DEMOGRAPHY AND ENROLLMENT PROJECTIONS

HARVARD, MASSACHUSETTS

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(Draft)

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INTRODUCTION AND EXECUTIVE SUMMARY

The New England School Development Council (NESDEC) was asked by the Harvard School Committee to develop a demographic report and ten-year enrollment projection for Harvard students, PK-12. The scope of the work included an analysis of demographic data and PK-12 student enrollment trends. The NESDEC Team analyzed district and municipal records and also conferred with a number of school and town officials, as well as local realtors, resulting in the collection of school, community, and municipal data.

Near-Term Growth

- From 2000-2010, the Harvard Public School enrollments increased by 22 students (1109 K-12 students in 2000-2001 v. 1131 students in 2010-2011).
- Several factors currently in play are having a negative impact on Harvard's near-term population and school enrollment growth. These include the scarcity of inexpensive buildable land; the impact of the economic downturn on new construction and the sale of existing homes; the fact that the town has a strong land preservation program and the gradual decline in the birth rate. Existing home sales and new residential construction have also slowed dramatically in Devens, which sends most of its students to the Harvard Public Schools.
- Assuming a continuation of the existing demographic conditions, public school enrollment K-12 is projected, over the next decade, to decline by 344 students from its present level.

Future Growth Potential

Despite the current conditions regarding the residential housing market, there are presently-existing factors which indicate that Harvard is likely to experience significant housing turnover during the course of the latter half of this decade. These include the following:

- The "baby boom" cohort, according to realtors, is likely to downsize to smaller homes once the housing market rebounds from its present slump. These people

would be vacating three- and four-bedroom homes which would most likely be inhabited by families with school-age children.

- Projects including 40B housing which have temporarily been placed on hold are likely to renew building once the housing market turns.
- It is reasonable to assume that some of the larger undeveloped parcels of land may be placed on the market during the course of the next decade.
- Plans have been approved to build an additional 176 residential units on the Massachusetts Development site at Devens. (The development time-table will be dependent on real estate marketing conditions.)
- The Fitchburg Rail Extension Project is moving forward and, upon completion, it may have a positive impact on both the Harvard and Devens real estate markets.
- Due to the present uncharted economic times, it is impossible to predict when these growth factors might begin to affect population and enrollments.

Harvard deserves to be commended for commissioning this study. The town is engaged in thoughtful, data-based planning and prudent use of available resources. Planning for municipal and school needs begins with a firm grounding in community data and accurate forecasting of future population and school enrollments.

DEMOGRAPHY AND ENROLLMENT PROJECTIONS

A. TOWN-RELATED FACTORS

The preparation of enrollment forecasts is an integral part of the long-range planning process. Some of the factors to be considered in this effort pertain to the Town of Harvard, specifically, the population size and age composition, growth and nature of housing units, number of births to residents, and in/out-migration patterns.

Census data provide useful snapshots which can be compared across time and across communities. These data are buttressed by information from the Town Offices, Building Department and Planning Departments, School Department, the Massachusetts Department of Public Health, the Metropolitan Area Planning Council, the Montachusett Regional Planning Commission and The Warren Group, *Banker and Tradesman*. A number of Town officials provided valuable information. Also helpful were conversations with area realtors and a visual inspection of several Harvard neighborhoods.

Population Size – An Historical Perspective – Table 1, Table 1A, 1B

Harvard is an historic town of 26.4 square miles located approximately 18 miles northeast of Worcester, 25 miles northwest of Boston, and 17 miles south of Nashua, New Hampshire. Harvard is served by State Routes 2,110 and 111 and I 495.

Tables 1 and 1A provide Census Bureau data which establishes Harvard's population in 2000 and estimates annual population changes through 2009. At the start of the last decade (2000) Harvard's population was 5981. According to the Census Bureau estimates, Harvard's population peaked in 2007 at 6,167 and then declined slightly to 6,145 in 2009. Between 2000 and 2009, the town's population is estimated to have experienced a 164 person increase (slightly more than 2.7%).

Looking to the future, estimates provided by the Metropolitan Planning Council (MAPC) and the Massachusetts Institute for Social and Economic Research (MISER) indicate a 2020 population range for Harvard of between 6,286 (MISER) and 6873 (MAPC). (See Table 1 B)

TABLE 1
TOTAL POPULATION

State of Massachusetts	
Year	Population
2000	6,349,097
Worcester County	
Year	Population
2000	750,963
Town of Harvard	
Year	Population
2000	5,981

TABLE 1A
HARVARD POPULATION ESTIMATES
2000-2009

2000	5,981 (2000 Census)
	Estimates*
2001	6,089
2002	6,127
2003	6,149
2004	6,145
2005	6,141
2006	6,138
2007	6,167
2008	6,105
2009	6,145

*American Community Survey 5-Year Estimates

Source: U.S. Census Bureau

TABLE 1B
POPULATION ESTIMATES

	U.S. Census Estimates	MAPC	MISER
2010	6,145	6,464	6,095
2020	-	6,873	6,286
2030	-	7,227	-

Sources: Metropolitan Area Planning Council, (MAPC)
Massachusetts Institute for Economic and Social Research (MISER)
U.S. Census Bureau

Age Composition – Table 2

Table 2 indicates that, according to Census Bureau estimates, from 2000 to 2009 the number and percentage of Harvard residents under the age of 18 increased from 26.5% to 26.9%. During the same time period, Worcester County's under 18 population decreased slightly to 24.2% while the under 18 population in the State of Massachusetts as a whole decreased from 23.6% to 23.3%. Meanwhile, the median age in Harvard rose significantly, from 40.6 in 2000, to an estimated 43.0 in 2009, suggesting that persons have remained in the town, or that some newer residents are older in years…or both.

