

Harvard School Committee
Harvard, Massachusetts

Report of the Subcommittee on
Strategies to Manage Declining Enrollment

Revised

December 9, 2013



Respectfully submitted by

Dr. Joseph Connelly, Superintendent of Schools
Bob Sullebarger & Kirsten Wright, Harvard School Committee

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Glossary of Abbreviations

DESE	Massachusetts Dept. of Elementary & Secondary Education
HES	Hildreth Elementary School
HPS	Harvard Public Schools
TBS	The Bromfield School

Executive Summary

The people of the town have made their preference for a locally controlled and managed school system very clear. It's clear that our schools enjoy very strong community support. Many people have chosen to live in Harvard specifically because of the quality of our school system. The reputation of our school system underpins the economy of the town. It is the foundation for local real estate valuations and is therefore fundamental to the economic well being of our residents.

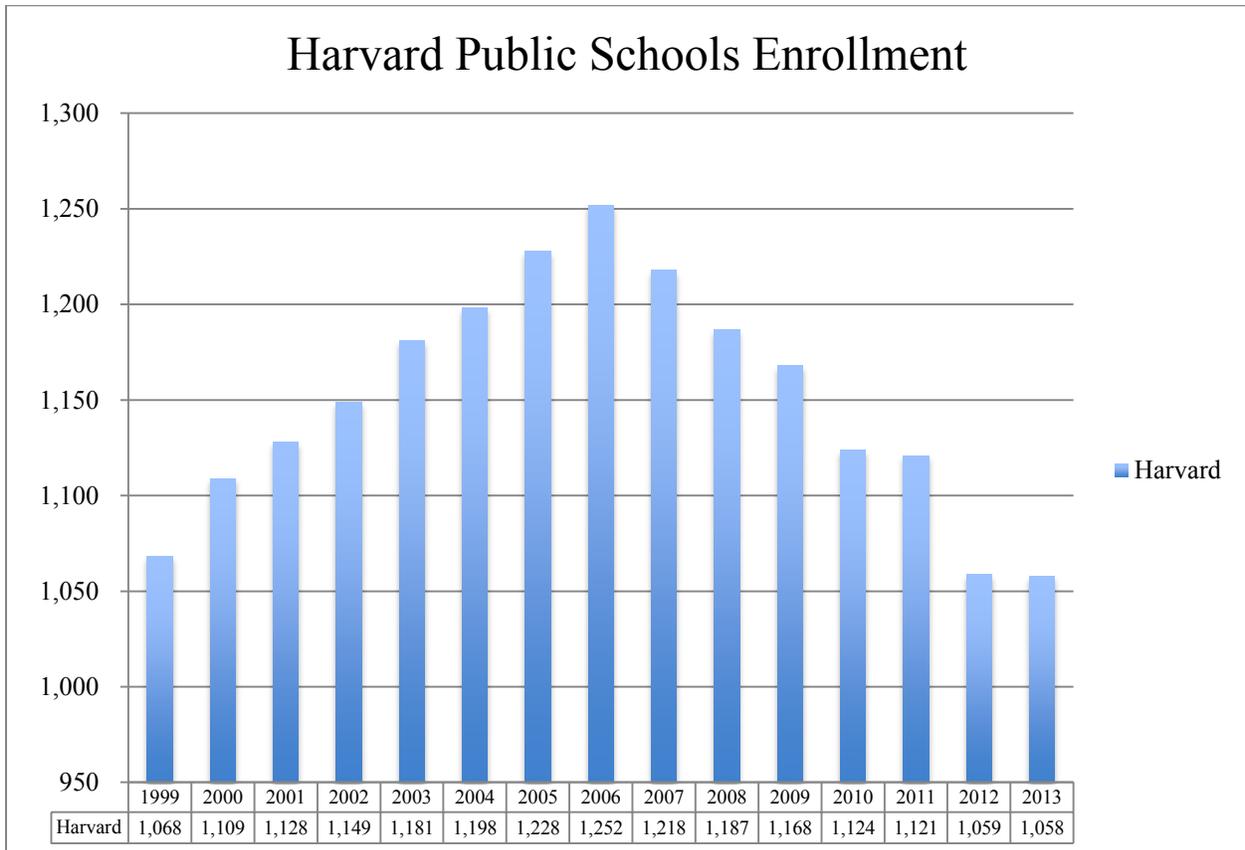
Given the pivotal role that the Harvard Public Schools play in our community, preserving the quality of education, the high performance of our students, and the overall integrity and reputation of the school system is viewed as "mission critical".

