate under some type of hybrid arrangement. Disposition is about more than just the economic consequences on Harvard. Any outcome should consider the residents' best interests and how to insure they become fully empowered in a viable community. Some Harvard officials think a decision should be made sooner and that MassDevelopment should have an "exit strategy" that the three towns can review and understand. MassDevelopment has about 240 more acres of land in Harvard to develop under the existing Devens Reuse Plan. From time to time there have been efforts to amend the Reuse Plan, but since all three towns have to approve any amendments to it, MassDevelopment has found it difficult to align the redevelopment process with changing market conditions. Harvard has a vital interest in future decisions about Devens because some 60 percent of the land area at Devens is part of Harvard's historical lands, and it represents about 15% of Harvard's total area.

The future disposition of Devens could have some implications for land use in Harvard, but it is more likely that the disposition of Devens will affect aspects of running the Town: town management, finance, public facilities, and economic development – a task for which Harvard is not well prepared. Current land use regulations at Devens under the Devens Reuse Plan differ dramatically from the rules that govern development in Residential Harvard. No agricultural land uses exist at Devens, there is a great deal of industrial and large-scale commercial activity, and the residential component is limited. Devens continues to present major opportunities for commercial and industrial growth as well as space for public and institutional buildings. The inclusion of Devens (or part of it) under Harvard's jurisdiction could have some impact on decisions about the C District and the Town Center, but decisions about Devens are many years ahead and they will not be controlled by Harvard alone.

In 2015, Burns & McDonnell (BMCD, a national planning and engineering company) prepared two reports entitled "Devens Impact Evaluation & Recommendations" and "Economic and Financial Findings", provided a summary of Master Plan issues related to Devens, and provided next-step recommendations for each of seven Master Plan Elements. The evaluation found that numerous goals and recommendations within this Master Plan mention, do involve, or could involve Devens. Notably, several of the stated goals can likely be realized *regardless* of the final Devens disposition outcome. While resuming jurisdiction could assist with achieving some community goals and recommendations, they could also likely incur some risk and/or cost. Details related to various Master Plan Elements are discussed within the various Element's

chapters of this Master Plan.

Specifically related to financial considerations, BMcD found that, as of 2015, Devens contained a mix of industrial, commercial, and residential uses that would be a significant source of new tax revenue should Harvard resume jurisdiction. Of note from the Economic and Financial Findings report, the 2016 tax revenue impact (property + other fees) of resuming Devens jurisdiction was projected at \$4.0 million, with \$4.58 million projected in new municipal expenses, an operational deficit of \$573,400. Over the long-term, however, the gap between revenues and expenses is projected to close as the Bristol-Myers Squibb TIF agreement matures and additional land is developed. By 2023, new revenues are projected at \$5.68 million, with \$5.63 million projected in municipal expenses, yielding an operational surplus of \$62,000. (All figures are in 2015 dollars. See page 2-6 of BMcD's "Economic and Financial Findings" as a separate Appendix.) Effectively, the payment Harvard receives from MassDevelopment for educating school children from Devens will be offset by tax revenue generated by the expanding commercial/industrial tax base.

Devens will continue to present both challenges and opportunities to the Town of Harvard regardless of disposition. The redevelopment of Devens over the past 20 years has been a success, yet the path forward has challenges. Proper assessment and continued actions on the part of the Town of Harvard, such as through its Master Plan process, can assist local officials with setting appropriate goals and working towards them in an informed manner.

A summary of issues and recommendations compiled within the BMcD reports are included below as a "Devens Matrix"

2. DEVENS MATRIX

Land Use Element		
Issue	Devens Effect	Recommendations
Provide greater percentage of land for commercial and industrial uses.	Harvard portion of Devens contains 19.9 acres zoned commercial and 633.0 acres zoned industrial.	Investigate the level and extent of changes to Harvard's current zoning structure that would be required to achieve a land use mix comparable to what would be realized by resuming jurisdiction.
Provide more diverse housing opportunities.	<p>With completion of the Grant Road project, Devens will be near the 282-unit cap. The units approved thus far have:</p> <p>Offered multiple housing stock options (new or refurbished).</p> <p>Increased housing diversity by providing housing that is generally denser than Harvard's large-lot (1.5-acre) zoning.</p> <p>Provided some affordable units that qualify for the Subsidized Housing Inventory (SHI). But MassDevelopment failed to achieve the goal of the 1994 Reuse Plan to insure that 25% of the units qualify as affordable under Chapter 40B.</p>	<p>Assuming jurisdiction is resumed, consider potential opportunities for further diversifying housing stock within Devens, to provide a wide range of housing choices.</p> <p>**See Population & Housing Element Summary below for additional details.**</p>
Natural Resources & Open Space Element		
Issue	Devens Effect	Recommendations
Conservation of natural, historic and cultural resources.	Includes Rogers Field, Mirror Lake, other open space areas	Assess need to adjust land use regulations and/or strategies (such as Conservation Restrictions).
Preservation of Harvard's defining landscapes.	Harvard afforded a greater say in protection of viewsheds and natural resources	<p>Identify if additional resources will be required by the Harvard Planning Board to process applications within Devens.</p> <p>Assess potential changes to Harvard Zoning Bylaw to include viewshed issues related to Devens.</p>

Natural Resources & Open Space Element (continued)		
Issue	Devens Effect	Recommendations
Protection of local watersheds and aquifers.	Harvard afforded a greater say in protection of viewsheds and natural resources	Identify if additional resources will be required by the Harvard Conservation Commission to process applications within Devens.
Open Space Action Plan implementation.	<p>Existing Devens Open Space Plan with its own action items</p> <p>Possible revenue-generating opportunities via active recreational facilities (especially Rogers Field and Mirror Lake).</p> <p>Increased maintenance and management responsibilities (both active recreation and conservation lands).</p>	<p>Assess the viability of combining the Harvard and Devens open space plans, checking for areas of both compatibility and potential goal or action-related conflicts. Identify additional resources required.</p> <p>Investigate the potential for extending the management structure currently used at Mirror Lake at Bare Hill Pond, or for placing both facilities under the same management.</p> <p>Assess potential recreational-based revenue opportunities for the Town of Harvard from Rogers Field and Bare Hill Pond.</p>

Population & Housing Element		
Issue	Devens Effect	Recommendations
Increasing Harvard's housing type diversity.	Integrating population and providing services for 282 units (cap per 1994 Reuse Plan). After Grant Road, 22 units can be added.	<p>Assuming jurisdiction is resumed, consider potential opportunities for further diversifying housing stock within Devens if the existing housing cap were modified or removed.</p> <p>Assuming jurisdiction is resumed and the Devens housing cap is maintained, consider ways for the remaining 22 units within Devens to provide additional housing stock diversity.</p>
Meeting affordable housing goals.	25% of Devens housing must be affordable, per 1994 Reuse Plan	Investigate residential build-out scenarios to determine actions and numbers of units required to meet affordable housing goals with and without Harvard resuming Devens jurisdiction.
Ensuring that new housing is harmonious in design with existing community character.	A portion of former officers housing is in Ayer.	As part of weighing disposition options, investigate the ability to allow existing Devens neighborhoods to remain intact and within the same jurisdiction.

Economy Element		
Issue	Devens Effect	Recommendations
Adding acres of commercial land (currently limited to Ayer Road C District).	Existing commercial and industrial areas.	Investigate the level and extent of changes to Harvard's current zoning structure that would be required to achieve a level of commercial and industrial space comparable to what would be realized by resuming jurisdiction.
C District limitations: Lack of sewer & water infrastructure Market potential Size of existing lots (some undersized) Zoning requirements.	4.3 million sq. ft. of additional commercial space.	Update previous studies and/or perform new studies (as needed) to assess costs of extending sewer and water infrastructure from Devens to the C-District. Assess full impact (including traffic) of a build-out of the Ayer Road C-District, under existing conditions and with upgraded utilities.
Ease of permitting.	Existing consolidated permitting process.	If jurisdiction is resumed, consider provisions to allow a consolidated permitting process to continue within Devens.

Cultural Resources Element		
Issue	Devens Effect	Recommendations
Preserving historic structures and locations.	Vicksburg Square on National Register of Historic Places, numerous sites on State Register.	If jurisdiction is resumed, consider further study of, and listing, additional potentially-eligible sites to the NRHP and MHP.
Preparing a comprehensive community-wide historic resources survey.	Studies of historic resources have been completed; additional sites may be eligible for NRHP.	If jurisdiction is resumed, include Devens information within a comprehensive survey; consider previously-identified follow-up items (as appropriate).
Considering adoption of a demolition delay bylaw.	Future of Vicksburg Square remains uncertain.	If pursued, consider special provisions for some resources within Devens.
Historic resource oversight.	Due to additional historic resources, increases the oversight responsibilities of the Historic Commission.	Consider need for additional funding and/or staff to support Commission activities.

Community Services & Facilities Element		
Issue	Devens Effect	Recommendations
Maintaining an adequate government structure for delivery of services and provision of community facilities.	Assuming jurisdiction would likely require additional municipal management.	Investigate the governmental structures, resources, and staffing levels maintained by towns comparable to a combined Harvard and Devens. Investigate extension of public utilities from Devens to Harvard.
Capacity to manage current municipal services.	Devens (through MassDevelopment) has departments such as fire, police, and public works. Jurisdiction would likely require expanded Harvard staff and equipment.	Perform detailed department-based resource and needs assessment to identify resources anticipated to be required if jurisdiction is resumed. Investigate additional opportunities to maximize resources through regionalization efforts.

Circulation & Traffic Element		
Issue	Devens Effect	Recommendations
Ayer Road traffic, including from Devens	Redevelopment has contributed to increased Ayer Road traffic Trucks from Devens commonly use Ayer Road instead of Jackson Road.	Summarize previous traffic studies and update as needed. Approach MassDevelopment and/or MassDOT for mitigation measures.
General road access to Devens	No existing direct road access between Harvard and Devens. The Harvard-Devens road network discontinuity is unusual, but not unprecedented.	Perform routing and feasibility study to identify potential connections and approximate anticipated costs. If Harvard wishes to build a road connection directly to Devens, identify a funding mechanism to pay for it.
Bikeway opportunities	The potential of a Harvard-Devens bikeway has been noted in several documents.	Further investigate bikeway viability and potential funding sources.

CHAPTER 10

OPPORTUNITIES & CHALLENGES

During Harvard's Phase I Master Plan process, the Master Plan Steering Committee (MPSC) developed a new master plan vision, a series of goals to work toward over the next ten years, and a list of five critical planning issues. Largely informed by Phase I surveys and public outreach conducted by the MPSC and its consultants, the vision and goals reflect what many residents think about their town today and what they want it to be in the future. Though reorganized and expressed somewhat differently, the Phase I vision is very similar to the vision of the 1998 and 2002 Master Plans. What Harvard residents value and how they see the Town have endured over time. All of the goal statements relate at some level to the key planning issues, and they, too, are very similar to the issues identified in previous Plans. The most significant change is the desire to understand and resolve the long-term local governance of Devens.

1. VISION & GOALS

Vision

In 2025, Harvard will be a town that continues to foster a strong and vibrant sense of community and place, embraces careful stewardship and enhancement of its natural, historic and cultural resources, understands a clear direction in its role in Devens' governance, and employs best practices for achieving long-term sustainability. An informed and involved community is critical to accomplishing this vision.

Master Plan Goals

Harvard has a robust sense of community and place:

- Encourage a strong volunteer government and provide necessary staff support
- Encourage active civic life through public and private institutions and organizations
- Develop housing to accommodate a diversity of needs and population
- Foster a variety of gathering places for all generations
- Maintain the Town Center as the institutional, civic and cultural heart of the community, as envisioned in the 2005 Town Center Action Plan

Harvard has a defined role in Devens:

- Analyze fiscal and community impact of Devens on Harvard
- Use public outreach and education to ascertain Harvard's preferred direction and promote the awareness of the stake Harvard has in Devens in terms of economic sustainability, governance, schools, and the civic life of the Town
- Collaborate with Devens' stakeholders, including Ayer, Shirley and MassDevelopment
- Decide on Harvard's role in local governance of Devens

Harvard is assured long-term sustainability:

- Develop plans for investment in public infrastructure, buildings and equipment
- Diversify and strengthen the Town's revenue base
- Invest in near and long-term energy efficiencies
- Encourage retail and commercial activities of appropriate size and in appropriate locations as determined by residents and market
- Develop planning to recover from disasters in the core information technology infrastructure for Town-wide management.

Harvard engages in judicious stewardship of natural, historic and cultural resources:

- Preserve and enhance historic buildings and cultural resources
- Identify and protect critical natural resource areas
- Restore and/or maintain key viewsheds
- Support agricultural heritage and farms
- Preserve stone walls and shade trees along rural roads
- Adopt best management practices on public conservation lands and disseminate them to the public

2. KEY PLANNING ISSUES

Harvard's Phase I report identifies five priority issues that need to be addressed in this Master Plan update: Devens, the Commercial District, Housing, the Town Center, and Conservation. They are cross-cutting issues, i.e., challenges that require actions under more than one Master Plan element. The following section examines each issue and is followed by associated recommendations for the Master Plan elements.

1. DEVENS

The overarching purpose of Chapter 498 was to create good, durable jobs in a region that was about to lose a large share of its employment base. To accomplish this, the State Legislature intervened, and under Chapter 498 created a special district, the Devens Enterprise Zone, and designated the Massachusetts Government Land Bank – now MassDevelopment – to serve as the local redevelopment agency with a forty-year charter. Chapter 498 also established the Devens Enterprise Commission (DEC), a “one-stop” permitting agency for development at Devens, and granted funding of \$200 million to cover the infrastructure and operating costs that would be needed to make Devens viable. Chapter 498 seemed like the best possible solution for gaining control over the base closure process, and in many ways it has worked well.

However, not enough thought was given to the eventual local governance of Devens or the status of the 282 households that would eventually call Devens their home. Living in the midst of a large commerce park imposes quality of life impacts, such as traffic, noise, and views of industrial uses that may affect property values. Furthermore, MassDevelopment makes major decisions that residents cannot change, such as deciding which school system the children will attend. And residents do not enjoy the privileges associated with living in Harvard, such as participating

Council on Aging activities. The target of 282 households will not provide a large enough population to form an effective base of governance.

As conceived in the legislation, the redevelopment process delegated specific powers to each interested party : municipal operations, infrastructure improvements, marketing and real estate development decisions in MassDevelopment's hands; zoning, permitting, and enforcement in the DEC's hands, and oversight in the hands of the three towns, acting through the advisory Joint Boards of Selectmen (JBOS)⁷⁰Just as the Reuse Plan required an affirmative vote of all three towns, so does any amendment to it, however minor. Together, Chapter 498 and the Devens Reuse Plan comprise a type of "indissoluble union" between the state and the three towns, unchangeable except by mutual consent of all of the parties – unless the legislature decides otherwise. By 2033, MassDevelopment and the Towns must submit a report to the Governor and Legislature with a recommendation on a permanent government structure. The longer-term plan could range from returning land to Harvard, Ayer, and Shirley to creating an entirely new town; MassDevelopment and DEC could remain in some way or simply terminate their involvement at Devens. Harvard, for its part adopted "Acceptance Criteria" which set forth actions to occur before the Town would be willing to resume jurisdiction of its portion of Devens. (See Appendix 3.)

To most people following the evolution of Devens from base closure in 1995 to construction of the state's first major film production studio in 2014, Devens is a success story. Approximately 4,000 people work for public or private employers located there. But Devens is more than an industrial park; it includes retail and commercial uses, a federal medical center, parks and ballfields, zero net energy homes, and diverse open space, including the Oxbow National Wildlife Refuge. When Harvard finished the last Master Plan update in 2002, townspeople were already affected by the rapid pace of development at Devens. Buildout under the Devens Reuse Plan had progressed well ahead of schedule, so while MassDevelopment was doing its job, residents of North Harvard found themselves living with the associated traffic and noise impacts . Families had moved into the first phase of Devens housing, almost all of it located on Harvard soil, yet they lacked many of the basic rights and privileges of Harvard citizenship. In the beginning, many in Harvard opposed admitting Devens children to the Harvard public schools because of Harvard's increasing enrollments at the time, so Shirley accepted them instead. As student enrollment declined, Harvard had available capacity in the schools to accommodate Devens students and received fair compensation from MassDevelopment to cover their educational expenses. Today, Devens children attend school in Harvard in exchange for per-pupil fees that MassDevelopment pays to the Town. There seems to be general agreement that the present arrangement benefits everyone. There is no distinction in the schools between students from Devens and Harvard proper. By 2020, however, the school contract will have to be put out for bid again.

For the sake of both Devens and Harvard residents, it makes sense to begin working now on a plan for Devens' future. Still, while Harvard can influence the decision, the state legislature will ultimately

⁷⁰ The Boards of Selectmen of Ayer, Harvard, Lancaster and Shirley formed the Joint Boards of Selectmen (JBOS) in 1992 to provide a forum for addressing issues of mutual concern relating to the closure of Devens and its subsequent redevelopment. By the December 1994 Memorandum of Understanding, the JBOS was designated the official advisory body to the state regarding issues of concern to the towns arising from MassDevelopment's activities pursuant to Chapter 498.

determine what Devens becomes. . To Harvard, there are two key considerations: fiscal impact and cultural compatibility. From the Commonwealth's perspective, there is far more at stake.

A. Harvard's Goals for Devens

- Be engaged and informed participants in planning for Devens' development and governance.
- Set a timeline for determining Harvard's preferred direction with respect to local governance of Devens.
- Understand the full scale of potential benefits and liabilities related to jurisdiction.
- Ensure decision on local governance results in a positive outcome for Harvard and other stakeholders, including the Commonwealth, the region, and our neighbor towns.
- Keep Devens' neighborhoods intact.

B. Fiscal Impact Analysis

Many Harvard residents want to decide now rather than several years from now what the Town's position should be about the disposition of Devens. The Town has framed the conversation about Devens around two key issues, the more critical being the fiscal impact of resuming jurisdiction.

The Devens Economic Analysis Team (DEAT) in Harvard has done a commendable job of analyzing MassDevelopment's financial reports, and it understands the revenues and service costs associated with Devens. In 2014, the DEAT estimated the operating revenues for Devens municipal services at \$3.7 million (rounded) including \$2.8 million (rounded) from real estate taxes. Based on an analysis of several Massachusetts towns with populations similar to Harvard (including Devens), and a commercial tax base comparable to that at Devens, the DEAT estimated what Harvard would spend to serve the Devens community by deriving an average per capita cost in the reference towns and using it to project total residential and nonresidential spending. The approach seems reasonable, but the reference towns are so different from Harvard in all other ways that another approach should be tried and compared with the DEAT's model. In its 2015 Report (its final one) DEAT concluded that Devens will soon become fiscally positive, i.e. tax revenues will be more than sufficient to cover costs of operations. "The analysis herein shows that Devens would be economically sustainable as part of the Town of Harvard should that be the preference of the Town, and that Devens has considerable additional economic potential." (Appendix 5, page 4)

Municipal Service Costs Per Sq. Ft.: In one "rule-of-thumb" approach, analysts assume that the average cost of municipal services for retail, restaurant, and related hospitality uses range from \$0.86 to \$0.95 per sq. ft., and for office and industrial uses, \$0.60 to \$0.68 per sq. ft.⁷¹ There is

⁷¹ Center for Urban Policy Research (CUPR) at Rutgers University and RKG Associates, Inc. In studies of commercial developments in other towns, RKG has found that the ratio ranges reported by CUPR generally hold true.

Municipal Services

The General Fund

- General Government
 - Police
 - Fire
 - Inspectional Services
 - Department of Public Works
 - Library
 - Recreation
 - Human Services
 - Fixed Costs
-

always a cost to provide municipal services to nontaxable uses, too. The cost varies significantly depending on the type of use (e.g., charitable, religious, educational) and its location, but for purposes of an order-of-magnitude estimate, most analysts adopt the office and industrial cost per sq. ft. According to information from MassDevelopment, the combined gross floor area in nonresidential facilities at Devens, located within Harvard, is approximately 4.5 million sq. ft. (rounded).⁷² Divided into broad classes of retail and office/industrial use (including the nontaxable facilities), the estimated cost of General Fund services is \$2,980,600.

Table 10.1 – Estimated Cost of Municipal Services for Nonresidential Land Uses at Devens (Existing Conditions)

Class of Use	Floor Area (Rounded)	Cost Multiplier	Municipal Service Cost (Rounded)
Retail/Hospitality	430,200	\$0.91	\$391,500
Office/Industrial	4,045,400	\$0.64	\$2,589,100
Total	4,475,600		\$2,980,600

The cost of residential services can be estimated on an order-of-magnitude basis with average cost multipliers as well. In FY 2013, the average per-pupil cost for K-12 students at the Harvard Public Schools was approximately \$14,600.⁷³ ⁷⁴ In addition, the average per capita cost of municipal services for residents was \$1,050.⁷⁵ Assuming 74 students from Devens and a total household population of 219 (Census 2010), the cost of residential services is \$1,310,400. Since this estimate relies on average cost assumptions, it is very conservative, i.e., at least for near-term purposes, it overstates service costs. Adding one student to the Harvard Public Schools will not “cost” \$14,600, but adding fifty students all at once could cost more than \$14,600 per pupil depending on the marginal cost to the school district. Nevertheless, many communities prefer the average cost approach because it is easy for the public to understand and builds in a buffer against unforeseen costs. It also tends to be a fairly good indicator of long-term service costs (in current dollars).

⁷² Devens Assessors, “deat_normandreconciliation_fy2012_fy2013” (March 2014; November 2014).

⁷³ Mass. Department of Elementary and Secondary Education (DESE), “School District Expenditures, All Funds, by Function: FY11-FY13”.

⁷⁴ By FY 2015, the average cost per pupil had increased to \$15,522.