TABLE 2
PERCENTAGE OF POPULATION UNDER THE AGE OF 18 AND MEDIAN AGE

STATE OF MASSACHUSETTS

	NO. UNDER 18	% UNDER 18	MEDIAN AGE
2000	1,500,064	23.6%	36.5
2009	1,449,926	22.3%	38.5

WORCESTER COUNTY

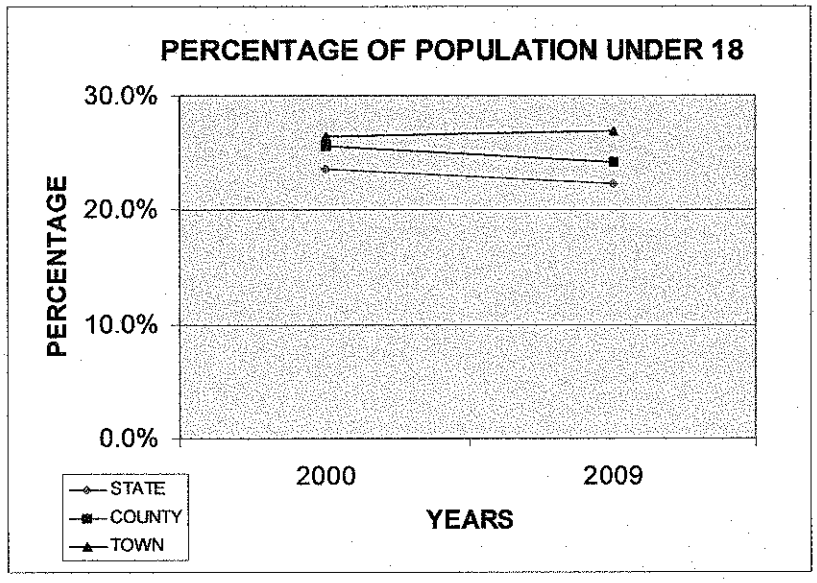
	NO. UNDER 18	% UNDER 18	MEDIAN AGE
2000	192,448	25.6%	36.3
2009	192,287	24.2%	38.4

TOWN OF HARVARD

	NO. UNDER 18	% UNDER 18	MEDIAN AGE
2000	1,590	26.5%	40.6
2009	1,650	26.9%	43.0

Source: U.S. Census Bureau American Community Survey 5-yr. estimates

U.S. Census Bureau 2000 Census



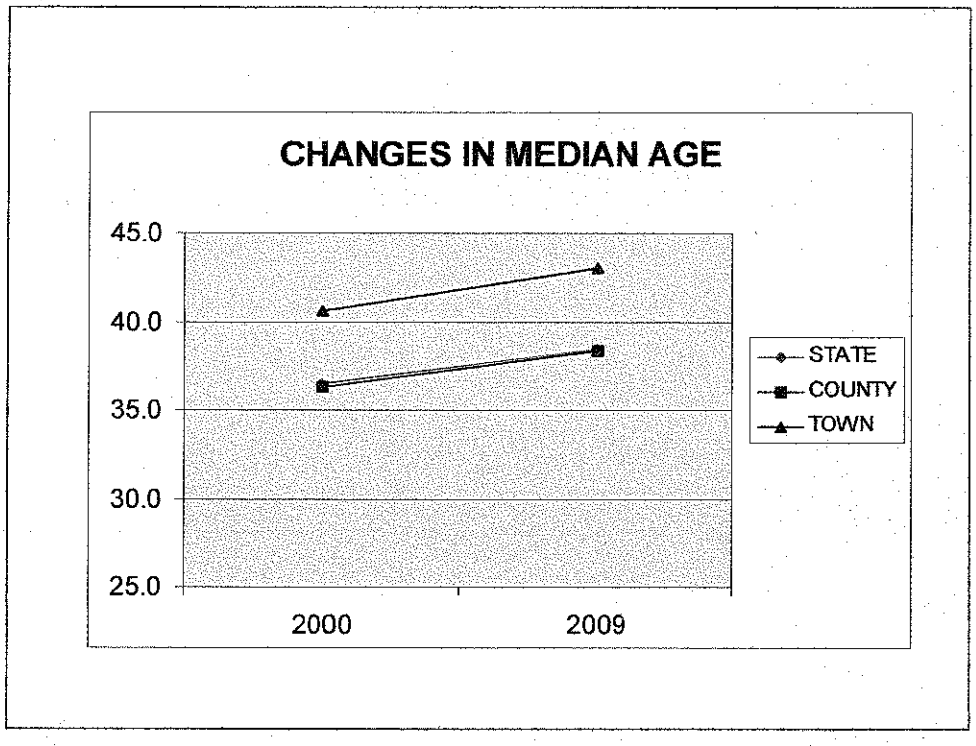


Table 3 provides valuable information for helping to project the potential for future births, as well as the potential for future turnover of housing units. It is crucial in understanding the dynamics of growth in Harvard from 2000-2009 to realize that as the overall population increased by an estimated 164 persons (see Table 1A), there were also shifts in the age cohorts. **The population from ages 20-34, those who have the greatest impact on future births, declined by 97 persons.**

TABLE 3
AGE COHORT DATA – HARVARD, MA

AGE	2000	2009 (ESTIMATED)	CHANGE
0-4	342	214	(-128)
5-9	457	384	(-73)
10-14	537	604	+67
15-19	339	583	+244
20-24	154	176	+22
25-34	558	439	(-119)
35-44	1,207	969	(-238)
45-54	1,246	1,315	+69
55-59	432	538	+106
60-64	252	341	+89
65+	457	582	+125
	5,981	6,145	

Source: U.S. Census Bureau

Although, anecdotally, we know of women in this latter age range now giving birth, the number of births to the 35-44 age group remains statistically much smaller than the number of births to younger women. Some professional women choose to have children in the older age range; however, the percentage of births to women 35 and older is still significantly lower.

From 2000 to 2009, the number of residents age 65 and above rose by an estimated 125 persons. The resulting 582 age 65 and above residents can be an important factor in projecting the potential for property turnover. The remaining members of this age cohort, when coupled with the approximately 2,300 "baby boomers" who have or will be joining the over-55 age cohort in the next decade, creates the potential for significant housing turnover which could lead to a regeneration of several Harvard neighborhoods. A community can grow in school population through the turnover of existing housing stock from families with no young children (the "empty nesters") to families with young children.