Forecasting school enrollment is a challenge for any school district. Harvard enrollment projections completed in recent years have predicted a modest, but steady enrollment decline over the next five years. An enrollment study completed in October 2013 projects K-12 enrollment will decline by 199 students representing a 17.2 percent decline over the next five years.

As a result, the Harvard School Committee formed a Declining Enrollment Subcommittee to investigate this enrollment trend and to develop recommendations on how this projected enrollment decline could best be managed to ensure the high quality of Harvard's pre K-12 instructional program is maintained. Areas thoroughly investigated in this study include Harvard's continued participation in the Massachusetts Department of Elementary and Secondary Education's (DESE) School Choice Program and the benefits that can be derived from maintaining Harvard's current grade level structure which includes supporting four sections in grades K-5 and five core sections of classes in grades 6 through 12.

Enrollment History

Harvard Public Schools' K-12 enrollments have declined from 1,307 students in school year 2006/2007 to 1,159 students this year. This represents a 148 student or 11.3% reduction over the past seven years.

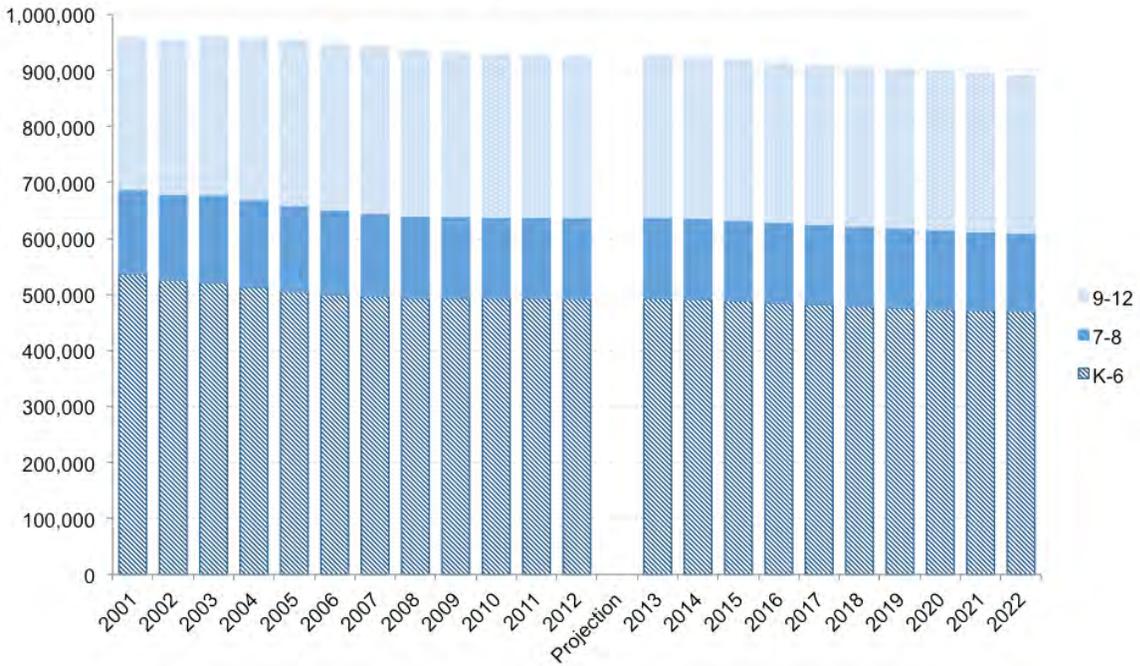


Source: HPS

Comparison with Statewide Enrollment Trends

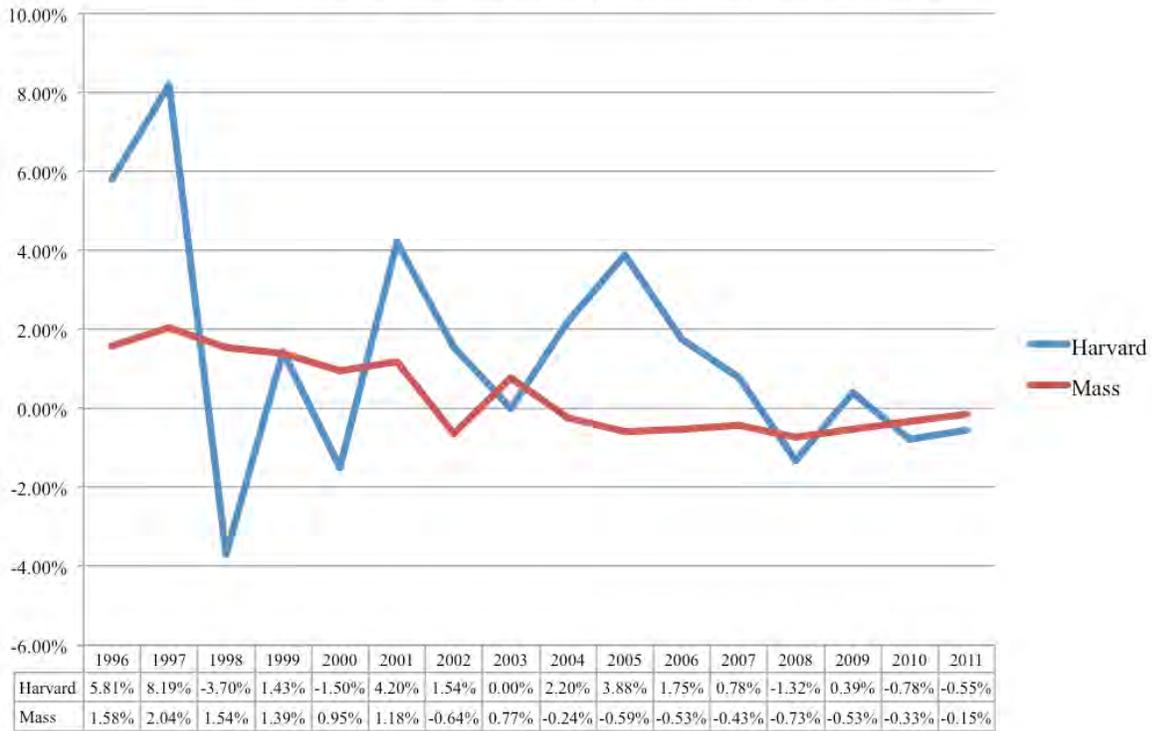
The Massachusetts Dept of Elementary & Secondary Education (DESE) tracks and publishes data on statewide school enrollment and forecast. DESE is forecasting a gradual decline in statewide enrollment through 2022.

**Projected Public School Enrollment Thru FY2022
Massachusetts K-12 State Totals**



However, it should be noted that Harvard’s enrollment rate of change has not shown a strong historical correlation with the statewide trend.

Comparison of State and Local Enrollment Rates of Change



Metrics that influence enrollment

Metrics that influence school enrollments include:

- **Local Birth Rate**
 - The number of births recorded in Harvard each year and how this birth rate influences yearly kindergarten enrollments. Clearly this is sensitive to real estate activity, where young families are attracted to relocate to Harvard to access our school system.

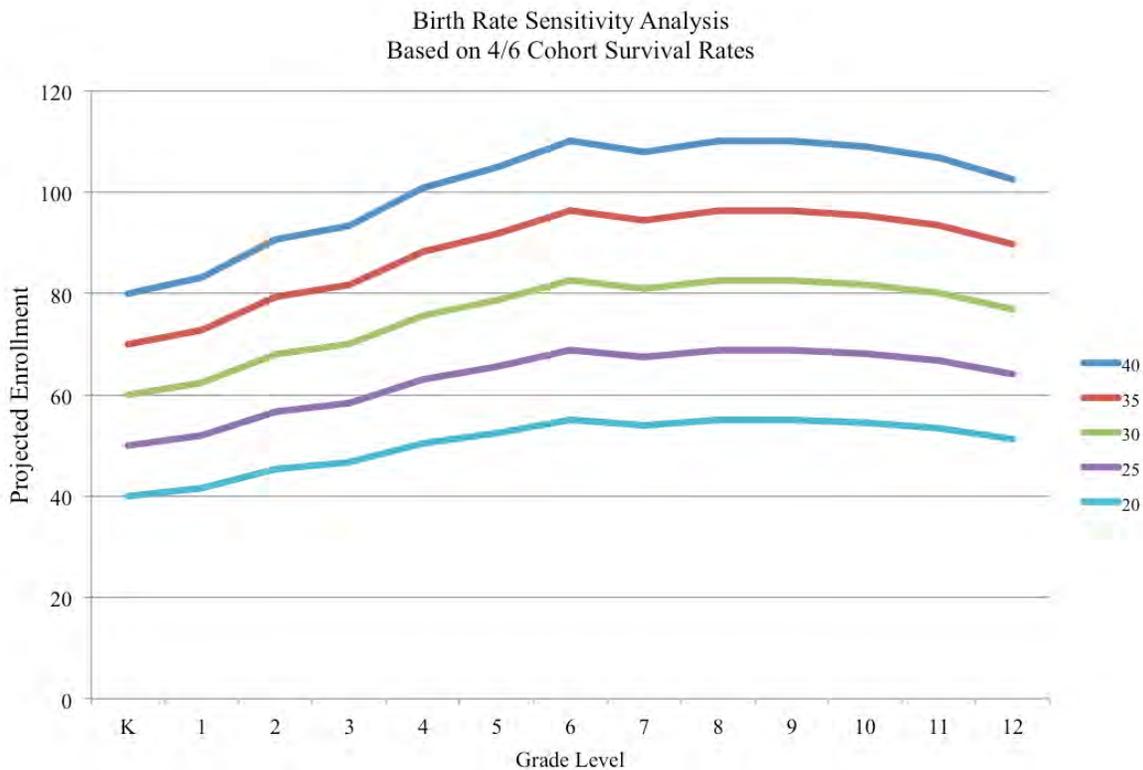
- **Real Estate Activity**
 - Existing Home Sales: the extent to which families with school age children are moving into town
 - New Development: the extent to which new residential units are being added to the local housing stock

