

HARVARD TRENDS

Introduction

Harvard is remarkable for the endurance of several character-defining traits that make it special to those who live or work in the community. Its mix and arrangement of historic villages set against the backdrop of agricultural landscapes, its scenic views and rural byways framed by stonewalls and mature trees, and the controlling influence of rivers, streams, water bodies and wetlands on the town's development all affect how Harvard perceives itself and how it is perceived by outsiders. Protecting these qualities has dominated the town's policy agenda for a very long time.

What Harvard is today owes largely to sustained local initiative. Traditions of independence, self-determination and creativity are as integral to the town's character as the apple orchards and fields that residents cherish. Harvard's financial and psychological investment in its identity runs deep. Very few communities can lay claim to the kinds of natural and built assets that abound in Harvard, and fewer still approximate its reputation for excellent schools. In short, Harvard has much to be proud of – and conversely, much to lose. One of several policy decisions that will have a major impact on Harvard is the fate of Devens. During its transformation from military base to industrial compound, Devens has adopted an undeniably suburban feel: wide roads, granite curbs, low-rise buildings with large parking lots, drainage ponds, street lights and uniform signage. In terms of land use and visual character, Devens and Residential Harvard are quite different – though not wholly incompatible.

Land Use

Harvard's 27 mi² area contains some of the state's most breathtaking views. Although primarily forested, Harvard is known for its signature farms and pastoral landscapes – land uses that give the town its distinctly open, rural feel. Until 50 years ago, the limited road network in North-Central Massachusetts effectively shielded Harvard from new growth. The town gained homes and people at a modest rate, but save for the development and periodic expansion of Fort Devens, Harvard absorbed little change in land use. Between 1950-1970, however, the completion of two major highway projects – Route 2 and I-495 – triggered Harvard's modern growth era. The civilian population increased by nearly 50% per decade, making Harvard one of Worcester County's fastest growing towns at the time.¹ Coincidentally, the Cold War and Vietnam prompted the Army to build more housing, training and service facilities at Fort Devens. By 1970, Harvard's official population of 13,426 included more than 10,400 military personnel and families.

Statewide, housing starts fluctuated significantly between 1970-1985, but not in Harvard. Despite the large amount of land that converted to residential use, however, Harvard's population growth rate declined. It was apparent to authors of the last master plan (1988) that by the mid-1980s, new house lots in Harvard were consistently exceeding the town's minimum area requirement of 1.5 acres. This trend is illustrated in Fig. 2-A, which tracks land consumption per unit for homes built in Harvard

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1. Massachusetts Institute for Social and Economic Research (MISER), "Population of Massachusetts Cities, Towns and Counties: Census Population Counts and Current Estimates, 1930-1998," (June 1999). For local population estimates, i.e., not including residents of Fort Devens, see ENSR, *Looking Beyond Devens: Planning for the Future in the Nashua River Watershed Area* (March 2001).

between 1980-2001. In fact, the 249 single-family homes built *since* 1988 occupy an average of 4.1 acres per dwelling unit.² Several factors explain this condition: zoning, the lack of public water and sewer service, the wishes of Harvard's upper-end homebuyer market, and a higher incidence of soil, wetland and slope constraints in the maturing stages of community development.

Table 2-1 provides a cumulative record of land use changes that have taken place in Harvard since the early 1950s. Together, the data shed light on important themes in Harvard's recent development history:

- During the last half of the 20th century, development consumed about 1,873 acres of forest and 1,621 acres of farmland and open space.
- In 1951, agricultural land and other open space constituted 21% of the town's total area – roughly equal to the amount of Harvard land inside Fort Devens. Forests covered 62% of the town. In short, approximately 82% of the town was undeveloped.
- By 1999, agricultural and open space uses had dwindled to 13% of the town's total area, and forests, to 51%.
- Residential development occupied 5% of the town in 1951. By 1999, 17.6% of Harvard was residentially developed and the town had witnessed a fourfold increase in its civil population.
- Fort Devens accounted for 6% of all developed acres in Harvard as of 1951 – that is, more acres were used for military facilities and housing at Fort Devens than for housing alone throughout the rest of Harvard. The amount of land used for housing and other facilities at Fort Devens increased by 25%, but most of the expansion occurred between 1951-1971.³ In 1999, development at Devens, the successor to Fort Devens, represented 7.2% of the town.
- By the close of the century, transportation uses – namely highways – covered 28 times more land than at mid-century.
- Very little multi-family, commercial or industrial development occurred in Residential Harvard between 1951-1999.

Map 2-A illustrates Harvard's land use pattern today and highlights areas that have been developed since the mid-1950s.

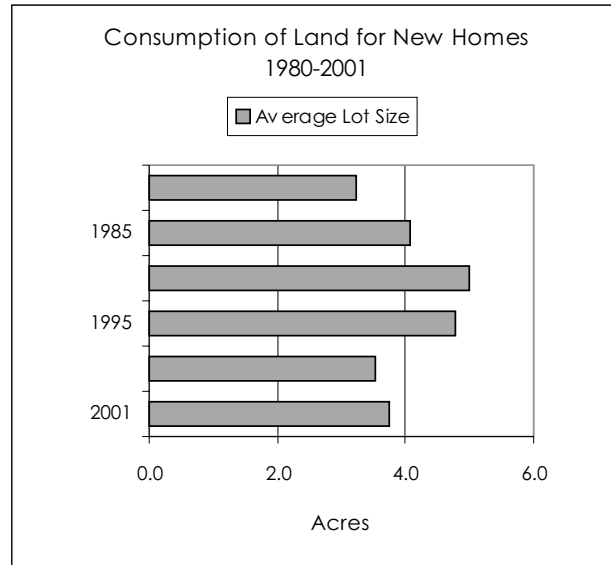


Fig. 2-A: Change in Average Lot Size, 1980-2001

2. *Ibid*; see also, Connery Associates, *Harvard Town Plan* (1988), p. 5-4, and Census 2000, STF-1: Harvard.
3. These data do not reflect the changing composition of Devens under the Base Reuse Plan.

Table 2-1: Land Use Change, 1951-1999

Description	Acres in Use				Acres of Change				
	1951	1971	1985	1991	1999	1951-1971	1971-1985	1985-1991	1991-1999
Farmland	3,528.36	2,076.18	2,071.93	2,070.79	1,906.58	-1,452	-4	-1	-164
Forest	10,761.04	10,284.06	9,489.40	9,119.80	8,894.90	-477	-795	-370	-225
Wetlands	773.02	764.83	764.83	764.83	764.83	-8	0	0	0
Open Land	1,029.35	356.05	232.15	219.50	260.96	-673	-124	-13	41
Parks and Recreation	8.13	198.56	199.90	334.00	336.88	190	1	134	3
Multi-Family	0.06	0.06	0.06	0.06	16.29	0	0	0	16
Moderate-Density Residential	84.54	260.63	260.63	260.63	260.63	176	0	0	0
Low-Density Residential	96.64	1,351.76	2,248.32	2,469.64	2,780.23	1,255	897	221	311
Public-Institutional	745.04	1,229.09	1,227.85	1,236.21	1,244.83	484	-1	8	9
Commercial	8.90	24.07	45.29	47.57	55.67	15	21	2	8
Industrial	0.08	3.62	3.77	21.09	19.52	4	0	17	-2
Transportation	9.12	258.62	262.76	262.76	262.76	249	4	0	0
Waste Disposal	0.00	10.37	10.37	10.37	10.37	10	0	0	0
Water	304.97	531.36	532.00	532.00	534.83	226	1	0	3

Sources: MassGIS, Connery Associates, *Harvard Town Plan* (1988).

Roadways and Physical Form

Land use in Harvard is framed by a radial arrangement of streets that extend from the Town Center toward neighboring Ayer, Littleton, Boxborough, Stow and Bolton, and secondary roads that form a rural beltway through the town's outlying hills. This long-established system, consisting of 64.82 miles of roads, has several implications for Harvard's development. Its most obvious function is as a conduit for local and cross-town traffic. In Harvard, however, roads play an integral part in shaping and reinforcing the town's visual image. 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 Road Act. 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 Harvard wants to preserve. The winding, steeply sloped nature of many Harvard roads makes them ill-suited for substantial traffic volumes or speed. Concerns about traffic recently led Harvard to join Littleton in a suit to block expansion of the Cisco Systems project in Boxborough.



View from the road: Harvard's rural landscape.

Harvard's roads also act as an engine in the overall development pattern of the town. If views from the road are among the defining ingredients of "rural" in Harvard,⁴ it is also true that the view is increasingly residential. A significant feature of Harvard's residential growth is the prevalence of so-called "Approval Not Required" or "ANR" lots on existing public ways. An ANR lot is what its name implies: a lot that does not require approval by the town because it has enough area and street frontage to meet the minimum requirements of zoning. The town's authority over ANR plans is limited to a certification required by law. During the 1990s, the Planning Board received only one conventional subdivision plan, yet each year, an average of 11 ANR plans were filed.⁵ Along with a corresponding lack of subdivision activity, ANR lots are striking aspects of Harvard's development history. Local zoning regulations encourage a pattern of residential development that has caused an otherwise modest amount of new growth to intrude visibly on Harvard's rural character.

Harvard's Villages

The Town Center, Still River and the Shaker Village reflect distinct cultural moments in Harvard's history and reinforce the town's rural identity. A classic town common and several community institutions make the Town Center a focal point for the civic, social and political life of the town. Nearly everyone in Harvard uses the Town Center: taxpayers, school children, town officials, senior

4. Shary Page Berg and Claire Woodford Dempsey, *Planning for Harvard's Rural Landscape: Case Studies in Historic Conservation* (June 1997), 7.

5. Harvard Planning Department, October 2001.

citizens, churchgoers, library and general store patrons, and members of local clubs and organizations. The Town Center also serves as a point of access to Bare Hill Pond. Although composed of several land uses, the Town Center is primarily a residential and institutional district with limited business activity. Town Hall, the library, the Harvard public schools, churches and recreation facilities attract residents to the Town Center and create demands for parking. By design, the Town Center also accommodates a great deal of through traffic each day because Harvard's arterial roadways converge there.

Still River village lies west of the Town Center on Still River Road, extending south from Prospect Hill for about one mile. It differs from the Town Center in built character, form and function, owing to the placement and linear arrangement of Still River's historic homes and institutions, farms and forests, and roadside views of the Nashua River Valley. Although an identifiable village that once included small shops and services in its mix of land uses, Still River today is residential, pastoral and scenic, and until quite recently it was home to Harvard's last surviving dairy farm.⁶

The Shaker Village, located along Shaker and South Shaker Roads in northern Harvard, is a local historic district (1972) and a National Register District (1989).

Agriculture and Open Space

Harvard benefits immeasurably from its orchards, farms and steep hills with views in all directions: to Mount Monadnock, Mount Wachusett, and Boston. Forests dominate Harvard's mix of land uses, but the town's sense of place is shaped indelibly by its open land, unmatched vistas and agricultural scenery. Harvard's connection to farms is both cultural and economic, and it is a recurring theme in previous town plans. Since 1990, the town has lost about 100 acres of agricultural land to development and the last of its dairy farms closed.⁷ Harvard's remaining farmland is about 52% of the acreage in agricultural use as of 1950.

Though very important, agriculture is not the only feature of Harvard's open space system. Forests and outdoor recreation areas, public and private, constitute a significant amount of the Harvard's total area. Compared to most communities, Harvard has an impressive preservation record: 11% of its total area is owned or controlled by the Conservation Commission, and nearly 23% is permanently restricted through other means.⁸ Harvard lost more farm and forestland after 1988, but conservation holdings and land protected by permanent restrictions have increased significantly.

Harvard has pursued a thoughtful approach to open space for many years, following recommendations laid out in the *Comprehensive Plan* (1969) and developed further in the first *Open Space and Recreation Plan* (1979). The town envisions a greenbelt of key holdings and conservation corridors from the Shaker Village through the Town Center, around Bare Hill Pond, south to Bolton Flats Wildlife Management Area, east to the Delaney Wildlife Management Area, and northward along the eastern edge of town, guided by the terrain of Oak Hill. Toward these ends, Harvard has acquired a considerable amount of conservation land and lobbied for parallel actions by other jurisdictions and private organizations. A culture of stewardship toward farms, wetlands and wildlife

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6. Berg and Dempsey, *Planning for Harvard's Rural Landscape*, 3, 9.
 7. See MassGIS (e.g., Table 1); Berg-Dempsey, *Harvard's Rural Landscape*, and Town of Harvard *Annual Town Report* (2000), 1. In an event that post-dates these sources, the Watts Farm was acquired by the Trust for Public Lands and conveyed to the U.S. Fish and Wildlife Service for expansion of the Oxbow National Wildlife Refuge.
 8. "Total area" refers to Harvard's corporate limits, or 17,349 acres, including Devens.

habitat, areas of historical significance, and scenic vistas has culminated in a logically organized, diverse open space framework that Harvard's people cherish.

Table 1-2 summarizes the amounts and types of open space, recreation areas and land used for general public purposes in Harvard today, along with private lands of conservation interest. The farmland (Chapter 61-A) reported in Table 2-2 does not include Harvard's small "home farms," i.e., non-commercial farm parcels of less than five acres, or large properties with vestiges of agricultural use: barns and other outbuildings, fields and farm fences.

Table 2-2: Open Space by Level of Protection

Classification	Acres	Classification	Acres
Protected Land		Unrestricted Land	
Harvard Conservation Commission	1,855.45	Non-Profit Organizations	346.43
APR/Conservation Restrictions	289.92	Municipal	219.32
Federal, State	1,008.45	Devens	
Temporarily Protected Land		Open Space in Harvard	821.39
Chapter 61	1,369.75		
Chapter 61A	1,496.64		
Chapter 61B	170.63		
Total Acres			7,577.99

Sources: Town of Harvard *Open Space & Recreation Plan*, "Inventory of Lands of Conservation Interest" (Draft, 2001 update); VHB, et al. *Devens Reuse Plan* (1994).

Institutional Uses

Institutional uses may be public or private and their impacts vary tremendously: churches and retreats, schools, town halls, libraries, museums and cultural production facilities, nursing homes and hospitals, and military bases, prisons or airports. Until recently, Harvard's largest institutional use was Fort Devens, where a complex of training, housing, administrative, transportation and other uses occupied about 60% of the military's land in Harvard. The balance consisted of forests, open space and recreation areas. Owing to the evolving re-birth of Fort Devens as a regional employment center, it is no longer accurate to characterize the developed areas of Devens as institutional, though institutional uses remain: the Harvard Teen Center at the former American Red Cross station, public agencies occupying other Fort Devens buildings, the U.S. Army's Reserve Enclave, and a federal prison medical compound.



Harvard Teen Center; formerly American Red Cross Station, Fort Devens (2001)

In Residential Harvard, the institutional use mix is both historically significant and indicative of Harvard's rural way of life. The most obvious cluster of institutional uses is the Town Center, where the town hall, schools, library and churches join with a classic New England town common to form the nucleus of public activity in Harvard. A second group of institutional uses exists in Still River, notably, St. Benedict's Abbey, a small apostolic community, Slaves of the Immaculate Heart of Mary, and Still River Baptist Church, home of the Harvard Historical Society. For its sheer size, its representation of past and present Harvard, and its gateway location north of Still River Village, the Fruitlands Museum on Prospect Hill Road dominates the inventory of institutions in Residential Harvard. In addition, Harvard hosts the Oak Ridge Observatory of the Harvard-Smithsonian Center for Astrophysics, and a Girl Scout camp at Bare Hill Pond. Together, these land uses occupy about 430 acres.⁹

Residential Development

Housing is the dominant form of development in Harvard and the town's residential base consists almost exclusively of single-family homes. Data derived from aerial photographs show that residential uses occupy 3,057 acres of land, mainly in the form of low-density, single-family development. Single-family homes constitute 93% of all housing units in Harvard because local zoning and market demand collectively promote them. Since house lots in Harvard typically exceed the zoning bylaw's minimum area requirements, the amount of land controlled by individual homeowners and assessed for residential purposes is considerably higher than 3,057 acres, however. Aggregate consumption of land for all types of housing in Harvard – single-family and multi-unit buildings – equals a generous 3.05 acres per dwelling unit, or 5,270 acres in total.¹⁰ A profile of the types and distribution of residential land uses in Harvard today, not including Devens, appears in Table 2-3.¹¹

Table 2-3: Residential Land Use in Harvard

Residential Use Type	Acres Assessed	Residential Use Type	Acres Assessed
Detached Single-Family	4,897.68	Multi-Family	213.53
Multi-Family	128.15	Mixed-Use Residential	27.29
Apartments (11+ Units)	3.21		
Total	5,269.86		

Source: Harvard Assessor's Office (January 2002).

The trend toward larger house lots correlates with other changes in Harvard's residential development pattern, notably a reduction in the mix of residential land uses. Compared to many towns, Harvard's housing is relatively new because much of it was built in response to late-20th

9. Harvard Assessor's Office, FY02 Parcel Data; Harvard Open Space Committee, "Inventory of Lands of Conservation Interest," *Open Space and Recreation Plan*, unpublished draft (2002).
10. Harvard Assessor's Office, FY02 Parcel Data (January 2002). Note: 5,270 acres applies to all residential land uses except homes on land under Chapter 61, 61-A and 61-B agreements.
11. Under the Devens Reuse Plan, a maximum of 282 housing units may be created during the redevelopment process. Of these 282 units, 243 are or will be located in Harvard and 39 in Ayer. A "Phase I" housing initiative of 102 units is currently underway at Devens. Seventy-one of the Phase I homes are in Harvard (58 market units, 13 affordable units).

century demand for homes. Local records and historic data from the Census Bureau show that as residential development accelerated in Harvard after World War II, the town's housing mix gradually declined. The erosion of Harvard's housing diversity is illustrated in Fig. 2-B, which represents residential land parcels by the type of housing they support, grouped by period of construction. Figure 2-B shows that parcel sizes are smaller among housing units built before 1939. After 1940, the development of single-family homes far surpassed all other forms of housing in Harvard. By the 1970s, Harvard's development pipeline consisted almost exclusively of single-family house lots and naturally, the average size of a residentially developed parcel also increased. Housing has consumed successively greater amounts of land for about 50 years, as evidenced by growth in average parcel size from 2.4 acres for homes built before 1939 to 3.30 acres for homes built after 1970.