Table 3A which is based on data from the Metropolitan Area Planning Council

provides a forward look at the projected size of Harvard's age cohorts in 2020 and 2030. The projections, which are subject to modification with the passage of time, do reflect the current trend of diminishing numbers in the 0-19 age cohort and increasing numbers in the over 55 age group. On the national level, government estimates indicate that beginning this month and continuing for the next 19 years, 8,000-10,000 "baby boomers" per day will be turning 65 years of age.

TABLE 3A
AGE COHORT ESTIMATES

	2020	2030
00-04	87	62
05-09	191	169
10-14	547	601
15-19	688	690
20-24	557	544
25-29	672	661
30-34	538	528
35-39	498	623
40-44	524	652
45-49	496	510
50-54	557	505
55-59	658	613
60-64	401	425
65-69	207	265
70-74	119	164
75-79	73	115
80-85	37	69
85+	23	29

Source: Metropolitan Area Planning Council January 8, 2006

THE NEAR-TERM RESIDENTIAL GROWTH OUTLOOK (Three-Four Years)

Several factors currently are having a negative impact on Harvard's near-term population and residential growth. These include:

Regional Factors

- The November 17, 2010 New England Economic Outlook Conference, sponsored by the New England Economic Partnership and the Concord Coalition which was held at the Federal Reserve Bank in Boston, noted that the New England economy is in a state of "precarious recovery." New Hampshire and Maine are expected to

lead the way down the recovery road followed by Massachusetts and Vermont. Connecticut and Rhode Island are expected to recover more slowly. Unemployment levels and housing growth are expected to continue to be problematic through 2011, and the New England area is not expected to see employment reach pre-recession levels until late in 2013 or 2014.

Residential Construction – Harvard

- During 2009, the number of building permits issued for single-family housing totaled six units. This number is considerably below the average for 1999-2008, which was 11 permits per year.

TABLE 4A
HARVARD, MA BUILDING PERMITS

Year	Single-Family	Multi-Family	Year	Single-Family	Multi-Family
1980	45	2	1996	19	18
1981	38	21	1997	24	11
1982	28	8	1998	13	15
1983	45	2	1999	18	290
1984	42	12	2000	19	33
1985	31	62	2001	11	
1986	30	190	2002	9	34
1987	22	8	2003	9	2
1988	12	2	2004	12	209
1989	5	6	2005	11	43
1990	4	4	2006	8	
1991	12	2	2007	7	8
1992	15	24	2008	2	
1993	21	6	2009	6	6
1994	30		2010*	5	
1995	15	4			

*Thru 10/31 Source: HUD

- The Planning Department reports that, due to the downturn in the housing market, the level of activity with regard to requests for new sub-divisions has ground to a halt. There are currently no new single-family proposals in the pipeline.
- Although "tear-downs" are a major construction factor in some communities, town officials report that there are only a few of these in Harvard. Most are occurring in the Bare Hill Pond area.

- Four condominium/townhouse projects, each of which includes affordable housing, have been approved in Harvard. These include the following:
  - Trail Ridge is a project which was originally planned for 52 units; however, the number of units will be scaled back. Each unit contains two bedrooms. Forty-eight bedrooms within the project must be reserved for residents who are over age 55. For every five market-rate units that are constructed at Trail Ridge, one affordable unit must also be constructed. This project is under construction and some units have been occupied.
  - Harvard Commons on Littleton Road is a 12-unit, three-building complex which will include three affordable-housing units. According to town officials, two buildings are up and one is still to be constructed. No units have been sold.
  - The Village at Harvard on Ayer Road will have 32 units with a total of 51 bedrooms. One affordable unit must be constructed for every four market-rate units constructed. The project has a potential seven-year build-out once construction begins.
  - Pine Village will have 24 units and a total of 57 bedrooms. A three to four-year build-out period is expected once construction begins. Approximately eight of the units will have three bedrooms.
  - Town officials and realtors feel that most of these units will be inhabited by over-55 residents or people without children. The condominiums/townhouses are not expected to have a major impact on school enrollments.

Existing Home Sales and Median Sales Price

- Between 1996 and 2003, an average of 78 single-family properties were sold in Harvard each year. The average number of single-family homes sold during the past six years decreased to 59 units per year. Median single-family home prices declined from a high of $620,000 in 2005 to $457,000 in 2009. Also, the number of condominiums sold during the past decade decreased from a high of 21 in 2002 to five units in 2009. The median selling price for these homes was $412,321.

This represents an $85,179 decrease in median condominium sales prices between 2007 and the end of 2009.

Table 4D shows the asking prices for Harvard single-family homes that were recently on the market.

TABLE 4B
HARVARD, MA HOME SALES

Year	Single-Family	Condo Units	Year	Single-Family	Condo Units
1987	77		1999	101	19
1988	73	5	2000	80	12
1989	59	1	2001	57	11
1990	73		2002	70	21
1991	56		2003	61	8
1992	74		2004	77	9
1993	74	2	2005	82	12
1994	67	1	2006	46	12
1995	53	2	2007	48	4
1996	84	3	2008	39	14
1997	77	1	2009	61	5
1998	94	16	2010*	54*	2*

*Sales to 10/31 (In 2009, 47 SF sales; 5 condo sales to 10/31)
Source: The Warren Group, *Banker and Tradesman*