- **Outward Migration**
 - The extent to which decisions are made by Harvard families to enroll their children in schools other than the Harvard Public Schools. This includes outward school choice (“choice out”), independent schools, area charter schools and home schooling.

Birth Rate

Children enter our school system in kindergarten at age five (5). The CSR Method forecasts Kindergarten enrollment from the number of Harvard births recorded 5 years earlier.

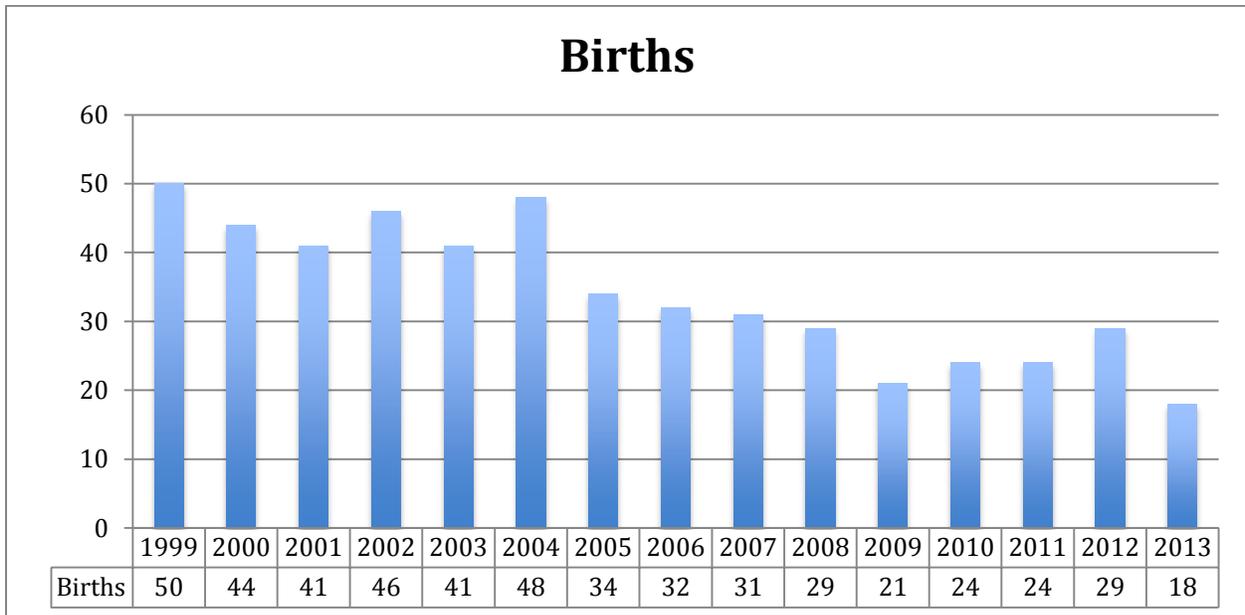
The number of incoming Kindergarten students when projected forward through the CSR Model has a significant influence on enrollment. As a cohort of students moves through the system, the CSR Method predicts a rising enrollment that peaks in Grades 6 through 9, and then declines modestly in Grades 10 through 12. The following figure shows how different birth rates would be forecasted for a given cohort from Kindergarten through Grade 12.