⁷⁵ Author’s Note. This figure assumes 80 percent of the Town’s FY 2013 expenditures for general government, police, fire, inspectional services, public works; 50 percent of fixed costs, and 100 percent of the Town’s library and recreation expenditures, divided by the Town’s estimated 2012 population (source of expenditures and population data): Massachusetts Department of Revenue).

**Table 10.2 – Estimated Cost of Municipal and School Services
for Residential Land Uses at Devens (Existing Conditions)**

	Number	Cost Multiplier	Cost of Municipal & School Services
Household Population	219	\$1,050	\$230,000
School Students	74	\$14,600	\$1,080,400
Total			\$1,310,400

Adding the figures from Table 10.2 and 10.3, the total estimated cost of municipal and school services at Devens, in FY 2013 dollars, is \$4,291,000. Considering real estate taxes alone, without any factor for additional non-tax revenue sources, such as auto excise taxes and state aid, the total tax revenue generated by taxpaying residential and nonresidential properties would be approximately \$3,384,900, again in FY 2013 dollars.⁷⁶ The deficit is -\$906,100 (rounded). However, this is an “as-is” estimate. It does not account for full build-out under the Devens Reuse Plan or the revenue increase that will occur as existing Tax Increment Financing (TIF) agreements expire. Moreover, it does not account for the probability that housing values at Devens would increase if the residential addresses converted from Devens to Harvard.

**Table 10-3 - Summary of Modeling Estimate:
Costs and Revenues (Existing Conditions)**

Class of Use	Service Costs	Revenues	Difference
Residential	\$1,310,400	\$439,800	-\$870,600
Nonresidential	\$2,980,600	\$2,945,100	-\$35,500
Total	\$4,291,000	\$3,384,900	-\$906,100

An estimate of total service costs helps, but usually communities want to know how an economic event will affect particular departments. For a small town like Harvard, this seems particularly important. The model summarized in Table 10.4 sheds light on the question, also in FY 2013 dollars.

⁷⁶ Devens Assessors, “deat_normandreconciliation_fy2012_fy2013” (March 2014; Nov. 2014), and RKG Associates, Inc. The tax revenue estimate is simply the sum of assessed values of taxable property, reported by the Devens Assessors as of July 2013, divided by 1,000 and multiplied by the applicable FY 2013 tax rate.

Table 10-4 - Allocation of New Municipal Service Costs to Service Categories

	Nonresidential		Residential		
Municipal Service	Allocation	Result	Allocation	Result	Total
General Government	10%	\$298,060	10%	\$23,000	\$321,060
Public Safety	50%	\$1,490,300	25%	\$57,500	\$1,547,800
Public Works	22%	\$655,732	25%	\$57,500	\$713,232
Culture & Recreation	0%	\$0	8%	\$18,400	\$18,400
Human Services	2%	\$59,612	12%	\$27,600	\$87,212
Fixed Costs	16%	\$476,896	20%	\$46,000	\$522,896
Education			100%	\$1,080,400	\$1,080,400
Total Cost of Services	100%	\$2,980,600	100%	\$1,310,400	\$4,291,000
*Based on costs estimated in Table 10.3.					
Service cost ratios from Rutgers University, Center for Urban Policy Research.					

These estimates help to illustrate what Harvard's financial obligations might be if the Town resumed jurisdiction today. For example, in FY 2013, Harvard spent \$1.4 million on police, fire, and emergency medical services. Given the amount of development that exists in parts of Devens it would not be surprising to see the Town's public safety budget double (or more) if Harvard became responsible for providing municipal services. Depending on how the services are actually delivered, however – such as an inter-local fire/EMS department – perhaps the cost could be reduced. A regional fire department serving Harvard, Devens, and Ayer should be explored further and considered as part of a future fiscal impact case study.

Service Costs Per Employee: Another approach to estimating service costs assumes that the size of the employment base can be used to estimate nonresidential service costs. To underscore how divergent fiscal impact analyses can be, there is a significant difference between the conclusions of this model and the estimates shown above. For analytical purposes, the model counts each employee as the equivalent of one-half of a local resident and multiplies the result by the community's average cost of municipal services per capita. (This stems from industry standard practices of counting employees as 0.25 to 0.5 of a resident for capital improvement projects, e.g., water and sewer infrastructure.) The resulting estimate of nonresidential service costs is \$2,115,800, and the total cost of General Fund services (including residents) would be \$3,426,200. This is over \$800,000 less than the estimated deficit in Table 10.3.

**Table 10-5 - Alternative Model:
Costs and Revenues (Existing Conditions)**

Class	Input	Cost Multiplier	Total
Employees (50% of 4,030)	2015	\$1,050	\$2,115,800
Household Population	219	\$1,050	\$230,000
Students	74	\$14,600	\$1,080,400
Total Service Costs			\$3,426,200
Real Estate Tax Revenues			\$3,384,900
Surplus/Deficit			-\$41,300

Utilities: None of the examples shown here includes utility costs at Devens because they are accounted for separately on an enterprise basis. Whenever final disposition of Devens occurs, ownership and management of the utilities operated there will have to be determined. The operation and assets could be sold to a private utility company, or assumed by a public utility owned and operated by a consortium of the three towns, by one of the three towns, or by some other entity created by the state. Decisions about the fate of the utilities at Devens should be made following an assessment of each utility's income and operations and an appraisal of the utility assets. Water and sewer rates should be sufficient to cover routine operating and capital costs and accumulate sufficient reserves to pay for eventual upgrade or replacement costs.

C. Issues

The future disposition of Devens will affect all aspects of running the Town: town management, finance, schools, public facilities, and economic development – tasks for which Harvard may need to actively prepare. If Harvard decides to pursue re-establishing its authority over the land at Devens, it will be important for the Town to address the following matters:

- **Professional, Centralized Government.** As currently organized, Harvard's form of government may not be adequate to serve Devens with its many employers and over 4,000 workers, which may eventually top 7,000). The existing decentralized framework, with many elected officials and a Town Administrator position that lacks executive powers, is not designed to support basic economic development, planning, and service delivery functions. Rather, it is designed for shared or overlapping powers, deliberation, consensus building, and decision-making by committee. Business owners usually expect a timely response to their municipal service needs; competent, approachable staff who can answer their questions and work with them; and an efficient decision-making process. As of the writing of this Plan, Harvard is examining its government structure in order to consider changes that might improve its efficiency and add new professional capacity.
- **Capacity for Economic Development.** If Harvard assumes jurisdiction over Devens at some point in the future, it will need to establish open, timely, consistent communications with the businesses there. One key to the success of Devens is the expedited permitting

process, which the Devens Enterprise Commission oversees. This process, or something similar, should be retained.

- **Economic Development Organization:** Harvard has very little information about what matters to Devens employers, or generally how to meet service expectations in an employment center as large as Devens. It would make sense for Harvard to establish a competent economic development organization, and develop both the understanding and capacity to address the needs of commercial taxpayers. A decision will also have to be made about MassDevelopment's future role, if any, as a redevelopment agency. Regardless of whether MassDevelopment stays on in some capacity, Harvard will need its own economic development director or coordinator and an effective framework for communicating with businesses.
- **Housing and Neighborhood Development:** During this Master Plan process, several people commented on the need to include Devens households into Harvard culture and politics, yet there seems to be very limited knowledge of the Devens neighborhoods. Development at Devens has proceeded largely according to the Reuse Plan, which is a testament to the effectiveness of the planning process. A good Plan, excellent infrastructure, and expedited permitting spurred large-scale commercial and industrial development in accordance with the wishes of the communities.

Devens has the water and sewer infrastructure to support multifamily housing and higher density single-family homes. In 2015, MassDevelopment sought and achieved approval by all three communities to re-zone property in Shirley's portion Devens to accommodate a 120-unit senior residential development. This approval occurred outside of the housing cap. Furthermore, as economic growth occurs at Devens and in the I-495 corridor, there is likely to be additional market pressure over the next several years to increase the amount of workforce housing in the region. This could affect several aspects of the Town, including education (the capacity of the Harvard school system to absorb additional students), Town politics (if Devens residents choose to vote in town elections and at Town Meeting), added traffic, and enhanced consumer spending.

Harvard has already taken strides to integrate Devens residents into Town affairs. There is no distinction, for example, between Harvard and Devens students in the school system. Seniors from Devens frequently participate in Council on Aging activities, but because they do not pay property taxes to Harvard, participants pay if there is a cost. However, Devens seniors cannot use Harvard's MART van for transportation since it is reserved just for Harvard residents and is partially supported by Harvard payments.

Finally, while operating as an Army base, a neighborhood of military housing arose straddling the Ayer-Harvard town line. These homes are now occupied as private residences. If each town resumes jurisdiction of its historic lands, this neighborhood will be divided, with residents becoming members of the town depending upon which side of the line their homes fall. The disposition process should give some consideration to maintaining the integrity of the neighborhood.

- **Open Space:** The Devens Reuse Plan provides that a substantial portion of the land at Devens will be protected open space. According to data assembled for an update of the Devens Open Space and Recreation Plan, there are 1,241.2 acres of permanently protected

open space at Devens and another 198 acres in progress for conservation restrictions (CRs). The Trustees of Reservations and New England Forestry Foundation hold CRs on about 224 acres and have the ability to enforce the terms of the restriction through legal remedies, including seeking restoration of a site to a condition prior to a violation. Harvard needs to consider whether it has the capacity to take on stewardship of the protected lands at Devens, and if not, how it will go about gaining the capacity it would need.

- **Traffic and Circulation:** In 2002, few Devens-related topics raised more anxiety in Harvard than the prospect of reopening an old, now-closed road between Harvard and Devens. There still seems to be considerable concern about it today. This is especially true for the residents of North Harvard, where the impact of truck traffic to and from Devens contributes to the volume, speed, and general safety concerns that residents have along Ayer Road. While some Harvard residents believe a direct connection between Harvard and Devens will be key for building a sense of community, not everyone agrees. It is clear that any opening of road access will generate vocal opposition in Harvard. Depot Road and Old Mill Road are two likely candidates for re-connecting the two communities because of their direct access into Devens. The Town will need to weigh the merits and drawbacks of restoring vehicular access to Devens. Without such a connection, requiring vehicles to leave Harvard to access a large section of the reunited Town (Devens) will be an inconvenience for residents but poses a much more critical issue for police, fire, ambulance and school transportation services. Other options may be easier to implement because of cost and reduced opposition, such as a bikeway.

2. AYER ROAD COMMERCIAL DISTRICT

The Commercial (C) District on Ayer Road north of Route 2 serves as the Town's primary non-residential services area and has presented difficult challenges in Harvard for a long time. The district is long, oddly configured, and substantially underutilized. The Town needs to commit to progressive planning in these locations and resist the temptation to let "unknowns" about Devens interfere with making Harvard a better place for everyone.

A. *Harvard's Goals for the C District*

- Diversify Harvard's economy and tax base with an appropriate mix of residential and commercial development in the Commercial District.
- Work with existing and new businesses to attract commercial services that fit the Town.
- Decrease barriers and increase incentives for attracting new business.
- Work with adjacent neighborhoods, Town residents, and other stakeholders to facilitate planning and coordination prior to any permitting processes.
- Understand the relationship between economic development of the C-District and Devens, in terms of various factors such as transportation and circulation, conservation, and housing.

B. *Vision*

It is not clear how much support exists to spur commercial growth in the C District. Residents had mixed feelings about the desirability of more commercial development when Harvard prepared the 1988 and 2002 Master Plans, and it seems that they still have mixed feelings. In

Harvard today, nonresidential property – including commercial real estate and personal property – accounts for less than 5 percent of the Town’s total assessed valuation. A survey conducted as part of the Phase 1 Master Plan process indicates that residents remain somewhat divided about the benefits of business development. For example, many respondents said they could support business development in the C district on Ayer Road if the development generates more tax revenue, and about half of the respondents to a Master Plan survey said the Town could improve how it meets the needs of residents by allowing local eateries and a grocery store. Still, residents worry about the impacts of commercial growth on Harvard’s wetlands and water resources, and traffic on Ayer Road. Viewed in their entirety, the survey responses imply fear of large-scale or otherwise incompatible development in Harvard. In fact, a measurable change in the tax base would require significant commercial activity in the C District; however, adequate utilities do not exist to support a more intensive land use pattern, and increased traffic would exacerbate conflicts on Ayer Road without developer mitigation and a substantial public investment in road improvements.

The lack of clarity or direction in the C District makes it difficult to forecast how Ayer Road will develop. In addition, the amount of development that could occur in full build-out is very difficult to forecast. Given available data and the provisions of Harvard’s zoning, the potential build-out in the C District could range from 1.1 to 1.8 million sq. ft. of floor space, but this is only a mathematical calculation and does not reflect the practicality of how the area could be developed without public water and sewer service.

C. Zoning

Harvard’s Zoning Bylaw is difficult to navigate, and its commercial development regulations in particular lack clarity and suitability for the purposes they purport to serve. While the Town’s zoning outlines several goals for development in the C District, they are not supported with appropriate dimensional regulations or design guidelines. As explained in 2002, “the Zoning Bylaw sponsors development outcomes that differ from the goals of the Master Plan.”

After the 2002 Plan, Harvard adopted an “Ayer Road Village Special Permit” provision (§ 125-52) that is intended to encourage small-scale mixed use projects and simultaneously reduce curb cuts and encourage parcel assembly. Properties qualify only if they have 300 feet of frontage on Ayer Road, so the provision has limited utility. While the Ayer Road Special Permit made some sense at the time it was adopted, it is generally inconsistent with more successful “best practices” approaches to incentivizing compact nodes of commercial activity and village form. If anything, zoning for compact mixed uses today would call for smaller lots and less lot frontage per site, provided that adjoining properties have some type of shared access and shared parking. The irony of the zoning on Ayer Road today – both the basic requirements that apply in the C District

Stated Purposes of the C District (§125-23)

- To permit “shopping and business services type land uses that meet the needs of the local community rather than the region.”
- To foster “a traditional New England village form of development of appropriate scale, character, vernacular architecture, design, and detail.”
- To create “opportunities for mixed use development, pedestrian interaction, and a vibrant village atmosphere.”

and the Ayer Road Village Special Permit provision – is that it all but prescribes the opposite of small-scale, organic, village-style development.

In addition, many of the properties that front on Ayer Road are “split lots,” or parcels located in more than one district. Most communities have zoning to clarify the use and dimensional rules that apply to so-called split lots, but it seems that Harvard does not. The C District also includes properties that may not be appropriate candidates for commercial development, e.g., an orchard. To preserve the two farms in the district, the owners could apply for agricultural preservation restrictions (APRs) or pursue an ARV-SP to cluster commercial buildings while preserving productive farmland. While the C District’s use regulations may be intended to achieve tight control over the mix of business on Ayer Road, the uses are so narrowly defined that Harvard may have tied the hands of applicants and the Planning Board too much. Some of the use terminology is archaic, too. Finally, and most importantly, the C District requires very deep minimum front setbacks – land between the front of a building and the street – which is not conducive to creating a village “feel” on Ayer Road. Together, the district’s deep front setbacks, building and size limitations call for development forms that seem antithetical to everything Harvard residents say they want to see in their commercial district.

The zoning on Ayer Road north of Route 2 has not delivered the desired outcomes of a commercial district. While permissible uses allow a wide range of businesses to open, the physical restrictions on development including setbacks and density do not. Moreover, for the businesses that do open, the Town has no design standards or guidelines in place to promote the New England character that Harvard residents value. Current zoning encourages “strip development,” for which there is general opposition in Harvard. The fate of Ayer Road is made even more complicated by the inability of town officials to agree on an approach to commercial development that would be realistic for investors on the one hand, and protective of the Town’s community character interests on the other hand. To address these concerns, the Planning Board is preparing Design Guidelines to demonstrate a more compact and less auto-oriented approach to development in the C District. To accomplish this vision, the Board should propose zoning amendments to alter the strip commercial character that presently exists. Harvard needs a clear strategy for economic development and its town boards must work together to implement it.

D. Market

At the Harvard Planning Board’s request, the Montachusett Regional Planning Commission (MRPC) prepared a report in 2014 with a variety of socio-demographic, market, and commercial indicators for Harvard and 10-, 20-, and 30-minute drive times around the C District. The 10-minute drive area includes almost all of Harvard and significant portions of the adjacent towns. Together, the three areas in MRPC’s study represent where the C District’s customers are likely to come from and where competing businesses are located. However, the 10-minute drive is a focal point because it comprises the trade area for most of the patrons or clients of Ayer Road businesses.

According to MRPC, moderate population growth is expected to continue in the 10-minute drive area, from 25,600 people in 2010 to 27,300 by 2019, representing a 6.6 percent change. Similarly, this area had 9,000 households in 2010 and it is expected to have about 9,700 households by 2019, for a projected 7.8 percent household growth rate. In 2013, the median disposable household income was nearly \$72,950, with slightly more than 35 percent of the households having disposable incomes of over \$100,000. Divided into householder age cohorts, the highest median disposable household income, at \$98,650, was among those between 45 and 54 years, a group that

represents 26.7 percent of all households. Together, the trade area's 9,100 households (2013) generated \$390.4 million in total retail demand, including \$67.7 million for groceries and \$40.0 million for dining and drinking. However, sales within the C District market area were just \$158.5 million, indicating significant sales "leakage" or local demand lost to other locations. The leakage estimate includes \$26.1 million for groceries and \$19.8 million for dining and drinking. The potential re-capture of this leakage represents an opportunity for existing merchants in the C District and may serve to attract new retail development. However, the Town's vision for development in the C District is often inconsistent with market/developer requirements. For example, many grocers require locations with high volume traffic counts, but the residents of North Harvard are concerned about existing traffic on Ayer Road, let alone any increase.

Overall, the data assembled by MRPC indicate that substantial spending power exists in Harvard – spending power that could support more local commercial activity, including retail sales and services. However, much of this potential is currently captured by businesses outside of Harvard, based on geography and shopping/commuter patterns. The C District has the potential to capture a greater share of the discretionary spending by residents of Harvard and others who use Ayer Road as a commuter route or for whom Ayer Road would be a fairly convenient place to shop. According to parcel data from the Harvard assessor's office, there are eighty-two parcels of land located wholly or partially in the C-District. One third are identified as being in commercial use, predominantly as personal services or professional and business services. There are very few stores and restaurants.

The level and type of commercial activity in the C District is typical of a neighborhood corridor supported by scattered residential development and limited municipal utilities. The demographics surrounding the C District indicate a need for additional locally oriented retail and professional/personal services targeted to small business entities. Demand will grow incrementally, over time, and may eventually produce the "traditional New England village" character on Ayer Road that Harvard wants to see. This type of demand is influenced by economic cycles and financial constraints, resulting in development challenges due to the lack of economies of scale and many of the location factors that drive major real estate projects.

If Harvard wants to encourage better commercial development in the C District, the Town will need to consider changing its zoning requirements, invest in public utilities (at the very least, a shared wastewater treatment facility or connection to the Devens sewer system), and work with MRPC and state officials to secure traffic safety improvements to Ayer Road. Implementing the recommendations of the Ayer Road "Functional Design Report" will help to solve congestion and safety issues along the highway and benefit residents of near-by neighborhoods who have difficulty entering the flow of traffic during peak hours. In addition, Harvard needs to consider empowering an Economic Development Committee or Commission to promote Harvard as a place where small businesses can grow and thrive. A Town Planner or Economic Development Director can assist with business recruitment, retention, and local permitting. It would make sense for Harvard to consider reducing the size of the C District and promoting more compact commercial and mixed-use development activity in a smaller, strategically located area. Professional organizations, notably the MRPC, the 495/MetroWest Partnership, and the Nashoba Valley Chamber of Commerce, offer technical assistance to promote economic development.

3. HOUSING OPPORTUNITIES

Harvard residents have been concerned about housing for a very long time. During Phase I of the Master Plan process and in subsequent roundtable meetings for Phase II, residents named several problems associated with housing in Harvard: lack of housing diversity, the need to preserve Harvard's town character, and Chapter 40B, the state's affordable housing law. They also had concerns about the inability of seniors to downsize in their homes and about the merits of zoning for more housing in the Town Center and the C District. Debates are also evident in the overarching question of how to (or whether to) grow, with or without the possible inclusion of Devens. However, while Devens offers a unique opportunity for diversifying Harvard's housing stock, the Town does not control development there today and may not have that control for another eighteen years (or more). In addition, concentrating housing options at Devens would not meet one of Harvard's Master Plan housing goals: to provide more variety of housing throughout the Town.

A. *Harvard's Goals for Housing*

- Increase the diversity of housing types in Harvard to meet the needs of a greater variety of households.
- Ensure that new housing is harmonious in design with the character of the community.
- Provide a greater variety of housing throughout Harvard.
- Be proactive in meeting the state's affordable housing goals.

B. *Housing Choices*

Providing more types of housing will remain very difficult for Harvard, just as it was when Charles Elliot prepared Harvard's first Master Plan in the late 1960s. Although many Harvard residents care about housing variety and affordability, the Town's regulatory framework promotes large homes on private lots and creates barriers to other housing types. The lack of water and sewer infrastructure also inhibits housing development. In many parts of Harvard, the soils are not well suited to on-site septic systems, so the combination of regulatory, physical, and infrastructure constraints make housing diversity a difficult goal to achieve.

Nevertheless, Harvard does have opportunities to create and preserve a wider variety of homes, but the political will has to exist to pursue them. For example:

- Create a District for Multifamily Housing. Changing the tradition of a "one-size-fits-all" residential district and rezoning some areas for moderately dense housing would go a long way toward helping Harvard meet its housing goals. Doing so would be consistent with recommendations made in Harvard's 2011 and 2004 housing plans, too.
- Broaden the Cluster Bylaw to incentivize construction of small houses and cottages to meet needs of seniors who wish to downsize from large single-family homes. Harvard could replace its existing cluster bylaw with the state's new natural resources protection model, which provides for compact development of a variety of housing by right. Undeniably, Harvard has difficult-to-develop land in many parts of town; however, some areas are relatively developable, and Chapter 40B developers have been able to make some projects work with shared septic systems.