TABLE 4C
HARVARD, MA MEDIAN SALES PRICE – CALENDAR YEAR

Year	Period	One-Family	Condo
1996	Jan - Dec	$299,950	$74,000
1997	Jan - Dec	$344,000	
1998	Jan - Dec	$360,000	$265,588
1999	Jan - Dec	$375,000	$237,500
2000	Jan - Dec	$447,500	$326,950
2001	Jan - Dec	$530,000	$345,000
2002	Jan - Dec	$470,000	$260,000
2003	Jan - Dec	$545,000	$329,200
2004	Jan - Dec	$590,000	$319,900
2005	Jan - Dec	$620,000	$333,250
2006	Jan - Dec	$619,750	$320,000
2007	Jan - Dec	$545,000	$497,500
2008	Jan - Dec	$580,000	$402,500
2009	Jan - Dec	$457,000	$412,321
2010	Jan - Oct	$515,500	$419,000

Source: The Warren Group

TABLE 4D
ASKING PRICES OF SINGLE-FAMILY HOMES RECENTLY ON THE MARKET

NUMBER	PRICE RANGE
6	$1,000,000 - $3,000,000
9	$800,000 - $999,999
14	$600,000 - $799,999
26	$400,000 - $599,999
9	$200,000 - $399,999

Source: Realtor.com

- Local realtors indicate that, since the end of the Stimulus Incentive in June of this year, the sales of existing homes have been slow and some residents are "selling short" (below the amount of the mortgage). These situations, when coupled with a relatively large number of foreclosures, are continuing to depress the regional housing market.
- Realtors also note that many of Harvard's over-55 citizens are "empty-nesters" who are considering downsizing. As these "Baby Boomers" near retirement, they are seeking less home upkeep and lower property taxes. Further, the realtors report that some also are looking to move out of Harvard to a location closer to the city or to Cape Cod. Still others are considering a move to the South or Southwest where the climate is warmer and both real estate prices and living expenses are cheaper. However, according to the realtors, these people (for the moment) generally are holding onto their homes waiting for home equity and 401K balances to increase.
- Although Harvard is not at build-out, available land is described by town officials and realtors as being "more challenging and expensive to develop" because of perking issues, the presence of ledge, a 75-foot wetlands set-back regulation and other inhibitors such as the lack of access to town water and sewer systems. During the summer of 2011, town sewerage will be expanded to include some residences near the center. However, access to sewerage will not be expanded to a substantial number of residences.
- There exists within the town, an active Conservation/Open Space effort. Large parcels of land have been set aside, and thus protected as Open Space. The Conservation Commission oversees numerous properties, including three large areas near Bare Hill Pond. Other Open Space areas are located in the southeast and northeast sections of town. The Federal Government also has two large parcels of land west of Bare Hill Pond near the railroad line. The Commonwealth of Massachusetts has large pieces of property near the southwest and southeast corners of Harvard.

- There are several large farms in Harvard, however, the Town has the right of first refusal regarding the purchase of most of these properties. Town officials and realtors do not anticipate that these areas will be sold for development in the near future.

The Devens Factor

NESDEC has conducted meetings, follow-up phone calls and exchanged emails with the Director of Massachusetts Development, the Director of Land Entitlements for Massachusetts Development, the head of the Devens Economic Development Team, and local realtors familiar with the Devens residential housing market. Documents including the Trinity Financial proposal for the development of Vicksburg Square, the Harvard School Committee Contract with the Massachusetts Development Financial Agency, and residential data pertaining to Devens, also have been reviewed. Significant factors include:

Vicksburg Square

- The proposed project would include 250 units.
- Although there is no absolute certainty regarding the character of the housing, according to Devens officials, the project will include one and two bedroom units. Originally, there were plans to construct some three bedroom units but those plans have been altered.
- There are four buildings that would be included in the re-development project. The plan calls for the project to be phased-in one building at a time.
- Devens officials estimate an eight to ten-year phasing-in period once construction begins.
- All three towns must approve of the zoning permit for Vicksburg Square (Harvard, Shirley and Ayer).
- The Vicksburg Square Plan will most likely be brought forward for zoning approval in the Fall of 2011.

Other Residential Construction Factors at Devens

- Exclusive of Vicksburg Square, 282 housing units have been approved at Devens. Of those, 106 units have been constructed.
- One hundred seventy-six units are still to be constructed.
- There is a plan for 20 "net-zero energy" housing units to be constructed at Devens during 2011. There will be eight single-family, three-bedroom units and six two-unit townhouses with two bedrooms per unit. The development will be located in the southeast section of Devens near Adams Circle.
- There is no concrete plan for the construction of the remaining 156 units, however, there is an assumption that they will be three-bedroom units, and that they most likely will be located in the Grant Road area. Market conditions will determine the time frame for development, yet it is likely that most units will be built and occupied by 2020.
- It is reasonable to assume that, once the 176 units have been constructed and occupied, the Devens population will increase by approximately 440 – 530 persons. Of these, 100 -125 would be children.

Other Pertinent Devens Residential Factors that Relate to Harvard

- Devens officials and realtors indicate that residents are very pleased with the quality of educational services provided by the Harvard Public Schools. A document which reports on the many accomplishments of the Harvard Public Schools continues to be distributed by Massachusetts Development to Devens residents and potential residents.
- According to the latest local census, Devens has 263 permanent residents, while an additional 44 temporary residents live at the Transitional Shelter (Our Father).
- Of the 263 permanent Devens residents, 195 are adults and 68 are children. Of the 44 temporary Devens residents at the Transitional Shelter, 16 are adults and 28 are children.
- Fifty-six Devens residents are enrolled in the Harvard Public Schools; 44 children are permanent residents, and 12 children are temporary residents of the shelter.

- Of the 74 school-aged children who are permanent or temporary residents of Devens, 56 (76%) attend the Harvard Public Schools. The remaining 18 students attend the following nine schools:

  Acorn Child Care, Westford
  Shirley Middle School
  Parker Charter School
  Ayer Middle School
  Lura White School, Shirley
  Nashoba Valley Technical High School
  South Lawrence Middle School
  Waterford Elementary School, Gardiner
  Northwest Child Development

- The existing Devens school contracts with Harvard are:
  - Three-year contract length: Grades 6-12 – two-year prior notice for termination – annual automatic renewal.
  - Five-year contract length: PK-5 – two-year prior notice for termination – annual automatic renewal.
- NESDEC has received no indication that there are any active plans at Devens to construct a school on the site.