NOTE: The current CSR ratio for Birth Rate to Kindergarten is 2.0. Kindergarten enrollment is therefore estimated as 2.0 x (Birth Rate, 5 years prior). Example: A birth rate of 20 therefore yields an incoming Kindergarten enrollment forecast of 40 students.

Birth Rate Trend

The data shows that the number of new births recorded in Harvard has been steadily declining since 1999. Over the 13-year period from 1999 to 2013, the number of recorded births has declined from 50 to 18, a reduction of 64%. While the birth rates did show an upward trend since reaching a bottom of 21 in 2009, most recent birth rates recorded in 2013 show a record low of only 18 births.



Source: Harvard Town Clerk, Jan 2013

Note: The years shown are not based on calendar years, but rather for births that occurred between September 1 of the previous year, and August 31 of the year indicated. This corresponds to the cut-off date for school enrollment. For example, in “2010”, 24 births occurred between 9/1/09 and 8/31/10.

Real Estate Activity

Existing Home Sales

Since 1999, the number of homes sold in Harvard has fluctuated with economic conditions. Over the 13-year period from 1999 to 2012, the number of homes sold declined from 80 to 59, a reduction of 26%. Since 2008 the rate of home sales has been trending slightly upward after reaching a low of 46. In the period between 2006-2012, the average was 55 per year, well below the prior 7 year period when it averaged 72.5 per year.

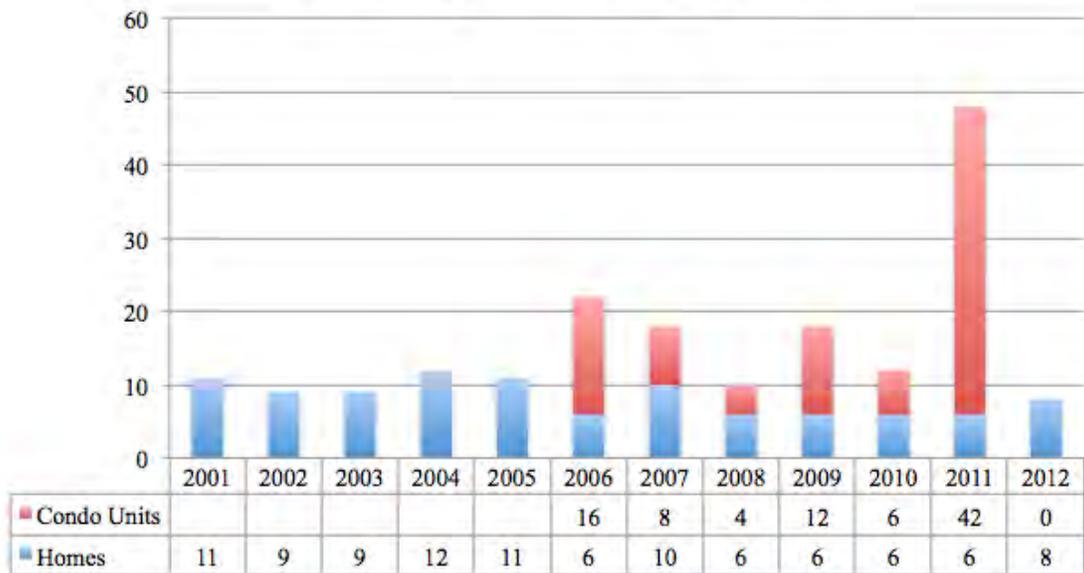


Source: Harvard Realty, Dec 2012

New Development

New housing units are being added to Harvard's housing stock at a modest rate. Since 2006, development has shifted away somewhat from single-family homes to condominium projects. In 2011, a large 55+ project was permitted, however it is unlikely this demographic will contribute in any significant way to student enrollment.

New Housing Units - Building Permits



Source: Harvard Town Clerk

Development at Devens

Currently there are 140 units of fully built out or renovated housing that is occupied at Devens, which produced 74 students in the 2012/13 (FY13) school year.

Under the Devens Reuse Plan, there is a cap of 282 housing units at Devens.