- Allow Accessory Apartments by Right. Accessory dwelling units inside a single-family home or perhaps above a detached garage would pave the way for creating small, relatively inconspicuous housing units throughout the Town. In the past, most towns allowed accessory units only by special permit, but this practice is changing. Contrary to popular belief, the “by right” option does not “open the floodgates” to housing growth. Homeowners generally create accessory units to meet a family need. Sometimes when that need no longer exists, the units are made available for rent. As communities work toward creative solutions for senior population concerns needs such as “aging in place,” the opportunity to create secondary units in existing homes will become an increasingly important tool.
- Promote Locally Supported Comprehensive Permits. Harvard could “take charge” of Chapter 40B by identifying areas the Town considers suitable for affordable and mixed-income housing development, and seek developers who are accustomed to working cooperatively with small towns. The Chelmsford Housing Authority and Neighborhood of Affordable Housing (NOAH) are good examples of organizations that could bring development capacity to Harvard, but the opportunities have to be realistic – which means they will need many waivers of local regulations.
- Modify zoning to permit higher density housing by special permit to provide an alternative to comprehensive permits; higher density housing would also require allowance of communal septic systems subject to approval by the Board of Health. Modifications to the cluster bylaw is another way to accomplish this objective.

C. Town Character

Whether in survey responses or community meetings, Harvard residents often talk about needing to protect the Town’s character, yet “character” is not well defined. Like most communities, Harvard has several “faces” and each one contributes to the Town’s look and feel. Through its orchards and horse farms, Harvard projects a rural image; through its town center, it is a well-to-do, historic New England enclave; north of Route 2 it is a low-density suburb. As the Phase I Master Plan report points out, “‘Rural character’ is an elusive quality influenced by a diverse set of factors.” It is dynamic, not static.

Moreover, “character” is not simply a collection of physical qualities. “Character” is measured or defined by a collection of social/cultural, physical, and economic factors (see “Conservation”, below).

Unfortunately, Harvard has found it difficult to embrace land use tools that would provide for nodes of moderately dense housing where village development patterns already exist, such as around the Town Center and Still River Village. The Town needs to consider more effective tools for encouraging open space-sensitive design, accommodating housing growth near services, providing small houses in addition to large single-family homes, and clarifying what residents mean when they talk about Harvard’s town character. One of the charming aspects of Harvard is that it has recognizable and distinctive places: areas with variations in physical form, use, and building styles, yet the “blueprint” imposed by existing zoning bears no relationship to them. Harvard’s toolbox for housing diversity may be limited to Chapter 40B, for the existing cluster bylaw has not worked and the Ayer Road special permit will not address the mixed-use goals that have been articulated for that part of town. Modifications to the cluster provision and Ayer

Road Village Special Permit can offer practical alternatives to diversify the Town's housing stock without disrupting existing neighborhoods from incompatible development.

D. Chapter 40B

Since 2002, Harvard has made progress toward meeting the 10 percent statutory minimum under Chapter 40B. When the last Master Plan was prepared, Harvard had just thirty-three units on the SHI: twenty-four at Foxglove Apartments and eight at Harvard Green, or 1.5 percent of the Town's then-existing housing inventory. In 2014, the SHI includes 110 units, or 5.55 percent. Three factors have contributed to the increase: recent comprehensive permits such as Bowers Brook and Trail Ridge, houses improved when Harvard participated in a regional housing rehabilitation program, and the addition of thirteen affordable units at Devens. These developments have benefited Harvard by meeting local housing needs.

Harvard's affordable housing plan endorses a state-established housing production goal for communities Harvard's size. By adding eleven more affordable units to the SHI each year, Harvard would have more control over the comprehensive permit process. It may be that Chapter 40B comprehensive permits will offer Harvard's best opportunities for creating more types of housing, not just affordable housing. For example, greater use of the Local Initiative Program (LIP) comprehensive permit option is one way to address residents' concerns that may arise when homeowners feel threatened by inappropriate development.

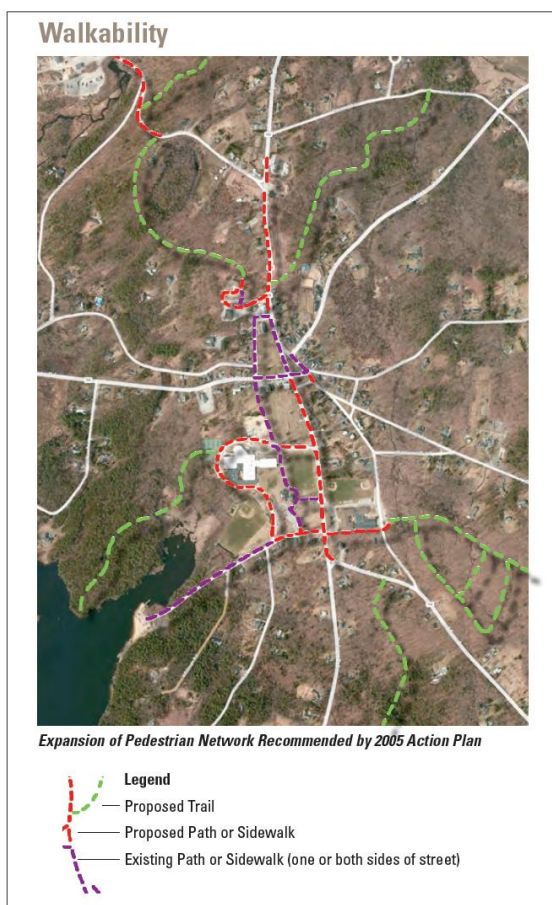
4. TOWN CENTER

Harvard's Phase I report and all of the previous master plans call out the importance of the Town Center as "the heart of Harvard." The Town Center functions as the civic, social, and cultural center of the community, and Harvard residents want to keep it that way. The Town Center is defined by the unique and exquisite collection of civic and private historic buildings that surround the Town Commons. Since the Town Center is one of the few venues in Harvard that can accommodate large indoor and outdoor gatherings, it is here that Harvard holds holiday events, festivals, and community meetings. The Town Center has several natural focal points that provide important viewsheds, such as the large open areas between the two schools, the Common, and the descent to Bare Hill Pond. Unfortunately, circulation within and around these spaces is not well defined. The Town Center has other challenges, many of which involve recommendations from the Town Center Action Plan (2005) that have not been implemented. Although townspeople want to preserve the Town Center they know today, the fact is that the Town Center has changed since 2002 just as it changed between 1988 and 2002. The issue is how Harvard can ensure the best possible outcomes for the Town Center as the area continues to evolve.

A. Harvard's Goals for the Town Center

- Emphasize Town Center's role as the central community gathering place.
- Accommodate land uses that meet different needs of the community across different time scales.
- Integrate the natural landscape with the historic beauty and viewsheds of the Town Center.

- Provide safe, convenient and attractive circulation choices for pedestrians that reduce parking demands.
- Maintain and enhance public buildings for cultural and community uses.
- Protect and optimize multi-family and rental properties to provide diverse housing options.



B. Circulation & Traffic

Harvard's Town Center is a relatively small area. For example, the distance from Hildreth House to the Bromfield Library is less than half a mile, and most of the Town Center is within a quarter-mile radius of the intersection of Still River Road and Massachusetts Avenue. However, negotiating these short distances by foot can be very challenging and often dangerous due to the lack of sidewalks and footpaths. There are only short sections of sidewalks on Ayer Road and Fairbank Street, and around the Common. Among the complete sidewalks, many locations do not have curb cuts for the mobility challenged, and sidewalks are sometimes too narrow or made of uneven stone, or they end before reaching a safe crossing point.

After Harvard finished the Town Center Action Plan (TCAP) in 2005, some safety improvements were made in the Town Center. For example, the main intersection at Ayer Road/Still River Road/Massachusetts Avenue used to be controlled by a flashing signal with a stop in only two directions, and it has been replaced with a four-way stop. This intersection also

lacked clearly marked crosswalks, yet today, there are clear, solidly marked crosswalks at both the irregularly-shaped corner and the adjacent intersection of Old Littleton Road and Fairbank Street. Clearly marked crosswalks were also created at Elm Street and Still River Road, on Massachusetts Avenue at the entrance to the Bromfield School, new Library, and at Pond Road. However, these crosswalks do not connect to any sidewalks.

The main entrance to the high school does not have a separate footpath or sidewalk. The presence of parked cars and utility poles along this curved access road create a dangerous situation for pedestrians. There is, however, a separate walking path to the Library connecting to a crosswalk on Massachusetts Avenue. The TCAP recommended a path from Bare Hill Pond, through the school campus, across the Common and up to Depot Road in the north.

Parking: There are over 500 off-street parking spaces in lots scattered around the Town Center and a limited number of on-street spaces. The TCAP proposed a new parking and landscaping plan around the Ayer Road and Still River Road intersection. This included a landscaped barrier

between Still River Road and the General Store parking lot, new angled parking on Common Street, and some parallel parking on Fairbank Street and Still River Road. None of the recommendations had been implemented as of 2014. In addition, the parking areas at Town Hall and the Hildreth House are haphazardly arranged around driveways and access roads and the Fire Department. This area, due to traffic safety and relatively steep topography, is particularly unsafe for both pedestrians and cars.

Bicycles: Cyclists often have a significant presence on the roads in Harvard, particularly on summer weekends. Regional cycling groups and tourists include Harvard in their cycling routes as a destination or way station. The Town Center is a crossroads for many country roads used by cyclists. Many cyclists congregate and relax on the Town Common and at the General Store. Not surprisingly, there is now a bicycle repair shop (CK Bikes) in the General Store building. Still, there are no bike lanes or marked cycling routes, no bike parking and limited signage. Installing “Share the Road” signs is a good first step to minimizing conflicts between bicyclists and motorists. As bicycling will continue and likely expand as a recreational sport, Harvard needs to support it as part of the economy and address the safety of cyclists and other road users.



C. Housing

The Town Center is a logical location for additional housing. It would support good planning and community health by providing walkability and compact design, and help to support the handful of small businesses located here. The sewer system could accommodate infill housing on small lots keeping in character with the prevailing lot pattern. Added residential density that adheres to the Town’s goals for the Town Center could help to meet other goals of the Master Plan, notably diversity of housing and housing that complements the character of the Town. In order to accomplish these ends, the Town needs new zoning for the Town Center, as recommended in the TCAP.

D. Existing Zoning: You Can't Build the Village You See

Harvard’s zoning provides one set of dimensional standards for all districts. Each lot must have a minimum area of 1.5 acres, a minimum frontage of 180’, deep setbacks from the street, and wide side and rear yards. These standards make sense for rural areas of Harvard where the Town desires to limit density, and poor soils constrain septic system suitability. But imposing these standards arbitrarily over a compact village fails to recognize the unique characteristics of the area. The Town Center is an historic district on the National Register of Historic Places and is also a local historic district. The area evolved from the earliest days of Harvard without regard to zoning regulations. Settlers employed a pragmatic approach to home development. They carved out lots that were just large enough to accept the house they wished to build, and added small yard spaces. Before the advent of ubiquitous automobile use, it was important to maintain close proximity between homes and services when walking and horse riding were the principal modes of travel.

It would not be possible to re-create the Town Center as it exists today under current zoning. The General Store for example, one of residents’ most esteemed places, has just 46’ of frontage and sits on a .1-acre lot. Using the sewer district as a proxy for the Town Center, 84% of the privately held lots are non-conforming in area, and 63% are non-conforming in frontage. Altogether, 90%

of the lots are non-conforming in area or frontage, and others may not conform to setback requirements. (Town properties are not part of this analysis since the Zoning Bylaw exempts municipal properties within 2,500' of the intersection of Routes 110 and 111.) As a result of their non-conforming nature, in many cases owners must obtain a special permit from the Board of Appeals for an addition or expansion to their property.

The Town Center was also a hub of commerce in the era when it was necessary to consolidate services in close proximity to municipal, educational, and religious uses. However, in the AR district today, commercial uses are not permitted. Just four lots in the Center today are in commercial use. Previous surveys have indicated a desire by residents to allow some business uses provided they are consistent with the character of the area. Preferences include restaurants, book stores, small retail shops, and professional offices.

With so many interests vested in maintaining the unique character of the Center, it has proven difficult to make zoning changes that are consistent with the built environment and residents' wishes for additional services. However, the Town Center has changed over time, and it is important to adapt to changing circumstances. It is more common today for people to prefer a mixed use environment with a variety of goods and services conveniently available in one location, which they can easily reach by walking. Such a pattern would reinforce the Town Center as the principal gathering place of the Town and foster greater social interaction among residents. The Town Center's zoning should reflect existing conditions and residents' preferences for a vital place, which is not the case today.

E. Public Facilities and Services

At a public meeting for this Master Plan, residents said that one of Harvard's highest Town Center priorities must be the condition of the Hildreth House, the historic residence that Harvard uses for a senior center. The Hildreth House is not readily accessible throughout, and this is a significant concern because public programs and services must be available equally to people with and without disabilities. It also lacks adequate parking and is not large enough to house all of the Council on Aging's programs. As a result, many programs are actually offered in other spaces, such as church halls. In 2014, the Town's Capital Planning and Investment Committee (CPIC) rejected a proposed \$3.7 million renovation project for the Hildreth House on the grounds that Harvard could not afford to take on a project of that magnitude, especially on the heels of funding major capital improvements at the Town Hall. In 2015, the CPIC gave high marks to a scaled-back plan (Phase 1 of a two-phase plan) with a cost estimate of \$1.3 million. The Phase 1 plan focuses on public safety, parking, and architectural barrier removal, which are important "basics," but do not address the larger problems of adequate and appropriately designed spaces, which will be addressed in Phase 2. In 2015, Town Meeting approved the Phase 1 plan and construction should commence in 2016.

Harvard's civic buildings are integral to the identity of the Town Center. Despite a strong sense of appreciation for its historic civic buildings, Harvard has not undertaken the routine schedule of maintenance that is necessary to preserve the architectural features and building materials of these century-old structures. The Town is now confronted with several of its buildings needing significant investment for restoration as well as for renovations to address programming and access requirements (most notably the Hapgood Library and the Bromfield House).

After many years of deferred maintenance, Town Meeting in 2012 approved \$3.9 million to restore the Town Hall. By the spring of 2016, Town offices will occupy the first floor, and the meeting hall on the second floor will be restored to host civic events. In order to stay within budget, the approved project was scaled-back from a previous plan that included an addition to the building. The building can accommodate existing staff, but additional hires will result in cramped quarters.

While major renovations can seem daunting and the financial expenditure unsurmountable, the Town's recent award-winning restoration and renovation of the Old Bromfield for a new library facility, using a mix of local, state, and private sources, proves the effort can result in an outstanding project and source of civic pride. Furthermore, the Library success exemplifies the potential for completing a restoration project that is both historically sensitive and energy efficient. Utilizing the expertise and guidance of the Historical Commission, whose membership includes preservation enthusiasts and architectural professionals, can help guide future efforts to ensure that renovations are as successful as those undertaken at the Old Bromfield. Once work on these buildings is completed, the Town should ensure the long-term protection of its investment by instituting maintenance plans for its historic facilities.

5. CONSERVATION

Harvard is one of the leading conservationist towns in Massachusetts. Owing to decades of work by the Harvard Conservation Commission, the Harvard Conservation Trust, and others, Harvard has about 1,900 acres of conservation land owned by the Town and Land Trusts, and an additional 523 acres protected by Conservation Restrictions (CR) or Agricultural Preservation Restrictions (APR). Land owned or otherwise controlled by federal and state agencies in Harvard (but excluding Devens) account for an additional 1,350 acres. In total over 25 percent of Harvard's total land area is permanently protected. The diversity of landscapes reflected in Harvard's conservation land portfolio says a great deal about the Town's environmental ethos on one hand and its physical beauty on the other hand. It is little wonder that people worry about threats to Harvard's character. But for the efforts and spending decisions made by prior generations, residents today would not have the abundance of open space they enjoy.

In Harvard, conservation is about more than protecting natural landscapes. Harvard residents recognize that the Town's character is a composite of the natural and built environment, so preserving farms and protecting scenic roads matter as much as purchasing conservation land. Ideas about conservancy, town character, and stewardship are closely intertwined here. People seem to understand that caring for the resources entrusted to the present is critical for the quality of life and quality of the environment that future generations will inherit. The visual and cultural relationship between Harvard's natural and man-made resources defines Harvard as a distinctive place. In many instances, however, Harvard's conservation groups have worked independently from its historic preservation organizations despite the number of local assets with both historic and environmental significance.

A. *Harvard's Conservation Goals*

- Conserve natural, historic and cultural resources.
- Preserve the Town's defining landscapes that are valued by Harvard's residents and reflective of the rural heritage.

- Protect local watersheds.
- Protect Harvard's agricultural base.
- Preserve historic structures and locations.

B. Stewardship and Collaboration

Water Resources: Despite the good working relationship that currently exists between the Conservation Commission and Harvard Conservation Trust, many people in Harvard say that coordination and cooperation between public bodies and private groups need strengthening. The Conservation Commission and the Bare Hill Pond Watershed Management Committee (Pond Committee) have worked cooperatively over the past 15 years on several significant projects to improve the Bare Hill Pond watershed. But overlapping or competing jurisdiction among the Conservation Commission, Board of Health, and Board of Appeals is a related issue residents cite as a condition that makes stewardship very challenging in Harvard. For example, the Conservation Commission, the Pond Committee, and the Parks and Recreation Commission all play a role in managing Bare Hill Pond, and all have different interests. Development along the Pond often requires approvals from the Conservation Commission, Board of Health, and Board of Appeals, but the regulatory bodies do not have a well-defined process to work together to protect the Pond, even with input from the Pond Committee. As one town official notes, the present system works as long as everyone is willing to work together. Changes in the Zoning Bylaw and Wetlands Protection Regulations might be considered to achieve greater collaboration across jurisdictions to complement the non-regulatory efforts of the Pond Committee.

Historic Preservation: Since the 1970s, the Harvard Historical Commission (HHC) has been responsible for advocating for the protection and preservation of Harvard's historic resources. Successfully managing the dual role of historical commission and historic district commission has been challenging for the HHC, as it would be in any town, because the Commission is composed of volunteers and they have no staff support or budget. As a result, the Commission's primary focus has been on historic district administration with only limited preservation activities outside of the districts. In times of preservation crisis like the recent downing of several trees in Shaker Cemetery and damage to the Powder House, the HHC has reacted quickly, but they need the time and resources to plan. Preparing a local Historic Preservation Plan for Harvard would provide an opportunity for the HHC to focus more attention on historic asset protection. It would also provide an opportunity to bring Harvard's diverse historical and conservation groups together to identify common goals and explore collaborative opportunities.

The Freedom's Way Heritage Association documented Harvard's noteworthy historic and cultural landscapes and natural resources in 2006 in the Freedom's Way Landscape Inventory project. The report provides an excellent record of the special places that contribute to Harvard distinctive environment. Appendix 2 contains the list of sites identified by local historians and community preservationists. When sites on the list become endangered by development local officials and non-profit conservation organization leaders should seek to either acquire the properties or develop creative approaches to accommodate the development while preserving its singular features.

Quality of Place: The visual and cultural relationship between the natural and the manmade defines Harvard's rural character today and its quality of place. In most instances, the Town's conservation groups have worked independently from Harvard's historic preservation

organizations despite the number of local assets with both historic and environmental significance. For example, the natural resources of Holy Hill in Shaker Village are protected as a Town-owned conservation parcel but historic assets within the landscape are not protected. This situation is repeated on other public and private conservation parcels in the community. Similarly, within the Town's historic districts, regulations protect the built features of the district but are not designed to protect the landscape. The Town's historic and conservation groups should identify opportunities to work together to protect Harvard's special features through a combination of historic preservation regulations and conservation restrictions.

C. Cultural Resources

The 2002 Master Plan identified the potential for more teardown activity, noting that while teardown of older, modest-sized houses was not yet a measurable factor, substantial expansions and much larger replacement homes were beginning to threaten the Town's older neighborhoods, such as around Bare Hill Pond.⁷⁷ In the past few years, Harvard has lost several significant historic properties located outside of the purview of the local historic districts. Besides outright building demolition, the incremental loss of historic building features such as decorative trim and original multi-pane wood windows and the construction of large additions are also contributing to a "fading" of Harvard's historic properties over time. Harvard's previous planning studies have recommended that the Town adopt a demolition delay bylaw. The recommendation remains valid and should be pursued by the Historical Commission. The temporary delay period of the demolition delay bylaw would allow the Commission to assess whether the affected historic building warrants protection. Throughout the state, the tool has helped to preserve many historic properties that would otherwise have been lost. Designation as a single building historic district or the placement of preservation restrictions are two tools the Commission could pursue to protect these threatened buildings once the delay period has expired.

D. Agriculture

Much of the open land that provides views from the road in Harvard is land in some kind of agricultural use. People in Harvard place high value on farms and orchards as a central element in "town rural character", and Harvard is fortunate to still have working orchards. It will be important for Harvard to continue planning for and staying on top of the inevitable "what if" – that is, what if some of these large tracts in agricultural use are eventually offered for sale to a developer? Harvard's land is expensive, and at some point Harvard will have to pass on acquiring a vital piece of open space because it is simply more than the Town can afford. The 2002 Master Plan contains several recommendations about steps the Town could take to support its farms and minimize the risk of development, e.g., by allowing some types of farm-related businesses as of right (above and beyond those protected under state law). It is good that Harvard has an Agricultural Commission today and adopted a Right-to-Farm bylaw, but it still does not have the economic development tools that can help to enhance the profitability of local farms.

⁷⁷ 2002 Master Plan, 2.16.