Other Devens Factors

- Devens officials note that there are no new large industrial or commercial developments currently in the planning stages at Devens.
- Bristol Myers has not indicated any plans to expand their facility in the near future.
- In a recent survey of those who are employed at the Devens site, 42% of the respondents indicated that they lived in Shirley, Ayer, Harvard and Devens.
- Devens officials felt that the long-awaited expansion of Route 2 and the improvement of the Fitchburg commuter rail line might attract more people to the area – it would depend upon schedules and service. The Montachusett Regional

Planning Commission reported in the spring of 2010 that the completion of Rail Extension Project and improvement of the Route 2 roadway would create hundreds of new long term employment opportunities. The project has received funding approval and is now in the design stages. NESDEC has learned that an estimated completion date has been pushed back from 2012 to 2013. An additional project to improve access to the Littleton station is in the design stages. This project is more dependent on state funding.

- An attempt at establishing an Independent Town failed in 2006 and there are presently no plans to revisit the issue in the near future. Current legislation regarding Devens requires that an Independent Executive Structure must be established by 2033. Some think the decision regarding an Independent Executive Structure may be referred back to the legislature.

Other Economic Factors

As reported in the 2000 Census, the Harvard median family income was $119,352. "Management/Professional" (73.9%); "Sales and Office Occupations" (15.2%); "Service Occupations" (4.7%); "Production, Transportation, and Material Moving" (3.0%), and "Construction, Extraction, and Maintenance Occupations" (2.8%), were the largest occupations. "Education/Health/Social Services" (22.9%); "Professional/Scientific/Management" (19.7%); "Manufacturing" (17.9%); "Retail" (9.0%); "Information" (7.5%) and "Finance/Insurance" (6.2%); provided a large number of jobs. In the 1990's the number of families who lived in poverty was seven. Of those families, seven had children under 18 and 0 families had children under five years of age.

The estimated median family income for Harvard in 2009 was $150,396. Management, Professional and Related Occupations at approximately 71% was the largest occupational category, while Education/Health/Social Services topped the list of industries for civilian employment at approximately 30%.

The number of Harvard households with individuals under the age of 18 was 26.5% in 2000 and the Census Bureau estimated the number to be 26.9% in 2009 (see Table 2).

Housing turnover is one key to understanding the potential for increasing school enrollment. The 2000 Census documented that 607 households (33.6%) had moved into their Harvard dwelling between 1995 and March 2000. The 2009 Census Bureau data indicate that as many as 627 households were occupied between 2000 and 2009. On the one hand, these data indicate significant turnover has recently occurred; on the other (when combined with the growing number of residents over age 55), the age cohort data suggest the potential for a significant number of turnover homes to come on the market in the decade from 2010-2020.

Births – Table 5

Table 5 and the accompanying graph display the annual number of Harvard births from 1998 to 2008 as reported by the Massachusetts Department of Public Health. Birth data also are available from town clerks or town reports, although such numbers tend to be incomplete as not all births, particularly from remote hospitals, are reported to local officials. In the past 15 years, the number of births decreased from an average of 51 in 1994-1998, to 44 in 1999-2003. Between 2004 and 2008, births averaged 34 per year. In 2008, 29 births were recorded. Given the shrinking number of persons in the 20-34 age cohort described in Table 3, there appears to be little potential for the annual number of births to current residents to rise significantly above 31-33 per year in the near term.

TABLE 5
HARVARD, MA BIRTHS

YEAR	# OF BIRTHS	AVERAGE	% CHANGE
1994	48		
1995	50		
1996	45	51	
1997	53		
1998	57		-12.3%
1999	50		
2000	44		
2001	41	44	
2002	46		
2003	41		-23.9%
2004	45		
2005	34		
2006	30	34	
2007	31		
2008	29		

Source: MA Department of Public Health

B. HISTORICAL ENROLLMENT

Historical Enrollment – Public Schools

The PK-12 historical enrollment for Harvard students over the past 11 years is shown in the Historical Enrollment and Grade Combination Tables and in the following graph. From 2000-01, the enrollment in the Harvard Public Schools increased by 22 students (1109 K-12 students in 2000-01 v. 1131 students in 2010-2011).

The progress of a class from Kindergarten through the grades can be traced by drawing a diagonal line from Kindergarten, dropping in the following year to Grade 1, then to Grade 2, etc. Harvard enrollments generally have increased by 7% between Kindergarten and Grade 1. In Grades 2-3, increases have been in the 3-6% range. In Grades 4 and 5 enrollments have increased by approximately 3%. Grade 6 has experienced 4% increases, while Grades 7 has seen mostly stable enrollments and enrollments have grown by 3% at Grade 8.

At the high school, Grade 9 enrollments have decreased by approximately 3%. Grade 10 experienced average increases of 1 % while Grades 11 and 12 saw 3-4% enrollment declines. (See Historical Enrollment Table and Graph)

Harvard, MA Historical Enrollment

School District: Harvard, MA **11/29/2010**

Historical Enrollment By Grade

Birth Year	Births	School Year	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	UNGR	K-12	PK-12
1995	50	2000-01	0	67	79	98	78	106	102	100	81	95	97	71	63	72	0	1109	1109
1996	45	2001-02	0	78	77	84	98	78	109	99	100	82	91	94	64	60	0	1114	1114
1997	53	2002-03	0	69	91	84	89	100	81	112	100	103	80	91	93	63	0	1156	1156
1998	57	2003-04	0	74	80	91	86	98	99	82	113	101	99	79	88	89	0	1179	1179
1999	50	2004-05	8	76	81	86	95	95	102	106	81	107	96	90	75	86	0	1176	1184
2000	44	2005-06	31	73	87	84	95	97	101	101	106	79	103	92	85	78	0	1181	1212
2001	41	2006-07	36	63	84	88	92	95	105	111	102	114	81	99	95	89	0	1218	1254
2002	46	2007-08	34	67	62	90	92	87	96	102	112	100	100	94	95	83	0	1180	1214
2003	41	2008-09	34	65	71	67	90	94	90	102	93	115	100	101	80	93	0	1161	1195
2004	45	2009-10	20	68	71	73	66	98	96	91	103	96	112	97	96	77	0	1144	1164
2005	34	2010-11	20	52	71	80	73	70	96	101	87	108	92	109	97	95	0	1131	1151