On March 26, 2013, MassDevelopment announced a plan and RFQ process to develop an additional 120 units of housing on a parcel of approximately 70 acres on Grant Road (aka “[The Grant Road Project](#)”) at Devens. The Grant Road Project plan calls for a mix of single and two-family homes, multi-family buildings, elderly housing, nursing homes and municipal uses. If executed, the plan as presented calls for the first residents to move into homes in Fall 2014. Presumably it would take a number of years for the project to be completed and for the 120 units to be fully occupied.

Based on a historical forecasting approximation of 0.53 students per unit of Devens housing, the Grant Road project if and when fully developed would produce an incremental student population of approximately 64 students. This would have a material impact on overall HPS enrollment.

Outward Migration: School Choice

Presumably due to the quality of the educational experience that HPS provides, the number of students who “choice out” has consistently been a small fraction of the number who have “choiced in” to our system, driving a significant economic win for the district. Each Choice-In student drives \$5,000 of subsidy income to our system. The Choice program is managed in a way that allows this incremental income to be a net-plus for the school budget by avoiding incremental staffing costs.

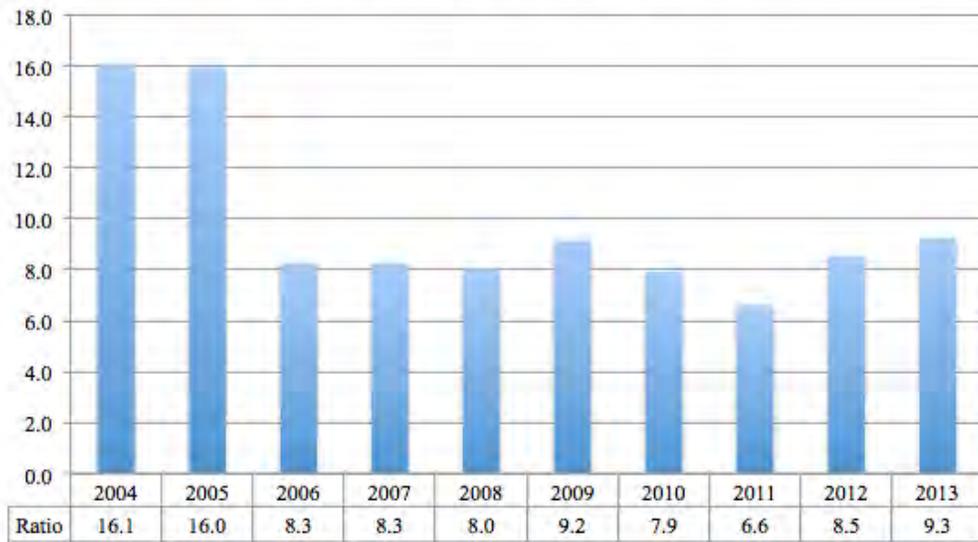


Source: HPS

NOTE: The graph shows fraction full-time equivalent (FTE) student counts. This is due to School Choice students enrolling and/or withdrawing during the academic year.

The Ratio of Choice-In to Choice-Out has been stable since 2006, ranging between 6.6 and 9.3.

Ratio of Choice-In to Choice-Out



Forecast for Enrollment

Each year during the month of October, HPS conducts a detailed K-12 enrollment projection study.

The primary school enrollment forecasting method employed in Harvard is the Cohort Survival Ratio (CSR) Method. The CSR Method is based on “survival rates” for each grade level, which are historically derived ratios applied between successive grades from one year to the next to predict future enrollment.