CHAPTER 11 ACTION PLAN

Land Use Recommendations	Phase/ Years	In 2002 Plan?	Primary Responsibility	Prerequisites	Additional/New Resources Needed
Recodify the Zoning Bylaw (ZBL).	1-3	N	Planning Board	Appropriation for planning/legal consultant	\$25-\$30,000
Make the Town Planner position a full-time employee of the Town.	1-3	Y	Planning Board	None	Salary subject to Town's Personnel Compensation Schedule
Amend the Accessory Apartment provision of the ZBL to remove barriers inhibiting its use.	1-3	N	Planning Board	None	None
Provide for mixed-use buildings as of right in the C District, e.g. retail on the first floor and housing above.	1-3	N	Planning Board	None	None. (Mixed use requires a special permit at present.)
Modify the C District's dimensional regulations to achieve a more compact, pedestrian-scale and minimize the auto-dominated appearance of the district.	1-3	N	Planning Board	None	None
Adopt land use controls to protect water supplies of town wells and recharge areas of adjacent towns' wells that extend into Harvard.	1-3	Y	Water & Sewer Commissions	None	None
Revise the OSC-PRD bylaw to encourage more widespread use as a tool to preserve open space and meet the Town's housing needs.	1-3	N	Planning Board	Analyze potential for growth and impacts on municipal services	Seek MRPC assistance with bylaw revisions (no cost).
Consider non-zoning bylaws and changes to regulations to protect the environmental quality of Bare Hill Pond.	1-3	Y	Bare Hill Pond Watershed Management Committee	None	None

Land Use Recommendations	Phase/ Years	In 2002 Plan?	Primary Responsibility	Prerequisites	Additional/New Resources Needed
Adopt a Watershed Protection Overlay District for Bare Hill Pond.	3-5	Y	Planning Board	Appropriation (assuming Town seeks consultant to assist with this project)	\$15,000
Replace or modify the existing OSC-PRD bylaw with the state's new Natural Resource Protection model to remove barriers that restrict its utility.	3-5	N	Planning Board	Appropriation for planning/zoning consultant	\$10,000
Adopt a zoning district for the Town Center which reflects the historic lot pattern and allows small businesses, second floor apartments, and moderate-density housing.	3-5	Y	Planning Board	None	Can be done with existing staff resources
Modify the Scenic Road bylaw to include an enforcement mechanism to insure compliance with the regulations.	3-5	N	Planning Board	None	For budgetary purposes, assume \$10,000
Form a Master Plan Implementation & Evaluation Committee. Update the Master Plan in ten years.	On-going	Y	Planning Board	None	Committee volunteers

Housing Recommendations	Phase/ Years	In 2002 Plan?	Primary Responsibility	Prerequisites	Additional/New Resources Needed
Amend the ZBL to allow housing alternatives for seniors. (In 2016, Town Meeting approved an amendment to allow assisted living facilities as part of an ARV-SP.)	1-3	N	Planning Board	None	None
If feasible, develop housing for seniors adjacent to the Hildreth House, including affordable units, to address the need for down-sized units.	1-5	N	Board of Selectmen	Access to town water and sewer	Appropriation for architectural and engineering plans, state financial assistance

Housing Recommendations	Phase/ Years	In 2002 Plan?	Primary Responsibility	Prerequisites	Additional/New Resources Needed
Identify potential development partners for “friendly” comprehensive permits.	3-5	N	Municipal Affordable Housing Trust	None	None
Establish a multifamily district on the Zoning Map and add district regulations to the ZBL.	3-5	N	Planning Board	None	\$25-\$30,000

Natural Resources and Open Space Recommendations	Phase/ Years	In 2002 Plan?	Primary Responsibility	Prerequisites	Additional/New Resources Needed
Continue education on measures of preventing phosphorus runoff into Bare Hill Pond; construct stormwater management controls, similar to those installed in the Town Center to minimize pollutant loading in the Pond.	On-going	N	Bare Hill Pond Watershed Management Committee	Existing studies and plans document the need.	Cost will vary on a case-by-case basis.
Continue to implement the Action Plan in Harvard’s Open Space and Recreation Plan.	On-going	Y	Conservation Commission; CPC	Appropriations as needed; ready cash in Conservation Fund	TBD
Actively eradicate invasive species on town-owned land. Provide information and technical assistance to landowners to help remove invasive species on private property.	On-going	N	Conservation Commission	None. Conservation Commission has much experience in this area.	Continued financial support
Develop a long-term strategy and plan for continued protection of open space.	1-3	N	Conservation Commission	None	As-needed funding for acquisitions, stewardship
Adopt an erosion control bylaw.	1-3	N	Conservation Commission	None	None
Increase resources for management of Town-owned conservation lands including creation of a full-time Conservation Agent.	1-3	N	Conservation Commission	None	Standardize in annual budget process

Natural Resources and Open Space Recommendations	Phase/ Years	In 2002 Plan?	Primary Responsibility	Prerequisites	Additional/New Resources Needed
Work with MRPC, Nashoba Boards of Health, and surrounding towns to develop a comprehensive deer management strategy to address Lyme disease.	3-5	N	Board of Health	Source(s) of funding to be determined	TBD, depends on how much work can be done with in-house staff at MRPC, Nashoba
Enact restrictions on Town-owned land within the Bare Hill Pond watershed to achieve permanent protection status.	3-5	N	Conservation Commission	None	Fees for legal and planning services TBD
Develop a Forestry Management Plan for Town conservation land.	3-5	N	Conservation Commission	None	Hire a Mass. licensed forester. Cost TBD

Community Services and Facilities Recommendations	Phase/ Years	In 2002 Plan?	Primary Responsibility	Prerequisites	Additional/New Resources Needed
Dedicate additional resources to upgrade computer technology at the Town Hall and expand on-line services to enhance residents' interaction with town government.	On-going	N	Board of Selectmen	Adequate IT staffing to oversee and maintain systems	Yes, TBD
Identify, evaluate, and pursue opportunities for increasing regionalization of services.	On-going	N	Board of Selectmen	None	Can be done with existing in-house staff
Continue to lower energy use and greenhouse gas emissions by: a) adopting a town-wide Energy Policy for all boards and depts.; b) examining town energy use patterns in municipal operations, e.g. DPW fleet management, park use, transfer station, traffic flow, water & sewer systems, etc.; c) incorporating life cycle costs in building	On-going	N	Board of Selectmen	None	Future rounds of Green Communities funding and municipal resolve

Community Services and Facilities Recommendations	Phase/ Years	In 2002 Plan?	Primary Responsibility	Prerequisites	Additional/New Resources Needed
projects to evaluate the merits of short-term construction savings v. long-term energy use. d) instituting a shuttle service to a near-by commuter rail station using MBTA assessments e) Investigate alternative energy systems on Town property					
Assess the condition of all municipal buildings and develop a cost estimate/ funding plan for upgrades or replacements.	On-going	N	Board of Selectmen	None	Hire a qualified A/E firm as needed.
Conduct a governance study to evaluate Harvard's present form of government; identify changes needed (if any) and codify in a charter or similar document.	1-3	Y	Board of Selectmen, Charter Commission	Appropriation	For budgetary purposes, assume \$40,000
Fund a full-time municipal facilities manager position and institute Planned Preventive Maintenance (PPM) for all municipal buildings.	1-3	N	Board of Selectmen	Evaluate PPM systems, develop procurement specs	Salary subject to Town's Personnel Compensation Schedule
Prepare and implement an IT Disaster Recovery Plan to assure rapid restoration of town services in the event of a natural disaster or cyber-attack.	1-3	N	Board of Selectmen	None	Seek assistance from citizens with IT expertise to formulate recommendations.
Negotiate Harvard's use of Devens recreation facilities, especially playing fields, in order to meet local demand.	1-3	N	Park & Recreation Commission	None	None; can be done with existing volunteers and staff.
Recommend sustainability policies for all municipal and school facility projects.	1-3	N	Harvard Energy Advisory Committee	Seek consensus about sustainability policies Harvard wants to adopt, and how to prioritize those policies.	None; can be done with existing staff.

Community Services and Facilities Recommendations	Phase/ Years	In 2002 Plan?	Primary Responsibility	Prerequisites	Additional/New Resources Needed
Seek Town Meeting approval to increase the CPA surcharge to provide additional funds for community preservation projects.	1-3	N	CPC	None	None
Determine the best use of the Hapgood Library, resolve handicapped accessibility concerns, and develop a plan for the long-term upkeep of the building.	1-3	N	Board of Selectmen	Standard lease agreement for building. Procurement process for lease required under G.L. c. 30B and construction bids under c. 149.	Building improvements will require appropriation.
Complete the design study for the Hildreth Elementary School and construct recommended improvements.	1-5	N	School Committee, Board of Selectmen	Provide local match to MSBA grant.	Large investment will be required.
Renovate and expand the Hildreth House to make it suitable for the space needs of the Council on Aging and other town programs.	1-5	Y	Board of Selectmen	A "Phase 2" plan (beyond proposed FY16 capital improvements) needs to be developed.	TBD
Develop robust public education programs on sustainability and environmental concerns such as the impact of invasive species on biodiversity in Harvard, stormwater management, and energy conservation.	3-5	N	Conservation Commission, Harvard Energy Advisory Committee	Appropriations as needed	TBD
Evaluate Town Center water supply and distribution system. Develop new water source to assure good water quality. Prepare long-term maintenance and capital improvement plan.	3-5	N	Water & Sewer Commissions	Appropriation	TBD based on bids received

Transportation Recommendations	Phase/ Years	In 2002 Plan?	Primary Responsibility	Prerequisites	Additional/New Resources Needed
Continue to implement the Town Center Action Plan and the 2016 update prepared by MRPC.	On-going	N	Board of Selectmen, DPW	Place measures still not implemented in a budget and determine funding.	Existing staff can develop budget. The Town will need to fund over a period of years. Make a systematic commitment to the Town Center every year.
Continue systematic road maintenance and identify priority streets.	On-going	Y	Board of Selectmen, DPW	None	Can be done with in-house resources, possibly with modest technical assistance from MRPC.
Apply for Complete Streets funding where appropriate.	1-3	N	Board of Selectmen, DPW	Town is responsible for preparing engineering plans and fulfilling grant requirements.	Technical assistance is available; engineering costs will vary depending on the project.
Improve sidewalk connectivity in the Town Center.	1-5	Y	Board of Selectmen, DPW	Needs to be built into the annual budget process so there is a recurring commitment	TBD based on capital budget policy
Work with MRPC to obtain funding for safety and aesthetic improvements to Ayer Road.	3-5	N	Board of Selectmen	C District amendments	TBD. Improvements project needs to be on TIP.
Work with MRPC and MassDevelopment to explore the feasibility of a bikeway connecting Devens and Harvard.	3-5	N	Board of Selectmen	None	TBD based on scope of work and bids received
Work with neighbors along the Devens boundary and the residents of Devens to explore opportunities and challenges for restoring vehicular access between Devens and Harvard.	6-10	N	Board of Selectmen	Appropriation for consulting services	TBD based on scope of work and bids received

Economic Development Recommendations	Phase/ Years	In 2002 Plan?	Primary Responsibility	Prerequisites	Additional/New Resources Needed
Create a comprehensive Economic Development Plan for the Town that includes viable strategies for facilitating acceptable growth.	1-5	N	Planning Board	Appropriation; assistance from regional ED organizations	\$25,000
Create a vision for the C District that encourages village or Main Street style development and establish Design Guidelines to achieve it.	1-3	N	Planning Board	None	Volunteers/Town Planner
Amend the Zoning Bylaw to provide for agriculture-related businesses	1-3	Y	Planning Board	Consultation with farm and orchard owners	None
Amend the Zoning Bylaw to allow tourist oriented business in the AR district, such as antique shops, B&B's, recreation businesses, tea rooms, etc.	1-3	N	Planning Board	None	None
Study opportunities for developing new wastewater treatment systems in the C district.	6-10	N	Board of Selectmen	Appropriation	TBD

Cultural Resources Recommendations	Phase/ Years	In 2002 Plan?	Primary Responsibility	Prerequisites	Additional/New Resources Needed
Prepare a comprehensive community-wide historical and cultural resources survey.	3-5	N	Historical Commission	Appropriation or grant, or both	\$35,000
Adopt a demolition delay bylaw.	3-5	Y	Historical Commission	Consult with historic property owners. Complete comprehensive town-wide inventory.	Could be done with existing staff, but may need specialized consulting support; assume \$7,500

Cultural Resources Recommendations	Phase/ Years	In 2002 Plan?	Primary Responsibility	Prerequisites	Additional/New Resources Needed
Engage residents of Still River in discussions for preserving historic resources and seek consensus to nominate the village to the National Register of Historic Places.	3-5	Y	Historical Commission	None	None
Evaluate the boundaries of the present Harvard Center Historic District and determine whether they should be modified.	3-5	Y	Historical Commission	Complete community-wide historic resources survey.	TBD
Provide staff support to the Harvard Historical Commission.	6-10	N	Historical Commission	Appropriation; designation of town staff	Salary subject to Town's Compensation Schedule

Devens Recommendations	Phase/ Years	In 2002 Plan?	Primary Responsibility	Prerequisites	Additional/New Resources Needed
Pursue opportunities to contract for service at Devens.	On-going	N	Board of Selectmen	None	Funding for feasibility studies may be required.
Consider holding periodic local government meetings at Devens instead of Town Hall.	On-going	N	Board of Selectmen	None	None
Consult the "Devens Matrix" (Chapter 9) to evaluate the benefits and draw-backs of reclaiming jurisdiction at Devens; be open to updating the framework as needed.	1-3	N	Board of Selectmen	None	None; can be done with existing staff
Determine Harvard's preferred outcome on Devens. Enter negotiations with Ayer, Shirley, and MassDevelopment.	3-5	N	Board of Selectmen	None	Services of a neutral consultant may help to facilitate negotiations.
Identify governance changes and staffing needs if the Town decides to resume jurisdiction of Devens.	6-10	N	Board of Selectmen	Appropriation	Local study committee

Devens Recommendations	Phase/ Years	In 2002 Plan?	Primary Responsibility	Prerequisites	Additional/New Resources Needed
The parties planning for the disposition of Devens should petition the Legislature to convert the Utility Department into a public utility to manage the water, sewer, electric, gas, and storm water systems.	6-10	N	Board of Selectmen		TBD

APPENDIX 1

DEVELOPMENT SUITABILITY ANALYSIS⁷⁸

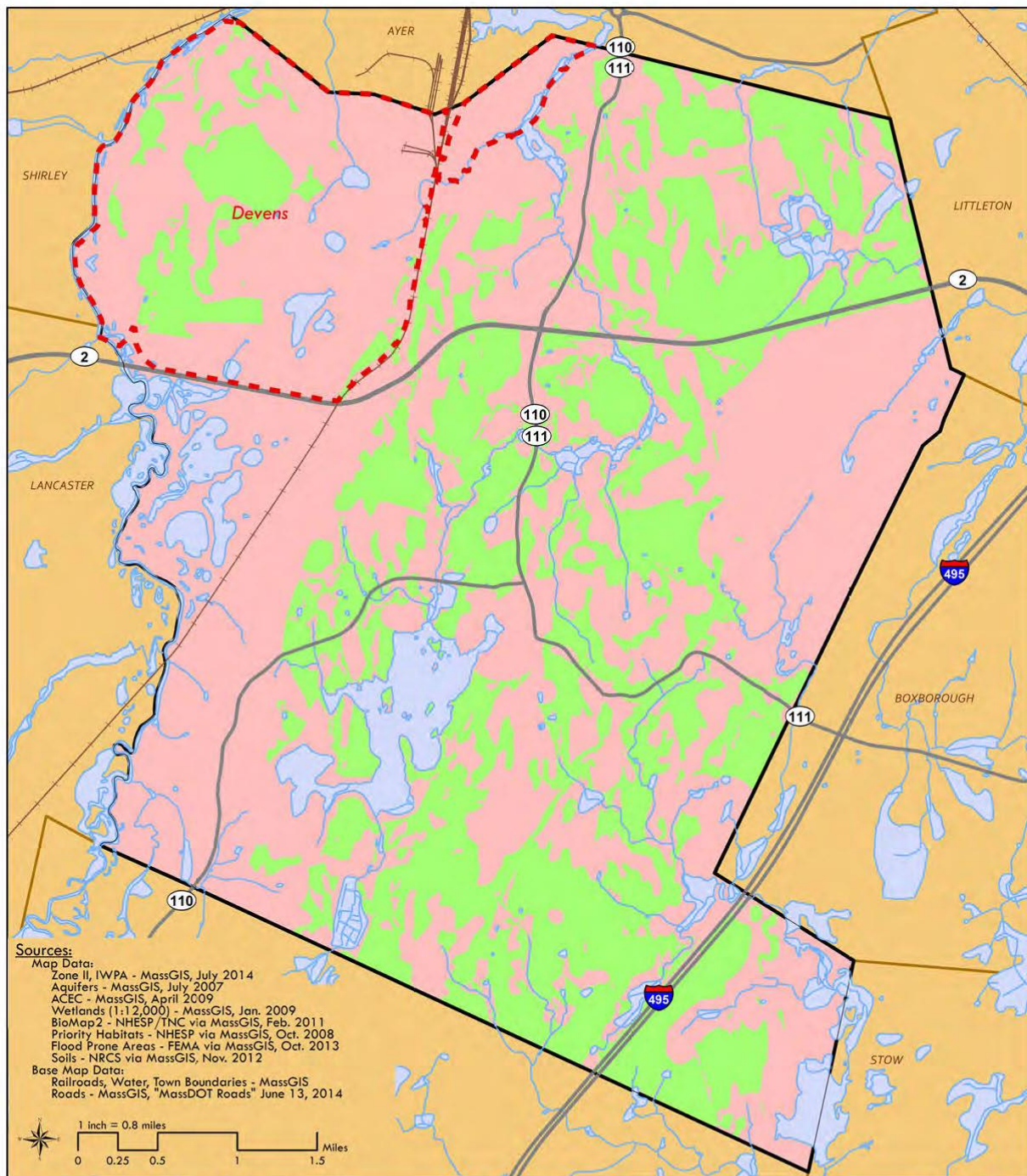
A community's growth potential is limited by both physical constraints, areas where growth requires expensive engineering solutions to overcome obstacles, and by natural resources, where development may have significant consequences in degrading the environment. Map A-1 shows areas that are not suited to development and those that are better suited to development. Included in the areas not suited are wetlands, interim wellhead protection areas, zone II wellhead protection areas, floodways, one percent annual chance flood prone areas, BioMap2 core habitats, BioMap2 critical natural landscapes, areas of critical environmental concern, prime farmland soils, and farmlands of statewide or unique importance.

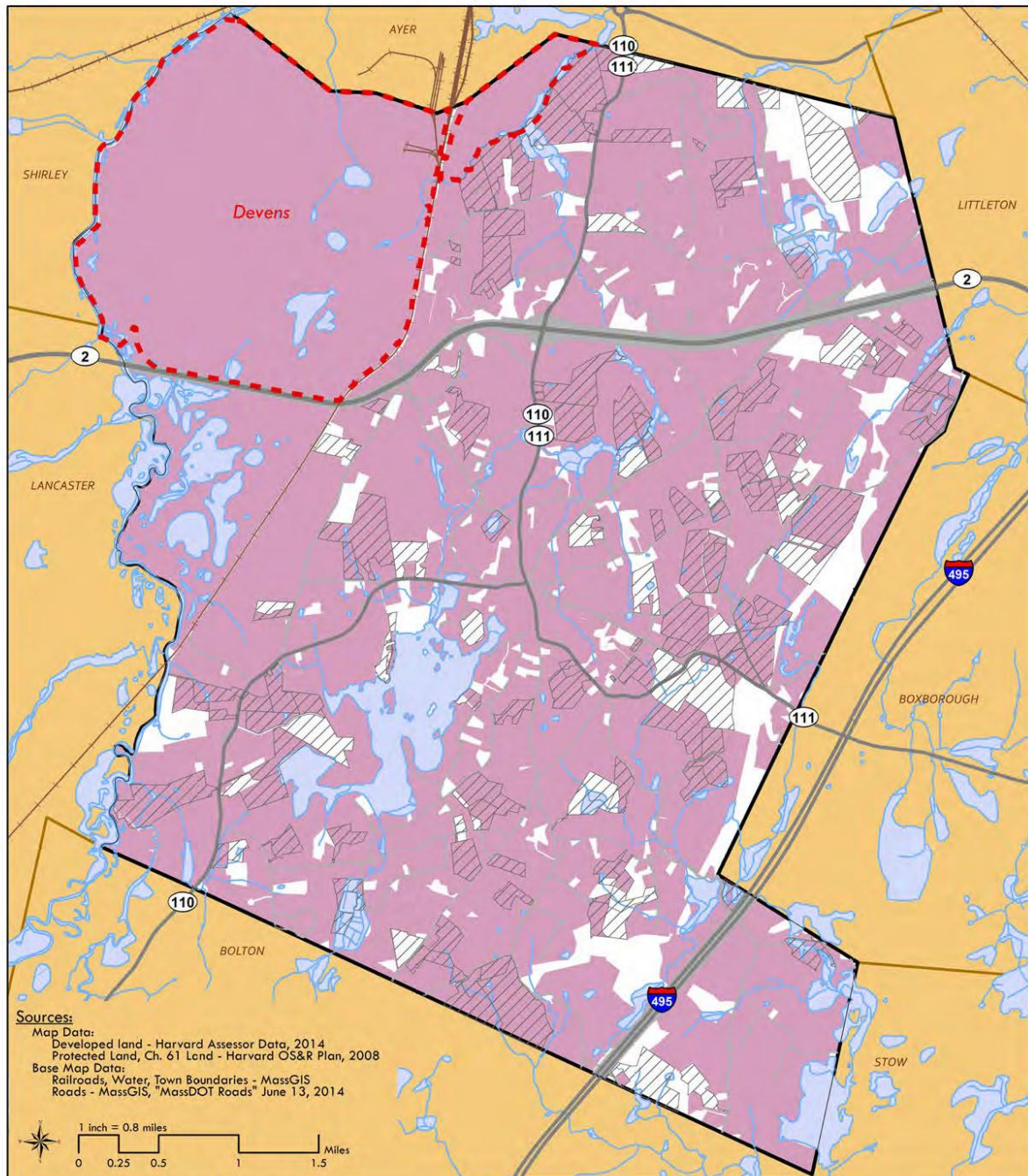
Another way to look at land availability is to examine the parcels in town that are already developed or protected from development. Map A-2 shows this analysis for Residential Harvard. The map also shows parcels in the Chapter 61 tax relief program as of 2008, which may or may not have buildings on them – houses, barns, etc. These Chapter 61 lands are all subject to development or additional development (through subdivision) and should not be considered protected. It should be noted that in this analysis, any parcel with a single family home on it, regardless of whether the parcel is one acre or a hundred, is shown as developed. Clearly, some of these parcels could be further developed either through the subdivision process to add additional housing units to the current parcel, or through redevelopment with demolition of the existing house and new development. Based on the limited commercial zoning, most of such redevelopment would be residential.