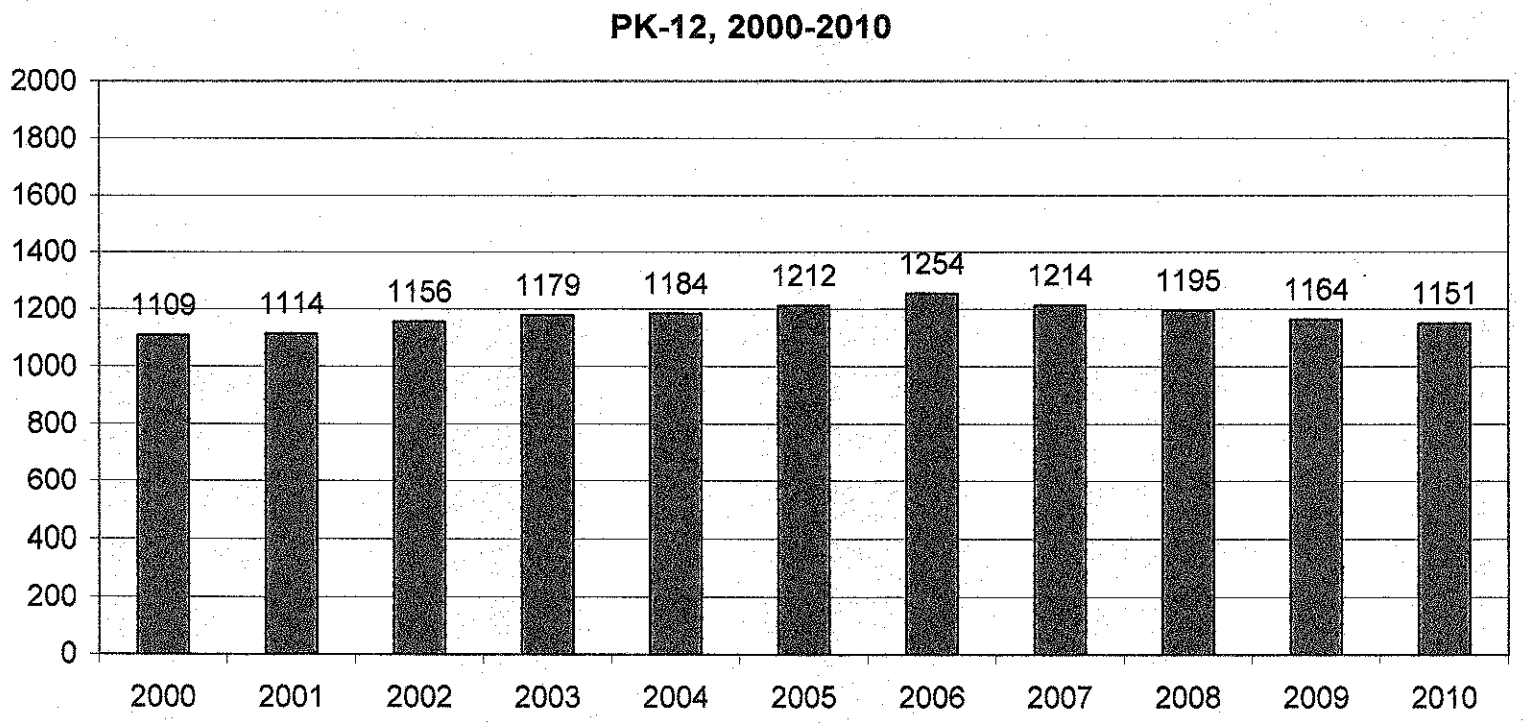
Historical Enrollment in Grade Combinations

Year	PK-5	K-5	K-6	K-8	5-8	6-8	7-8	6-12	9-12
2000-01	530	530	630	806	378	276	176	579	303
2001-02	524	524	623	805	390	281	182	590	309
2002-03	514	514	626	829	398	315	203	642	327
2003-04	528	528	610	824	395	296	214	651	355
2004-05	543	535	641	829	398	294	188	641	347
2005-06	568	537	638	823	387	286	185	644	358
2006-07	563	527	638	854	432	327	216	691	364
2007-08	528	494	596	808	410	314	212	686	372
2008-09	511	477	579	787	400	310	208	684	374
2009-10	492	472	563	762	386	290	199	672	382
2010-11	462	442	543	738	392	296	195	689	393

Historical Percentage Changes

Year	K-12	Diff.	%
2000-01	1109	0	0.0%
2001-02	1114	5	0.5%
2002-03	1156	42	3.8%
2003-04	1179	23	2.0%
2004-05	1176	-3	-0.3%
2005-06	1181	5	0.4%
2006-07	1218	37	3.1%
2007-08	1180	-38	-3.1%
2008-09	1161	-19	-1.6%
2009-10	1144	-17	-1.5%
2010-11	1131	-13	-1.1%
K-12 Change		22	2.0%

Harvard, MA Historical Enrollment



C. PROJECTED ENROLLMENT

Methodology

The ten-year enrollment projection totals that follow are based upon the historical enrollment data in the Historical Table. The cohort survival technique is the most frequently used method of preparing school enrollment forecasts. NESDEC uses this technique but modifies it in order to move away from forecasts that are wholly computer- or formula-driven. Such modification permits the incorporation of important and current town-specific information into the generation of the enrollment forecasts. Basically, percentages are calculated from the historical enrollment data to determine a reliable percentage of increase or decrease in enrollment between any two grades. For example, if 50 students enrolled in Grade 1 in 2006-2007 and the class increased to 60 students in Grade 2 in 2007-2008, the percentage of survival would have been 120%, or a ratio of 1.20. Such ratios are calculated between each pair of grades or years in school over several recent years.