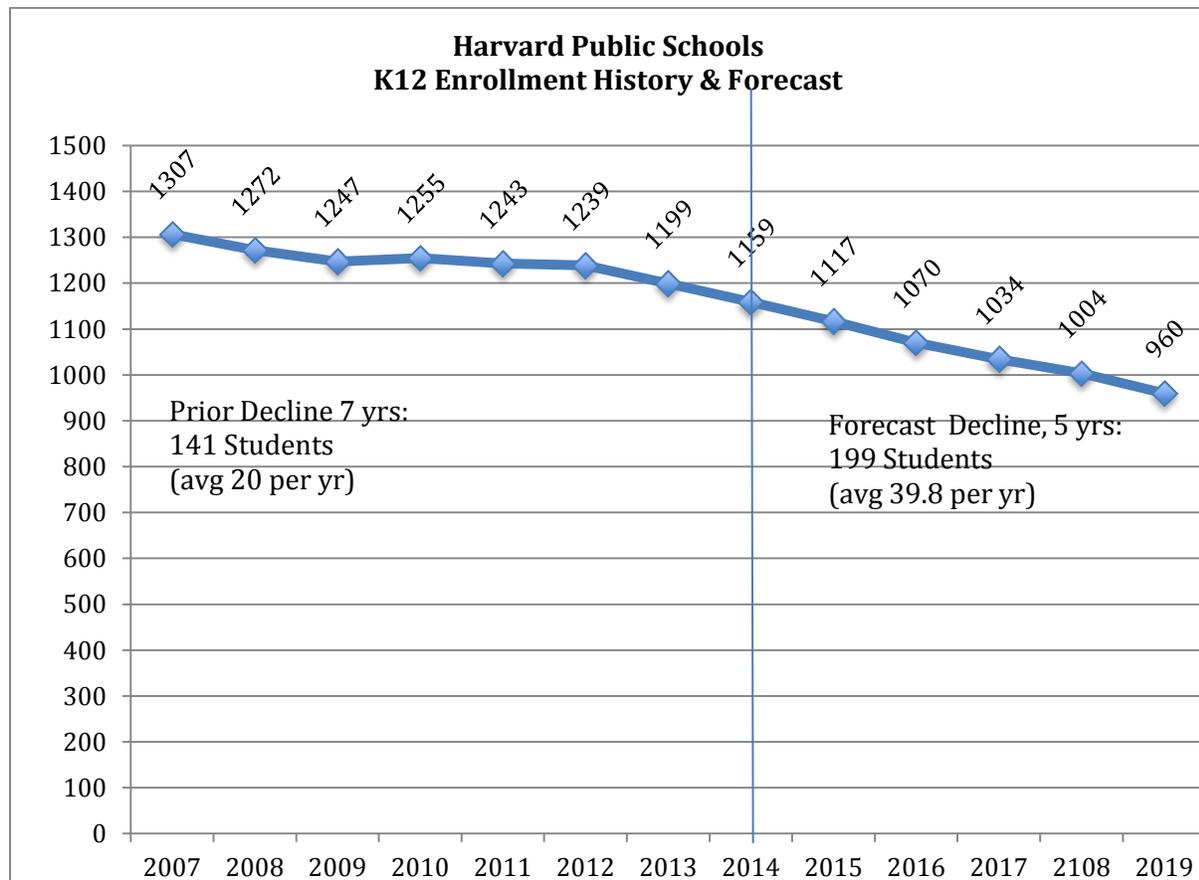
Cohort survival ratios are based on what has been observed as the most predictable enrollment data derived from past years. The basic assumption of the Cohort Survival Rate method for predicting school enrollments is that succession rates from one grade to the next that have been seen over a period of years is a fairly reliable predictor of what will occur in the future. That is, given a number of births in any given year, the net effect of all other influences on enrollment will remain proportionately the same.

Significant changes in residential development and/or turnover of existing homes could certainly impact enrollment projections generated by the CSR method. However, in Harvard residential development and turnover of homes is projected to be generally consistent with what has happened in recent years. This further supports the reliability of our enrollment projections using the CSR method.

Our confidence in the CSR Model forecast is good looking out for the next five (5) years, because we have birth data on which to base the forecast. Beyond that time, the model drives an

extrapolation of the near term trend, meaning it would not reflect and positive changes in either real estate activity or the local birth rate. For this reason, the Committee is limiting the forecast view to a 5 year forward time period.

Recent CSR Model enrollment projection studies completed for Harvard have predicted a modest but steady enrollment decline will continue over the next 5 year period. The latest enrollment study completed in October 2013 projects a 199 student decline over the next five school years.



It is felt the largest contributing factors for this enrollment decline are (a) the reduction in Harvard’s annual birth rate, an observable condition that is consistent with regional, statewide and national trends, and (b) the impact of the Great Recession and subsequent poor economic environment which negatively impacted residential development and the turnover of existing residential units.

The enrollment decline is projected to impact the elementary grades first, where the effect will start to be felt in the 2014/15 (FY15) school year. We expect the middle school and high school grades will be impacted within the next four to six years.

It is important to emphasize that recent Harvard enrollment studies as well as NESDEC have consistently projected Harvard's enrollment decline will be gradual, but steady over the next five years.