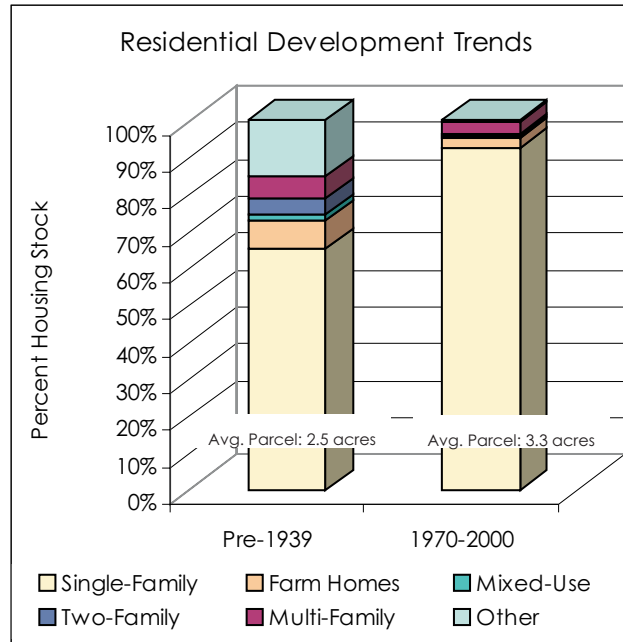


Fig. 2-B: Change in Harvard's Residential Base

Commercial and Industrial Development

Harvard's only commercial district is located on Ayer Road north of Route 2. It consists of approximately 440 acres, less than half of which are commercially or industrially developed. The remaining "C" District land is used for residential and agricultural purposes. Much like residential land use in Harvard, commercial development is both low-density and very low in use intensity – that is, the amount of built space in relation to parcel size (floor-to-area ratio, or "FAR") is quite low: on average, .114. The mix of businesses operating in Harvard's commercial areas is also quite narrow; professional offices and service establishments constitute most of today's development inventory. Although Harvard has a small amount of industrial development, there is no longer an industrial zone. Together, commercial and industrial improvements occupy about 76 acres, but 245+ acres are assessed as developed commercial and industrial land.¹² This is explained not only by the prevalence of small



Ayer Road Commercial District.

12. See also Table 2.1, land use data.

commercial and industrial buildings on large lots, but also by the comparatively large amount of “industrial” land used by utility companies for right-of-way, relay and substation purposes in Harvard. Table 2-4 presents a categorical inventory of commercial and industrial development in Harvard today (excluding Devens).

Table 2-4: Commercial-Industrial Land Use in Harvard

Commercial Land Use	Acres Assessed	Industrial Land Use	Acres Assessed
Mixed-Use, Primarily Commercial	32.56	Manufacturing	12.95
Storage/Warehouse	28.15	Research/Development	8.89
Retail Trade	33.61	Utilities	<u>63.15</u>
Automotive/Fuel Service	4.95		
Professional/Medical Offices	55.08		
For-Profit Public Services/Other	4.67		
Indoor Recreation	<u>1.6</u>		
Total	160.62	Total	84.99

Source: Harvard Assessor’s Office (January 2002).

Zoning¹³

Harvard regulates development through zoning, subdivision control, a number of local bylaws including wetlands protection, local historic districts and scenic roads, and septic system regulations that supplement Title V. The zoning bylaw governs land use in eight districts, including:

- Agricultural-Residential (AR)
- Business (B)
- Commercial (C)
- Multiple Residence (MR)
- Watershed Protection & Floodplain (W)
- Watershed Protection & Flood Hazard (WFH)
- Nashua River Watershed Greenspace Buffer District (WG)
- Wireless Communication Tower Overlay District (WCTOD)

Map 2-B shows that nearly all land in Harvard is located in the A-R District (see also, Table 2-5). The AR district is a traditional zone that provides for single-family homes, agricultural uses and a limited number of institutional uses are allowed as of right, while conversion of older homes to

13. See Appendix A: Terry S. Szold, “A Zoning Diagnostic for Harvard” (17 October 2001).

two-family or multi-family buildings, conversion of seasonal to year-round residences, in-law apartments, and golf courses are classified as special permit uses. The AR zone's basic lot area requirement is 1.5 acres, but under a hierarchy of dimensional rules, the minimum lot size may increase to 4.5 acres depending on the type of lot or project. A second residential district, MR, has no associated boundaries on the zoning map. MR district regulations provide for multi-family buildings of up to eight units, subject to certain design standards and the "basic lot" AR density of one unit per 1.5 acres.

Given the amount of residentially zoned land in Harvard, special regulations that apply to development in the AR district are particularly important. In addition to a sophisticated system of dimensional and density controls, the Harvard zoning bylaw includes development techniques to preserve rural imagery or discourage needless construction impacts: common driveways, a "mini-subdivision" provision that allows design flexibility in the development of backland acreage in exchange for larger lots, and residential cluster development – which Harvard calls "Cluster Development for Open Space Conservation," or CDOS. The CDOS provision of Harvard's zoning has never been used. By special permit, qualifying tracts with 20+ acres of land may be developed under design guidelines that allow smaller lots and setbacks in exchange for permanently protected open space. The bylaw does not provide a density bonus to encourage CDOS as an alternative to conventional subdivisions. To receive a CDOS special permit, developers must also obtain approval conventional subdivision plan from the Planning Board.

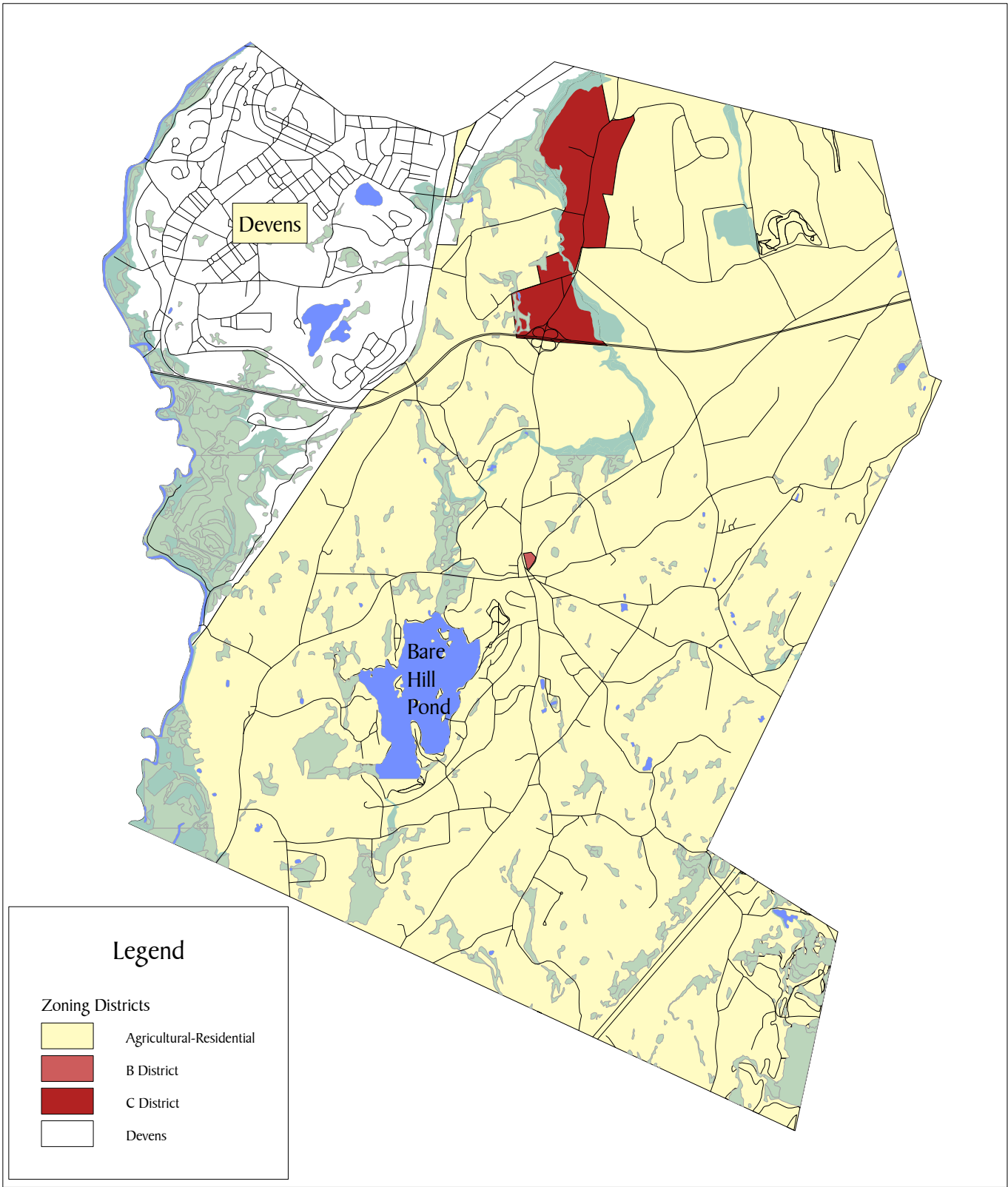
The B district applies to an area of less than four acres adjacent to the Town Center on Littleton Road, but it does not include the Town Center per se. A more substantial business zone, the C district, extends north from Route 2 along Ayer Road. In the C district, small-scale businesses such as professional offices, studios, florist and specialty shops are allowed as of right, while some medium- scale and all large-scale business uses are allowed by special permit. As used in the zoning bylaw, "scale" does not refer explicitly to size but rather, to class of business use. Medium-scale uses include such commercial activities as laundry/dry cleaning outlets, banks and ATM's, restaurants and retail, while large-scale uses range from commercial greenhouses to auto repair shops and warehouses.

Table 2-5: Zoning Districts in Harvard

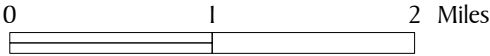
Zoning District	Area (in Acres)
<u>Primary Districts</u>	
Agricultural-Residential (A-R)	13,376.15
Business (B)	3.76
Commercial (C)	442.86
<u>Mapped Overlay Districts</u>	
Watershed Protection-Floodplain (W)	244.60
Watershed Protection-Flood Hazard (WFH)	1,641.25
Acres Subject to Harvard Zoning	13,822.77
Acres Subject to Other Jurisdictions	3,526.49

Source: Montachusett Regional Planning Commission.

All uses in the B and C districts are subject to site plan standards enumerated at Section 7.3 of the zoning bylaw. In Harvard, the Board of Selectmen has authority over site plan review. Harvard also controls non-residential development with a set of dimensional and density rules classified as "Land-Structure Relations" in Section 6.2 of the zoning bylaw. To develop land in the C district, an



Data Source: MassGIS.



applicant must comply with fairly generous setback requirements – 60 to 125 feet, depending on the project – a building height limitation of 35 feet, and an unusually low floor-to-area ratio standard of .10 or 8,000 square feet of built space, whichever is larger. The bylaw does not articulate off-street parking requirements, e.g., the number of parking spaces required for a commercial building, based on its use and size (in square feet).

Of Harvard's remaining zoning districts, two are water resource protection districts – W and WFH – designed to limit construction in wetland, floodplain and flood hazard areas, and a third serves the dual purposes of water and scenic resource protection in a 300-foot buffer zone along the Nashua River, WG. The WFH, WG and Wireless Communication Towers District are overlay districts that supplement the regulations of underlying traditional zones.

Population & Housing

Housing is among the most powerful determinants of community character. The styles, age, quality and appearance of homes supply physical evidence of growth and change, and they say a great deal about the people who built a town from its earliest days to the present. Just as the interplay of farms and rural byways defines Harvard's visual character, housing defines its social character. A community influences the make-up of its population by adopting policies to control housing growth, and Harvard is no exception. By almost any measure, Harvard is one of the Commonwealth's most affluent towns. Its median household income ranks eighth in the state and not surprisingly, its average single-family home value ranks 20th, excluding resort communities on Cape Cod and the Islands. Together, the high cost and single-family composition of homes in Harvard help to explain the demographic characteristics of its townspeople.

Population Trends

Tracking Harvard's 20th century population trends is made difficult by the establishment of Fort Devens in 1917. Until the Census Bureau separated Residential Harvard from Fort Devens by census tracts that were used for the first time in 1980, the Army's military personnel and Harvard's year-round residents were reported as a combined population for the town as a whole. Based on local and state census data, birth-rate trends, housing age statistics and adjusted reports from the Census Bureau, the author of Harvard's first master plan (1969) constructed a population history that appears in part in Table 2-6, supplemented by actual 1970-2000 population counts for Residential Harvard. After several decades of population decline, Harvard began to grow again just prior to World War II. At mid-century, the population was approximately equal to that of 1870. Table 2-6 shows that during the 1950s, the number of people living in Harvard increased by a record-breaking 40%, only to grow by another 61% in the ensuing decade.



Homes in Harvard.

Table 2-6: Population Change, 1930-2000

Year	Local Population	% Change	County Population	% 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%

Sources: Charles W. Eliot, *Planning for Harvard: Comprehensive General Plan* (1969); Bureau of the Census.

The twenty-year period between 1950-1970 was clearly a watershed moment in the town's development history. Harvard was spliced by two highways, it lost an enormous amount of farmland, and it gained people at a faster rate than in any previous period except for its earliest years as an incorporated town. Since 1970, the rate of population growth in Harvard has dropped sharply even though new-home construction escalated during the 1970s. In both obvious and subtle ways, however, Harvard's people appear to be an increasingly homogenous group. Table 2-7 compares the economic position of persons living in Harvard to that of the regional and statewide population. It shows that Harvard's townspeople are both well off and highly educated. Nearly three-fourths of town's employed residents hold management or professional jobs, up from 67% a decade ago, while only a handful work in traditionally blue-collar and lower-wage jobs. Anecdotal information reinforces the privileged make-up of Harvard's population: the sheer cost of housing in Harvard demands high-paying jobs, and a very low percentage of Harvard's public school students qualify for federal Title I support.¹⁴ However, the town's labor force as a percentage of its total population is quite high compared to many communities, which may indicate that many families rely on two wage earners to afford the cost of living in Harvard.¹⁵

14. Bureau of the Census, "Small Area Income and Population Estimates, 1997 School District Profiles," (1999). Note: Harvard's Title I eligibility percentages have historically been calculated on population profiles that included Fort Devens residents.

15. Massachusetts Department of Revenue, Municipal Data Bank, "Labor Force and Unemployment Data, 1990-2000" (citing U.S. Bureau of Labor Statistics); MISER, "Population of Massachusetts Cities and Towns, 1990-2000." MISER data were adjusted to reflect the inclusion of Fort Devens residents in the 1990 population counts for Shirley and Harvard.

Table 2-7: Comparative Economic Indicators

Indicators	Harvard	Worcester County	State
Median Family Income	\$119,352	\$58,394	\$61,664
Per Capita Income	\$40,867	\$22,983	\$25,952
Median Home Value	\$368,700	\$146,000	\$185,700
% Population w/ Bachelor's Degree+	65.1%	26.9%	33.2%
% Employed in Management/Professional Jobs	73.9%	37.6%	41.1%

Source: Bureau of the Census, Census 2000 Demographic Profile Tables 1-4.

Harvard men who work full-time earn an average of \$90,937 per year while women in full-time employment earn \$49,318. The 1.84 ratio of male-to-female earnings in Harvard is much higher than state's ratio of 1.34, but Harvard's employed women also earn substantially higher wages than their counterparts across the state: 1.54 times more. In addition, male residents of Harvard earn twice as much per year as men throughout the state or elsewhere in Worcester County. Harvard appears to have a sizeable population of persons working at home, engaged in professional and "e-commerce" fields or small business ventures.¹⁶ According to Census 2000, at least 6.2% of Harvard's residents work in home-based employment, more than twice the rate for the state as a whole, for Worcester County or the Boston metropolitan area.¹⁷ Across the state, the highest percentages of home-based workers are found in upper-income suburbs and resort-area towns.

Key economic indicators such as household and per capita income, home values, educational attainment and occupation place Harvard far above statewide norms. Moreover, the town's estimated equalized valuation per capita is in the top quartile, a fact that will eventually have consequences for Harvard's state aid revenue.¹⁸ The composition and value of its housing stock make Harvard a town of family households and its percentage of households with school-age children substantially exceeds the statewide average. Despite earlier predictions that Harvard's elderly would more than double between 1990-2000,¹⁹ the number of senior citizens (age 65+) living in town today remains small compared to the overall population. The disproportionately low number of seniors and large under-18 population are long-standing features of Harvard's uneven age profile, as shown in Table 2-8.

16. Harvard Town Clerk, "DBA Certificates" (January 2002).

17. Bureau of the Census, Profile of Selected Economic Characteristics, Census 2000 DP-3.

18. Harvard has reportedly been advised that it will be "held harmless" when new EQV per capita figures are released by the Department of Revenue next year – that is, Harvard will not lose its existing levels of municipal or school aid. However, state aid is unlikely to increase at the pace it would have had Harvard not lost its Fort Devens population.

19. Massachusetts Department of Elder Affairs, citing MISER, "Elderly Population Projections for Massachusetts Cities and Towns" 1999, <<http://www.state.ma.us/dea.index/data.htm>> (11 May 2001).

Table 2-8: Population by Age in Harvard

Age	<u>1980</u>		<u>1990</u>		<u>2000</u>	
	% Harvard	% State	% Harvard	% State	% Harvard	% State
<5	5.9%	5.6%	6.5%	6.9%	6.5%	6.3%
5-14	19.5%	14.2%	15.6%	12.1%	19.0%	13.6%
15-19	9.5%	9.4%	7.2%	6.8%	6.4%	6.5%
20-24	4.2%	16.2%	4.5%	8.5%	2.0%	6.4%
25-34	15.4%	16.3%	9.5%	18.3%	5.8%	14.6%
35-54	34.1%	21.2%	41.6%	25.2%	39.7%	30.5%
55-64	5.6%	10.6%	8.0%	8.6%	12.2%	8.6%
65+	5.6%	13.2%	7.0%	13.6%	8.5%	13.5%

Sources: Bureau of the Census, 1990 Census of Population and Housing, STF-1; Census 2000, STF-1; Connery Associates, *Harvard Town Plan* (1988).

Harvard attracts affluent households because it is a prestigious town. Its scenic beauty, extensive farmland and stately, well-preserved homes lend Harvard a genteel aura, and that aura has market consequences. Since Harvard has excellent schools and a housing stock comprised almost exclusively of single-family homes, it appeals to a particular market of affluent homebuyers: families with children, as suggested by the data in Table 2-9.