The ratios used are the key factors in the reliability of the projections, given the validity of the data at the starting point. The strength of the ratios lies in the fact that each ratio encompasses **collectively** the variables that could possibly account for an increase or decrease in the size of a grade enrollment as it moves on to the next grade. Each ratio, then, represents the cumulative effect of the following factors:

1. Migration, in or out of the schools
2. Retention in the same grade
3. Changes in school program
4. Dropouts, transfers, etc.
5. Births and deaths
6. Housing growth

Based upon a reasonable set of assumptions in regard to each of these factors, ratios most indicative of present/future trends are determined for each pair of grades or

years. To project for the future, the ratios thus selected are applied to the present enrollment statistics for a predetermined number of years. In the case of Harvard, the assumptions are these:

1. The annual number of births to residents through 2015 will remain in the range of 30-31 per year.
2. The rate of housing growth over the next ten years will continue at approximately the same rate as that of the recent past (about 5-8 single-family units).
3. The pattern and numbers involved in the turnover of existing housing stock (48-60 single-family homes) will not vary appreciably from the recent past.
4. There will continue to be public Kindergarten registration that averages approximately 150% of the Harvard births five years previous; the class will increase by 7% in Grade 1. Enrollments will increase by 2-6 % per year in Grades 3 through 5. Little change will occur in other existing enrollment patterns.
5. The high school level out-migration patterns will be stable.
6. The agreement between the Harvard School Committee and the Massachusetts Regional Finance Agency for the Harvard Public Schools to provide educational services for residents of the Devens Regional Enterprise Zone will continue.
7. The percentage of Harvard students in non-public schools and in homeschooling will remain at present levels. *(This should be followed carefully.)*

If any of these assumptions need to be altered in the future, so too will the projections. It is important to note that NESDEC annually updates projections for affiliated school districts at no cost. This provides an opportunity for the district to plan adequately for any changes that might occur.

Reliability of Projections

While the reliability of projections, in general, rests upon the soundness of the assumptions on which they are based, there are degrees of reliability over the grades and the ten-year period shown. **The enrollment projection in the Projections Table can be divided into three sections. The top and largest section represents the projections based on students who are already enrolled in the Harvard Public Schools. This projection has the highest reliability. The projections based on children who have been born, but are not yet in school, are somewhat less reliable.**

If any of these assumptions need to be altered in the future, so too will the projections. It is important to note that NESDEC annually updates projections for affiliated school districts at no cost. This provides an opportunity for the district to plan adequately for any changes that might occur.

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A ten-year projection (which drops in reliability after the fifth year) is a very small window into the future. The "leveling" of the elementary enrollment which occurs in years six-ten of the projections is caused by holding the births stable during that period. If the births should increase during that period, the Kindergarten class will increase, thereby causing growth which would ultimately spread to all the elementary grades. If the rate of housing growth were to increase dramatically from past levels (or if property turnover increased markedly), the projections would rise. At all grade levels, improved programs/facilities could lead to additional Harvard residents attending (or remaining in) the public schools. Ten-year enrollment projections are just that – projections, they are not guarantees. Whatever the School Committee chooses to do in making plans, it should take into account the possibility of a 10% swing either way in terms of enrollment at all grade levels. In other words, the School Committee should be prepared to respond to the questions: "How will the space be used if 10% **fewer** students materialize?" and "How will the space be provided if 10% **more** students materialize?"

Projections (2010-2011 – 2020-2021) – Based upon Historical Patterns

Total public school enrollment K-12 (as displayed in the Projections Table by

grade level and in the Grade Combinations) is projected over the next decade to decline by 344 students from its present level, based upon the assumptions listed above. Increased development and/or rapid property turnover can add enrollments above the numbers projected.

(See the following Enrollment Projections Table and the accompanying graph.)

Harvard, MA Projected Enrollment

School District: Harvard, MA **11/29/2010**

Enrollment Projections By Grade*

Year	Births		School Year	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	UNGR	K-12	PK-12
2005	34		2010-11	20	52	71	80	73	70	96	101	87	108	92	109	97	95	0	1131	1151
2006	30		2011-12	22	46	55	77	80	77	71	100	97	90	106	91	102	95	0	1087	1109
2007	31		2012-13	24	48	49	59	77	85	78	74	98	100	88	104	85	100	0	1043	1067
2008	29		2013-14	26	45	51	53	59	81	86	81	71	99	98	87	97	83	0	991	1017
2009	34	(est.)	2014-15	28	52	48	55	53	62	82	90	78	74	97	96	81	95	0	963	991
2010	32	(est.)	2015-16	30	49	56	52	55	56	63	85	86	81	72	95	90	79	0	918	948
2011	31	(est.)	2016-17	32	48	52	59	52	58	57	66	82	89	79	71	89	88	0	890	922
2012	31	(est.)	2017-18	34	48	51	56	59	55	59	59	63	85	87	78	66	87	0	853	887
2013	31	(est.)	2018-19	36	49	51	55	56	62	56	61	57	65	83	86	73	84	0	817	853
2014	32	(est.)	2019-20	38	49	51	55	55	59	63	58	59	59	84	82	80	71	0	805	843
2015	31	(est.)	2020-21	40	48	52	55	55	58	60	66	56	61	58	63	77	78	0	787	827

*Projections should be updated on an annual basis. Based on an estimate of births | Based on children already born | Based on students already enrolled