Map A-3 shows the land areas in Residential Harvard that are not yet developed and are not protected from development either. A significant amount of this land lies within areas identified in the 2002 Master Plan⁷⁹ as important to preserve for their value as agricultural or historic landscape resources or where protection of groundwater resources or the Bare Hill Pond watershed is important. Map A-3 shows a total of 1,471 acres that are not currently developed, are not protected from development, do not have environmental constraints, and are potentially developable based on size and access. The majority (sixty eight percent, or 1,008 acres) of these areas are in the Chapter 61 program, which indicates some level of desire by the owner to keep the land in agriculture, recreation, or forestry uses. However, without permanent protection the land remains open to development. Based on the absence of wetland and floodplain areas, some of this land should be where efforts to increase development density should occur, as a means to increase housing diversity in town as well as to reduce pressure on other land areas which are not as suitable for development.

⁷⁸ RKG Associates performed this Development Suitability Analysis, which appeared in the "Open Space and Natural Resources Working Paper", September 2014.

⁷⁹ Community Opportunities Group et. al, Harvard Massachusetts Master Plan, (November 2002), Map 4-A.





Harvard Master Plan
 RKG Associates

Legend

- Land Available for Development*
- Developed or Protected**
- Land in Chapter 61, 2008

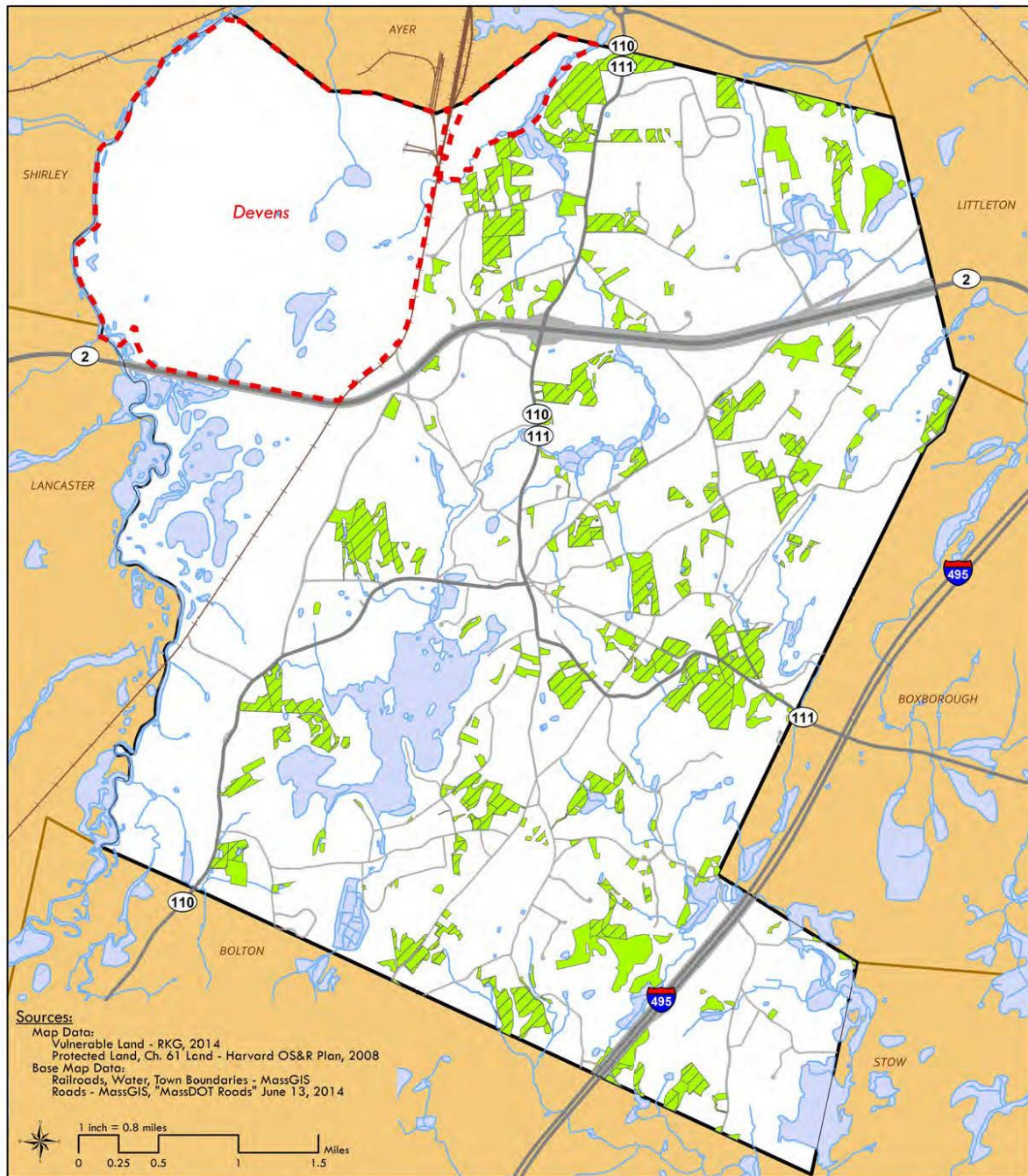
* includes parcels in agricultural or recreational use that are not permanently protected.
 ** includes land with buildings, land owned by public entities, and land protected from development.

Natural Resources

Land Available for Development

August 3, 2014

Map NR-9
 Page #



Harvard Master Plan
 RKG Associates

Legend

- Vulnerable Areas *
- Areas in Chapter 61, 2008

* Land areas (not parcels) that are undeveloped, unprotected, do not have environmental constraints, and are potentially developable based on size and access. Please see text for additional explanation.

Natural Resources

Land Vulnerable to Development

August 12, 2014

Map NR-10
 Page #

Table A-1 shows the acreage of specific areas previously discussed, and their percentage of the town and of the vulnerable lands.

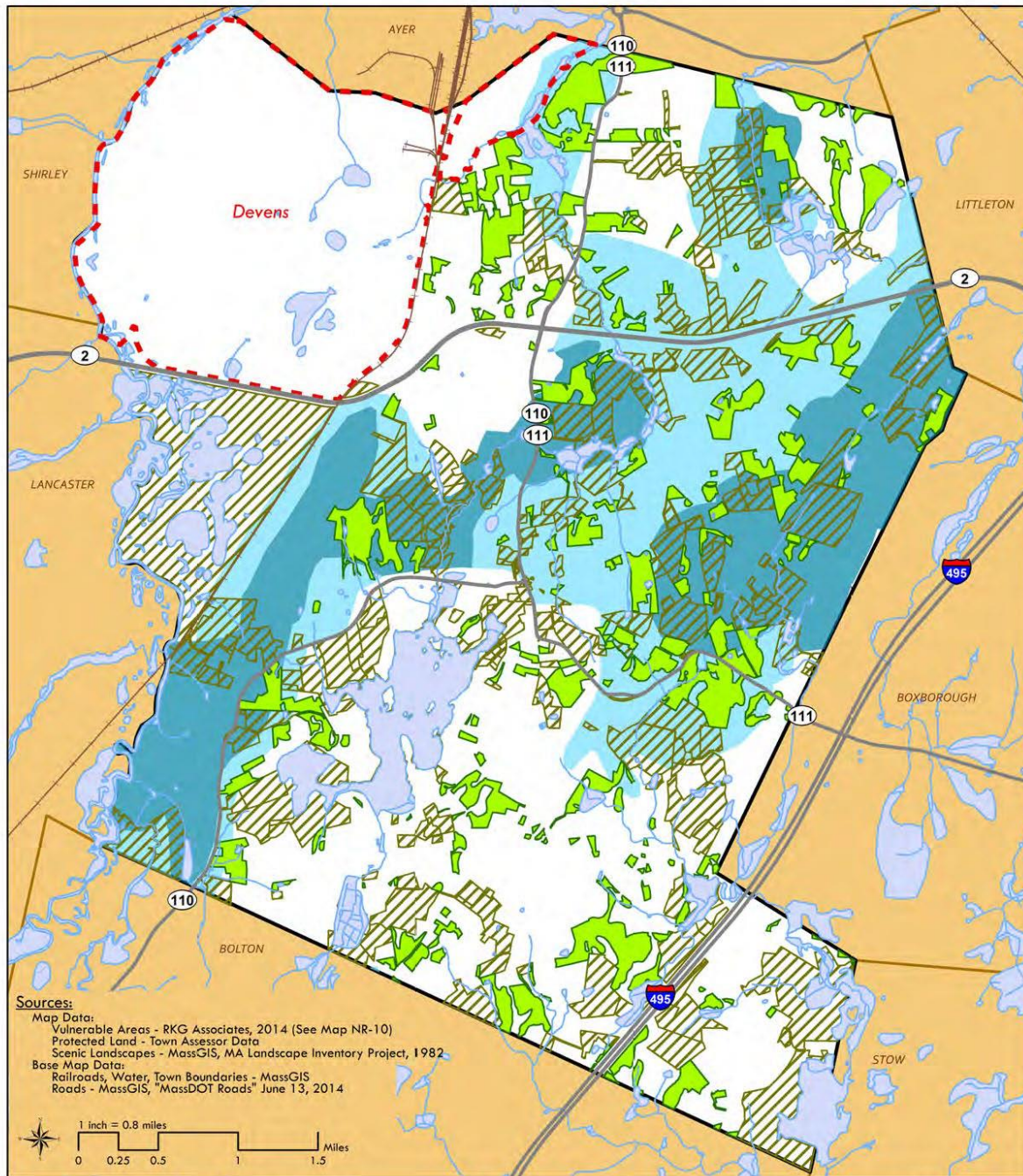
Table A.1 - Vulnerable Land Statistics

	Total Acreage	Percent of Town*	Percent of Vulnerable Lands
Aquifer Areas	3	0.02%	0.16%
Zone II Wellhead Protection Areas	100	0.62%	5.80%
Interim Wellhead Protection Areas	42	0.26%	2.43%
Environmentally Sensitive Areas**	287	1.78%	19.51%
Farmland Soils	859	5.32%	58.40%
Notes: * 16,144 acres, does not include water or rights-of-way ** Includes Areas of Critical Environmental Concern (ACEC), BioMap2 Core Habitat, BioMap2 Critical Natural Landscape, and NHESP Priority Habitats of Rare Species. Note that the data in this table are not additive, many of these areas overlap each other.			
Source: Analysis of GIS data by RKG Associates, August 2014			

Given that it is unrealistic for the Town or any conservation organizations to preserve all – or even most of – the “vulnerable areas” shown in Map A-3, and the fact that previous plans have recommended that preservation efforts should continue in areas designated as scenic, Map A-4 shows the areas of Harvard that are vulnerable to development and the areas already protected, along with the 1982 designated scenic landscapes, which cover 41 percent of the town. Harvard is among a small handful of municipalities across the state with such a large percentage of the community so designated.

The more recent Heritage Landscape Inventory⁸⁰ project completed in June 2006 did not identify any priority landscapes, for participants felt that all of the seventy-six landscapes listed were equally important. Thus, Map A-4 relies on the older data in recognition that there should be a methodology to set priorities in land protection efforts. The vulnerable lands that are adjacent to protected lands and are within a distinctive scenic landscape would be a reasonable “top priority” for protection, followed by those vulnerable lands adjacent to protected lands within noteworthy scenic landscapes or those that would bridge gaps in otherwise protected corridors. There are ninety-one land areas with a total of 868 acres that fall within one of these scenic landscape designations. Harvard should prioritize areas for protection efforts and identify specific parcels for acquisition of the land or conservation restrictions.

⁸⁰ Massachusetts Department of Conservation and Recreation and Freedom’s Way Heritage Association, Harvard Reconnaissance Report, Freedom’s Way Landscape Inventory (June 2006), page 3



Harvard Master Plan
 RKG Associates

Legend

- Protected Land
- Vulnerable Areas
- Distinctive Scenic Landscapes
- Noteworthy Scenic Landscapes

Natural Resources
Preservation Priority Areas

August 27, 2014

Map # NR-11
 Page #

APPENDIX 2

HERITAGE LANDSCAPES⁸¹

This list was generated by local participants at the Heritage Landscape Identification meeting held in Harvard May 10, 2006 with follow-up fieldwork on May 22, 2006. There are undoubtedly other heritage landscapes that were not identified at the HLI meeting noted above. The chart has two columns, the name and location of the resource are in the first; notes about the resource are in the second. Landscapes are grouped by land use category. Abbreviations used in this report are.

APR = Agricultural Preservation Restriction

CR = Conservation Restriction

LHD = Local Historic District

NR = National Register

PR = Preservation Restriction

* = Priority Landscape

TTOR = The Trustees of Reservations

<i>Name & Location</i>	<i>Description</i>
	Agriculture
<i>Arnold Farm</i> Old Mill Road	Sheep farm.
<i>Calkin Farm</i> 146 Littleton County Road	Historically known as the Hosmer-Calkin Farm it was sold to the Hermanns in 1945 and became part of Westward Orchards. Includes ca. 1830s Federal house, large New England barn, dormitory for seasonal workers, apple orchard, two ponds and streams. Sixty-seven acres of the orchard are in APR.
<i>Carlson Orchards</i> 115 Oak Hill Rd.	Active apple orchard with seasonal farmstand. Part is in APR.
<i>Charlie Brown Farm</i> Murray Lane	Also includes early grave. Located adjacent to conservation land.
<i>Dean's Hill Orchard</i> Prospect Hill Road	Adjacent to Dean's Hill, across from Fruitlands.
<i>Doe Orchards</i> Ayer Road	Active apple orchard, 63 acres in 61A.
<i>Double Stone Wall</i> Still River Road	Whitney Homestead, from Common to school parking lot. Was right-of-way for taking cows to Bare Hill Pond, now overgrown.
<i>Endicott Farm</i> Littleton County Road	Horse farm.
<i>Evans Farm</i> Still River Road	Pumpkins and other fall crops, 76 acres.

⁸¹ From "Freedom's Way Landscape Inventory", Mass. DCR and Freedom's Way Heritage Association, 2006.

<i>Name & Location</i>	<i>Description</i>
<i>Fire Fly Farm</i> E Bare Hill Road	Horse farm, 100 ac. 10-acre pasture on East Bare Hill Rd. is protected by a CR held by the Harvard Conservation Trust. Most of the remaining land is in c 61A.
<i>Great Elms Farm</i> Stow Road	House will be demolished in 2016 for a 9-unit affordable housing project.
<i>Hazel Farm</i> Ayer Road	Grows hay and Christmas trees. Very visible, a main gateway to the community.
<i>Hermann Orchards</i> Littleton County Road	Part is in APR. Hermann was the original owner, now owned by Conlin/Green family.
<i>Little Rascals Farm</i>	Ayer Road, Sean McLaughlin (under Camel Needle Eye Corporation) owns the adjacent former Hermann Orchard. APR land - 31 acres.
<i>Murray Lane Goat Farm</i> Murray Lane	CR. Located on dead end road.
<i>Oak Hill Orchards</i>	Includes orchards owned by Carlson family and Hermann descendants.
<i>Sheehan's Farm</i> 177 Mass Ave.	A commercial orchard with ca. 1900 farmhouse, barn and orchards that have been subdivided and sold for house lots.
<i>Westward Orchards</i> 90 Oak Hill Rd.	Part is in APR. Historically known as the Houghton-Hermann Farm on top of Oak Hill. The property has an 18th century center chimney farmhouse and many buildings associated with the apple growing business for which this farm now is well known. Roadside stand/store is on Mass. Avenue.
<i>Whitney Farm</i> Littleton County Road	The Harvard Conservation Trust holds a CR on 20.855 acres of this property, which was formerly Post, Georgaklis/Cahill, and now Barrett, who has horses. An old map has Whitney at this location.
<i>Whitney Lane Farm</i> Whitney Lane	Whitney Lane connects Mass. Ave. and Littleton County Road in the Oak Hill part of Harvard. Ca. 1802 brick Federal house. In late 19th century, pastures were planted with fruit trees and became a sizeable orchard. Now a horse farm.
<i>Willard-Watt Farm</i> 12 Depot Rd.	Federal house ca. 1800, dairy barn, outbuildings and fields. Most of the Watt dairy farm land is now in conservation except for the Watt homes. Willard farmed the land.
<i>Willard Farm</i> Still River Road	Seasonal vegetables, roadside stand.
<i>Williams Farm</i> Stow Road	Ca. 1790 Jonathan Sawyer house later known as the George E. Morse and later Alexander Williams house. Federal style house, farm was dairy and later orchard.

	Archaeological
<i>Mill</i> Sherry Road	Evidence of old water works. Age and ownership unknown.
<i>Mill Ruins</i> Mill Road	Along Bowers Brook. Very little is visible.
	Burial Grounds and Cemeteries
<i>Grave by Charlie Brown Farm</i> Murray Lane	There may be a headstone but location is not obvious.
<i>Harvard Center Cemetery</i> Massachusetts Ave.	NR, LHD. Established in 1734. Historic cemetery in Harvard Center, 3.5 acres, managed by Cemetery Commission.
<i>Shaker Cemetery</i> South Shaker Road	NR, LHD. Established 1792, .85 aces, managed by Cemetery Commission.
<i>Smallpox Grave</i> Poor Farm Hill Road	Grave with headstone is just off the road, enclosed with a fence.
	Civic/Village
<i>Harvard Center</i>	NR, LHD. The largest and most centrally located of Harvard's three villages. Includes town common, town hall, library, burial ground, general store, former inn, three churches (plus one former church now a residence), also views towards Bare Hill Pond.
<i>Hildreth House</i> 27 Ayer Road	NR, LHD. Town-owned historic building in Harvard Center adjacent to town hall. Property also includes 6 acres of landscaped grounds. Used for meetings.
<i>Shaker Village</i> Shaker Road	NR, LHD. The northernmost of Harvard's three villages which is one of two historic districts in Harvard. Site of religious community from late 18th to early 20th century. Well-preserved village includes 15 contributing buildings, 11 sites, five structures and nine non-contributing buildings.
<i>Still River Village</i> Still River Road	Another of Harvard's three villages, located in the southwestern part of town. Well-preserved 19th century houses, also the home of the St. Benedict's Abbey complex. Has been documented on MHC inventory forms.
<i>Town Common</i> Ayer Road	In Harvard Center NR district and LHD. Established 1733, was originally 30 acres, now is only nine. Includes town pound, powder house, and mill stone. The heart of the community.
<i>Town Hall</i> 13 Ayer Road	In Harvard Center NR district and LHD. Overlooking the common.

	Institutional
<i>Green Eyrie Girl Scout Camp</i> on Bare Hill Pond	47 acres between Bare Hill Pond and Still River Road owned by the Boy Scouts and used in the summer for camping. Once part of the Fiske Warren enclaves.
<i>Harvard Public Library</i> 7 Fairbank Street	In Harvard Center NR district and LHD. Soon to be vacant when library moves to Old Bromfield.
<i>Devens</i>	Camp Devens was established in 1917 and remained an active military base until 1995 when the area was designated as the Devens Enterprise Zone. Includes natural and historic resources. These include Colonel's Row (housing), Vicksburg Square (former dormitories), Rogers Field (former parade grounds with viewing stand now used for recreation) and a military cemetery, as well as the Mirror Lakes, part of the Nashua River and a glacially formed esker. Small portions of Devens are in Ayer and Shirley. Traditional boundary makers still exist.
<i>Fruitlands Museums</i> Prospect Hill Road	NR district, PR. Private non-profit museum established by Clara Endicott Sears in 1914. Includes five collections: four museum buildings, trails and archaeological sites, a restaurant and a museum store. Also includes dramatic regional views that include the Harvard portion of Devens (Shabikin), Wachusett Mountain, Mount (or Mt.)Monadnock and the Pack Monadnocks, land south and west over the Nashua River.
<i>Holy Hill</i> Ann Lee Road	Part of Shaker Village, now town-owned conservation land.
<i>Oak Ridge Observatory</i> 42 Pinnacle Road	Owned by Harvard-Smithsonian Center for Astrophysics. Currently operating a new telescope by Harvard astrophysicist Paul Horowitz and the SETI program under Adam Dziewonski.
<i>Old Bromfield</i> Massachusetts Avenue	Originally known as Bromfield Academy, 1876. Was left to the town for educational purposes. Construction has begun on an extension and rehab that will incorporate the old building with a new town library.
<i>South Village House</i> 101 S. Shaker Road	One of two large communal houses in Harvard built by the Shakers. Now a private residence with adjacent stone barn ruins (which are under a preservation restriction). House is in the process of being preserved.
<i>Shaker Herb Drying Shed</i> Shaker Road	In Shaker Village NR district and LHD. Handsome stone building that was partially restored with CPA funds in 2002. Surrounding area is partially protected by conservation land. Town-owned.
<i>Shaker Spring House</i>	Town-owned on conservation land. Access is off Green Road.
<i>Shaker Stone Posts</i>	Rough cut granite fence posts located throughout Shaker Village.