Table 2-9: Characteristics of Harvard Households

Item	Harvard	State	Worcester County	PMSA
Households	1,809	2,443,580	283,927	1,319,761
Families	1,494	1,576,696	192,423	821,739
Households w/ children <18	808	748,865	95,472	385,726
% Households w/ children <18	44.7%	30.6%	33.6%	29.2%
Families as % of Households	82.6%	64.5%	67.8%	62.3%

Source: Bureau of the Census, Census 2000 Demographic Table 1. "PMSA" refers to the Boston Primary Metropolitan Statistical Area.

Housing Trends

Harvard homes are large, well maintained and valuable. Homeowners make a substantial investment when they buy a home in Harvard, and on average, they pay one of the state's highest single-family tax bills in order to stay in Harvard. Market data show that both new home sales and a steady recycling of the town's established housing base contributed to the price escalation that finally surfaced in assessed values this year. Except for the early 1990s when housing prices plummeted throughout the Northeast, the median single-family home sale price in Harvard rose by about 10% per year between 1990-2000, resulting in a decade-long increase of 54%. Despite the high cost of a home in Harvard, houses for sale move quickly, as evidenced by the town's low vacancy rate of .7%. In addition, large-lot zoning, Title V requirements and private wells translate into high development costs, such that the average "construction-ready" house lot sells for about \$200,000. Between 1990-2000, the Harvard Planning Board signed approximately 120 Form A lot plans and endorsed one six-lot subdivision. The past decade produced residential parcels that average more than four acres in size, reflecting a combination of poor soil conditions and the 4.5-acre rule that applies to

hammerhead and “backland” lots. It also produced homes with an average assessed value of nearly \$600,000.

Housing Stock

Harvard's 1,911 housing units are primarily single-family homes supplemented by a sparse base of attached units: two- and three-family residences, condominiums, and apartments in multi-family buildings. About 5% of all homes in Harvard co-exist with non-residential uses on the same property, e.g., businesses and farms. Harvard's housing stock is also noteworthy for the incidence of multiple homes on one parcel. A tradition barred by present-day zoning in most communities (including Harvard -- except for farms), the location of a primary residence, a carriage house or guest quarters on one property was a fairly common, turn-of-the-century mode of residential land use that endures throughout Harvard today. Table 2-10 tracks the composition and occupancy characteristics of housing in Harvard from 1980-2000.

Table 2-10: Composition of Housing Stock

Residential Use Type	1980	1990	2000 (Est.)
Single-Family	1,246	1,598	1,775
Two-Family	55	51	48
Multi-Family, Mixed-Use	<u>34</u>	<u>32</u>	<u>88</u>
Total Housing Units	1,335	1,681	1,911
Total Renter-Occupied Units	194	185	171
Renter-Occupied as % Total	15%	12%	9%
Number of Seasonal Units	118	57	69
Year-Round Units	1,217	1,624	1,842

Sources: U.S. Census Bureau, 1990 Census of Population and Housing, STF-3: Census Tract 7142; Connery Associates, Harvard Town Plan (1988); Harvard Assessor's Office, FY02 Parcel Database (January 2002).

Homeownership is clearly the norm in Harvard, more now than two decades ago. Harvard has not only absorbed new residential development, but also it has witnessed the conversion of formerly seasonal housing stock to year-round residences. As a result, units that were once available for rental occupancy during the off-season have declined. Today, Harvard has one of the lowest percentages of renter-occupied housing in the state.

Harvard has absorbed a moderate pace of housing growth since the last master plan was written (1988). The rate of growth is less noteworthy than changes in the mix, cost and location of Harvard homes, however. Approximately 249 units have been added to the base that existed in 1988, or 18-21 dwellings per year. Harvard continued to attract single-family homes on basic lots, but the town also took steps to diversify its housing stock and increase its affordability during the past decade. Of the 230 housing units built between 1990-2000, 56 – or 24% – are condominiums and apartments, 32 of which are affordable to low- and moderate-income households. Approved as “friendly” comprehensive permits under Chapter 40B, the Harvard Green Condominiums and Foxglove Apartments introduced a modicum of housing affordability and choice into Harvard's

homes. In fact, comprehensive permits were key to the feasibility of these developments because neither one meets the density and dimensional requirements of Harvard zoning.²⁰

The size and exemplary condition of Harvard homes is an indicator of both their value and the economic position of most residents. Small houses exist in Harvard, but they are relatively rare and seemingly at risk. The “tear-down” activity that plagues many communities close to Boston has yet to become a measurable factor in Harvard, but substantial alterations and expansions are increasingly common. Table 2-11 provides a snapshot of Harvard's single-family housing inventory and sheds light on the relationship between extraordinarily high land values and the cost of Harvard homes.

Table 2-11: Single-Family Property Characteristics in Harvard

Year Built	Average Lot Size	Average Finished Area	Average Total Value (Land & Buildings)	Ratio of Building Value to Total Value
1998-2001	3.51	3,420	\$ 583,302	0.570
1995-1997	4.84	3,191	\$ 593,159	0.542
1990-1994	4.82	3,158	\$ 557,043	0.546
1980-1989	3.38	2,867	\$ 498,982	0.526
1970-1979	2.82	2,326	\$ 402,177	0.472
1960-1969	2.42	1,995	\$ 355,837	0.411
1950-1959	2.85	1,717	\$ 333,027	0.326
1940-1949	1.90	1,667	\$ 290,555	0.336
1930-1939	2.48	1,606	\$ 260,196	0.389
1920-1929	2.21	1,902	\$ 325,053	0.367
pre-1920	3.08	2,428	\$ 403,786	0.467

Source: Harvard Assessor's Office, FY02 Parcel Data File.

Housing Market

Harvard's location plays a crucial role in existing and foreseeable development trends. Proximity to I-495, region-wide economic development and transit improvements all suggest that Harvard is poised to grow. Housing starts and job growth throughout the I-495 corridor act as a backdrop to what is happening in Harvard today. Business establishments in communities near Harvard pay some of the highest wages in Massachusetts. In fact, virtually all of the cities and towns along the

20. All of the low- and moderate-income housing in Harvard today post-dates the 1988 master plan. According to the Department of Housing and Community Development (DHCD), which maintains the state's Chapter 40B subsidized housing inventory, Harvard has 33 Chapter 40B units or 1.53% of the town's year-round homes. The state inventory appears to omit units that qualify as Chapter 40B housing, however. In addition to the 24 rental units at Foxglove Apartments and eight affordable homeownership units at Harvard Green, the Harvard Conservation Trust owns and manages nine rental units: five at the Harvard Inn and four at the Great Elms, all under long-term affordability restrictions. Some local officials say that affordable housing built in Harvard under the *Devens Reuse Plan* should also be added to the town's Chapter 40B inventory. The first phase of residential development at Devens is expected to bring 71 new homes to Harvard, including 13 affordable units.

west-northwest arc of I-495 rank in the state's top quartile for average annual wages. The region's prosperity has brought competitive jobs that require a highly skilled and educated workforce. It has also brought an intensity of housing demand that many of these communities are ill-equipped to absorb, pushing the cost of homes far beyond the reach of many long-time residents. Table 2-12 illustrates the rapid escalation in single-family home sale prices that has occurred both in Harvard and across the region since 1990.

Table 2-12: Change in Single-Family Home Prices, 1990-2001

	Median Sale Price of Single-Family Homes			% Increase	
	1990	2000	2001	1990-2000	2000-2001
Acton	\$ 225,000	\$ 370,000	\$ 426,450	64.4%	15.3%
Ayer	\$ 109,750	\$ 170,000	\$ 221,950	54.9%	30.6%
Bolton	\$ 220,250	\$ 329,900	\$ 449,000	49.8%	36.1%
Boxborough	\$ 230,000	\$ 426,450	\$ 495,000	85.4%	16.1%
Clinton	\$ 114,000	\$ 137,000	\$ 165,450	20.2%	20.8%
Groton	\$ 165,000	\$ 297,000	\$ 324,900	80.0%	9.4%
HARVARD	\$ 266,250	\$ 410,500	\$ 525,000	54.2%	27.9%
Littleton	\$ 193,000	\$ 260,950	\$ 287,450	35.2%	10.2%
Shirley	\$ 126,250	\$ 169,500	\$ 211,500	34.3%	24.8%
Stow	\$ 184,000	\$ 315,000	\$ 330,000	71.2%	4.8%
Sudbury	\$ 296,125	\$ 497,500	\$ 537,000	68.0%	7.9%
Westford	\$ 190,500	\$ 297,500	\$ 325,900	56.2%	9.5%

Source: Banker & Tradesman, 2001.

In Harvard and other towns affected by westward (suburban) migration and expansion of the state's economic base, single-family home starts dominated the housing pipeline throughout the 1990s.²¹ Between 1990-2000, the statewide housing inventory grew 6% and single-family units, 3.6%. However, some towns near Harvard witnessed overall housing unit growth rates of 20-25% and substantially more subdivision activity than housing counts alone would reveal. For example, neighboring Boxborough leads the state for percentage change in single-family *parcels* created during the 1990s: 58%.²² Harvard's 11% growth in single-family parcels and 12% growth in housing units overall are *below* regional averages, however. Table 2-13 compares housing and population trends in Harvard and several nearby communities.

21. Bureau of the Census, U.S. Department of Housing and Urban Development, *American Housing Survey: Boston PMSA* (1998); Mass. Department of Revenue, Municipal Data Bank, "Parcels by Land Use," 1990-2000 (electronic files).

22. Massachusetts Technology Collaborative, *The I-495 Overview* (1999).

Table 2-13: Regional Housing and Population Growth, 1990-2000

	Housing Units			Population		
	1990	2000	% Increase	1990	2000	% Increase
Acton	6,891	7,645	10.9%	17,872	20,331	13.8%
Ayer	2,891	3,141	8.6%	6,229	7,110	14.1%
Bolton	1,097	1,472	34.2%	3,134	4,148	32.4%
Boxborough	1,485	1,900	27.9%	3,343	4,868	45.6%
Clinton	5,635	5,817	3.2%	13,222	13,435	1.6%
Groton	2,774	3,339	20.4%	7,511	9,547	27.1%
HARVARD	1,681	1,911	13.7%	4,662	5,230	12.2%
Littleton	2,691	3,018	12.2%	7,051	8,184	16.1%
Shirley	1,997	2,140	7.2%	5,025	5,276	5.0%
Stow	1,853	2,108	13.8%	5,328	5,902	10.8%
Sudbury	4,875	5,582	14.5%	14,358	16,841	17.3%
Westford	5,530	6,877	24.4%	16,392	20,754	26.6%
Massachusetts	2,472,711	2,621,989	6.0%	6,016,425	6,349,097	5.5%

Source: Bureau of the Census.

Harvard's Economy

Harvard's local economy consists mainly of small businesses, self-employed professionals, non-profit institutions and farms. According to federal statistics, Harvard has 178 establishments with a combined workforce of about 1,040 full- and part-time employees. Town records suggest that many of Harvard's establishments are locally owned businesses, including but not limited to farms and orchards. The fiscal, traffic and environmental impacts of local economic development vary considerably from town to town, owing not only to differences in the total amount of development but also to the composition and structure of the economic base, the location of goods, services and obviously, the number and type of jobs.

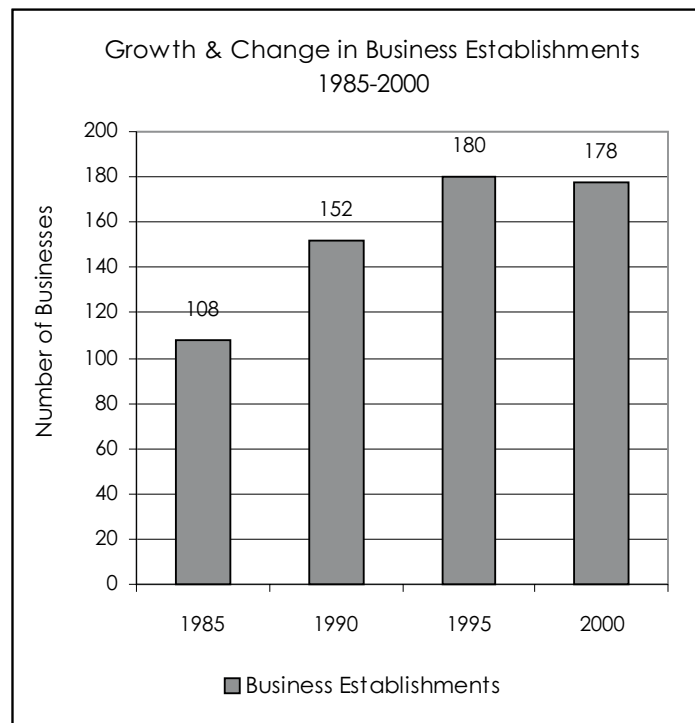


Fig. 2-C: Businesses in Harvard, 1985-2000.

Business Establishments

Figure 2-C shows that while the size of Harvard's employment base has fluctuated, the number of employers located in town has increased by about 17% since 1990. However, the number of people working for Harvard establishments (Fig.

2-D) increased by only 3.5% in the same period, except for a reported spike in manufacturing jobs between 1991-1996. Significantly, Figures 3-4 capture little if any of the employment at Devens. They also do not capture Harvard's base of self-employed people: those who work at home or in small professional offices about the town. To measure and track local establishments and employees, the U.S. Bureau of Labor Statistics (BLS) relies mainly on reports filed by U.S. companies that are subject to federal or state unemployment compensation laws. BLS periodically releases employment and wage data in municipal, metropolitan area, labor market and state geographic units. A company's geographic location is based on the address it lists for unemployment compensation reporting purposes. Most Devens employers list their place of business as "Devens" or sometimes "Ayer," regardless of whether they are located in Ayer, Harvard or Shirley. As a result, it is difficult for not only the communities but also MassDevelopment to track employment change at Devens in a systematic way.

Employment and Wages

Gains or losses in local employment are less meaningful when measured as total change than as change in employment by sector. Harvard's modest growth in establishments and very limited growth in total employment during the 1990s were attended by other important changes in the composition of the local economy. Figure 2-E measures employment by sector as a percentage of total employment since 1985. Against the backdrop of Harvard's slow rate of job growth, job losses have occurred in agriculture and forestry, the construction trades, manufacturing and retail trade. For example, while agricultural jobs constituted a somewhat larger percentage of total employment in 1999 than in 1995, there were far fewer people working for agricultural establishments in 1999 than in 1985. In fact, the number of people holding full- or part-time jobs in agriculture declined by 56% during the 15-year period

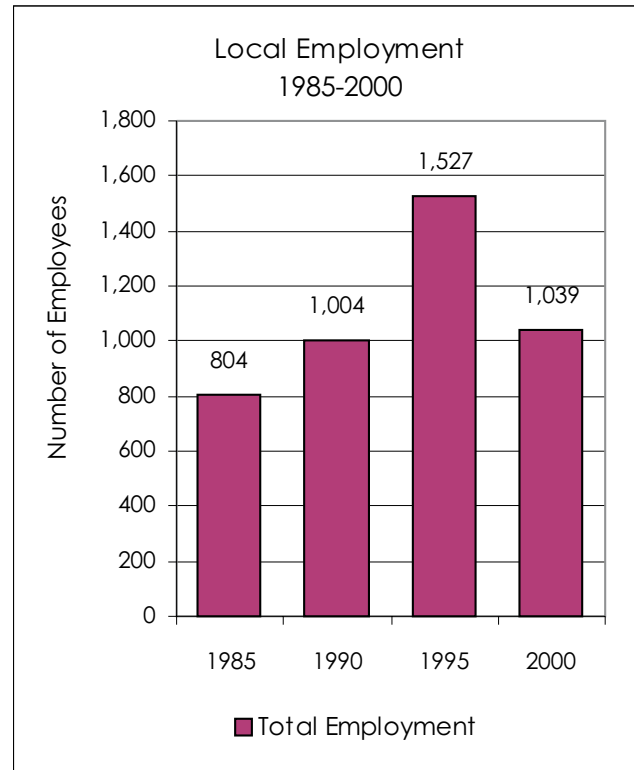


Fig. 2-D: Employment in Harvard, 1985-2000.

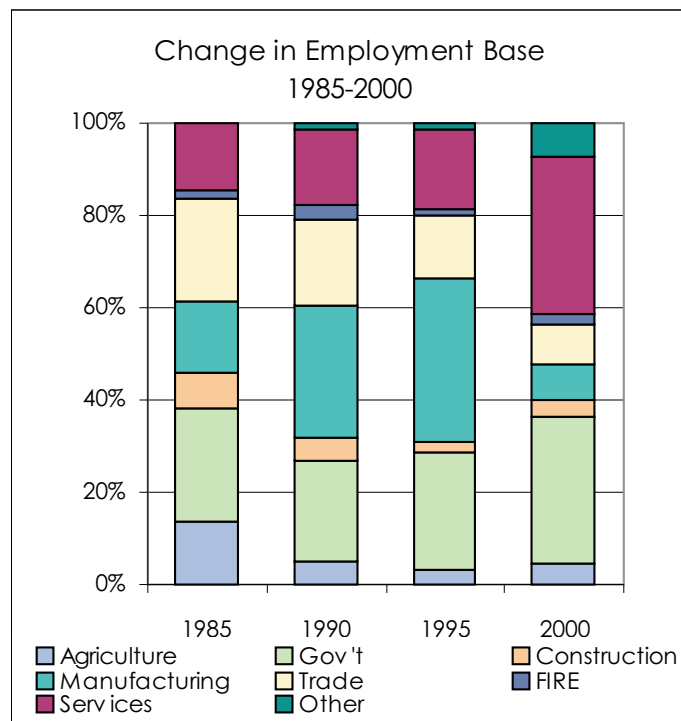


Fig. 2-E: Employment Base Composition.

reflected in Figure 2-E. At the same time, public-sector employment increased by 72%.²² As of 1999, government jobs constituted 32% of Harvard's total employment, up from 24% in 1985. The largest gain of all has occurred in service industries employment – i.e., personal service, social service and private household jobs that are typically lower-wage than those found in manufacturing, the construction trades or government.