Projected Enrollment in Grade Combinations*

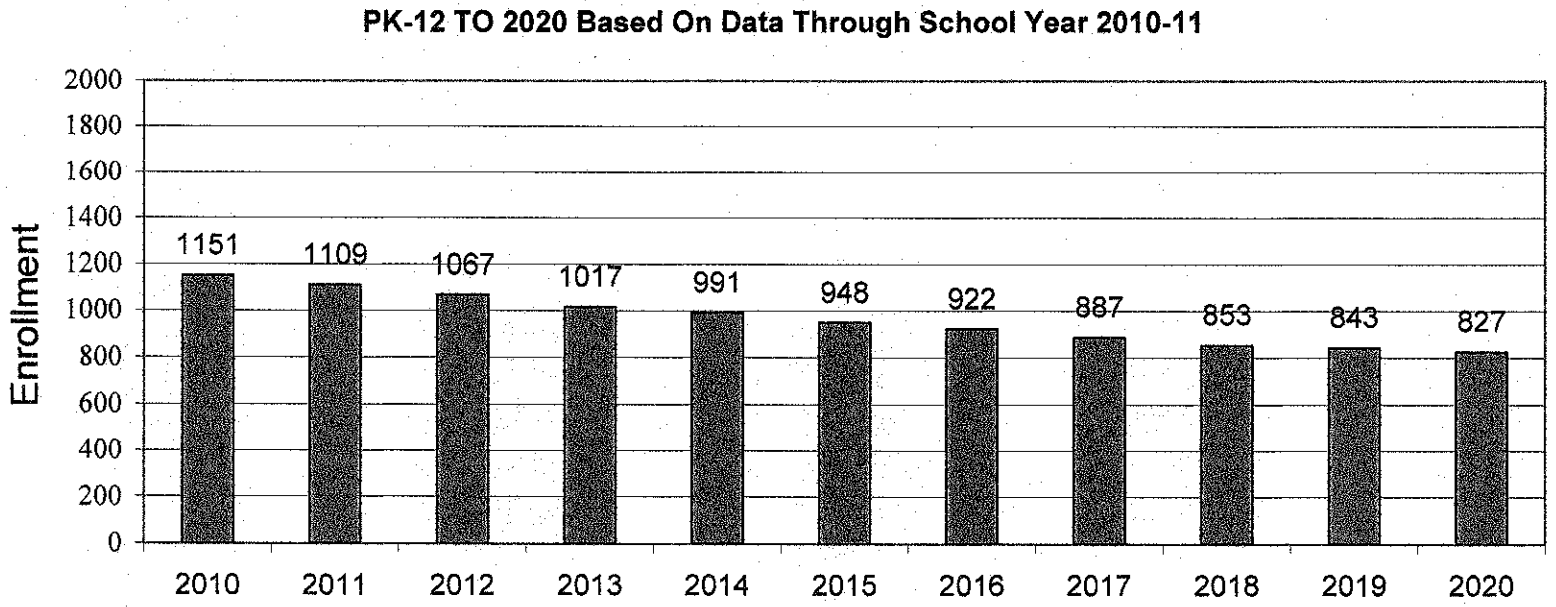
Year	PK-5	K-5	K-6	K-8	5-8	6-8	7-8	6-12	9-12
2010-11	462	442	543	738	392	296	195	689	393
2011-12	428	406	506	693	358	287	187	681	394
2012-13	420	396	470	666	348	270	196	647	377
2013-14	401	375	456	626	337	251	170	616	365
2014-15	380	352	442	594	324	242	152	611	369
2015-16	360	330	415	582	315	252	167	588	336
2016-17	358	326	392	563	294	237	171	564	327
2017-18	362	328	387	535	266	207	148	525	318
2018-19	364	328	389	511	239	183	122	489	306
2019-20	370	332	390	508	239	176	118	473	297
2020-21	368	328	394	511	243	183	117	459	276

See "Reliability of Enrollment Projections" section of accompanying letter.
Projections are more reliable for Years 1-5 in the future than for Years 6 and beyond.

Projected Percentage Changes

Years	K-12	Diff.	%
2010-11	1131	0	0.0%
2011-12	1087	-44	-3.9%
2012-13	1043	-44	-4.0%
2013-14	991	-52	-5.0%
2014-15	963	-28	-2.8%
2015-16	918	-45	-4.7%
2016-17	890	-28	-3.1%
2017-18	853	-37	-4.2%
2018-19	817	-36	-4.2%
2019-20	805	-12	-1.5%
2020-21	787	-18	-2.2%
K-12 Change		-344	-30.4%

Harvard, MA Projected Enrollment



These factors contained in the assumptions used to calculate the Harvard projections bear careful watching. As new information is obtained, it can be used to further illuminate and/or modify the enrollment projections for Harvard. For example, by tracking building permits and property sales, future enrollments can be forecast that will update or modify these projections.

Harvard's Capacity for Additional Growth

A well-managed town with good amenities and a reputation for quality of life and good schools can experience additional school enrollments. Despite the current conditions regarding the residential housing market, there are presently-existing factors which indicate that Harvard is likely to experience significant housing turnover during the course of the next decade. These factors include the following:

- The "baby boom" cohort, according to realtors, is likely to downsize to smaller homes once the housing market rebounds from its present slump. These people would be vacating three- and four-bedroom homes which would most likely be inhabited by families with school-age children.
- Projects including 40B housing which have temporarily been placed on hold are likely to renew building once the housing market turns.
- It is reasonable to assume that some of the larger parcels of land may be placed on the market during the course of the next decade.
- Plans have been approved to build an additional 176 residential units on the Massachusetts Development site at Devens. (The development time-table will be dependent on real estate marketing conditions.)
- The Fitchburg Rail Extension Project is moving forward and, upon completion, it may have a positive impact on both the Harvard and Devens real estate markets.
- Due to existing economic conditions nation-wide, private and parochial school enrollments appear to be declining. This should be watched carefully as it may cause an increase in Harvard's public school enrollments.

Due to the present uncharted economic times, it is impossible to predict when these growth factors might begin to affect population and enrollments. ***The accelerated housing turnover and the other listed factors, when they do occur, have the potential to***

increase Harvard enrollments above the status quo projections. The accelerated growth impact could increase enrollments by between 50 and 225 students over the Status Quo Projections.

(An appendix will be added.)