<i>Shaker Whipping Stone</i> S. Shaker Road	Located at the driveway of 36 South Shaker Road on private land across from Glenview Drive. The engraved granite stone marks the place where Fathers James and Williams were whipped by local residents. Marker is visible from the road.
<i>Still River Baptist Church</i> Still River Road	NR, PR. 1832, now the home of the Harvard Historical Society.
<i>St. Benedict's Abbey Complex</i> Still River Road	Religious community established in 1958 that includes three separate entities: monastery, convent, and retreat center. Collectively they own 175 acres of land as well as a variety of historic and contemporary buildings. Land is farmed and there is a small farm stand. Dramatic site with regional views over the Nashua River to the west.
	Industrial
<i>Slate Quarry</i> Pin Hill	Remains of a blasting project are visible from Mill Road.
	Miscellaneous
<i>Festivals</i>	Harvard has a strong tradition of festivals and special events that are important to the community. Apple Blossom Festival in Spring; Columbus Day Flea Market; Three Apples Storytelling.
<i>General Store</i> 1 Still River Road	In Harvard Center NR district and LHD. Originally called the Gale and Dickson Store, built 1896. Important visual, economic and social anchor in Harvard Center. Only marginally economically viable, may not continue as an active store.
<i>Horse Trough</i> Ayer Road	Late 19th century horse trough located northeast of town center. Overlooks adjacent conservation land to the east.
	Natural
<i>Dean's Hill</i>	360-degree view, unusually high hill for Harvard.
<i>Drumlin</i> Stow Road	On Williams conservation land.
<i>Magnetic Hill</i> Stow Road	Area on Stow Road where there is an optical illusion: by putting a car into neutral and gliding, it appears to travel uphill or down, depending upon direction of the hill.
<i>Shrewsbury Ridge</i>	Long escarpment underlying Oak Hill that extends from Littleton to Shrewsbury. It is an important feature because it limits development. Oak Hill elevation is 500-600 ft.
	Open Space/Parks
<i>Blomfelt Land</i> Ann Lee Road	This 29-acre town-owned conservation parcel connects Ann Lee Road with Ayer Road.

<i>Brown Parcel Murray Lane</i>	Located in southeastern part of town. 31 acres adjacent to the Great Elms conservation land and an 80-acre CR held by the Trust.
<i>Field Slough Road</i>	Visually important parcel at corner of Slough Road and Woodchuck Road. Will be preserved.
<i>Oxbow National Wildlife Refuge</i>	Along the eastern bank of the Nashua River and western edge of Harvard. 1,850 are within the Central Nashua River Valley ACEC. Also extends into adjacent communities. There are dramatic regional views of the refuge and Nashua River from Prospect Hill and Still River. Access in Harvard is from Still River Road.
	Residential
<i>Fiske Warren House 42 Bolton Road</i>	NR. Shingle style house built 1894. In the early 1900s Fiske Warren established a series of “enclaves,” encouraging communal land ownership that lasted until his death in 1938. One of these was Tahanto on Bare Hill Pond.
<i>Ralph Houghton Garrison House 204 W. Bare Hill Road</i>	Circa 1685. Located at West Bare Hill and Still River roads.
<i>Old houses on east side of Bare Hill</i>	Reportedly associated with Underground Railroad. Several houses (39, 74, and 90) on East Bare Hill are near the cave that was used, according to family stories, to hide runaways. (These stories come from an old Harvard family of African American and Native American heritage.) Living relatives of those who participated still relate oral history. No written record. As Carrie used to say, “when a stranger appeared at the table for dinner, you asked no questions. If asked, you said he/she was a cousin and never spoke of it again.”
<i>Pollard House 327 Still River Road</i>	Full name is Captain Thaddeus Pollard House/Isaac Marshall House, built circa 1800. Historic house adjacent to whipping tree.
	Transportation
<i>Ayer Road</i>	South of Route 2 – scenic gateway into town.
<i>Harvard Depot</i>	The Harvard Depot is at the end of the Depot Road that runs under Route 2. From there a resident could access the farms in Shabikin or the center of town. (one mile) Still River Depot is at the end of the road that leads to the Oxbow. Markers at each stop say “Harvard” and “Still River.”
<i>Littleton County Road</i>	Scenic road with farms and woodland, great views across orchards and open land. Tree canopy.
<i>Stow Road</i>	Scenic road with rolling meadows, open fields, stone walls. Includes Williams Pond and Great Elms Farm.

	Waterbodies
<i>Bennetts Brook</i>	In Shaker Village.
<i>Bare Hill Pond</i>	321 acres, Great Pond. Visible from town center, used for swimming, boating, fishing, ice skating, etc.
<i>Black Pond</i>	On conservation land. Accessible from Littleton County Road.
<i>Bowers Brook</i>	The entire Cold Spring Brook system, including wetlands.
<i>Golden's Pond</i> Old Mill Road	Lovely mill pond on Old Mill Road.
<i>Wetlands</i>	Extensive wetlands on the Littleton/Harvard border – former Underwood land & Rogers and Sizer land - 54 ac.; wetlands throughout town contain development.
<i>Williams Pond</i>	Pond with lilies – donated by Peggy Williams for conservation.

APPENDIX 3

DEVENS ACCEPTANCE CRITERIA

The following are criteria which need to be assessed and met prior to the Town of Harvard being willing to accept jurisdiction over Devens property under the current jurisdiction of MassDevelopment per Chapter 498 of the Acts of 1993.

1. Financial

- A. All expenses, including capital plan costs, related to the administration and provision of public services for Devens, including education, must be balanced by revenues originating from Devens on an annual basis.
- B. Taxation of commercial and industrial activities on Devens must raise revenues at a level so as to cover all costs stated in the first bullet as well as generating enough revenue to develop a capitalization and stabilization fund which will be sufficient to maintain public infrastructure and defer other expenses related to their presence on the site.

2. Environmental

- A. All areas of concern regarding contamination and landfills must be clearly identified.
- B. All sites requiring remediation must have a plan that includes a timetable for completion and a guarantee of funding adequate to complete the remediation task in place.
- C. All recreation and natural resource areas must have a plan for their maintenance in place with funding and responsibility for the maintenance clearly identified and secured.
- D. Determination that remaining contamination could have no adverse impact on the Town of Harvard (operations, legal or otherwise).
- E. Must have an agreement as to how future identification of contamination will be resolved to protect the Town of Harvard from liability.

3. Schools

- A. Issue of where children will be schooled should be resolved for at least a 10 year period moving forward from time of turnover.
- B. Levels of reimbursement and financial support must be determined and be made legally binding with the State.
- C. If schooling is to be provided by Harvard, must have an acceptable plan which accommodates the increased population. This plan must be acceptable from a financial as well as a community viewpoint as to whether new schools will be built, where and for which grades.

4. Character

- A. Adequate and sustainable buffers/barriers must be in place between incompatible uses within Devens and the surrounding community.
- B. Opportunities should be present for the establishment of commercial activities that support the resident population of the site and provide commercial services not now present in the Town of Harvard.

- C. Access to Devens must be pre-determined and constructed so that all functions and circles of interaction (schools, Town-center access, social, cultural) are provided for.

5. Infrastructure

- A. Land must be made available on Devens, free and clear of contamination (or with capped remediation costs), in order to provide for all Town needs and operation (schools, public works, public safety, etc.)
- B. A plan for the maintenance of all roads, recreation areas, and public facilities by the Town of Harvard must be in place with all necessary equipment, buildings, and yard facilities transitioned to the town in good operating condition.
- C. Ownership of all public facilities, roads, etc. to be maintained by the Town of Harvard must be transferred to the Town of Harvard.
- D. Adequate equipment, facilities, and access must be in place to provide public safety services (police, fire, ambulance) to the site.
- E. Sewer, water and other necessary regional districts must be established for the operation and maintenance of regional facilities.
- F. Sewage and water facilities must be in good operating condition and adequately capitalized to make any needed improvements.
- G. An aquifer protection plan must be established and funded to protect the water supply
- H. a self-supporting plan for trash disposal must be established.
- H. A self-supporting plan for trash disposal must be established.

6. Land Ownership

- A. Determine ownership of all properties on Devens and develop a plan as to how records can be developed and transferred so that the Town of Harvard can assess and tax in accordance with current operations.
- B. Ownership of all structures and parcels on the site must be clearly established and agreed to including all property still owned by the State.
- C. Those structures not in use or without a clearly identified reuse and a funded plan in place for their reuse must be removed from the site.
- D. A plan must be developed by which current land owners on Devens are informed and transitioned into the new system of operations with the Town of Harvard.

7. Reuse Plan

- A. The Joint Boards of Selectmen must agree that the goals of the Reuse Plan have been met.
- B. Zoning control must be transferred to the Town of Harvard subject to an Memorandum of Understanding between the state and town that provides stability to those currently on the site or seeking to locate on the site.

APPENDIX 4 RESULTS OF 2014 MASTER PLAN SURVEY

Question and Responses				Comments
Demographic Questions				
1	What is your age?			
	75 and over	10	4%	❖ Very few younger residents took the survey; only 4% of respondents were under the age of 35.
	65 to 74	43	18%	
	55 to 64	54	23%	
	45 to 54	68	28%	
	35 to 44	55	23%	
	25 to 34	7	3%	
	18 to 24	2	1%	
	Under 18	0	0%	
	Total	239	100%	
2	How long have you lived in Harvard?			
	Less than 1 year	17	7%	❖ This appears to be a reasonable allocation of length of residency. One would expect that first year residents would be a small number.
	1 to 4 years	43	18%	
	5 to 9 years	21	9%	
	10 to 14 years	53	22%	
	15 to 20 years	27	11%	
	20 to 29 years	43	18%	
	Over 30 years	35	15%	
	Total	239	100%	
3	How many people are in your household?			
	1 (you live alone)	10	4%	❖ About half of the households have 3 or fewer people, and about half have 4 or more people.
	2	76	32%	
	3	31	13%	
	4	84	35%	
	5 or more	38	16%	
	Total	239	100%	

4	Do you currently have children attending Harvard Public Schools?				
	Yes	107	45%	❖	Households with school children may be slightly over-represented. In 2010, 41% of households had children under 18.
	No	132	55%		
	Total	239	100%		
5	Do you currently serve, or have you served within the past five years, on a Town of Harvard board, commission, or committee?				
	Yes	65	27%	❖	It appears that people who have served on a board continue to follow town affairs.
	No	174	73%		
	Total	239	100%		
6	Please look at this map and identify the number that corresponds to the area of Harvard where you live.				
	1 – Devens	10	4%	❖	Devens and the west side have smaller populations and thus have fewer households to participate. North and Southeast Harvard have the greatest representation in the survey.
	2 – North	66	28%		
	3 – West	12	5%	❖	
	4 – East	31	13%		
	5 – Center	26	11%		
	6 – Southwest	39	16%		
	7 – Southeast	55	23%		
	Total	239	100%		

Housing Questions

7	Harvard needs a more diversified housing stock.				
	Strongly Agree	41	19%	❖	50% of respondents agree or strongly agree that Harvard needs a more diversified housing stock.
	Agree	69	31%		
	Neither Agree Nor Disagree	50	23%	❖	27% disagree that Harvard needs a more diversified housing stock.
	Disagree	44	20%		
	Strongly Disagree	16	7%		
	Total	220	100%		
8	Encouraging housing in mixed-use developments in the Commercial District (C District) on Ayer Road is appropriate.				
	Strongly Agree	29	14%	❖	Over half of respondents (55%) feel that mixed use development is appropriate in the C District.
	Agree	86	41%		
	Neither Agree Nor Disagree	40	19%		
	Disagree	40	19%		
	Strongly Disagree	17	8%		
	Total	212	100%		

9	Seniors would downsize and stay in town if Harvard had more types of housing.				
	Strongly Agree	43	20%	❖	Only 15% of respondents disagree that Harvard should have more types of housing to allow seniors to downsize.
	Agree	84	38%		
	Neither Agree Nor Disagree	58	26%		
	Disagree	25	11%		
	Strongly Disagree	9	4%		
	Total	219	100%		
10	Harvard's zoning should encourage smaller housing units, affordable housing, and senior-friendly homes, even if it means allowing more density in some locations.				
	Strongly Agree	41	19%	❖	Support exists (54%) for alternative housing types, although 31% disagree.
	Agree	77	35%		
	Neither Agree Nor Disagree	32	15%		
	Disagree	39	18%		
	Strongly Disagree	28	13%		
	Total	217	100%		
11	Harvard needs more affordable housing.				
	Strongly Agree	34	16%	❖	A majority of respondents (53%) agree that Harvard needs more affordable housing.
	Agree	80	37%		
	Neither Agree Nor Disagree	43	20%		
	Disagree	35	16%		
	Strongly Disagree	24	11%		
	Total	216	100%		
12	Harvard needs housing for people with special needs.				
	Strongly Agree	15	7%	❖	Only 30% of respondents agree that Harvard needs housing for people with special needs, but nearly half have no opinion on the matter.
	Agree	49	23%		
	Neither Agree Nor Disagree	104	48%		
	Disagree	38	18%		
	Strongly Disagree	10	5%		
	Total	216	100%		

- 13 The variety of housing at Devens makes an important contribution to Harvard's existing housing stock.

Strongly Agree	34	16%	❖ 58% of respondents believe that Devens makes an important contribution to Harvard's housing stock.
Agree	90	42%	
Neither Agree Nor Disagree	50	23%	
Disagree	26	12%	
Strongly Disagree	16	7%	
Total	216	100%	

- 14 Harvard's tax levy is based almost entirely on residential property taxes.

Strongly Agree	92	42%	❖ It is clear to a large majority (83%) that Harvard relies heavily on residential property to fund municipal services.
Agree	90	41%	
Neither Agree Nor Disagree	33	15%	
Disagree	2	1%	
Strongly Disagree	0	0%	
Total	217	100%	

- 15 Harvard needs a more robust commercial tax base.

Strongly Agree	53	24%	❖ 62% of respondents would like Harvard to have a larger commercial tax base. Just 19% disagree.
Agree	82	38%	
Neither Agree Nor Disagree	40	18%	
Disagree	29	13%	
Strongly Disagree	13	6%	
Total	217	100%	

- 16 Ethnic, generational, and economic diversity are important for the health and vitality of all communities, including Harvard.

Strongly Agree	69	32%	❖ 74% of respondents believe diversity is important to the vitality of Harvard.
Agree	90	42%	
Neither Agree Nor Disagree	32	15%	
Disagree	16	7%	
Strongly Disagree	9	4%	
Total	216	100%	

C District Questions

17	Harvard needs a more business-friendly approach to commercial development in the C District.				
	Strongly Agree	62	29%	❖	55% of respondents favor fewer restrictions on commercial development in the C District.
	Agree	56	26%		
	Neither Agree Nor Disagree	44	20%	❖	25% of respondents disagree with a more business-friendly approach.
	Disagree	30	14%		
	Strongly Disagree	23	11%		
	Total	215	100%		
18	More business development in the C District could threaten Harvard's town character.				
	Strongly Agree	36	17%	❖	While about 1/3 of respondents have concerns of a possible loss of town character from more business development in the C district, 1/2 do not think this will occur.
	Agree	39	18%		
	Neither Agree Nor Disagree	34	16%		
	Disagree	72	33%		
	Strongly Disagree	37	17%		
	Total	218	100%		
19	The economic benefits of more business development in the C District would outweigh the potential impact on surrounding neighborhoods.				
	Strongly Agree	22	10%	❖	Respondents are divided about this question; 42% agree that the economic benefits of business development outweigh the potential impacts on surrounding neighborhoods, but 35% disagree.
	Agree	69	32%		
	Neither Agree Nor Disagree	51	23%		
	Disagree	31	14%		
	Strongly Disagree	45	21%		
	Total	218	100%		
20	Harvard should focus more on the physical appearance of development in the C District rather than controlling the types of uses (office or retail, for example) that are allowed there.				
	Strongly Agree	24	11%	❖	It seems that residents want both to change the physical appearance of development in the C District and to control the types of uses allowed.
	Agree	73	34%		
	Neither Agree Nor Disagree	51	24%		
	Disagree	55	26%		
	Strongly Disagree	12	6%		
	Total	215	100%		

- 21 The C District is an ideal area for Harvard to create more affordable housing.

Strongly Agree	14	7%	❖ Respondents are split on this question; 34% are in favor of building more affordable housing in the C District, 33% are not in favor, and 33% are unsure.
Agree	57	27%	
Neither Agree Nor Disagree	72	33%	
Disagree	41	19%	
Strongly Disagree	31	14%	
Total	215	100%	

- 22 If Ayer Road had the infrastructure to support growth, the C District could be a significant economic engine and revenue generator for the Town.

Strongly Agree	32	15%	❖ A majority of respondents (54%) think that bringing infrastructure to Ayer Road would spur economic growth and provide revenue for the Town.
Agree	84	39%	
Neither Agree Nor Disagree	43	20%	
Disagree	35	16%	
Strongly Disagree	23	11%	
Total	217	100%	

- 23 The C District should provide the services residents want irrespective of revenue benefits to the town.

Strongly Agree	17	8%	❖ Respondents do not favor commercial growth just to generate revenue, but also want services to meet their needs.
Agree	57	26%	
Neither Agree Nor Disagree	59	27%	
Disagree	58	27%	
Strongly Disagree	25	12%	
Total	216	100%	

- 24 The C District should provide the services residents want irrespective of the potential negative impact on surrounding neighborhoods (for example, traffic impacts).

Strongly Agree	14	6%	❖ 56% of respondents wish to insure that new development in the C district does not negatively impact surrounding neighborhoods.
Agree	47	22%	
Neither Agree Nor Disagree	35	16%	
Disagree	61	28%	
Strongly Disagree	61	28%	
Total	218	100%	

Public Facilities Questions

25	Harvard should designate a site for additional space outside of the Town Center if the current school facilities become too small to serve the student population.				
	Strongly Agree	22	10%	❖ Respondents are split on this question. 38% are in favor of looking outside of the Town Center for a school expansion site, while 37% favor keeping schools in the Town Center.	
	Agree	62	28%		
	Neither Agree Nor Disagree	54	25%		
	Disagree	57	26%		
	Strongly Disagree	23	11%		
	Total	218	100%		
26	Harvard should identify and explore options for providing water and sewer service to properties in the C District on Ayer Road.				
	Strongly Agree	39	18%	❖ Strong support (58%) exists for exploring ways to bring water and sewer services to the C district.	
	Agree	85	40%		
	Neither Agree Nor Disagree	52	24%		
	Disagree	25	12%		
	Strongly Disagree	14	7%		
	Total	215	100%		
27	The Town should invest in single-stream recycling.				
	Strongly Agree	24	11%	❖ Single-stream recycling is not widely supported. Nearly half of respondents have no opinion. Only 35% are in favor.	
	Agree	52	24%		
	Neither Agree Nor Disagree	105	48%		
	Disagree	30	14%		
	Strongly Disagree	6	3%		
	Total	217	100%		
28	The Town's municipal buildings should have ongoing annual maintenance, even if doing so means higher taxes.				
	Strongly Agree	48	22%	❖ Respondents strongly support (63%) maintaining town buildings even if it means higher taxes.	
	Agree	89	41%		
	Neither Agree Nor Disagree	46	21%		
	Disagree	26	12%		
	Strongly Disagree	8	4%		
	Total	217	100%		

29	Harvard should have a qualified, full-time person responsible for managing the Town's municipal buildings and overseeing maintenance, renovation, and energy efficiency projects.				
	Strongly Agree	34	16%	❖	54% of respondents favor hiring a full-time person to look after town buildings; only 19% disagree with such a hire.
	Agree	83	38%		
	Neither Agree Nor Disagree	60	28%		
	Disagree	31	14%		
	Strongly Disagree	10	5%		
	Total	218	100%		
30	There is poor communications and a lack of collaboration among boards, committees, and the general public in Harvard.				
	Strongly Agree	54	25%	❖	By and large, the public perceives that there is poor communication and a lack of collaboration among town boards; only 9% disagree.
	Agree	81	37%		
	Neither Agree Nor Disagree	62	29%		
	Disagree	16	7%		
	Strongly Disagree	4	2%		
	Total	217	100%		
31	People would recycle more if Harvard adopted pay-per-bag for trash disposal.				
	Strongly Agree	26	12%	❖	More respondents (42%) disagree than agree (34%) that recycling would increase if Harvard adopted a pay-per-bag system.
	Agree	49	22%		
	Neither Agree Nor Disagree	54	25%		❖ This may also mean that there is a lack of support in general for a pay-per-bag system.
	Disagree	59	27%		
	Strongly Disagree	32	15%		
	Total	220	100%		
32	The benefits of preserving historic public buildings outweigh the added cost involved.				
	Strongly Agree	44	20%	❖	Over half of respondents believe that preserving historic public buildings is worth the added cost.
	Agree	67	31%		
	Neither Agree Nor Disagree	42	19%		
	Disagree	47	21%		
	Strongly Disagree	19	9%		
	Total	219	100%		

Town Center Questions

33	Harvard's primary municipal and school facilities should remain in the Town Center (e.g. schools, town offices, senior center, library, public safety).				
	Strongly Agree	65	30%	❖ Respondents are heavily in favor (74%) of keeping town facilities in Harvard Center.	
	Agree	96	44%		
	Neither Agree Nor Disagree	35	16%		
	Disagree	16	7%		
	Strongly Disagree	5	2%		
	Total	217	100%		
34	The Town Center water and sewer districts should be enlarged to accommodate growth of civic, institutional, residential, and commercial activities within the Town Center.				
	Strongly Agree	23	11%	❖ Nearly half (48%) of respondents agree that the Town Center is an appropriate location for growth and that the Town should expand water and sewer districts to accommodate it.	
	Agree	82	37%		
	Neither Agree Nor Disagree	53	24%		
	Disagree	50	23%		
	Strongly Disagree	11	5%		
	Total	219	100%		
35	Harvard should make it a priority to develop a common walkway connecting the Town Beach to McCurdy Track.				
	Strongly Agree	32	15%	❖ Modest support (44%) exists for developing a walkway to connect the Town Beach with McCurdy Track; 26% disagree with the proposal.	
	Agree	63	29%		
	Neither Agree Nor Disagree	69	31%		
	Disagree	35	16%		
	Strongly Disagree	21	10%		
	Total	220	100%		
36	A pub/restaurant in the Town Center would be a welcome addition to the community.				
	Strongly Agree	68	31%	❖ A pub or restaurant is the kind of business that respondents highly support (71%) for the Town Center.	
	Agree	89	40%		
	Neither Agree Nor Disagree	28	13%		
	Disagree	23	10%		
	Strongly Disagree	12	5%		
	Total	220	100%		

- 37 Some higher-density housing should be allowed in the Town Center, including affordable housing.