Despite significant economic growth throughout the region, Harvard has fared poorly as a generator of high-paying jobs and to a large extent, this is by choice. Though Harvard feels the demand for housing caused by economic development along I-495 and at Devens, it receives none of the employment or tax base benefits: from Harvard's point of view, the traffic and the risk of an unwanted change in town character seemingly outweigh the advantages of tax revenue. The town's zoning policies effectively bar economic development, but in addition, Harvard has no "construction-ready" land to offer expanding companies – except at Devens. In 1999, the average annual wage paid by Harvard establishments was \$36,055, placing Harvard in the third quartile for wages across the Commonwealth but far below wages paid in many surrounding communities, as suggested by the data in Table 2-14. Harvard's employment base is small: about 1,050 jobs, one-third of which are in the public sector. The remaining jobs are primarily in services and trade, with nearly 5% in agriculture and agricultural support.²³

Table 2-14: Municipalities with Highest-Wage Jobs in Massachusetts (1999)

City/Town	Avg. Annual Wage	City/Town	Avg. Annual Wage
Hopkinton	\$80,564	Maynard	\$56,679
Monroe	\$80,378	Lexington	\$56,148
Westford	\$70,510	Bedford	\$56,015
Wenham	\$61,039	Andover	\$54,911
Stow	\$59,940	Waltham	\$54,762
Boxborough	\$56,712	Littleton	\$54,569

Source: U.S. Bureau of Labor Statistics (2001). Harvard is not included in Table 2-13 because its average annual wage is well below the top 10 municipalities in Massachusetts.

On average, Harvard ranked 75th for wage competitiveness statewide throughout the 1990s.²⁴ Between 1985-2000, the average annual wages paid by Harvard's employers more than doubled, from \$16,069 in 1985 to \$38,378 in 2000.²⁵ In some communities across the region, however, wages tripled during the same period. Given the present composition of Harvard's employment base,

22. In 1997, the Commonwealth changed its reporting methodology for government jobs in order to reflect the actual location of state employees. This change has resulted in seemingly high public-sector employment growth for some communities and losses for others, making pre- and post-1997 comparisons difficult. Harvard is not among the affected communities, however.
23. Massachusetts Department of Employment and Training (DET), citing U.S. Bureau of Labor Statistics LAUS and ES-202 data (2001). These data do not include persons working at home as self-employed professionals or entrepreneurs, or as employees of non-local establishments.
24. Data derived from Mass. DET, ES-202 reports for all communities in the Commonwealth. See also, Massachusetts Technology Collaborative, *I-495 Overview* (1999).

government jobs are most likely the engine that keeps annual wages at or slightly above the third quartile for the state as a whole. This is not because local government workers are paid more generously than in other parts of the state, but because their jobs constitute the plurality of all employment in Harvard. Similarly, the increasing prevalence of service jobs has the effect of depressing aggregate annual wages paid by local establishments.

Self-Employment and Home-Based Business Activity

Local jobs may be limited in number and quality of wages, but many of the town's residents are self-employed and a striking number of them work at home. Indeed, for those who want to live and work in Harvard, it may be easier to start a business at home than to develop one in the Commercial District on Ayer Road: home occupations are allowed as of right as long as they remain inconspicuous. According to local records, about 210 locally owned and operated businesses exist in Harvard today and many of them are conducted in private residences. The actual number of resident-entrepreneurs is probably much higher because often, home-based business owners do not file "doing-business-as" or "DBA" certificates with city or town clerks. If Harvard is at all consistent with national trends, more people work at home today than a decade ago, and they are a significant force in the local economy.

Citizens on the Harvard Town Plan (1988) steering committee recognized the eve of the "work-at-home" movement in their own community. Comparing the local economy of their time to that of the Comprehensive Plan (1969) era, the committee noted that Harvard had begun to experience "a growth in home occupations, in large part due to the 'high-tech' revolution."²⁶ They anticipated that homes would serve increasingly as work sites, and they had ample evidence to support their claim. In 1990, only two years after the Harvard Town Plan was finished, the Census Bureau reported that 7.4% of Harvard's employed adults worked at home – a statistic that placed Harvard far above regional and statewide norms at the time. Only 2.5% of all employed adults in the Commonwealth, and 2.3% in Worcester County, worked at home in 1990.²⁷

Technological advancements occurred so rapidly during the early 1990s that the work-at-home population skyrocketed nationally. As a result, the most recent U.S. Economic Census (1997) produced the first comprehensive work-at-home survey and confirmed the growing popularity of two employment conditions: home-based businesses, and workers using at-home offices instead of commuting to their place of employment: the so-called "tele-commuters." Census 2000 data suggest that Harvard's work-at-home population may have declined slightly since 1990, but the decennial census does not capture part-time home-based business ventures or workers who tele-commute intermittently. Regardless, the percentage of Harvard's labor force that works at home remains well above regional and statewide norms, as shown in Table 2-15.

The limited data that are available to support a profile of Harvard's home-based businesses suggest that local entrepreneurs have much in common with their national counterparts. For example, women appear to constitute about half of Harvard's at-home business owners; nationally, 48% of all home-based businesses are women-owned.²⁸ Many of Harvard's self-employed people do not work

26. Connery Associates, *Harvard Town Plan*, 6-1.

27. U.S. Census Bureau, 1990 Census of Population and Housing, STF-3A: State of Massachusetts, Worcester County, and Worcester County Census Tract 7142 (Residential Harvard).

28. U.S. Census Bureau, Bureau of Labor Statistics, 1997 Economic Census, *Work at Home in 1997*, Table 5.

from home, however. Local tax assessment records and the town clerk's DBA file underscore the prevalence of locally owned businesses along Ayer Road and around the Town Center, and at least two firms at Devens are owned by residents of Harvard. Consistent with the office and small-retail composition of Harvard's commercial base, professional, medical and service enterprises dominate the mix of businesses owned by town residents. In addition, a number of artists, writers and construction tradesmen live and work in Harvard. Farming is a unique feature of self-employment in Harvard because it continues to thrive.

Table 2-15: Working at Home in Harvard

Item	Harvard	State	County	MSA
Population	5,230	6,349,097	750,963	3,398,051
Population > 16 yrs.	3,807	5,010,241	578,707	2,713,633
Civilian labor force	2,872	3,312,039	383,266	1,818,561
Labor force % population > 16 yrs.	75.4%	66.1%	66.2%	67.0%
Employed civilians > 16	2,781	3,161,087	366,942	1,740,975
Working at home	173	97,504	9,821	57,674
% Working at home	6.2%	3.1%	2.7%	3.3%
Self-employed	341	201,209	21,162	110,563
% Self-employed	12.3%	6.4%	5.8%	6.4%

Source: Bureau of the Census, Census 2000, Demographic Tables 1-3.

Though some residents work locally, most of the town's labor force commutes to out-of-town employment – as suggested by Harvard's unusually low jobs-to-housing ratio of .55. Distance commuters as a percentage of the labor force are more prevalent in Harvard than in most municipalities. About 23% of all working adults in Harvard commuted to jobs nearby in 1990, compared to 33% of all Worcester County residents and 34% across the Commonwealth. Moreover, 82% of all employed residents (not including the at-home labor force) drove back and forth to work in their own car: 2,030 people. Recently released data from Census 2000 show that Harvard's labor force spends more time commuting to work than the labor force of Worcester County, the Boston metro area or the state as a whole, and the percentage of workers driving alone has increased to 84%.²⁹ Except for Devens, regional employment growth has occurred almost entirely outside of Harvard's borders, a condition that contributes to the town's auto-dependent character. The average wages paid by local establishments suggest that for many people, the choice to live and work in town does not exist.

Harvard's Farms and Orchards

Agriculture retains an important place in Harvard's economy, although farming has declined in Harvard as it has throughout New England. Approximately 50 farms and orchards with a combined total of 1,500 acres of agricultural land operate in Harvard today.³⁰ There are three full-time commercial orchards – Westward Orchard, Carlson's Orchard and the Doe Orchard – along with several orchards and small farms run on a part-time basis by their owners. This division of

29. Bureau of the Census, Profile of Selected Economic Characteristics, DP-2, Census 2000.

30. Not all farms in Harvard are represented in the Chapter 61A statistics cited earlier in this report.

agricultural establishments seems to parallel trends across the Commonwealth, for during the past two decades, the state has seen a significant rise in the number of farmers who list their farm as a part-time occupation.

Like other New England farmers, Harvard orchardists have had to adjust to global competition by shifting a large portion of their income stream to retail sales at farm stands. The owner of one local orchard estimates that income to his establishment is split almost equally between wholesale and retail, but 20 years ago, 80 percent of his orchard's income was derived from wholesale trade and only 20 percent from retail. About 70-80% of the orchard's farm stand customers are non-local patrons, i.e., from outside of Harvard. Reduced demand for apples in winter and spring months makes it very difficult for farm stands to remain profitable during the off-season. The ability to diversify what can be sold at a farm stand is just as important to agricultural retail as it is to any other retail establishment. However, a farm stand qualifies for protection as an agricultural use only if a majority of the products sold are grown on the owner's land. Once the product base shifts toward more non-farm sales, the use becomes "commercial" and is subject to local zoning requirements. Like most conventional zoning bylaws, Harvard's prohibits commercial uses in a residential district.



Harvard's apple orchards.

In an effort to encourage local farming and keep the town's agricultural land in productive use, Harvard's Conservation Commission has negotiated three Agricultural Preservation Restrictions (APR) on 83 acres of farm land, including 48 acres of apple orchards. At least one orchard in town has participated in a state program that provides technical assistance, grants and loans to help Massachusetts farmers stay in business.

Natural & Cultural Resources

For Harvard, agriculture is an open space, economic development, and cultural resource issue. Harvard's inventory of environmental and built assets is one of its most enviable traits, and farming has played a central role in the history of the town. "Historic and cultural resources" refer to historic buildings and their settings, outbuildings such as barns and sheds, archaeological remnants and features, and areas deemed to be archaeologically sensitive. Landscape features such as extant stonewalls, traces of stone foundations and cemeteries are also an important part of Harvard's history and considered part of its cultural inventory. Scenic vistas and view sheds, agricultural landscapes and largely unaltered historic settlement patterns, such as in Still River Village, combine elements of both Harvard's cultural and natural environments. "Natural resources" include land, surface water, streams and wetlands, aquifers, wildlife habitat and other ecologically sensitive areas. Not surprisingly, natural and cultural resource locations often overlap, such as vestiges of an early settlement adjacent to a river or the cart path that runs parallel to a nearby stream.

A study completed five years ago, *Planning for Harvard's Rural Landscape: Case Studies in Historic Conservation* (1997), identified the Town Center, Still River/Prospect Hill, the Shaker Village, Oak Hill and Bare Hill Pond as "special places" in Harvard. Harvard also has several water resource areas of ecological importance: the Nashua River, the Bowers Brook wetlands system, Black Pond, Horse Meadows, Bennetts Brook, the ponds and associated wetlands west of Salerno Circle at Devens, and the aquifers beneath Devens. These special places and areas of ecological concern are illustrated in

Map 2-C. As Harvard's key public assets, they call for stewardship from the town, Devens, and state and federal agencies that together have a stake in Harvard's land. Appendix B provides descriptive summaries of each resource area.

Cultural Resources

Understanding the importance of preserving its historic past, Harvard has undertaken three architectural and rural landscape surveys since the early 1970s and listed numerous properties on the National Register of Historic Places. The most recent examination of architectural and historical resources, a two-phase comprehensive survey conducted in 1992-94, was commissioned by the Harvard Historical Commission and funded by a Survey and Planning Grant from the Massachusetts Historical Commission (MHC). The comprehensive survey documentation includes approximately 251 site-specific inventory forms, seven area forms and three archaeology area forms.

Harvard has six historic districts listed on the National Register: Fruitlands Museums Historic District, Harvard Center Historic District, Harvard Common Historic District, Harvard Shaker Village Historic District, the South Stone Barn Foundation and Fort Devens Historic District. Two of the six districts are also local historic districts under M.G.L. c.40C: Harvard Common Historic District and Harvard Shaker Village Historic District.³¹ The Fort Devens Historic District, including Vicksburg Square and Roger's Field parade ground, is overseen by the Devens Enterprise Commission (DEC), which has the regulatory authority to review all proposed changes or alterations to existing buildings and any plans for new construction in the district.³²

Only three properties in Harvard are individually listed on the National Register: the Still River Baptist Church at 213 Still River Road in Still River Village (Harvard Historical Society), the Frederick Fiske and Gretchen Osgood Warren House (the "Fiske Warren" House) at 42 Bolton Road, and Fruitlands Museum at the Fruitlands Museums site, 102 Prospect Hill Road.

Harvard Center Historic District

The Harvard Center Historic District, listed on the National Register in 1977, includes 115 contributing and 20 non-contributing buildings, three contributing sites, four contributing structures, two contributing objects and two non-contributing objects.³³ The National Register district includes the entire local historic district within its boundaries, along with adjacent properties located to the north, south and west.³⁴ The district includes significantly intact residential, civic and ecclesiastic buildings dating from the 18th through the 19th centuries. Its architectural richness is illustrated in a wide variety of architectural styles ranging from 18th-century Colonial, Federal-style buildings to 20th-century Craftsman bungalows.

Fruitlands Museums Historic District

The 130-acre Fruitlands Museums Historic District, located at 102 Prospect Hill Road, includes four separate museums — Fruitlands, the Shaker Museum, the Indian Museum and the Picture Museum

31. Massachusetts Historical Commission (MHC), *State Register of Historic Places* (2000), 137-138

32. *Devens Reuse Plan* (1994), 36.

33. Harvard Center Historic District National Register of Historic Places Nomination (1995).

34. Note: the local historic district was established in 1975.

— and seven ancillary buildings. Developed by Clara Endicott Sears between 1910 and her death in 1960, Fruitlands stretches west from Prospect Hill Road to the Boston and Maine Railroad right-of-way and the Oxbow National Wildlife Refuge. The centerpiece of the Fruitlands Museums complex is “Fruitlands,” the 19th-century home of Amos Bronson Alcott, an early Transcendentalist who established a communal residence of like-minded contemporaries in the 1840s at the house. Fruitlands, listed separately from the Fruitlands Museums Historic District, is both a Massachusetts Historical Landmark and a National Historic Landmark. Landmark status attests to Fruitlands’ historic significance on both a statewide and national level.



View from Fruitlands.

Still River Village/Prospect Hill

The oldest village in Harvard, Still River rests on a ridge overlooking the Nashua River Valley. Predating the town’s incorporation in 1732, Still River is a substantially unaltered collection of buildings dating from the 17th to the 20th centuries. The approximately 100-acre village area is representative of one of the New England’s oldest historic settlement patterns: a linear string of buildings along what is now Still River Road. Historically, Still River developed along two important transportation routes, Still River Road from the Harvard Common toward Bolton, and Depot Road from Still River to Lancaster.³⁵ Still River and its surrounding landscapes and agricultural land are significant resources that warrant protection. However, there are no mechanisms in place such as deed restrictions or a local historic district to protect the village’s architectural integrity and rural setting.

Shaker Village

The Shaker Village District, matching the boundaries of the local district, was listed on the National Register in 1989. Included in the district are 15 contributing buildings, 11 sites and 5 structures, and 9 non-contributing buildings. Shaker Village is significant as the location of a utopian religious community that thrived in Harvard from late 18th century to the early 20th century. The Shakers created an outstanding farming community, remnants of which survive in the Church family and South family architecture, a cemetery, the outdoor dancing ground, waterworks and extensive stone work, all designed and built by the Shakers themselves. The town of Harvard owns Holy Hill of Zion, the Shaker Cemetery, and the Herb Drying Shed.

Distinctive landscapes

Working orchards and farms are part of the intrinsic character of Harvard’s landscape. They are also valued local industries and prominent features in the natural environment. The Massachusetts Scenic Landscape Inventory classifies a number of these orchards as “distinctive.” It also recognizes the

35. Claire Dempsey, Comprehensive Inventory of Historic Resources of Harvard, on file at Harvard Public Library.

views from Prospect Hill to Mount Monadnock, Pack Monadnock and Mount Wachusett as scenic landscapes that merit protection.

Natural Resources

Few issues ignite a more protective response from Harvard people than water. Harvard's water resources are diverse, plentiful and clean. They include a major river, lakes and ponds, streams, wetlands, vernal pools and aquifers. Except for a very small water supply that serves the Town Center, Harvard does not have a public water or sewer system. Residents rely on private wells for their drinking water and individual on-site septic systems for wastewater disposal. As a result, Harvard must be vigilant about groundwater contamination risks and for many years, the town has taken these concerns seriously. In addition to the obvious public health implications of maintaining clean water, townspeople also value the scenic, wildlife habitat and recreational significance of their wetland and water resources.

Nashua River-ACEC

The Nashua River, a Class B waterway and a state-designated Scenic River, forms Harvard's western boundary. It is a regionally significant resource that flows northward from neighboring Lancaster to Nashua, N.H., where it converges with the Merrimack River.³⁶ Most of Harvard is contained within the Nashua River's 538-square mile watershed basin. Several of the town's streams and water bodies are tributary to the River, including Bowers Brook and Bare Hill Pond, along with Grove Pond and various brooks that drain the Devens portion of the watershed. Owing to years of political action region-wide, regulatory enforcement and clean-up measures, the Nashua River has progressed from a highly polluted waterway to a clean, usable resource for recreational boating and fishing. Six years ago, DEM designated 12,900 acres in North-Central Massachusetts as the Central Nashua River Valley Area of Critical Environmental Concern (ACEC). The ACEC includes 1,850 acres of Harvard, incorporating the Still River, the Oxbow National Wildlife Refuge and the Bolton Flats Wildlife Management Area.³⁷ Before DEM brought the Nashua River under the protective arm of the ACEC Program, Harvard voters established a 300-foot buffer zone along the Nashua River, effectively limiting allowable land uses to passive recreation and open space (1994).

Bare Hill Pond

Undeniably, one of Harvard's most important natural features is Bare Hill Pond, a 321-acre water body located southwest of the common. Categorized as a "Great Pond," or a pond larger than 10 acres in its natural state, Bare Hill Pond is a local treasure of environmental and recreational significance to the town. The average depth of Bare Hill Pond is 10 feet, although within the original 200-acre perimeter, its basin descends to an average depth of 13 feet. Approaching the Town Beach, Bare Hill Pond forms an expanse of shallow flats. It is a rich, diverse resource area that supports boating, swimming, bird watching and hiking, and provides a ready-made outdoor science laboratory for high school students.

36. U.S. Army Corps of Engineers, *Final Environmental Impact Statement: Fort Devens Disposal and Reuse*, Vol. I (May 1995), 4-107.

37. See Town of Harvard, *Open Space and Recreation Plan* (1996) 4-23; Commonwealth of Massachusetts, Department of Environmental Management, "Areas of Critical Environmental Concern: Central Nashua River Valley," <<http://www.state.ma.us/dem/programs/acec/acecs.htm>> (2 January 2002).

Despite the pond's beauty, it is not without risk. Bare Hill Pond is Section 303(d)-listed for Nuisance Aquatic Plants and the suspected cause of its declining water quality is phosphorous.³⁸ Aquatic weed growth, sedimentation, infestations of the highly invasive water chestnut, and levels of both bacterial and plant nutrients rank among the concerns that Harvard residents have about the quality and health of Bare Hill Pond.³⁹ Many homes around the pond are former seasonal cottages converted for year-round occupancy. Wastewater discharges and storm water run-off generated by conversions and new development elsewhere in the watershed rank high on the list of suspected nutrient sources.

Other factors have contributed to the proliferation of aquatic plants at Bare Hill Pond, however, including historical ones: the pond's expansion after 1838, which helped to establish shallow areas that favor weed growth, and possibly, erosion from farms that once occupied land nearby. A number of studies have been conducted in order to track water quality at Bare Hill Pond, identify causes of excess nutrient loading and promote solutions. The most recent analysis, carried out by state authorities (1999), calls for a 34% reduction in phosphorous loading to be accomplished by public education, land use controls, Title V and wetlands law enforcement, "best management practices" or BMP's in farming, road maintenance and drainage design throughout the pond's watershed. The report also reinforces recommendations of earlier studies, including weed harvesting and selective dredging.⁴⁰ It stopped short of reaching definitive conclusions about the causes of excess nutrient loading at Bare Hill Pond, however, urging instead a non-point source survey to gather additional data.

Harvard has made a considerable investment of time and money in studying, analyzing and problem solving about conditions at Bare Hill Pond. In 1983, voters banned the use of chemicals to combat aquatic weed growth at the pond, choosing instead to purchase and operate a mechanical weed harvester. Since then, Harvard has tried to reduce water chestnut growth at Bare Hill Pond by deploying the harvester and assembling volunteers to pull plants by hand from their canoes. Two years ago, Harvard's Bare Hill Pond Watershed Management Committee explored the feasibility of drawing down the pond in order to combat invasive plants by exposing their roots to winter weather. When environmental permits and construction proved to be cost-prohibitive, the committee abandoned the plan for a pumped drawdown and began to investigate other alternatives.⁴¹

The Conservation Commission and Harvard Conservation Trust own or control a great deal of land in the watershed, and for many years the Bare Hill Pond Watershed Committee has worked closely with the Board of Health to monitor water quality. The Bare Hill Pond Watershed Committee is also active in the University of Massachusetts "Water Watch Partnership," an organization that provides technical assistance to local volunteers who monitor water quality. For Harvard, managing Bare Hill Pond is a community endeavor that depends almost entirely on the knowledge, motivation and labor of local residents.

38. Division of Watershed Management, Massachusetts Department of Environmental Protection, *Bare Hill Pond TMDL Report*, MA 81007-1999-001 (July 1999), 7.

39. Town of Harvard, *Open Space and Recreation Plan* (1996), 4-13 to 4-23 *passim*.

40. Bare Hill Pond TMDL Report, 12. See also, Whitman and Howard, Inc., *Diagnostic Feasibility Study of Bare Hill Pond* (1987).

41. Bare Hill Pond Watershed Management Committee, *Harvard Annual Town Report* (2000), 68.

Lakes, ponds, streams and wetlands

An extensive and intricate system of wetland and water resources constitutes about 1,560 acres of Harvard's total area. An additional 260 acres fall within the buffer zone of rivers and perennial streams as defined by the Massachusetts Rivers Protection Act.⁴² Streams, ponds, bordering vegetated wetland areas and floodplains act variously as agents of wildlife habitat, aquifer recharge, flood storage and water purification. They also provide enormous scenic value, such as the view from Still River Village to the Nashua River Valley. Harvard's principal wetland-water resource communities are located along the Nashua River, the Delaney/Elizabeth Brook area, Bowers Brook, Bennett's Brook in the vicinity of Shaker Village, a network of streams, forested wetlands and floodplain corridors at Devens, Bowers Spring, Black Pond, and Horse Meadows.

The town's long-standing consciousness of wetland resource areas is evident in several regulatory, policy and civic actions. For example, Harvard is among the first towns in Massachusetts to establish a Conservation Commission (1962). Voters agreed to supplement the Conservation Commission's powers under M.G.L. c.131, Section 40 with a local wetlands bylaw and regulations in 1987. The Harvard Zoning Bylaw provides for wetlands and watershed protection by restricting or prohibiting new construction in designated areas with a combined total of some 1,800 acres. In addition, Harvard's open space plans have urged the town to acquire conservation land that would permanently protect wetlands.

Aquifers

Most of Harvard is underlain by shallow, moderately permeable, low-yield aquifers. Residents draw water from the aquifers through private wells because except for the Town Center area, Harvard has no public water system. Two public wells on Pond Road serve the Town Center's homes, public institutions and small businesses, meeting a combined average demand of 0.02 million gallons per day (mgd).⁴³ In the absence of a public water supply and distribution system, there is no state-mandated procedure for periodically monitoring drinking water quality, but Harvard has tested a number of private wells throughout the town. Save for isolated instances of naturally occurring arsenic and radon, groundwater quality in Harvard is generally quite good.

An area of approximately 390 acres in northwest Harvard, mainly along the eastern edge of Devens, contains a system of much deeper aquifers with more permeability and much higher transmissivity rates than the shallow aquifers found elsewhere in town. The medium- to high-yield aquifers beneath Devens provide drinking water to the Devens complex and the town of Shirley, and also to the town of Ayer as a backup supply. Harvard has never tapped these relatively abundant, high-quality aquifers despite the fact that they lie mainly within its corporate limits. Except for elevated sodium levels, the groundwater of northwest Harvard reportedly meets or exceeds state and federal drinking water standards. Virtually all of the land above the aquifers falls under the DEC's jurisdiction. The Devens Zoning Bylaw includes special regulations for a comprehensive Water Resources Protection District that incorporates public water supply Zone I-II areas, aquifers that lie outside Zone II boundaries, and other watershed acreage.

42. Data derived from Geographic Information System (GIS) files obtained from MassGIS, ENSR and Montachusett Regional Planning Commission (MRPC).

43. ENSR, *Communities Connected by Water* (2001), 2-8; Harvard Water Department, *Public Water Supply Annual Statistical Report: 2000*, 2-3.

Maintaining water quality and protecting groundwater have been high priority issues in Harvard for many years. The *Comprehensive Plan* (1960), the *Harvard Town Plan* (1988) and the most recently completed *Open Space and Recreation Plan* (1996) all speak to the environmental management challenges posed by low-density development that is served by on-site, private septic systems. The *Town Plan* cautioned that groundwater contamination from road salt, buried underground storage tanks with aggregate capacity of 180,000 gallons of fuel, fertilizers, pesticides, herbicides, and household chemicals was potentially a serious environmental threat to the community. Town officials report that since 1991, however, approximately 156 underground storage tanks (containing approximately 156,000 gallons of fuel) have been removed. The Massachusetts Department of Environmental Protection (DEP) is currently monitoring three sites with underground storage tanks. With the exception of the Concord Oil site on Depot Road, leakage from fuel and chemical storage tanks has not become a significant issue in Residential Harvard, but over 40 hazardous waste sites at Fort Devens have required costly clean-up by the Army pursuant to base closure and disposition agreements with the Massachusetts Development Finance Agency (MDFA). Other sites have yet to be remediated.⁴⁴

Vegetation characteristics

Scenic landscapes, orchards, wetlands and water bodies contribute immeasurably to Harvard's town character, but no inventory of natural resources would be complete without acknowledging that over half the town's total area is forested. Since 1971, new development in Harvard has consumed eight times more forested land than farms. Much like the town's water resources, its forest habitats are neither homogenous nor insignificant. They range from the riverine forest, such as that found along the Nashua River, to wooded swamps and wet, hillside and upland forests. Several species of oak dominate the mix of deciduous trees in Harvard's forests today, including a small community of swamp white oak in the Nashua River Valley. In addition, American beech, elm and linden trees, red maple, varieties of birch and hickory, and poplars grow on Harvard soil, along with white and pitch pine, and Canadian hemlock.⁴⁵ A number of uncommon plants have been inventoried in Harvard, as have species classified as endangered, threatened or of special concern. They are summarized in Appendix C.

Open Space & Recreation

Harvard's record of achievement in open space protection ranks among the top in the Commonwealth. Few communities equal Harvard for its percentage of permanently protected land or consistent efforts to acquire open space despite rapidly escalating land costs. A number of conditions favorable to preserving the rural, open character of Harvard have helped to advance the goals of past and present open space plans, yet sometimes, the town's own policies unwittingly frustrate the attainment of these goals -- policies such as a large minimum lot requirement and dimensional regulations that discourage compact development.

44. U.S. Environmental Protection Agency (EPA), Office of Remedial and Emergency Response, "Superfund Case Studies: Fort Devens, MA," < <http://www.epa.gov/superfund/programs/recycle/casestud/devecsi.htm> > (18 November 2001).

45. Town of Harvard, *Open Space Plan* (1996), 4-23 to 4-24, citing D. M. Andrews, *A Flora of Harvard, Massachusetts*, D. Hunt and K. Searcy.

Like most open space plans, Harvard's have traditionally differentiated land protected in perpetuity from undeveloped land that lacks permanent use restrictions. The open space inventory presented in Appendix D reflects the same distinctions. It includes 46% of all land in Harvard, including open space at Devens, and shows that about 21% of the town is permanently protected from development. Since 1995 when Harvard's last *Open Space and Recreation Plan* was written, 545 acres of land have been acquired for conservation purposes or otherwise restricted to open space use.

The *Harvard Town Plan* (1988) challenged residents to aim for an ambitious goal: to double the amount of town-owned conservation land to 20% within ten years. At the time, the Harvard Conservation Commission owned or controlled about 9% of the town's land area, excluding Fort Devens. Naturally, both the *Town Plan* and the 1979 *Open Space Plan* adopted Residential Harvard as their geographic frame of reference. By the time Harvard updated its *Open Space Plan* in 1995, however, the closure of Fort Devens was imminent, the *Devens Reuse Plan* had been approved, and MassDevelopment (formerly Massachusetts Government Land Bank) was within months of assuming responsibility for managing and redeveloping the abandoned Army base. Although the ultimate disposition of Devens remains unclear, to consider open space needs in Harvard today without accounting for resources, assets and liabilities at Devens would be very short-sighted.

Protected Open Space

Local initiative

Harvard began to acquire conservation land long before the town produced its first open space plan. Acquisitions, gifts, tax title takings, land swaps and other means of securing conservation land have been pursued in Harvard since at least 1962. Some of the major conservation holdings in Harvard include:

- Bowers Springs-Bare Hill Wildlife Sanctuary, an 88-acre tract of woodlands, orchard, wetlands and fields, along with an extensive walking trail system. The Sanctuary (44 acres) was given to the town in 1963 while the Bower Springs portion was acquired by Harvard as part of a larger conservation effort carried out with the town of Bolton.
- The Sprague Land, which extends southwest from Bare Hill Pond to access points on West Bare Hill Road and Still River Road. A good example of Harvard's determined effort to connect its conservation sites, the 171-acre Sprague Land consists of two separate acquisitions: the first in 1981, supplemented by 63 acres that Harvard purchased in 1998.
- Prospect Hill, a 61-acre tract given to the town in 1971. The Prospect Hill conservation land provides magnificent views to the mountains near Route 202 in southern New Hampshire. The trail system at Prospect Hill leads to Depot Road, where both the Ryan Land soccer fields and the transfer station are located, and in turn, to Pin Hill, a 15-acre conservation area of geological significance.
- Holy Hill and adjacent conservation parcels, extending from South Shaker Road to Ann Lee Road and Shaker Road. Together, these parcels create a contiguous, 126-acre conservation area of historic and ecological significance. They also form the northernmost end of a conservation belt that runs almost to the Town Center. The belt includes the Kaufmann Land, the Town Forest, the Ohlin Land, the Hermann Orchard.
- Great Elms, a 60-acre tract of conservation land on Stow Road that began as the "Hayes Property" acquisition in 1985. Harvard financed the Hayes Property (originally 133 acres) by creating and selling seven house lots, i.e., as a limited development project. North of Great Elms is a 64-acre conservation area known as the Williams Land, which the Conservation Commission purchased in the 1980s. The Williams and Great Elms conservation areas meet at Murray Lane.

Map 2-D shows that Harvard's conservation holdings are located throughout the community, with no large concentration in any particular area. Individual parcels range in size from less than an acre to up to 69 acres. Today, the Harvard Conservation Commission manages 1,855 acres, 38.5% more land than the 1,339 acres tallied in the last master plan and slightly more than 10% of the town's entire land area. To promote public use and enjoyment of Harvard's sizeable investment in conservation land, the commission's holdings are identified by signage and illustrated in Harvard Trails, a guide published by the Harvard Conservation Trust (HCT). The town does not limit its acquisitions to targeted sites, but Harvard would like to enhance its current conservation land portfolio by protecting more watershed land, acquiring parcels with linkage value and establishing more trail connections. Since a considerable amount of land is under Chapter 61-61A agreements, the town is well positioned to acquire sites that are significant both in their own right and for their linkage value.

Harvard's open space accomplishments have been made possible not only by town meeting's willingness to acquire land, but also by efforts of its local land trust, HCT. Incorporated in 1973, HCT has worked closely with the Conservation Commission and other agencies to protect significant areas and preserve the town's rural character. Since HCT operates independently of local government, it can respond quickly to land acquisition and disposition opportunities. In several instances, HCT has purchased land that it later sold to the town. HCT currently owns more than 100 acres of land in fee and has a controlling interest in other sites through conservation restrictions.

A conservation restriction (CR) is a deed restriction that helps to keep privately owned open space in a natural, open or scenic condition. Similarly, an Agricultural Preservation Restriction (APR) occurs when a government agency or private, non-profit organization acquires an interest in farmland for the purpose of protecting its agricultural use. In Harvard, these types of development restrictions permanently protect several parcels of open space with a combined total of 290 acres. While the town holds most of them, HCT and the New England Forestry Foundation also hold several CR's. Only two CR/APR-protected parcels are designated for public trail use. The remaining ones offer limited access, e.g., apple orchards with pick-your-own service, or no public access.

Open space owned by federal and state agencies

More than 1,500 acres of conservation land in Harvard are owned by state or federal agencies. State-owned land accounts for 346.45 acres, contained primarily within the Bolton Flats and Delaney Wildlife Management Area. In addition, the U.S. Fish and Wildlife Service owns 1,189 acres known as the Oxbow National Wildlife Refuge. All three areas have regional open space and environmental significance.

- Delaney Wildlife Management Area is comprised of 580 acres in Harvard, Bolton, Stow and Boxborough. It contains extensive wildlife and recreational resources and also serves as a flood control area for the Assabet Brook.
- The Bolton Flats Wildlife Management Area extends from Harvard into Bolton and Lancaster along the Nashua River and is managed by the Department of Fisheries, Wildlife and Environmental Law Enforcement (DFWELE). It consists of agricultural and undeveloped areas.
- Oxbow National Wildlife Refuge consists primarily of woodlands, marsh and oxbows of the Nashua River. Oxbow has been expanded at least twice in the past decade – once when land at Fort Devens was transferred to DFW by the Army while the base closure process was underway, and more recently by the acquisition of Watts Farm at Still River. The Watts Farm project involved a complex collaboration between the town, HCT and the Trust for Public Land. The 110-acre former dairy farm was offered to the town several years ago under the right of first refusal clause of Chapter 61A.

Temporarily Protected Open Space

Approximately 24% of Harvard's total area remains undeveloped. Of the 4,239 acres of vacant land in Harvard today, nearly 70% qualify as "temporarily protected open space," or land protected from development under a revocable arrangement set forth in state laws that encourage the preservation of forestry, agricultural and recreation land, or M.G.L. c. 61, 61-A and 61-B respectively. These laws provide tax incentives that encourage eligible property owners to maintain their land as open space. (The remaining vacant land is both privately owned and unprotected by any means, although about 52% of it has development limitations, e.g., wetlands, steep slopes or poorly drained soils.)

Harvard's inventory of Chapter 61, 61-A and 61-B land is impressive compared to many communities. It includes 1,370 acres under Chapter 61 agreements, 1,386 acres under Chapter 61-A agreements and 171 acres under Chapter 61-B agreements with the town's board of assessors. In exchange for a differential property tax assessment, owners grant a right of first refusal to the town if they decide to sell their property for development. While it is significant that nearly 17% of Harvard's total area remains in farming and forest use, the town has lost some open space to development since the last master plan was written. In 1988, 23% of all land in Harvard was under Chapter 61 or 61-A agreements, nearly 4,000 acres. The town has acquired more land since then, and some of what now qualifies as permanently protected land was once temporarily protected by Chapter 61. The combined increase in conservation land and parcels protected by CR's or APR's translates into a 680-acre gain in permanently protected open space, but the loss of forest and farmland is 1,221 acres – mainly forests. These statistics underscore that protection by means of Chapter 61 agreements is temporary, and it cannot be relied upon to save a community's special places from development.

Unrestricted Open Space

Institutional holdings

Some of Harvard's most striking open space features are completely unprotected. This means they could be sold and developed at any time, although in nearly all cases the unrestricted open space in Harvard seems very low-risk for change. About 346 acres of significant institutional land have some degree of development potential because there are no deed restrictions in place to protect them. Among them:

- Fruitlands Museum, a private, non-profit museum with four buildings and several outdoor sites. Fruitlands Museum occupies more than 200 acres of land, most of which is wooded. Its panoramic views over the Nashua River Valley are a critical scenic and environmental resource.
- Approximately 40 acres of magnificent land in Still River, owned by the Saint Benedict Center and the Slaves of the Immaculate Heart of Mary.
- Harvard University's Oak Hill Observatory, a 37-acres site on Pinnacle Road.
- Camp properties owned by the Boy Scouts and the Worcester Girl Scout Council, totaling 61 acres adjacent to Bare Hill Pond.