Strongly Agree	19	9%	❖ 47% of respondents did not support increasing housing density or allowing affordable housing in the Town Center.
Agree	63	29%	
Neither Agree Nor Disagree	33	15%	❖ 38% are in favor of higher density/affordable housing in the Center.
Disagree	60	28%	
Strongly Disagree	40	19%	
Total	215	100%	

- 38 The Town needs to implement its comprehensive plan for parking, traffic and pedestrian circulation in the Town Center.

Strongly Agree	29	13%	❖ 48% of respondents would like to see the Town implement a comprehensive circulation plan for the Town Center, while 17% disagree with the need.
Agree	76	35%	
Neither Agree Nor Disagree	76	35%	
Disagree	31	14%	
Strongly Disagree	6	3%	
Total	218	100%	

Transportation Questions

- 39 If Harvard reclaimed jurisdiction over all or a portion of Devens, the roads that once connected Devens with Harvard should be reopened.

Strongly Agree	35	16%	❖ Strong support (60%) exists for re-opening the roads to Devens if the Town resumes jurisdiction.
Agree	94	44%	
Neither Agree Nor Disagree	34	16%	
Disagree	32	15%	
Strongly Disagree	21	10%	
Total	216	100%	

- 40 Harvard police officers should target high-speed routes around town with more vigilance, automated speed enforcement, flashing speed signs, and similar enforcement methods.

Strongly Agree	24	11%	❖ Respondents do not necessarily agree that police should be more vigilant in enforcing speed limits; 34% agree, 37% disagree, and 29% have no opinion.
Agree	49	23%	
Neither Agree Nor Disagree	64	29%	
Disagree	63	29%	
Strongly Disagree	17	8%	
Total	217	100%	

41	Cut-through traffic is responsible for most of the speeding problems on Harvard's roads.				
	Strongly Agree	14	6%	❖	Only 28% of respondents agree that the culprit for speeding problems in Harvard is cut-through traffic.
	Agree	49	22%		
	Neither Agree Nor Disagree	75	34%		
	Disagree	69	32%		
	Strongly Disagree	11	5%		
	Total	218	100%		
42	The Town should maintain its existing policy of designating every local road as a scenic road because all roads in Harvard have the same scenic value and historical importance.				
	Strongly Agree	22	10%	❖	No clear conclusions can be drawn about how respondents feel about Harvard's scenic roads.
	Agree	59	27%		
	Neither Agree Nor Disagree	72	33%		
	Disagree	51	23%		
	Strongly Disagree	14	6%		
	Total	218	100%		
43	Harvard needs more paths so that pedestrians and cyclists can circulate safely throughout the town.				
	Strongly Agree	81	37%	❖	This question yielded one of the strongest findings of the survey; 74% of respondents support a policy of providing more paths for pedestrian and bicyclist safety.
	Agree	82	37%		
	Neither Agree Nor Disagree	24	11%		
	Disagree	28	13%		
	Strongly Disagree	5	2%		
	Total	220	100%		
44	Harvard should do a better job of maintaining the roads, even if it means spending more on road maintenance each year.				
	Strongly Agree	28	13%	❖	There is modest support for increasing local spending on road maintenance; 42% agree and 24% disagree.
	Agree	62	29%		
	Neither Agree Nor Disagree	74	34%		
	Disagree	46	21%		
	Strongly Disagree	7	3%		
	Total	217	100%		

Devens Questions

45	Harvard should not resume jurisdiction over Devens unless the revenues from Devens can pay the full cost of municipal and school services used by Devens businesses and residents.				
	Strongly Agree	66	30%	❖	Two-thirds of respondents agree that revenues from Devens must exceed service costs in order for the Town to resume jurisdiction.
	Agree	81	37%		
	Neither Agree Nor Disagree	43	20%		
	Disagree	21	10%		
	Strongly Disagree	7	3%		
	Total	218	100%		
46	Resuming jurisdiction over Devens would require Harvard to have more paid professionals to assist local boards.				
	Strongly Agree	39	18%	❖	A majority (56%) of respondents believe that the Town would need to hire more professional help to run Devens. Only 11% disagree, but 33% are unsure.
	Agree	82	38%		
	Neither Agree Nor Disagree	71	33%		
	Disagree	20	9%		
	Strongly Disagree	4	2%		
	Total	216	100%		
47	Resuming jurisdiction of Devens would increase the availability of conservation land and recreational facilities for use by all Harvard residents.				
	Strongly Agree	25	12%	❖	Nearly half (47%) of respondents agree that Devens would increase the supply of conservation land and recreation facilities for use by Harvard residents
	Agree	75	35%		
	Neither Agree Nor Disagree	75	35%		
	Disagree	25	12%		
	Strongly Disagree	17	8%		
	Total	217	100%		
48	If Harvard reclaimed jurisdiction over all or a portion of Devens, Harvard's small-town, semi-rural character would change.				
	Strongly Agree	38	17%	❖	More respondents agree (44%) than disagree (35%) that Harvard's small town character would change by resuming jurisdiction over Devens.
	Agree	59	27%		
	Neither Agree Nor Disagree	46	21%		
	Disagree	58	27%		
	Strongly Disagree	17	8%		
	Total	218	100%		

- 49 Harvard should secure access to the aquifer at Devens as a future source of public water for Harvard.

Strongly Agree	41	19%	❖ A majority of respondents agree (56%) that the aquifer at Devens could serve as a future water source for the Town.
Agree	81	37%	
Neither Agree Nor Disagree	74	34%	
Disagree	17	8%	
Strongly Disagree	6	3%	
Total	219	100%	

- 50 One benefit of Harvard having jurisdiction over Devens is that town boards will have control over protecting natural resources.

Strongly Agree	30	14%	❖ A majority of respondents (52%) believe that Harvard boards can do a good job of protecting the natural resources at Devens. Only 18% disagree.
Agree	83	38%	
Neither Agree Nor Disagree	66	30%	
Disagree	27	12%	
Strongly Disagree	12	6%	
Total	218	100%	

- 51 Devens will become fiscally self-supporting (with revenues exceeding expenses) within the next decade.

Strongly Agree	18	8%	❖ There is uncertainty over whether Devens will become fiscally self-supporting within the next decade. Over half of respondents seem unsure.
Agree	46	21%	
Neither Agree Nor Disagree	115	53%	
Disagree	21	10%	
Strongly Disagree	17	8%	
Total	217	100%	

Conservation Questions

- 52 Preserving historic lands, sites, stone fences, objects, and areas is just as important as preserving historic buildings.

Strongly Agree	67	31%	❖ A large majority (73%) of respondents support preserving Harvard's historic landscapes.
Agree	91	42%	
Neither Agree Nor Disagree	41	19%	
Disagree	12	6%	
Strongly Disagree	5	2%	
Total	216	100%	

- 53 Since local agriculture is very important to Harvard's character and economy, the preservation of agricultural land should be encouraged.

Strongly Agree	114	52%	❖ Preserving agricultural land received the greatest support (90%) in the entire survey.
Agree	84	38%	
Neither Agree Nor Disagree	19	9%	
Disagree	1	0%	
Strongly Disagree	2	1%	
Total	220	100%	

- 54 Harvard needs to do more to protect its natural, historic, and cultural resources and landscapes for future generations, even if it means spending more on conservation and resource protection activities.

Strongly Agree	44	20%	❖ A large majority of respondents (62%) are willing to spend more to preserve important resources. Only 16% would oppose such action.
Agree	90	42%	
Neither Agree Nor Disagree	48	22%	
Disagree	21	10%	
Strongly Disagree	12	6%	
Total	215	100%	

- 55 Harvard should do more to require open space-conservation residential cluster developments.

Strongly Agree	33	15%	❖ While 44% of respondents favor greater use of open space cluster developments, a large percentage (37%) are unsure.
Agree	63	29%	
Neither Agree Nor Disagree	80	37%	
Disagree	26	12%	
Strongly Disagree	14	6%	
Total	216	100%	

- 56 Both existing and new conservation lands need better access, signage, management and maintenance, and a reliable source of funds to conduct that work.

Strongly Agree	34	16%	❖ Respondents agree (54%) that it is a good thing to maintain and improve conservation lands.
Agree	82	38%	
Neither Agree Nor Disagree	58	27%	
Disagree	38	17%	
Strongly Disagree	6	3%	
Total	218	100%	

- 57 Harvard should expand existing historic districts and create new historic districts such as Still River Village.

Strongly Agree	15	7%	❖ Respondents are split on whether or not to create new historic districts; 39% agree, 27% disagree, and 34% are unsure.
Agree	70	32%	
Neither Agree Nor Disagree	73	34%	
Disagree	43	20%	
Strongly Disagree	15	7%	
Total	216	100%	

APPENDIX 5 DEAT REPORT, NOVEMBER 2015

Town of Harvard Devens Economic Analysis Team Report to Selectmen

November 3, 2015

Membership

Victor Normand, Chairman

Steve Finnegan, Paul Green, Noyan Kinayman, Christopher Roy

Introduction

This is the fifth report prepared by the Devens Economic Analysis Team (DEAT) on the economic condition at Devens. The reports have used actual property tax assessments along with modeled municipal expenses to analyze the economic viability of Harvard resuming jurisdiction over the portions of Devens that lie within its historic town boundaries. All of the income and expense analysis in this report relate only to that portion of Devens within the historic town boundaries.

Scope of Work

The Harvard Board of Selectmen charged the DEAT with analyzing Devens finances, analyzing the financial impact of current commercial tax policies at Devens, determining whether commercial and industrial development at Devens can benefit Harvard and the region, examining the financial impact of the educational agreement between Harvard and Mass Development for the education of students who live in Devens, defining regional opportunities for municipal services between Devens and the host communities, and identifying the financial impact of proposed changes to the Devens Reuse Plan, zoning, or by-laws.

History of DEAT Activities

In our Vicksburg Square Report (issued September 2011), we analyzed the financial impact of a proposal for housing at Vicksburg Square. The voters ultimately rejected this proposal.

We presented an update of our work to Annual Town Meeting in April 2012. We previewed the conclusions that would appear in our Annual Report for 2012, as noted in the next item.

In our Annual Report for 2012 (issued October 2012), we analyzed Devens finances and introduced a model for estimating municipal operating expenses. We also summarized the current state of municipal regionalization efforts and suggested several additional opportunities for further municipal regionalization. We compared the task of managing the Devens Industrial Park to other nearby industrial parks, and noted that a small, 2- to 3 person staff could manage the day-to-day operations. We summarized the operation of Devens Utilities, described the competitive advantage and financial benefit that it provides to Devens, and recommended that the Towns ask Mass Development to conduct an open and transparent process for the disposition of Devens Utilities. We also summarized the operation of the Devens Department of Public Works.

In our Annual Report for 2013 (issued March 2014), we updated our model for estimating municipal operating expenses and noted that the projected operating deficit had remained fairly constant, despite the ongoing recession. For the first time, we estimated the revenues that could be expected from non-tax sources. We documented two fundamental questions that we had posted to MassDevelopment, on the need to have an open and

transparent disposition process, and on the need to have clear criteria for declaring that its redevelopment work is finished.

This document is our Annual Report for 2014 (issued October 2015). We focus on Devens tax revenues and operating expenses, the impact of commercial development on tax revenues, and projects the impact of Devens finances on the a hypothetical resumption of jurisdiction of Harvard over its historic portions of Devens.

Summary of Current Financial Status

As shown in Exhibit B, the gap between income and expense of a recombined Harvard and Devens has diminished over the last 5 years. An operating deficit remains through FY 2015 assuming all property at Devens is taxed using the Harvard single tax rate. The split tax rate currently used at Devens eliminates the shortfall.

The data supplied with this report supports the premise that the economic viability of Devens is no longer an uncertainty. We have consistently used conservative assumptions in our models and thus have a high degree of confidence in this prediction. The only uncertainty is determining exactly when economic viability will happen, as the timing is dependent upon local, state, and national economic conditions.

Devens Property Assessments and Projected Deficit

Exhibit A shows the history of property assessments in Harvard and Devens since FY 2010. The effects of the recession of 2008 begin to show up in declining property values by FY 2012. Despite several significant business downturns at Devens; most notably the bankruptcy of Evergreen Solar, the general decline in value was approximately 20%; less than the larger regional market, and values have been recovering for the past three years. Considering that this recession was the worst economic decline since the Great Depression, it is worth noting the resilience of the businesses at Devens, due, in part, to their diverse nature.

Potential for Economic Growth

This report discusses three areas of economic growth that have the realistic potential to bring the full 8 million square feet of development envisioned by the Reuse Plan. Those areas are:

- Development Sites for Sale - Exhibit C
- Development Sites Pending for Sale - Exhibit D
- Sold Sites with Planned Development Potential - Exhibit E

Three quarters of the development at Devens has occurred on land still recordable as being in the Town of Harvard, and all of the developments sites contained in the exhibits to this report are within the historic Harvard boundaries.

We believe that it is realistic to expect development to occur on many of the sites shown in Exhibits C, D, and E, all of which are appropriately zoned and most of which are pad ready. In fact, the DEC has already issued permits for significant development and construction is underway on at least three of those sites.

Effect of TIFs on Property Tax Receipts

In addition to the development potential shown in the exhibits, the maturing of the Bristol Myers Squibb tax agreement (known as a TIF, for Tax Increment Financing) adds significant value to the tax base each year for the next 14 years. As Exhibit C shows, beginning in FY 2015 (July 2014 to June 2015) the percentage of taxable building value begins to steadily increase. Over the next five years of the agreement, yearly tax revenues (based on Harvard's tax rate) will increase to \$750,000 and continue to grow until they reach over \$1.6 million dollars in FY 2029.

Devens Utilities

As for the capital budget, the DEAT has previously proposed (in our Report of March, 2014) the creation of a municipal super utility to manage electric power, natural gas distribution, fresh water and waste water, as well as storm water, and possibly telecommunications. This could serve to ensure that future funding is in place as the existing utility infrastructure depreciates. MassDevelopment has structured and operated its Utility Department in a manner as to make its transformation into a municipal utility feasible.

There are other significant municipal capital items that we have not studied, but which will need to be assessed as a part of any realistic analysis. These include the municipal buildings, roads, green spaces, recreation areas, and other public places. While many of these items are fairly new, and thus at an early stage in their usable lifecycle, nonetheless, a plan must be created to tackle renewal of them as they age.

Other Issues All this is not to suggest that there are no other issues to be addressed. Some of those issues are not economic, most are a combination of social and cultural issues with an economic component. The work of the DEAT has always been limited to economic issues. The hope has been that the reports will serve to take the economic concerns off the table and in this way allow a more fruitful debate to take place on the merits of those other issues that affect "the character of the Town.

FY2015 Projected Municipal Income and Expense

The analysis projects a deficit of approximately \$468,000 (Exhibit B) using the current Harvard single tax rate. While this is not an insignificant number, taken in the context the potential growth in assessed valuation that amount will continue to fall. Since the first properties began generating tax revenue, Devens has added an average of approximately \$12.3 million in value annually which would yield over \$200,000 in tax revenue using the current Harvard Tax rate. Nearly 75% of all current value at Devens is within the historic Harvard Town boundaries. An even higher percentage of future development is within the Harvard sector.

Together with the maturation of the TIFs that are in place, we believe it is reasonable to project that the operating deficit will continue decline over the next few years even with the conservative methodologies used throughout this report.

Analysis of Development Potential

All of the exhibits are sourced from the Devens Assessor's records and various reports and public information prepared by MassDevelopment. While some of the source documents are several years old, updating them would likely produce more favorable economic projections, due to the recovery of the overall economy. Mass Development determined the development potential of each parcel using past experience and actual site characteristics. In every instance the development potential is less than that allowed by existing zoning; in some cases significantly less.

The follow conservative assessed values metrics have been used in every chart:

Land: \$75,000 per acre

Building Value: \$50.00 per square foot

Tax Rate: \$17.79 per thousand (Harvard's current tax rate)

Parcels Currently on Market

Exhibit C shows 11 parcels of land deeded in Harvard which are currently being marketed by MassDevelopment. They range in size from 2 acres to over 22 acres and have the development potential of 1.3 million square feet.

Sites to be Prepared for Market

Exhibit D shows parcels that are not for sale, due to various reasons. They are zoned for development but are not ready for sale. The reasons may be strategic, related to infrastructure needs, or some sites may require other improvements to make them pad ready. The parcels, which may include existing buildings, range in size from 1.3 acres to 87.1 acres and represent over 1.5 million square feet of development.

Expansion on Sold Parcels

Exhibit E shows parcels that have already been sold and which include additional land planned for future expansion. The most notable example is the land sold to Bristol Myers Squibb which is presently undergoing such an expansion. The total expansion, some of which is underway but not yet assessed for taxation is over 1.6 million square feet.

Other Issues to be Studied Not Exclusively Economic

- Public Education
- Police and Fire Contracts
- Permitting/DEC
- Vicksburg Square
- Managing Open Space and Recreational assets
- Access o Special Needs / Affordable Housing
- Split Tax Rate
- Impact on the nature of local government

Conclusion

With this report the DEAT has concluded its assigned task. Going forward the Selectmen should request an annual report from the Devens Assessor on changes to property valuations focused on new growth.

The analysis herein shows that Devens would be economically sustainable as part of the Town of Harvard should that be the preference of the Town, and that Devens has considerable additional economic potential. The report also shows that by extension MassDevelopment has considerable work yet to be undertaken, primarily in the area of land sales and tasks associated with those land sales.

The DEAT hopes that there will be consensus on the larger economic issue based on these findings and further hopes that the Town will begin a comprehensive planning process, with assistance from professional planning consultants that will address all other issues so that the Town can come together on a vision for the future of Devens.

Similarly, Ayer, Shirley and MassDevelopment, including Devens residents should plan for and reach consensus on what serves their individual best interests. Only then can everyone come together for meaningful deliberations on the final disposition of Devens.

While MassDevelopment has much to be done at Devens, someday they will be done and Harvard should be prepared.

Post Script

This year the MassDevelopment Board will meet at Devens in November. In 2013 when the Board came to Devens the DEAT on behalf of the town offered these comments:

- Given the importance of managing and maintaining the Utility systems at Devens successfully for the long term, MassDevelopment should only undertake changes in the current operation with complete public transparency.
- While the conclusion of the Devens redevelopment project is many years away, MassDevelopment should establish and make known its criteria for substantial completion

Exhibit A Assessed Values			
	Harvard Valuation	Devens/ Harvard Valuation	Combined Valuation
FY 2010	\$ 1,138,995,512	\$ 194,916,126	\$ 1,333,911,638
FY 2011	\$ 1,082,829,559	\$ 214,916,126	\$ 1,297,745,685
FY 2012	\$ 1,053,042,141	\$ 211,081,766	\$ 1,264,123,907
FY 2013	\$ 1,056,647,413	\$ 170,140,878	\$ 1,226,788,291
FY 2014	\$ 1,060,081,431	\$ 161,890,820	\$ 1,221,972,251
FY 2015	\$ 1,063,093,393	\$ 182,101,118	\$ 1,245,194,511

Exhibit B Municipal Budget					
	Harvard Actual	Devens/ Harvard Estimate	Combined Budget	Projected Shortfall	
FY 2010	\$ 19,742,928	\$ 3,801,816	\$ 23,544,744	\$ 1,500,000	
FY 2011	\$ 19,922,263	\$ 4,286,197	\$ 24,208,460	\$ 1,100,000	
FY 2012	\$ 20,103,790	\$ 4,322,377	\$ 24,426,167	\$ 850,000	
FY 2013	\$ 20,710,819	\$ 4,582,658	\$ 25,293,477	\$ 863,683	
FY 2014	\$ 21,279,523	\$ 4,708,494	\$ 25,988,017	\$ 972,525	
FY 2015	\$ 21,963,828	\$ 4,859,910	\$ 26,823,738	\$ 468,545	
Devens Valuation		Tax Rates		Tax Revenues	
		Devens	Harvard	Devens	Harvard
Residential	\$ 19,806,100	\$ 16.71	\$ 17.79	\$ 330,960	\$ 352,351
Commercial	\$ 162,295,018	\$ 22.60	\$ 17.79	\$ 3,667,867	\$ 2,887,228
Total	\$ 182,101,118			\$ 3,998,827	\$ 3,239,579
Additional Tax Revenue using the Current Devens Tax Rates - \$759,248.45					

Exhibit C

Development Sites for Sale - (Harvard)

Street No.	Property Location	Description	Acres	Land Value ¹	Development Potential (SF) ²	Building Value ³	Total Value	Projected Property Tax ⁴
249	Barnum Road	CMTC	2.0		9,700	\$485,000	\$635,000	\$11,297
151	Barnum Road	Lot 1D	5.0	\$375,000	60,000	\$3,000,000	\$3,375,000	\$60,041
19	Buena Vista Street	Willard Field	2.0	\$150,000	30,000	\$1,500,000	\$1,650,000	\$29,354
10	Bulge Road	Davao	18.5	\$1,220,300	185,000	\$9,250,000	\$10,470,300	\$186,267
75	Jackson Road	Lot 14	11.0	\$942,400	150,000	\$7,500,000	\$8,442,400	\$150,190
45	Jackson Road	Lot 16	22.3	\$2,193,200	325,000	\$16,250,000	\$18,443,200	\$328,105
33	Lake George	MDFA Vacant	2.0	\$157,100	20,000	\$1,000,000	\$1,157,100	\$20,585
85	Patton Road	Lot 19	7.6	\$661,300	50,000	\$2,500,000	\$3,161,300	\$56,240
33	Saratoga Boulevard	Lot 1C	9.0	\$1,036,800	100,000	\$5,000,000	\$6,036,800	\$107,395
109	Sherman Avenue	Hornet Field	5.0	\$1,068,700	350,000	\$17,500,000	\$18,568,700	\$330,337
101	Sherman Avenue	Washington Hall	4.5	\$186,600	20,000	\$1,000,000	\$1,186,600	\$21,110
Totals			88.9	\$8,141,400	1,299,700	\$64,985,000	\$73,126,400	\$1,300,919

Footnotes

- 1 Assessed Value \$75,000 per acre or actual assessed value, if available
- 2 Development Potential Planned but not permitted future building area on developed/taxable parcels, and likely building area allowed by zoning and existing conditions
- 3 Assessed Building Value \$50 per sq. ft.
- 4 Tax Rate (FY 2015) \$17.79 Single Tax Rate, Town of Harvard

Other Notes:

42 Buena Vista Street, Vicksburg Square, 16.0 acres (split between Ayer and Harvard) is for sale but not included in this chart.