Municipal holdings

Town, school and other municipal holdings have not increased significantly since the last master plan was written. About two years ago, Harvard acquired land for the new Public Safety Building that is under construction on Ayer Road, and previously the town also accepted gifts of land on Stow and Lancaster County Roads. For the most part, the inventory of non-conservation land consists of public greenspace, active recreation areas and school or community facilities with a combined total

of 224 acres of land. Approximately 41% of Harvard's municipal and school property is located in or immediately adjacent to the Town Center. Major sites include:

- School buildings and associated land on Fairbanks Street and Massachusetts Avenue: 58 acres.
- Seventy-eight acres managed by the Park and Recreation Department, mainly for active recreation facilities – e.g., playing fields and the Town Beach.
- A collection of small holdings in Harvard Center, e.g., the Hildreth House and associated grounds (about seven acres), the four-acre Town Commons, the Public Library and the Center Cemetery.

Outdoor Recreation

A number of recreational resources for youth, and a more limited set of opportunities for adults and seniors, are available in Harvard.⁴⁶ Much like the public-private collaboration that has helped to protect Harvard's open space, outdoor recreation activities are made possible by a partnership between town government and a local non-profit organization. The Park & Recreation Commission oversees recreation facility management and, assisted by a full-time groundskeeper, holds primary responsibility for maintaining outdoor fields and trails. The recreation facilities managed by the Park & Recreation Commission are summarized in Table 2-16. The Harvard Athletic Association (HAA), a non-profit group, was founded 20 years ago to organize and operate recreational programs, mainly for youth. Today, the HAA plays a large role in Harvard recreation and has primary responsibility for coordinating and managing the community's sports leagues.

Table 2-16: Outdoor Recreation Areas

Facility/Location	Facility Acres (Approx.)	Number & Type of Facilities
Depot Road Playing Fields	6	2 soccer fields, 2 Little League fields
Ann Less Road Playing Field	2	1 soccer field, 1 neighborhood softball field
Harvard Public Schools	8	2 softball fields, 1 baseball field, 3 soccer fields, 4 tennis courts, basketball court, fitness course
Town Commons	3	Used for community gatherings & events
Hildreth House	7	Used for small gatherings & events
Town Beach	11	Boat ramp, canoe racks, moorings, picnic tables, swimming area, beach house with changing rooms

Source: Harvard *Open Space & Recreation Plan* (1995). Table omits facilities that are presently being developed on Lancaster County Road. "Town Beach" at 11 acres refers specifically to the beach and associated recreation facilities.

46. Steven Frost, Harvard Athletic Association, and Jim Lee, Harvard Park and Recreation Commission, interviewed by Rahul J. Young, 8-11 February 2002.

Youth soccer

Soccer is Harvard's most popular youth athletic activity, followed by baseball and softball and basketball. The HAA currently organizes a number of youth soccer leagues in town. Approximately 600 youth participate in these leagues annually, making soccer by far the largest sport in Harvard. Available field space is being used to and beyond capacity throughout the soccer season. Two new fields are currently in development: the Charlie Waite Field and the Harvard Park/McCurdy Field, both off Lancaster County Road. Once completed, they are expected to meet the near-term needs of the town's soccer program. Harvard's Park and Recreation Department is currently raising funds to develop the McCurdy Field with a multi-purpose track and a soccer field, playground, and walking and cross-country trails.

Youth basketball

Approximately 200 youth participate in the basketball leagues organized by the HAA. There are two gyms available for basketball use in Harvard, one in the elementary school and one in the high school. An outdoor basketball court at Bromfield School will be destroyed as part of the school renovations/expansion project. Significant demand exists for youth basketball practice time that is not being met due to the shortage of courts. In addition, the existing courts have very limited capacity for spectator seating. Basketball facilities are also available at Devens, and HAA leagues occasionally use them. However, since access to Devens is limited and inconvenient, this option is rarely used. Harvard has no plans to build more court facilities to meet the player and spectator demand because of land and budget constraints.

Youth baseball/softball

Approximately 250 youth participate in baseball and softball leagues organized by the HAA. The town's fields are used to maximum capacity during baseball season, but they seem adequate to meet current demand. The Park & Recreation Commission has tentatively penciled in two pieces of land owned by the town on Depot Road as future baseball field space if league demand increases.

Tennis

Although local residents have expressed interest in an organized tennis program, HAA reports that it has not been able to create one because of the deteriorating condition of the existing public tennis courts. The courts next to Bromfield School are marginally usable. Replacement courts were included in the original scope of work for the Bromfield School expansion project, but the town had to eliminate them from the construction contract award because there was not enough money to pay for all of the additional items that Harvard hoped to accomplish. If the project comes in under budget, Harvard may try to build new tennis courts with the remaining funds.

Bare Hill Pond

The 321-acre Bare Hill Pond is visible from Town Center and provides many recreational opportunities for youth and adults. The Pond is actively used for recreation year-round, with its peak activity occurring during the summer months. The Town Beach property includes 18 acres of land along Pond Road, much of it wooded or wetlands. Amenities include a bicycle path connecting the beach to the playing fields, a boat launching ramp, canoe racks, boat moorings, picnic tables, a playground, a roped-off swimming area, and a public building with changing rooms. Youth swimming programs are run by the town in the summer, and are also available to adults by appointment. There are sailing and canoeing opportunities on Bare Hill Pond as well.

The playground at the Town Beach consists of two infant and child swings, a volleyball net, a horse shoe pit, and a play structure with a slide, pole and rope ladder. There is also a basketball backboard

and hoop, but no paved area. The playground receives only seasonal use because it is relatively isolated, and there is no fencing to separate the play area from the pond.

Adult and senior recreation

Adults in Harvard have access to a more limited repertoire of recreation programs. There is an adult basketball league, organized through HAA, with about 30 participants in the winter. There are also informal pickup softball games on spring and summer weekends, as well as pickup ultimate frisbee games year-round. The HAA has a Road Race Committee that organizes running events in town. In addition, the Harvard Public Schools offer an extensive Adult Education program. Evening courses ranging from foreign languages to the arts, along with recreation activities and trips to regional cultural and tourism facilities, are offered throughout the school year at Harvard Elementary School and the Bromfield School.

Trails

Harvard has an extensive network of public trails, some on publicly owned land and others traversing on private land, some with easements and others with informal trail crossings. In 1973, the Harvard Conservation Trust published a trail guide entitled *Harvard Trails*, now in its sixth edition. These trails are on Harvard's conservation lands and are used by hikers, cross-country skiers, the Harvard Snowmobile Club and horseback riders. Some of these trails represent collaboration with adjoining communities. The Bowers Spring-Bare Hill Wildlife Sanctuary, a joint project with neighboring Bolton, provides trails that cross town boundaries.

Bicycle paths

Harvard does not have designated bikeways, but the Park & Recreation Commission has had preliminary discussions about creating an open access bicycle path through town, potentially providing access into Devens. If the project moves forward, it would attempt to tie into a regional bicycle path network that connects to the state of New Hampshire.

Ice skating

In addition to Harvard's ponds, the outdoor basketball court at Bromfield School doubles as an ice-skating rink in the winter. Residents enjoy skating here in part for safety reasons, but also because the court's outdoor lighting makes it possible for adults and families to skate at night.

Activities at the Town Common

The Town Common is used throughout the year for community events and as an informal gathering place. It is also a favorite spot for winter sledding. Harvard's Park & Recreation Commission coordinates the annual Apple Blossom Festival, the Three Apples Storytelling Festival, parades on Memorial Day and the Fourth of July, a Christmas tree lighting ceremony and a sled rally – all events that take place at the Town Common.

Devens

Devens has a number of recreation facilities, yet lack of direct roadway access makes them of limited use to Harvard residents. The facilities include:

- Rogers Field, the 44-acre training green by Vicksburg Square.

- Willard Park on Sherman Avenue by the Verbeck Gate, with one multi-use field, three softball fields.
- Devens Tennis Courts on Queenstown Road: four tennis courts, two handball courts and one outdoor basketball court.
- The Sports Arena on Grant Avenue, including an 18,000 ft² gymnasium.
- Mirror Lake (Hell Pond): swimming, canoes and kayaks (no motorized craft).
- Red Tail Golf Course, an 18-hole golf course facility that opened this year.

The Harvard Teen Center occupies the former American Red Cross station that served Fort Devens military personnel. The Teen Center holds regular hours on Friday and Saturday evenings and is run primarily by volunteers.

Community Facilities & Services

Harvard's inventory of community facilities consists of several historically significant town buildings, a modern school complex, a small complement of public works structures, a new public safety building and two fire stations, a small public water system, and parks and cemeteries. The most significant community facility in Harvard is the Town Center, which hosts nearly all town buildings and services and supplies the setting for large public events. Map 2-E illustrates the Town Center's multi-purpose character and identifies the public and private institutions located there today.

Although local government in Harvard has a small corps of full- and part-time employees, the organization is quite large because it involves scores of volunteers. Owing to both tradition and necessity, many town services and functions depend on community-minded residents: elected and appointed officials, call firefighters and emergency medical technicians, and citizens who run the recycling center, coach youth sports, volunteer in the schools or at the senior center, clear the weeds from Bare Hill Pond, and organize public celebrations and parades. The breadth of citizen participation is both remarkable and a valued aspect of living in Harvard.

Town Buildings

Town Hall

All local government administrative offices are located in Harvard's historic Town Hall, a distinguished building that overlooks the Town Common. The Town Hall currently houses 10 full-time employees, along with emergency dispatchers and police department personnel who work in the Police Station at the rear of the building. The services most frequently used by residents are situated on the first floor, e.g., the Town Clerk, Tax Collector and Assessor, along with a central mailroom, copy center, storage area and employee restrooms. The Town Administrator, staff of the Planning, Health and Appeals Boards and the Conservation Commission, the Selectmen's Office and meeting room are located upstairs. At present staffing levels, Town Hall departments appear to have adequate space for their day-to-day operations. However, a shortage of meeting space means that often, town committees must rely on the Hildreth House, the Library's Hapgood Room or the schools to conduct public business. Town staff report that Harvard may convert the Police Station (approximately 906 ft²) to two meeting rooms when the police and dispatchers relocate to the new Public Safety Building later this year, though no formal plans exist to accomplish that end. The building is partially accessible to persons with disabilities.

Public Works

The Department of Public Works (DPW) performs a number of functions in Harvard. DPW workers maintain the town's roads, recreation fields, cemeteries, buildings and grounds, manage the transfer station, and operate the small public water system that serves Town Center residents. While carrying out its responsibilities, the DPW regularly uses several municipal buildings: the Highway Department Barn, the Highway Department Pole Shed, the Salt Shed, the Transfer Station, three water-pumping stations, and the Bellevue Cemetery and Main Cemetery Tool Houses.

The DPW is the largest of all town departments in Harvard. It employs 13 full-time, two part-time and three to five seasonal workers. Two of its full-time employees, the Director and Office Manager, work primarily out of the DPW office at the Highway Department Barn on Depot Road while the rest of the employees are field personnel. The DPW's office space consists of one small room in the Highway Barn, which was built in 1930 and renovated in the early 1980s. The DPW Director reports that providing a separate room for the Office Manager's work area and file storage would benefit his department, but currently there are no plans to address this need. The Highway Barn is generally adequate for DPW operations. The highway and cemetery tool sheds are also adequate for their intended purposes, but the tool shed at Bellevue Cemetery lacks restrooms for employees and visitors. The DPW Director reports that Harvard's two cemeteries have sufficient capacity to meet the town's need for cemetery space in the foreseeable future. The Salt Shed serves as a storage area for salt and sand. During inclement winter weather, the Highway Department applies a 4:1 sand-to-salt mixture on Harvard roadways to increase driving safety. The shed has storage capacity for 245 tons of salt, or seven 35-ton "loads." One load of salt is necessary to salt the town's roadways, but a more severe 4-8 inch snowstorm can require two full loads of salt.

The Transfer Station on Depot Road was built in 1983-84 to meet Harvard's long-term solid waste disposal needs. It replaced the town's former landfill, which ceased operations in the fall of 1984. The Transfer Station consists of a number of trash storage bins, as well as material balers, recycling bins, and an equipment control room in which one person runs the compactor and disposal operation. Harvard solid waste facilities are adequate for its present and anticipated future population: at 966 tons of compactor capacity per six-hour period of operations, the Transfer Station will be able to meet Harvard's needs indefinitely. The DPW Director reports that in the near future, though, the town will need additional recycling baler machinery and a suitable roof to protect the equipment from snow and rain.

The physical capacity of the Transfer Station is far less problematic than the cost to operate it. The Transfer Station is open to Harvard residents who purchase a sticker at Town Hall. Revenue from sticker sales becomes part of the town's general fund and helps to defray the cost of staff and hauling charges. In Harvard, sticker revenue has consistently fallen short of the amount appropriated by town meeting each year to run the Transfer Station. As a result, the facility is not self-supporting. This year, the Board of Selectmen doubled the fee for a Transfer Station sticker to \$180. Fee-setting techniques, including the increasingly popular "Pay-As-You-Throw" programs, along with enforcement of sticker regulations and recycling, are the methods commonly used by communities that seek to reduce their solid waste costs. Some communities do not provide any solid waste services, an arrangement that effectively forces residents to contract with a private trash collection company. Although Harvard staffs the compactor and disposal operation at the Transfer Station, community volunteers man the recycling facilities. The town finds it difficult to secure enough volunteers for this purpose, however. Periodically, the town also sponsors hazardous waste clean-up days.

Public Safety

Four structures house Harvard's essential public safety functions: the Central and Still River Fire Stations, the Police Station at the rear of Town Hall, and the Ambulance Building. By the end of

2002, the Police and Ambulance Departments will be moving into a new Public Safety Building north of Town Hall on Ayer Road.

The Central Fire Station, located behind Town Hall, holds the Chief's office, a dispatch room, a small kitchenette, a meeting room, a bunk room and three bays for fire trucks. The station on Still River Road holds bays for two or three trucks, but it has no other rooms. The lack of adequate storage space is acutely obvious at the Central Fire Station, where firefighters' gear and other equipment are piled in any available space, including the bunkroom showers. The Ambulance Building is slated to become a storage facility for the Fire Department after the Ambulance Department moves to the new Public Safety Building. Harvard's Fire Department consists of one full-time employee, the Fire Chief, an administrative assistant who works two half-days each week, and a roster of 23 "call" volunteers: persons not employed by the Fire Department, but who respond on an as-needed basis and are paid for their service.

Hildreth House

The Hildreth House, c. 1902, was built as a private residence and is now owned by the town. Set on a knoll above Town Hall, the two-story Hildreth House retains the interior layout and the ambience of a single-family home. During the day, it serves as Harvard's Council on Aging (COA) headquarters. The COA runs programs for senior citizens about ten days per month, but relocates to a local church to offer athletic programs for 20-30 participants because the Hildreth House does not have enough space for these types of activities. The COA's one part-time staff member has an office on the second floor of the building. Harvard's elderly population consists of about 770 people. At any given time, 5-30 seniors participate in COA activities. Hildreth House is not fully accessible to persons with disabilities. The town recently received a grant to bring the first-floor restroom into compliance with the Americans with Disabilities Act.

At night, the Hildreth House provides meeting space for a number of town committees. Town staff estimate that on average, Hildreth House is occupied 80-90% of the week. Committees use available space on both floors of the building to conduct meetings.

Library

The Harvard Public Library (1887) is one of the Town Center's signature buildings. It was expanded in 1904 by the addition of the Hapgood Room, and nearly 20 years ago the library was renovated and made partially accessible to persons with disabilities. Located at the corner of Fairbanks Street and Old Littleton Road, Harvard's library occupies a small parcel of land immediately adjacent to two private homes. As a result, there is no room for future expansion. The library provides resources for children and adults and has a fine local history room in the basement level of the building. Efficient use of space and careful management of print and other collections have made it possible for Harvard to maintain a high-quality library. However, the building is congested and lacks adequate parking.

In 1999, town meeting agreed to fund design plans for the conversion of Old Bromfield to a new, larger library facility. Having been placed on the waiting list last year for construction funds from the State Board of Library Commissioners, Harvard expects to borrow its \$2.6 million share of the Old Bromfield library project when the \$2.5 million state grant becomes available. Since the state's waiting list includes 36 communities and Harvard ranks 34 on the list, the project is unlikely to move forward soon.

Harvard Public Schools

Harvard residents take enormous pride in their schools. Indeed, a high-quality school system ranks among the top reasons that people move to Harvard, so it comes as no surprise that 40% of the town's households have school-age children. Over half of Harvard's annual operating budget goes

toward education costs, and the vast majority of its debt service is attributable to school construction and renovation projects. Still, Harvard's per pupil education cost falls slightly below the average for the state as a whole.

Harvard operates a local K-12 school system, an arrangement that is somewhat unusual for a small town. Across the Commonwealth, 58% of all towns with populations below 7,500 have entered into regional school district agreements with one or more neighboring communities. The Harvard Public Schools employ approximately 83 teachers and provide regular and special education programs in two facilities: the elementary school for grades K-6, and a combined middle school-high school known as Bromfield School. In addition, Old Bromfield – the oldest of Harvard's school buildings, owned by a non-profit trust, houses several of the school department's art classrooms. Finally, the school department's administrative offices and adult education program are located in the Bromfield House. Together, the buildings and related facilities that make up the Harvard Public Schools occupy a 59-acre, campus-style setting in the southern end of Harvard Center.



Old Bromfield.

Harvard adopted the *Harvard Town Plan* on the eve of a major school construction project 14 years ago. At the time, Harvard Elementary School consisted of two buildings for grades K-4, the Bromfield School, a combined middle school and high school, and Old Bromfield. Groundbreaking for the expansion, renovations and modernization of both the elementary and middle-high school buildings and the construction of a new auditorium, authorized by town meeting the previous year, took place in the fall of 1988. Ironically, Harvard moved forward with another major school building project just as the present master plan process began in 2001. An addition to the Bromfield School, currently under construction, will culminate in a middle-high school complex large enough to house grades 6-12 and relieve pressure on Harvard Elementary School, which will then become a K-5 facility. The elementary school's present enrollment of 640 exceeds its operating capacity of 580 students. When the sixth grade transfers to Bromfield School in the fall of 2003, however, Harvard Elementary School is expected to have surplus space. The renovated Bromfield School will *also* have surplus space, for according to recent 10-year projections, grade 6-12 enrollments will remain comfortably below the building's 756-student planned operating capacity.

While these projections show that school capacity will remain adequate for the next decade given current trends, a number of variables could lead to accelerated growth of the school population. These include the potential of a large Chapter 40B project, increased residential development pressure from the growing number of workers at Devens, Cisco, and other I-495 office parks, and children living at Devens itself, where the first phase of the 282 housing units authorized by the *Devens Reuse Plan* is nearing completion. In order to meet requirements of the *Devens Reuse Plan* that it pay all education costs, MassDevelopment currently contracts with the town of Shirley to educate children living at Devens. Although Devens residents living in the town of Harvard pay fees to MassDevelopment in lieu of property taxes to the town of Harvard, these new homeowners legally reside in Harvard and may want their children in the Harvard Public Schools. Capacity at the Harvard Elementary School may be further pushed should the state require full-day kindergarten, not currently offered in Harvard. The Harvard Elementary School also has non-capacity related facility issues, most notably traffic safety and air quality concerns, which are particularly acute in the fifty-year-old kindergarten wing.

To ensure that the next phase of school building-whenver it is needed-occurs in an educationally sound and fiscally prudent manner, the School Committee established last year a special study

committee, the School Growth Task Force, to recommend a range of options for meeting school growth needs at key population breakpoints up to a total K-12 population of 2,000. While previous school facility study committees argued strongly for keeping all of the schools in Town Center, the desirability of more intensive school uses in the Town Center has become a question in Harvard. The Town Center Planning Committee appointed by the Board of Selectman has said that Harvard should avoid further expansion of school facilities in Town Center, largely to assure balance between residential, commercial, and institutional uses. In addition, Harvard Elementary School is already larger than most elementary schools in the Commonwealth. It is not clear that the current elementary school site can support a larger building, and state regulations that determine eligibility for school construction reimbursement have changed considerably since Harvard embarked on its last elementary school project in the late 1980s.

Public Water Supply

Harvard operates a small public water system in the Town Center. It relies on a low-yield water supply comprised of two adjacent wells on Pond Road with a combined pumping capacity of 45 gallons per minute (gpm), and a rarely-used emergency supply on Bolton Road. The system serves about 75 properties, primarily single-family homes, although residential water use accounts for less than half of the water pumped from Harvard's wells each year. The largest single water customer in the Town Center is the School Department, which uses nearly 20-21% of the water drawn from town wells, while local businesses, municipal facilities and churches consume another 12-15%. According to town records, 15% of the town's public water is classified as "unaccounted for," which means it cannot be attributed to customer demand. In most communities, "unaccounted for" water indicates leaks in the distribution system, but it is also a measure of water used for firefighting purposes, hydrant flushing, or testing and calibrating meter gauges at the well. The Massachusetts Department of Environmental Protection (DEP) requires a corrective action plan when small water suppliers like Harvard cannot account for more than 15% of the total volume of water they withdraw from ground and surface water sources. Harvard last conducted a leak detection survey of its distribution system in 1996.

The present Town Center water system began as a very small, privately owned distribution system that Harvard acquired in 1942. The primary well site on Pond Road was developed during the 1950s. Approximately 20 years ago, Harvard borrowed \$3 million from the Farmers Home Administration to improve distribution lines, build a small storage tank and install iron treatment equipment. Today, water mains extend from a point just north of Hildreth House down Ayer Road and Massachusetts Avenue to the emergency water supply and storage tank on Bolton Road, around the Town Common, along Still River Road to Saint Theresa's, and to homes on Fairbanks Street as well as Littleton, Old Littleton, Oak Hill, and Pond Roads within the Town Center. The town's plan to extend water to the new Public Safety Building means that a limited number of residences between Town Hall and Depot Road will also be eligible to connect to the system.

There is no public water service outside the Town Center and it appears that Harvard has never favored establishing a town-wide system. Harvard would find it difficult to develop a municipal water system today. First, the cost of installing water mains in many areas of town may be prohibitive because the roads are steep and sparsely settled. Second, Harvard's only high-yield aquifers consist of a small, isolated pocket in the southeast corner of town and at Devens. A significant aquifer system extends along the boundary between Residential Harvard and Devens, from Hell Pond north into Ayer, surrounded by a much larger, moderate-yield aquifer zone with varying yields of 100-300 gpm.

Circulation & Traffic

Harvard's Road Network

Primary highways

Two major highways, Route 2 and Interstate Route 495, serve Harvard and the surrounding region. In Harvard, the more prominent highway is Route 2, which runs in an east-west direction across the entire northern section of town and provides interchange access at Routes 110/111 (Ayer Road). A second interchange 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, west toward the Leominster-Fitchburg area and east toward I-495/Route 128 and the Greater Boston area. East of the Ayer Road interchange, Route 2 carries approximately 40,000 to 45,000 vehicles per day.⁴⁷ Interstate Route 495 crosses Harvard's southeastern corner. Although there are no I-495 interchanges inside Harvard, there is one along Route 111 just east of the town line in Boxborough. The half-cloverleaf interchange at I-495/Route 111 has just undergone a major upgrade, with additional travel lanes and signalization, as a result of the Cisco Systems development 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 70,000 to 80,000 vehicles per day.

Major roads

Three major roadways carry the majority of local and through traffic in Harvard and provide critical 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 26 to 30 feet wide, with appropriate pavement striping that includes double yellow centerlines and edge lines, and as a rule, they lack the steep grades that characterize so many of Harvard's rural byways. In some locations, these major routes are made up of bypasses of older roads such as Woodchuck Hill Road, Fairbanks Street, and Old Post Road.

As suggested by Map 2-F, the Town Center is clearly the focal point of local traffic flows. 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, Fairbanks Street/Massachusetts Avenue, Stow Road, Bolton Road, Pond Road/Warren Avenue/West Bare Hill Road, Still River Road, and Depot Road. All of these roadways form spokes of a wheel, with Harvard Center at the hub. The busiest, Ayer Road, carries an estimated 7,000 vehicles per day. Still River Road carries approximately 3,600 vehicles per day while Massachusetts Avenue (Route 111) carries approximately 4,000 vehicles per day. All of the town's other roadways appear to carry less than 1,000 vehicles per day.

Outside of Harvard Center, traffic is not concentrated along any single corridor except Ayer Road through the commercial 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 commuter periods.

47. Unless otherwise noted, MassHighway is the source of traffic data.

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. Travel speeds along these secondary roads also deter their use by non-vehicular travelers. 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. Municipal borders are undistinguishable except for a change in roadway surface or striping, or the presence of a corporate boundary sign. The transition between Harvard and Boxborough, dominated by a highway interchange and corporate parks, is an obvious exception.

Other roadways

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, 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 "most convenient" route for longer distance trips through town.

The lack of conventional subdivisions is a unique feature of Harvard's road system. Unlike many neighboring towns, Harvard does not have large subdivisions with interconnecting street grids or several access points along one street. The town's development history, the physical constraints of soil, wetlands and water features, and the rules and 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. This means that virtually every street in town serves two purposes: direct access to homes and travel routes for members of the community at large.

Traffic Patterns

Field observations during the morning and evening commute periods revealed no steady flows along any of the major streets in town except Ayer Road, which clearly carries a significant volume between Harvard Center and Route 2. Though Route 117 in Bolton carries more than 20,000 vehicles per day, Route 111 and Route 110 in Harvard carry less than 6,000 vehicles per day. While non-local commuters clearly drive through Harvard (using virtually any of the possible routes), they are not typical of commute-to-work patterns in the region. However, these patterns may be affected to some degree by two conditions: additional development at Devens, and peak-hour congestion along the I-495 corridor. Harvard already sees an increase in commuter flows when accidents or other unusual traffic activity occur on I-495 or Route 2, but these are exceptions to normal traffic patterns. If highway congestion becomes more common and predictable, regional drivers may choose to seek out alternative routes through towns such as Harvard.

Although Harvard absorbs a certain amount of non-local traffic, the town does not lie along a major commuter route. Route 111 parallels Route 117 and Route 2 in a generally east/west direction, but Devens and the Nashua River prevent it from continuing west, which limits its usefulness as an alternate route through Harvard. The Nashua River forms a watershed divide of traffic and regional orientation. Generally, Eastern Massachusetts includes communities along and slightly west of the I-495 corridor. Beyond Westborough and adjacent towns, however, there is a slightly stronger traffic orientation toward Worcester and Central Massachusetts. In this part of the state, the divide roughly coincides with the Nashua River. While Harvard's spoked roadway pattern provides paths of travel in virtually every direction into adjacent towns, the Nashua River on the west, Route 2 across the north,

and I-495 to the east all represent distinct barriers to through traffic. Arguably there are breaks, but the barriers generally limit the choices available to non-local commuters. This is not always the case in communities with higher-density development and a more extensive network of interconnected streets.

Traffic Controls

Traffic controls in Harvard are noteworthy in several ways. First, there are numerous speed limit signs posted along both major and minor roadways. The speed limits on many roadways are relatively high, yet in some locations they are unusually low. At times, the posted speed limit changes in a way that is not consistent with the roadway layout or traffic conditions, suggesting that speed limit signs may have been placed in response to citizen complaints. Second, there are numerous awkward roadway alignments that require better warning signage. Specifically, there are both vertical and horizontal curves that need warning signs ahead of them, as well as “Stop Ahead” or “Intersection Ahead” signs in some locations. Most of the signs along Harvard’s roads are in good condition, but some need to be replaced.

Like signage, roadway striping is an important traffic control measure. In general, it appears that roadway striping in Harvard includes appropriate centerline and edge lines. However, stop lines and other pavement striping would be beneficial in some areas. While a proliferation of signage and striping may detract from the “country” character of Harvard’s roads, in many cases it is essential to maintaining safe traffic conditions. The current pattern of signage and striping in Harvard is, at times, inconsistent between one roadway and the next. Roadway signage and striping provide very important cues to drivers as to what is expected of them. Consistent practices are critical for the town’s most heavily traveled roads and at critical traffic locations. Minimum signage and striping are acceptable on minor roads that carry very low volumes of traffic because for the most part, the traffic consists of local drivers who know what lies ahead.

Public Transportation

Harvard does not have a centralized commercial area that acts as a magnet for work and other trips, which makes a local transit system quite impractical. Developing a branch to a regional transit system is also impractical because the density of users is low, and to reach a central location would involve a vehicle trip to begin with. Ayer Road near Route 2 appears to be the only area with potential for a branch service. The combination of higher-density and multi-family development, more concentrated commercial activity and direct highway access may be attractive to an ex-bus system that uses this route. For similar reasons, carpool or shuttle service to the commuter rail station in Fitchburg, Ayer, Action or Littleton may be feasible from a location on Ayer Road.

Critical Traffic Locations

“Critical traffic locations” include roads and intersections that require special attention to traffic operations or design, usually because of zoning or traffic characteristics. Harvard has four critical traffic locations. The most obvious is the intersection of Routes 110-111 in Harvard Center. A second critical traffic location is the area around the intersection, including the police and fire stations, the town hall, library, and public schools, and a third is the Route 2 interchange. The Commercial District on Ayer Road is Harvard’s fourth critical traffic location, and for several reasons it is also the most important.

Route 111-110 Intersection

The intersection of Routes 110-111 in the Town Center carries a high percentage of local and through traffic because of its location at the hub of Harvard’s roadway network. It is controlled by stop signs on the northbound and southbound approaches on Route 111, with reinforcement from flashing red indicators for north-south traffic and flashing yellow indicators for east-west traffic.

During peak-period observations in the field, traffic flowed smoothly through this intersection and maintained a good level of service. The only noticeable delays occurred on the southbound approach along Ayer Road, where some queues appeared to extend almost to the town hall beyond the end of Fairbank Street. The northbound approach on Massachusetts Avenue did not appear to have any significant queuing. The Route 110-111 intersection has an excellent layout, with flat, straight approaches on all four legs and no sight line obstructions. These are very important safety features because even a driver well back in a queue can see what is happening at the intersection and along the adjacent approach legs.

The stop sign on the Ayer Road approach is set well back from the east-west approach. This tends to increase the amount of time required for the first vehicle to pull out once the driver decides to advance, leading to slightly longer delays than necessary. Another factor that affects capacity at the intersection is that traffic along Route 110 slows down on approach, seemingly in response to the change in surrounding land uses. Often, drivers exiting Ayer Road *could have* pulled out, but they did not judge the slowing of another vehicle enough to recognize an adequate gap in traffic. In addition, the westbound leg (Oak Hill Road) is confusing because the approach is a short section between Fairbank Street and the intersection. Traffic on Oak Hill Road may be accelerating, but since the acceleration is not always obvious to drivers waiting on Route 111, they do not use available gaps in the intersection's east-west traffic flow. As a result, the overall capacity of the Route 110-111 intersection is lower than it might be otherwise. However, Harvard may prefer these additional delays because they slow the pace of activity in the Town Center.

Town Center

Harvard is one of the few communities in the region that still retains all of its municipal and school facilities in the center of town. Having these facilities close to each other is beneficial because it encourages a sense of community and residents can walk between uses. The same concentration also has drawbacks, usually related to access design and parking. Schools, libraries, and police and fire services typically have special access needs. For example, school bus access, pick-up and drop-off patterns, and parking for athletic or other events all need to be addressed in the access design for schools. During the morning commute hour when there is a modest amount of traffic along Route 111, buses also enter and exit the school driveways while parents park and drop off children on both sides of Route 111 or at the back of the school. All of this activity occurring at the same time reduces public safety, primarily because both Fairbank Street and Massachusetts Avenue are through roads. The roadways layout in this area is flat and straight past the school, which enhances traffic safety, but the amount of commute-hour activity in the Town Center also diverts through traffic from Route 111 onto local streets such as Oak Hill Road and Woodchuck Hill Road for those bound for Route 111 east.

The clustering of municipal facilities should facilitate walking between them, provided the supply of parking is adequate and conveniently located. In Harvard Center, parking areas are not quite close enough to encourage regular sharing. For example, parking at the schools is inconvenient for library patrons or visitors to the town hall. Similarly, parking at one school to visit the other is inconvenient unless parking overflows from one site to the other, in which case there is an incentive to park and walk. Parking at the library itself is generally confined to the on-street spaces along Fairbank Street. The layout of Fairbank Street, Ayer Road, Oak Hill Road, and the short connector between Massachusetts Avenue and Fairbank Street all create a relatively uncontrolled condition with limited signage and striping to control traffic flows. Like other features of the Town Center, this layout contributes to village's character but it also represents a modest compromise of safety.

Route 2 interchange

The Route 2 interchange is Harvard's only direct connection to the regional highway network. It is a traditional cloverleaf with stop signs controlling access onto Ayer Road and yield signs controlling

access onto Route 2. The ramps have relatively tight radii, low posted speeds and short acceleration and deceleration lanes. Limited signage and understated traffic controls, including treatment of curbs and the median, give the Route 2 interchange a minimalist character. Nonetheless, it operates as a full cloverleaf and provides full access to Route 2.

Unlike many highway interchanges, Harvard's does not offer services or "highway-oasis" businesses such as restaurants, gas stations, and convenience stores. As a result, the apparently low percentage of non-regular users is unsurprising. This contributes to safer traffic conditions because for the most part, drivers using the Route 2 interchange are generally familiar with its operations, traffic patterns, and controls. Absent a major traffic generator on Ayer Road, the interchange can probably continue to operate without significant improvements in the future, e.g., full acceleration lanes, signalization, or both.

Ayer Road business district

Harvard's most critical traffic location is on Ayer Road north of Route 2. Its importance stems not from a particular feature or condition, but rather, from the number and types of activities that occur here. For example, there are numerous left turns (both on to and off of Ayer Road) and a relatively high volume of through traffic between Route 2 and Ayer. This is evidence throughout the day, but especially at peak times. There are many intersecting roadways and driveways where the shoulders are clearly used to bypass left turns off of Ayer Road. The rural nature of Ayer Road and the lack of specific congestion points or signals north or south of the commercial district contribute to delays for traffic exiting driveways and side streets. Typically, traffic signals and other congestion points create gaps in traffic that can be used safely by drivers entering a main road from its side streets. On Ayer Road, however, there appear to be no features, either north or south, that create such gaps.

The lack of left-turn access in and out of commercial properties on Ayer Road requires solutions that may be undesirable to many residents of Harvard: providing additional capacity and/or increasing average travel speeds. For example, creating a left-turn lane allows through traffic to move at a higher speed. In addition, it eliminates the few gaps that do occur downstream when a left-turn vehicle waits to make its move. Another unfortunate feature of the commercial district on Ayer Road is its lack of clear driveway design guidelines. Several businesses have curbed driveways while others are more rural, with dirt aprons. In addition, driveway locations are not predictable for traffic on Ayer Road and this detracts from overall safety, particularly between Old Mill Road and the Route 2 interchange. Redesigning this section of Ayer Road is a major traffic & circulation need in Harvard.



Ayer Road business district.



Devens

No issue is more difficult for Harvard residents than the fate of their town's northwest corner. Known historically as the Shabikin section of Harvard and for most of the 20th century as Fort Devens, a substantial portion of Harvard is now called the Devens Regional Enterprise Zone — or simply, “Devens.” Though it lies within the corporate limits of Harvard, Ayer and Shirley, Devens is governed by Chapter 498 of the Acts of 1993, a special act of the legislature that gives MassDevelopment (formerly Massachusetts Development Finance Agency, or MDFA) broad powers to own, manage and redevelop Fort Devens on behalf of the Commonwealth.⁴⁸ The Act also established the Devens Enterprise Commission (DEC), which administers development bylaws and regulations in the Enterprise Zone much like a local planning board. Composed of gubernatorial appointees and local delegates, the DEC's job is to review projects for consistency with the *Devens Reuse Plan* (see Fig. 2-F). A separate inter-local entity, the Joint Boards of Selectmen (JBOS), represents the towns with a direct stake in the land at Fort Devens: Harvard, Ayer, Shirley and Lancaster. JBOS monitors development at Devens and works with MassDevelopment to address problems and mutual needs. In its formal role as agent for the four communities, JBOS was party to approving the Devens Bylaws in November 1994, just before the “Super Town Meeting” mandated by Chapter 498.



Devens -- then and now.



The Super Town Meeting on December 7, 1994, supplied Harvard, Shirley and Ayer voters with a mechanism to accept or reject the *Devens Reuse Plan*. Their assent led to a series of legal, financial and institutional arrangements that culminated in MassDevelopment's purchase of Devens in May 1996. Since then, a special division of MassDevelopment, the Devens Commerce Center (DCC), has been responsible for managing, marketing and developing the property. About 60% of the Devens Regional Enterprise Zone is inside the town of Harvard. The town exerts its authority over land in the Enterprise Zone through the *Devens Reuse Plan*, which MassDevelopment cannot change without town meeting approval or a new act of the legislature.