Exhibit D

Development Sites - Pending (Harvard)

Street No.	Property Location	Description	Acres	Land Value ¹	Development Potential (SF) ²	Building Value ³	Total Value	Projected Property Tax ⁴
0	Balls Bluff Street	MDFA	2.8	\$ 240,200	52,500	\$ 2,625,000	\$ 2,865,200	\$ 50,972
0	Buena Vista Street	Tennis Courts	3.2	\$ 400,000	90,000	\$ 4,500,000	\$ 4,900,000	\$ 87,171
0	Buena Vista Street	MDFA (76th Division to Balls Bluff)	10.7	\$ 926,600	80,000	\$ 4,000,000	\$ 4,926,600	\$ 87,644
0	Grant Road	MDFA (corner Jackson & Grant)	3.7	\$ 270,800	20,000	\$ 1,000,000	\$ 1,270,800	\$ 22,608
0	Grant Road	Former Sports Arena site	8	\$ 584,000	75,000	\$ 3,750,000	\$ 4,334,000	\$ 77,102
0	Maple Street	Maple	14	\$ 1,022,000	225,500	\$11,275,000	\$ 12,297,000	\$ 218,764
0	Oak Street	Lot 12 Oak	11.5	\$ 840,200	150,000	\$ 7,500,000	\$ 8,340,200	\$ 148,372
0	Pine Street	MDFA (adjacent to Comrex)	3.1	\$ 227,200	9,399	\$ 469,950	\$ 697,150	\$ 12,402
0	Salerno Circle	Salerno Circle	87.1	\$ 6,360,800	750,000	\$37,500,000	\$ 43,860,800	\$ 780,284
0	Sherman Avenue	MDFA (Devens Dr.)	1.3	\$ 111,400	28,800	\$ 1,440,000	\$ 1,551,400	\$ 27,599
93	Sherman Avenue	BOQ's	3.5	\$ 301,700	30,000	\$ 1,500,000	\$ 1,801,700	\$ 32,052
		Totals	148.9	\$ 11,284,900	1,511,199	\$75,559,950	\$ 86,844,850	\$ 1,544,970
Footnotes								
1	Assessed Value	75,000 Per acre or actual assessed value if available						
2	Development Potential	Planned but not permitted future building area on						
3	Assessed Building Value	\$50 per sq. ft.						
4	Tax Rate (FY 2015)	\$17.79 Single Tax Rate, Town of Harvard						
Other Notes:								
42 Bneua Vista Street, Vicksburg Square, 16.0 acres (split between Ayer and Harvard) is for sale but is not included in this chart.								

Exhibit E

Sold Sites with Expansion (Harvard)

Street #	Property Location	Description	Building SF			
			Existing Building	Expansion Potential ¹	Expansion Value ²	Projected Property Tax ³
58	Barnum Road	Cambrooke Foods	22,256	17,744	\$ 887,200	\$ 15,783
78	Barnum Road	Media News	59,852	10,000	\$ 500,000	\$ 8,895
53	Jackson Road	Xinetics (Walden Spor	58,750	30,000	\$ 1,500,000	\$ 26,685
115	Jackson Road	Xinetics (Main Buildin	32,236	105,000	\$ 5,250,000	\$ 93,398
0	Lake George	Clemente	-	40,000	\$ 2,000,000	\$ 35,580
18	Saratoga Boulevard	Walteco	18,000	35,120	\$ 1,756,000	\$ 31,239
29	Saratoga Boulevard	Integra	28,440	25,000	\$ 1,250,000	\$ 22,238
36	Saratoga Boulevard	North American Logis	162,000	110,000	\$ 5,500,000	\$ 97,845
45	Saratoga Boulevard	Ryerson	140,318	63,000	\$ 3,150,000	\$ 56,039
7	Jackson Road	Bopnostics	43,977	59,000	\$ 2,950,000	\$ 52,481
38	Jackson Road	BMS	400,000	1,107,830	\$ 55,391,500	\$ 985,415
		Total	965,829	1,602,694	\$ 80,134,700	\$ 1,425,596
Footnotes						
1	Expansion Potential		Planned but not permitted future building area on developed/taxable parcels, and likely building area allowed by zoning and existing conditions			
2	Assessed Building Value		\$50 per sq. ft.			
3	Tax Rate (FY 2015)		\$17.79 Single Tax Rate, Town of Harvard			

Exhibit F

Bristol Myers Squibb - TIF

Tax Year	Assessed Land Value	TIF Benefit on Buildings ¹	Taxable Building Value	Total Taxable Value	Property Tax ²	Annual Increase in Tax Revenue
2008	\$ 6,435,900	0%	\$ -	\$ -	\$ -	\$ -
2009	\$ 6,435,900	100%	\$ -	\$ 6,435,900	\$ 114,494.66	\$ 114,495
2010	\$ 6,435,900	100%	\$ -	\$ 6,435,900	\$ 114,494.66	\$ -
2011	\$ 6,435,900	100%	\$ -	\$ 6,435,900	\$ 114,494.66	\$ -
2012	\$ 6,435,900	100%	\$ -	\$ 6,435,900	\$ 114,494.66	\$ -
2013	\$ 6,435,900	100%	\$ -	\$ 6,435,900	\$ 114,494.66	\$ -
2014	\$ 6,435,900	100%	\$ -	\$ 6,435,900	\$ 114,494.66	\$ -
2015	\$ 6,435,900	90%	\$ 8,636,100	\$ 15,072,000	\$ 268,130.88	\$ 153,636
2016	\$ 6,435,900	80%	\$ 17,272,200	\$ 23,708,100	\$ 421,767.10	\$ 153,636
2017	\$ 6,435,900	70%	\$ 25,908,300	\$ 32,344,200	\$ 575,403.32	\$ 153,636
2018	\$ 6,435,900	60%	\$ 34,544,400	\$ 40,980,300	\$ 729,039.54	\$ 153,636
2019	\$ 6,435,900	50%	\$ 43,180,500	\$ 49,616,400	\$ 882,675.76	\$ 153,636
2020	\$ 6,435,900	45%	\$ 47,498,550	\$ 53,934,450	\$ 959,493.87	\$ 76,818
2021	\$ 6,435,900	40%	\$ 51,816,600	\$ 58,252,500	\$ 1,036,311.98	\$ 76,818
2022	\$ 6,435,900	35%	\$ 56,134,650	\$ 62,570,550	\$ 1,113,130.08	\$ 76,818
2023	\$ 6,435,900	30%	\$ 60,452,700	\$ 66,888,600	\$ 1,189,948.19	\$ 76,818
2024	\$ 6,435,900	25%	\$ 64,770,750	\$ 71,206,650	\$ 1,266,766.30	\$ 76,818
2025	\$ 6,435,900	20%	\$ 69,088,800	\$ 75,524,700	\$ 1,343,584.41	\$ 76,818
2026	\$ 6,435,900	15%	\$ 73,406,850	\$ 79,842,750	\$ 1,420,402.52	\$ 76,818
2027	\$ 6,435,900	10%	\$ 77,724,900	\$ 84,160,800	\$ 1,497,220.63	\$ 76,818
2028	\$ 6,435,900	5%	\$ 82,042,950	\$ 88,478,850	\$ 1,574,038.74	\$ 76,818
2029	\$ 6,435,900	0%	\$ 86,361,000	\$ 92,796,900	\$ 1,650,856.85	\$ 76,818
Tax Exemptions apply to buildings only, land values are fully taxed.						
Footnotes 1. Percentage of buildings exempt from property tax						
2. Tax Rate (FY 2015): \$ 17.79 Single rate, Town of Harvard						
Other Notes: All values are as of FY 2015						

Exhibit G

Summary of Development Potential

		Acres	Land Value	Development Potential (SF)	Building Value	Total Value	Projected Property Tax
Development Sites for Sale		88.9	\$ 8,141,400	1,299,700	\$ 64,985,000	\$ 73,126,400	\$ 1,300,919
Development Sites Pending		148.9	\$ 11,284,900	1,511,199	\$ 75,559,950	\$ 86,844,850	\$ 1,544,970
Sold Sites with Expansion				1,602,694	\$ 80,134,700	\$ 80,134,700	\$ 1,425,596
Total Development Potential				4,413,593	\$ 220,679,650	\$ 240,105,950	\$ 4,271,485

Tax Increment Financing and Special Tax Agreements October 2015

Company Name	Address	TIF/STA	Duration	Start Date	End Date	Investment	Sq. Ft.	# New Full-Time Jobs (Note 1)	# New Part-Time Jobs (Note 2)	Total # Jobs (Note 3)
E. R. Squibb & Sons (Phase I)	38 Jackson Rd	TIF	20 years	7/1/2008	6/30/2028	\$ 650,000,000	NS	350 FTE	NA	350 FTE
E. R. Squibb & Sons (Phase II)	38 Jackson Rd	TIF	13 years	7/1/2015	6/30/2028	NS	NS	550 FTE	NA	550 FTE
Magnemotion	139&141 Baruum Rd	TIF	10 years	7/1/2009	6/30/2019	\$ 7,000,000	48,500	41	NA	137
Ozark Automotive Distributors	15 Independence Dr.	STA	4 years	10/1/2013	9/30/2017	\$ 32,900,000	370,000	80	40	NS
SMC	18 Independence Dr.	TIF	10 years			\$ 14,000,000	200,000	100	NA	412
Note 1: This column lists the minimum number of new, full-time (or full-time equivalent), permanent jobs that the applicant has promised to create within a specified period of time.										
Note 2: This column lists the minimum number of new, part-time, permanent jobs that the applicant has promised to create within a specified period of time.										
Note 3: This column lists the total number of jobs that the applicant has promised to provide.										
NOTE: The SMC TIF does not explicitly state the start date. I've made a reasonable assumption here.										

APPENDIX 6

HARVARD'S ENERGY USE AND REDUCTION EFFORTS

Review of Past/Present & Recommendations for the Future

Submitted to Master Plan Steering Committee by HEAC – January 2016

1. History

At the Annual Town Meeting in 2008, the Town voted to appoint an Energy Advisory Committee, in order to better understand energy use and energy-related expenditures, and to reduce them where possible.

In 2009, the Harvard Energy Advisory Committee (HEAC) proposed to the Board of Selectman that the town pursue the Green Communities program as a means to help the Town achieve these goals. The Green Communities program provides assistance and grants to qualifying towns, to be used for projects that reduce energy consumption and/or reduce emissions. The qualification criteria included a key mechanism for achieving this: *a requirement to develop a plan to reduce overall energy consumption by 20% over a 5-year period from a baseline year*. As part of this commitment, towns were required to gather energy use/cost information and tabulate it to establish benchmark energy consumption numbers for municipal/school buildings, operations, vehicles, streetlights, etc. Assistance was provided by DOER in the creation and promulgation of *Mass Energy Insight*, a system designed to track and understand energy usage and costs. Previous assistance from DOER came in the form of a series of building audits; these audits helped focus our grant-funded projects on the most cost-effective ways to improve building/system efficiency.

2. Past and Present Efforts

HEAC lead the effort to educate residents on the requirements and benefits of the program during 2010-2011, assisted in the procedural aspects of obtaining Town Meeting votes on necessary bylaw changes in 2011, and submitted a successful grant application in 2012. HEAC has recently focused on carrying out the specific projects approved in two successful rounds of Green Community grants:

2012 grant funding: \$141,200 for 5 projects

- Harvard Center Fire Station Boiler Replacement
- Harvard Police Station Boiler Replacement
- Hildreth Elementary School Demand-Control Ventilation and Building Automation System
- Harvard Town Hall Energy Modeling

2015 grant funding: \$225,914 for 9 projects and administrative support

- Bromfield/Hildreth School Complex - Retro-commissioning
- Public Library - Retro-commissioning
- Department of Public Works - Exterior LED Lighting Retrofit
- Police Department - Exterior LED Lighting Retrofit
- Hildreth House Senior Center - Furnace
- Bromfield School - Lighting Controls for Hallways
- Bromfield School - Exterior LED Lighting Retrofit
- Library - Interior LED Lighting Retrofit

- Building Operator Certification Training for Bromfield School Facilities Staff
- Project Administration Support

In addition to leading the Town's participation in the Green Community program, HEAC has served as a resource for a number of studies and projects to help Harvard reduce energy use and save money:

- Investigate biomass & ground-sourced heat-pump systems for town/school buildings
- Investigate feasibility of and assisting in the coordination of upgrades to Bromfield boilers to allow the use natural gas as well as oil
- Investigate feasibility of upgrading electrical service to Bare Hill Pond pumps for energy conservation when not in use
- Investigate feasibility of upgrading streetlights to LED fixtures
- Investigate feasibility of deep-energy retrofits at Bromfield House, the Old Library, and the Old Town Hall
- Investigate feasibility of weatherization and thermal envelope enhancements at Still River Fire Station, Cemetery building, DPW building, Old Library, Bromfield House, etc.
- Investigate feasibility of town-owned Battery-Electric/Plug-In Electric/Hybrid vehicle(s) & charging station(s)
- Investigate snow-removal & street cleaning route planning
- Qualification and administrative assistance for Solarize Mass campaign in Harvard
- Qualification and administrative assistance for US-DOE Rooftop Solar Challenge grant
- Work with school/town officials and vendors to formulate proposals for PV solar systems on Bromfield School
- Manage the Town's Clean Energy Choice Funds and oversee the installation of 5kW solar PV array and DAS at Hildreth Elementary School
- Work with Bromfield students on specific energy/efficiency projects
 - temperature/comfort surveys in Bromfield school
 - water-saving fixtures in town buildings
 - off-grid solar at McCurdy Track fieldhouse (in process)
- Public forums on residential energy efficiency
- Participate in Town Hall and Hildreth House building/improvement committees
- Advise DPW staff on energy-saving roof/envelope enhancements
- Advise on and support municipal electricity procurement (RFPs, contracts)

3. Results

The initial gains from Harvard's participation in the Green Communities program have been important, allowing the Energy Advisory Committee to:

- ✓ *gain an understanding of our significant energy costs and usage across town/school buildings*
- ✓ *access 5 years of energy use/cost data for town buildings and other energy consumption centers (e.g. vehicles)*
- ✓ *propose and execute projects aimed at reducing energy usage by 20% over 5 years*
- ✓ *put in place a multi-phase process of gathering detailed (per-room or system) environmental and usage data to support in-depth analysis and understanding of energy use in our school buildings - which comprise over half the town's energy consumption, to be followed by a process of identifying components for retrofit / upgrade / replacement.*

As a result of these and other efforts, energy consumption in the first several years decreased dramatically, falling by nearly 30% at one point. However, consumption over the last three years has rebounded starting in FY 2013, although it is still down 8.5% from the baseline year. This highlights the importance of the efforts mentioned above to more closely monitor usage in the schools, where the bulk of the Town's energy is consumed.

4. Critical Review of HEAC and Town Energy-Related Efforts

While benefits resulting from cost and emissions reductions are enjoyed (albeit indirectly) by all Harvard residents, the efforts to gain them and the knowledge accrued has largely been localized in the Energy Advisory Committee, without significant public participation by town or school staff, elected or appointed officials, or other committees. A dedicated energy committee undoubtedly helps to drive initiatives, but it has shifted discussion and planning away from the many committees and offices where it should be taking place if Harvard is to really take its Green Community status to heart and work systematically to reduce energy consumption.

Overall, the projects and initiatives listed above have helped HEAC to understand potential opportunities for energy efficiency and to reduce energy usage and costs, with reduced greenhouse gas (GHG) emissions as an accompanying benefit. HEAC continues to identify areas where effort is necessary to achieve these goals; however, aside from the goal of lowering costs and where deemed economical within a constrained timeframe, reducing energy consumption, Harvard does not yet have a strategic plan or policy aiming the Town towards sustainable buildings, emission-reduction targets, pathways for transitioning from fossil fuels to renewable energy sources, enhanced resiliency, or other similar programs and policies that recognize and prepare for impending energy and climate-related challenges. These kinds of efforts have so far been outside the charge of the committee, and may well be tasks for an adjunct but separate "Sustainability Commission" or committee, working in cooperation with HEAC, town officials, residents, businesses, and organizations.

5. Potential Future Directions

HEAC believes that beyond our past and presently planned work, a number of other studies and initiatives could yield benefits for the town:

- Understanding and ultimately maximizing the opportunities presented by Devens Disposition, including a municipal electric utility, expanded water district, potential tax revenues, housing, etc.
- Understanding the energy and environmental impacts of traffic and access patterns around schools, commercial areas, and commuting routes, and reviewing ways to create safer pedestrian pathways to ease traffic and parking pressures, reduce vehicular emissions, and improve public health.
- Understanding the energy-related aspects of town landscapes and infrastructure: DPW facilities, transfer station, town sewer/water distribution systems, Pond systems and related infrastructure, Park & Rec fields, open space, etc.
- Potentially expanding HEAC's portfolio beyond the purely municipal would allow it to address residential energy efficiency issues, such as:
 - Residential Heating/Cooling System Efficiency
 - Home Appliance and Lighting Efficiency
 - Weatherization and Thermal Envelope Enhancements

Most of the above initiatives have both energy and sustainability components, i.e. taking into consideration whether existing or new procedures and behaviors can continue into the future or must change in order to be efficient, economical, and environmentally safe and sound. Just as the global community has recently come together in Paris and recognized that energy and economic systems must change in order to ensure a viable future, Harvard's energy sourcing and usage can no longer be viewed only through a cost lens.

6. Issues for Discussion

HEAC proposes the following as significant issues & questions to be raised and discussed as part of planning for a sustainable energy future for Harvard:

- Should Harvard have an overall Energy Policy that reflects new global awareness and commitments to reduce GHG emissions and transition to sustainable energy sources? (*For example, currently our municipal energy procurement contracts remain cost-driven decisions; should we instead endeavor to use renewable energy where feasible?*)
- How can energy savings and reduced GHG emissions become part of operational practices vs. one-time initiatives?
- Many town buildings are old and require better maintenance or enhancement to improve efficiency; should the ongoing operation and maintenance procedures incorporate sustainable practices?
- For new construction and building retrofits/upgrades, should we endeavor to lock in higher efficiency and longer-term cost-savings through better insulation and higher-cost and higher-quality components, vs. compromising future gains by minimizing upfront investment?

Recognizing that some aspects of energy use are dictated by behavior, and some are structural or systems-related, the following suggestions for potential changes or areas of study are divided into two categories.

HEAC Suggestions – Behavior/Policy Related

- Make energy a line-item on departmental budgets, with goals for reduction set on a 5-year basis.
- Identify clear lines of responsibility among building/facilities managers & town staff for energy reduction and guideline/policy enforcement. Make "Building Administrator" a formal part of title or job description.
- Alternatively, create a funded energy-manager position on town staff to serve the town/school buildings, with designated responsibilities for energy-use awareness and reduction efforts.
- Monitoring is key: Building Administrators (or Energy Manager) required to track and report quarterly on energy-use, with unexplained or systemic increases triggering closer monitoring with HEAC assistance as necessary.
- Establish "continuous commissioning" and preventive maintenance practices vs. reactive repairs.

HEAC Suggestions – Structural/Systems Related

Harvard's existing natural systems and built infrastructure must be characterized and analyzed from an energy and resources perspective, in order to formulate a more comprehensive long-term energy and sustainability plan. So far HEAC has begun to characterize and analyze town and

school buildings, but other areas could be better understood, such as:

- Electrical grid and gas pipeline topology, proximity of feeder lines, off-takers, and juxtaposition of Devens and other municipal utility infrastructure. Understanding these components may assist the Town in future disaster resiliency initiatives, such as the establishment of off-grid-capable emergency response facilities able to be powered with a combination of renewable energy and battery storage.
- Bare Hill Pond and watershed dynamics
- Proximity of DPW facilities to major work/activity areas, maximize efficiency of coverage and routes for plows, sanders, sweeps, pickups
- Transfer station usage, systems and operational practices, vendor policies and practices
- Town sewer/water topology and usage patterns
- School and town-center traffic patterns