48. At the time of the Act's passage, MassDevelopment was known as the Massachusetts Government Land Bank.

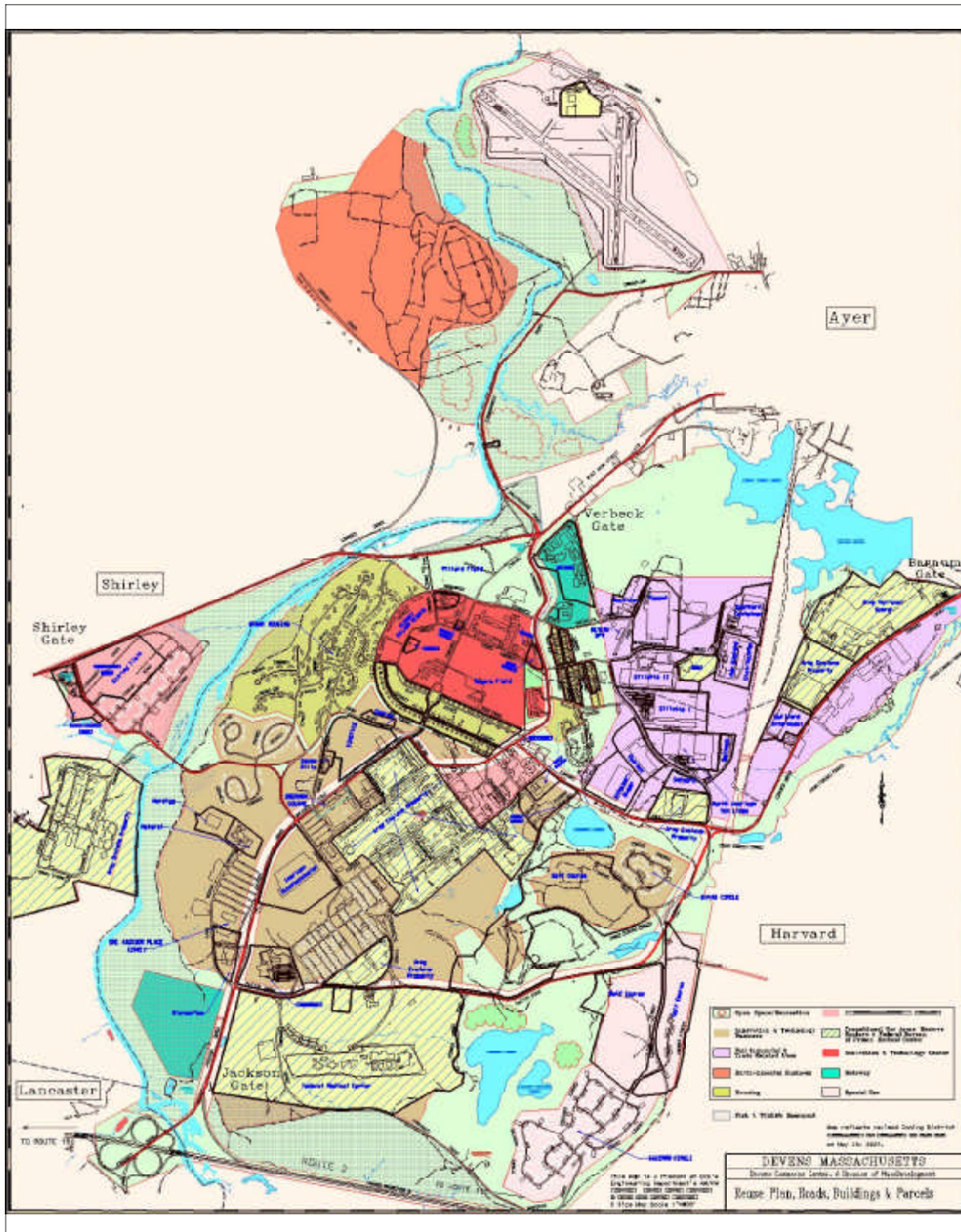


Fig. 2-F: Devens Reuse Plan

Courtesy of MassDevelopment; prepared by VHB, Devens Reuse Plan, 1994.

Limitations on Harvard's jurisdiction over the land have existed in one form or another since the Army began to acquire property in 1917. By the time Fort Devens closed in 1995, approximately 2,700 acres of Harvard land lay inside the base. Devens contains important built and natural features, including an enviably rich system of aquifers. Some Harvard residents want to reclaim jurisdiction over all or a portion of the site, others think Devens should incorporate as a separate municipality or indefinitely retain its status as a special district of the state, and many others are unsure about the right course. Devens looms large in the town's future, yet it remains among the least predictable of all factors operating in Harvard today.

Devens Reuse Plan

Pursuant to federal and state laws, the Army was required to prepare an Environmental Impact Statement (EIS) on the closure of Fort Devens and the disposition of its 9,300 acres. Concurrent deliberations between MassDevelopment and the JBOS, including numerous public meetings, resulted in the *Devens Reuse Plan*, which incorporates four goals:⁴⁹

- Development that balances environmental, economic and social needs — i.e., sustainable development — while maintaining and enhancing the natural resource base.
- Land use and employment diversity.
- Successful redevelopment that demonstrates (a) the interdependence of economic development and environmental protection and (b) a balance of public and private interests.
- Balance among local, regional and state interests.

By the time other federal agencies laid claim to property at Fort Devens, the land available for redevelopment was about 2,900 acres, the majority of it in Harvard.⁵⁰ The Army retained ownership of about 5,160 acres: all of the South Post in Lancaster and a small portion of the Main Post. Table 2-17 summarizes the uses intended for Devens land in Harvard.

To provide maximum redevelopment flexibility while assuring outcomes that comply with the Massachusetts Environmental Policy Act (MEPA) certificate for Devens, MassDevelopment may site projects on appropriately zoned land, subject to DEC approval, as long as aggregate development activity does not exceed four controlling parameters: a maximum of 8.5 million square feet of built space, 3.0 million gallons per day (mgd) of water consumption/wastewater discharge, 282 housing units, and 50,580 trips per day (average).⁵¹ This performance-based approach, while advantageous to the development process, makes it difficult to forecast how much of Harvard's land will actually be reused. However, for reasons of land use efficiency and cost, MassDevelopment wants to target its unused "development credits," or remaining development rights under the MEPA certificate, in the core of the Devens property: mainly, in Harvard.

49. Vanasse Hangen Brustlin, Inc., for Massachusetts Government Land Bank and JBOS, *Devens Reuse Plan* (November 1994), 4.
50. The base disposition plan involved transferring a portion of Harvard's Fort Devens land to the U.S. Fish and Wildlife Service (FWS) for expansion of the Oxbow National Wildlife Refuge. Some of the "open space" acreage listed in Table 1-5 is land conveyed to FWS for this purpose.
51. MassDevelopment, *Five-Year Review Report*, March 2001, <<http://www.devenscen.com>> (12 December 2001).

Table 2-17: Devens Reuse Plan for Land in Harvard

Land Use	Designated Acres
Business/Community Services	27.63
Gateway	42.72
Housing	180.77
Innovation and Technology Business	432.66
Innovation and Technology Center	89.99
Open Space & Recreation	821.39
Rail, Industrial and Trade Businesses	215.75
Special Use District	230.39
Transitional Use: U.S. Army Reserve Enclave	130.22
Transitional Use: Federal Bureau of Prisons	159.80
Undesignated land, e.g., roads	<u>364.54</u>
Total	2,695.86

Source: ENSR, “devensreuse.xls,” electronic data file produced in conjunction with *Looking Beyond Devens*, 2001.

Status of Redevelopment

When Harvard, Ayer and Shirley voters approved the *Devens Reuse Plan* in November 1994, the recession that brought real estate activity to a halt in the early 1990s had begun to lift. Equipped with streamlined permitting, financial incentives and an economic development mission consistent with state policies, MassDevelopment seemed poised to transform Fort Devens into a regional commercial-industrial complex. Chapter 498 gave the *Devens Reuse Plan* a 40-year life span because most people assumed that redeveloping a 4,700-acre Army base with extensive contamination problems would take decades. By the time a legally mandated five-year review process began in 2000, however, Devens had already reached about half of its authorized development potential.⁵²

The communities with land at Devens had concerns about the base’s future and the considerable power granted to MassDevelopment, but Harvard was – and it remains – uniquely affected. First, most of the land at Devens belongs to Harvard yet ironically, only Harvard lacks direct access into Devens. In addition, Ayer, Shirley and Fort Devens were linked economically, but Harvard had very few if any ties to the base or its people. A striking feature of Harvard’s 20th century public records is their near-silence about Fort Devens. Public school affiliations and gateway points brought soldiers and military families in contact with Ayer and Shirley far more than with Harvard. When the base finally closed in 1995, the economic impacts were felt far more in Ayer and Shirley than in Harvard.

On the state’s behalf, MassDevelopment obtained control of Devens in May 1996. In reality, MassDevelopment did not acquire 4,700 contiguous acres of land because during the base closure environmental review process, other federal agencies laid claim to property the Army was leaving

52. William Burke and Victor Normand, Devens Commerce Center, interview by Judith A. Barrett and Rahul J. Young, Community Opportunities Group, Inc., 14 January 2002.

behind. Moreover, Chapter 498 established a “checks-and-balances” arrangement that circumscribes MassDevelopment’s powers by placing regulatory and development permitting jurisdiction in the hands of the DEC. By the date of conveyance, the *Devens Reuse Plan* was in effect, the state had issued conditional environmental permits, and a multi-year, phased program of hazardous waste clean-up by the Army was underway. For Harvard, neither the *Reuse Plan* nor the caps placed on Devens build-out by environmental authorities made the prospects of a large industrial compound very palatable. For MassDevelopment, however, the constraints placed on development at Devens became significant obstacles as the project went forward. The *Devens Reuse Plan*, the building, water and traffic caps established by the Executive Office of Environmental Affairs (EOEA), the Joint Boards of Selectmen (JBOS), scores of hazardous waste sites, and the sovereign status of federal agencies scattered about the property converged to make MassDevelopment’s job complicated and costly.

It is little wonder that Harvard and MassDevelopment see both the present and future of Devens in quite different terms. In the absence of an unequivocal wish by local authorities and residents to reclaim jurisdiction over the land, MassDevelopment has been working to establish Devens as a community that can, if required, stand on its own. The agency acts as both developer and property manager at Devens and it is also a regulated public utility. Alone or through purchase-of-service contracts with other organizations, MassDevelopment provides water, sewer, electric, telecommunications, public works, fire and police services to the entire compound. Devens consists of 46 miles of roads and 330 acres of improved grounds. It also consists of large open space areas, unspoiled woodlands and scenic landscape features. While the view from the road inside Devens is unmistakably that of a suburban commerce and industrial park, the “off-road” and peripheral areas bear Harvard’s signature beauty. Nowhere is this more obvious than at Salerno Circle in the southeastern corner of the Main Post – located in one of the “Special Use Districts” in the *Devens Reuse Plan*.

Table 2-18 shows that of the 8.5 million sq. ft. of development envisioned for Devens, nearly 3 million sq. ft. of new facilities have been built to date. Since some businesses at Devens negotiated for allowances to expand in the future, actual committed build-out – including existing and reserve space – exceeds 4 million sq. ft., or 48% of the total that MassDevelopment may pursue. Together with active prospects and reuse of existing buildings, MassDevelopment estimates that Devens has achieved nearly 64% of its authorized build-out under the *Devens Reuse Plan*. The 8.5 million sq. ft. maximum may never be attained, even under the strongest of economic conditions, because caps on water consumption, traffic volumes and housing units *also* govern the development potential of Devens. The effect of multiple caps is that reaching one may reduce another, i.e., if aggregate traffic generation reaches 60,000 vehicle trips per day before 8.5 million sq. ft. of space have been developed, then Devens will have reached its development capacity. These types of “performance” conditions or qualitative controls seek to mitigate the environmental impacts of major development. At the same time, they make it all but impossible to forecast the physical build-out of Devens – or how much development will actually occupy land in Harvard. Assuming full build-out, i.e., 8.5 million sq. ft., Harvard’s land at Devens could host as much as 5 million sq. ft. of industrial, office and retail space.⁵³

53. It is important to point out, however, that the Devens Zoning Bylaw provides for more development than the 8.5 million sq. ft. authorized by the *Devens Reuse Plan*. The Zoning Bylaw provides for a development blueprint that could reach 8 million sq. ft. in Harvard alone. Neither the 5 million sq. ft. under the *Reuse Plan* nor the 8 million sq. ft. per zoning includes residential land uses. Housing is subject to a different set of development caps.

Table 2-18: Status of Development at Devens (2001)

Type of Development	Building Space (SF)	Percent of Build-out
Maximum Authorized Build-Out	8,500,000	
<u>Existing Conditions</u>		
Reuse of Former Military Buildings	817,112	9.61%
New Construction	2,733,960	32.16%
Current Prospects	457,338	5.38%
Potential Expansions	<u>1,392,800</u>	<u>16.39%</u>
Actual and Expected Development	5,401,210	63.54%
Uncommitted Build-out Capacity	3,098,790	36.46%

Source: MassDevelopment, *Five-Year Review* (March 2001 Rev.)

Several aspects of the *Devens Reuse Plan* that directly affect Harvard seem destined to materialize:

- Up to 1,380 acres of open space and recreation land, including a conservation restriction around Hell Pond and the new golf course. Of the 1,380 acres of designated open space, 800 acres were transferred by the Army to the U.S. Fish and Wildlife Service before MassDevelopment obtained title to the Devens property. About 60% of the land classified as “open space” in the Devens Reuse Plan is in Harvard. However, not all of the open space is protected and in many cases it appears to have been appropriated for buffer or drainage areas by companies locating in the park.
- 42 acres of gateway improvements around Jackson Gate, all within Harvard.
- Several institutional uses controlled by the federal government – military, prison and social services. The Federal Prison Hospital and about 40% of the land earmarked for use by the Army Reserve are located in Harvard.
- The Devens Industrial Park – zoned for Rail, Industrial and Trade Related Uses – is substantially built. Mainly because of its ready access to transportation facilities, the Industrial Park was the first section of Devens to develop in earnest after MassDevelopment acquired the base in 1996. About half of the park lies in Harvard, the other half in Ayer. Available data show that MassDevelopment anticipates another 965,000 square feet of development in the Industrial Park and along Barnum Road.
- Jackson and Robbins Pond Technology Parks (95% in Harvard) are largely committed but not fully occupied. Both parks have been targeted for R&D and high-tech firms.

Sources of Tension

Harvard has been very concerned about development activity at Devens, particularly in the Industrial Park. Traffic, the kinds of businesses that have located in the park, adverse environmental impacts and the visual image of Barnum Road are recurring sources of tension between townspeople and MassDevelopment. From the outset of the Devens project, MassDevelopment focused its recruitment efforts on companies that would find the Industrial Park a suitable place to operate:

trucking, warehouse and other businesses needing access to transportation facilities. As a result, the earliest impacts of development at Devens were felt directly by residents who live near the Industrial Park, and those impacts have formed a lasting, negative impression of the entire site. Harvard's recent opposition to a proposed sludge plant reinforced the town's concerns about both the quality and environmental consequences of development choices that are being made at Devens. That local residents successfully blocked the plant exacerbated tensions with MassDevelopment and the Devens Enterprise Commission. Circumstances like these make it difficult for many people in Harvard to recognize some of the assets that Devens offers – whether to Harvard, neighboring towns or to Devens as an entity in its own right.



Trucking facility on Barnum Road, Devens.

The uncertain fate of Salerno Circle also disturbs Harvard. While town officials have expressed interest in using the land for community or school purposes, MassDevelopment sees it as a potentially valuable site for a high-end corporate complex. In addition, though the *Devens Reuse Plan* and Devens Zoning Bylaw cannot be changed without the consent of town meetings in Harvard, Ayer and Shirley, MassDevelopment has signaled the possibility that it may bypass the *Reuse Plan*'s 282-unit housing cap by using Chapter 40B to develop more homes at Devens, notably in the “downtown Devens” district. Significantly, the *Devens Reuse Plan* does not provide for residential development in the area slated to become “downtown Devens” i.e., the Business and Community Services zone.

On a larger scale, Harvard worries that some of the businesses located at Devens – in or outside of the Industrial Park – may be marginal operations or generators of few or low-paying jobs. MassDevelopment reports that approximately 2,700 jobs have been created at Devens since the redevelopment process commenced in 1996.⁵⁴ Under the best of conditions, a successful commerce and industrial park could benefit Harvard as a generator of tax revenue. However, the project may also bring fiscal and environmental liabilities of a magnitude that Harvard would be ill-equipped to absorb.

A year ago, Harvard commissioned a study of the potential fiscal impacts of re-assuming jurisdiction over the town's land at Devens.¹⁰⁵⁵ The study's conclusions underscore why it is difficult for Harvard to make practical choices about the fate of Devens. Under optimum conditions – the endurance of a strong economy, greater emphasis on development that triggers lower service costs and higher revenues, and substantial subsidy from the state to pay for the estimated \$24 million in transition costs involved in transferring the property from MassDevelopment to Harvard – the land could generate \$1 million in surplus revenue per year *or* cause a \$1 million deficit.

54. Victor Normand, MassDevelopment, interview by Judith A. Barrett, 11 March 2002.

55. MMA Consulting Group, Inc., for Devens Financial-Legal Committee, June 2001.

Five-Year Review

The five-year review process mandated by Chapter 498 has also resulted in conflicting ideas about the status and future of Devens. MassDevelopment, the DEC and the JBOS conducted separate reviews and not surprisingly, their findings do not agree. Consultants retained by the JBOS recently released a draft of the final five-year review report, which has sparked controversy in Harvard. Among their recommendations:

- Harvard, Ayer and Shirley should signal a desire to reclaim jurisdiction over their land at Devens and invite MassDevelopment to begin a disposition and governance study process that was originally to have occurred by 2033.
- Each town needs a liaison between the JBOS and DEC to monitor permits and approvals so the communities can effectively exercise their right to request reconsideration.
- The JBOS needs to develop rapport with the DEC and should become more involved in regulatory, permitting and business recruitment policies at Devens.
- Harvard, Ayer and Shirley need a voice in shaping decisions about the planned development of “Downtown Devens.”
- The JBOS needs to activate committees contemplated by the *Devens Reuse Plan* but never formally appointed. Although an open space committee was established several years ago, the towns have had no mechanism to participate in transportation planning and housing decisions made by MassDevelopment.