How enrollment decline will impact our schools

Enrollment decline in any grade is not expected to reach a level that would support reducing grade level sections until at least school year 2014/15 (FY15). In that school year, enrollment decline could impact Hildreth Elementary School's primary grades by not producing total grade level enrollment numbers sufficient to support maintaining the current four sections per grade level. This could result in only three (3) sections per grade being supported in one or more grades from Kindergarten to Grade 3.

Enrollment decline is projected to reach the middle school grades in 2017/18 (FY18). In larger school districts with multiple elementary and middle schools, enrollment decline is usually addressed by consolidation of classrooms and/or redistricting of students to maintain appropriate student populations that generate equitable class size numbers in all schools throughout a district. In Harvard, with only one PreK-5 elementary school and one middle school/high school, this is not an available strategy.

Section Reduction Opportunity & Class Size Guidelines

Declining school enrollment presents our community with an opportunity to adjust class size guidelines. The Administration and Faculty have consistently advocated for maintaining small class sizes at the Kindergarten level (15-18 student per class), Grade One (18-20) and Grade Two (20-22) grade levels.

In considering adjustments to the policy, the main issue raised was that it would be highly desirable to make a modest reduction in class sizes at the middle school level, where more individual attention would better support students who are (a) navigating the emotional and social changes that accompany early adolescence, and (b) acquiring the necessary executive skills necessary to perform to higher academic expectations as they ramp to high school.

The following chart details the current and proposed class size guidelines, and identifies the timeframe when HPS may be considering reductions to the number of sections supported at each grade level.

Chart: Expected Section Reduction Timeframe by Grade Level with Proposed Class Size Policy

Grades	Class Size Policy		Enrollment					
			Current		Projected			
	Current	Proposed	2013-14	2014-15	2015-16	2016-17	2017-18	2018-2019
K	15-18	15-18	57	42	48	48	54	36
1	18-20	17-20	70	61	45	51	51	58
2	20-22	17-20	73	76	66	49	55	55
3	20-24	17-20	66	74	77	67	49	57
4	20-24	18-22	88	71	80	83	72	53
5	20-24	18-22	95	92	74	83	87	75
6	20-24	20-22	89	99	95	77	87	90
7	20-24	20-22	101	88	97	94	76	86
8	20-24	20-22	99	102	89	99	95	77
9	20-24	20-24	105	99	102	89	99	95
10	20-24	20-24	103	103	97	100	87	98
11	20-24	20-24	113	101	102	96	99	86
12	20-24	20-24	100	109	98	98	93	95
TOTAL			1,159	1,117	1,070	1,034	1,004	960
+/-				(42)	(47)	(36)	(30)	(44)
Teacher Reductions								
	Elementary		0	1	2	3	4	5
	Middle School		0	0	0	1	1	1
	High School		0	0	0	0	0	1
	TOTAL		0	1	2	4	5	7

**Proposed Class Size Guidelines
Effective School Year 2014/2015**

Kindergarten 15-18
Grades 1 to 3 17-20
Grades 4 to 5 18-22
Grades 6 to 8 20-22
Grades 9 to 12 20-24

Alternative Strategies for Managing Declining Enrollment

Two Philosophical Approaches

At the highest level, there are two fundamental approaches we can take to dealing with declining enrollment in the Harvard Public Schools.

(a) Scale down costs in proportion to the decline in enrollment

Under this approach, expenses reduction would be the priority. The only significant cost reduction option directly associated with declining enrollment is personnel salary expenses. All fixed costs would remain.

This option offers the lowest cost, but would almost certainly negatively impact the curriculum and educational experience that HPS delivers. Maximizing reductions to faculty staff may drive short-term savings, but have the potential to seriously impact the quality of education delivered. The loss and subsequent need for replacement of highly skilled instructional staff will certainly be very difficult.

(b) Redirect resources from any savings to support and enhance the current curriculum and educational opportunities for the students

Under this approach, budget savings at HES would be redeployed to enhance instructional support options at HES and TBS, so that TBS teachers can maximize their practice within their designated area and level of expertise, and to expand curriculum offerings. It provides the resources necessary to maintain sufficient scale of operations to support a faculty with relevant subject-matter expertise in all key subject areas.

Under either option, if enrollment declines at HES to the point where extending school choice is no longer a financially and educationally reasonable strategy, K-5 would move to a 3-section structure.

Options for structural adjustments

At the school level, alternative strategies available for us to consider to best manage projected declining enrollments in Harvard include the following:

Elementary Level – Hildreth Elementary School

- 1 Modify class size guidelines to support lower class sizes that allow for greater individualized instructional practices.

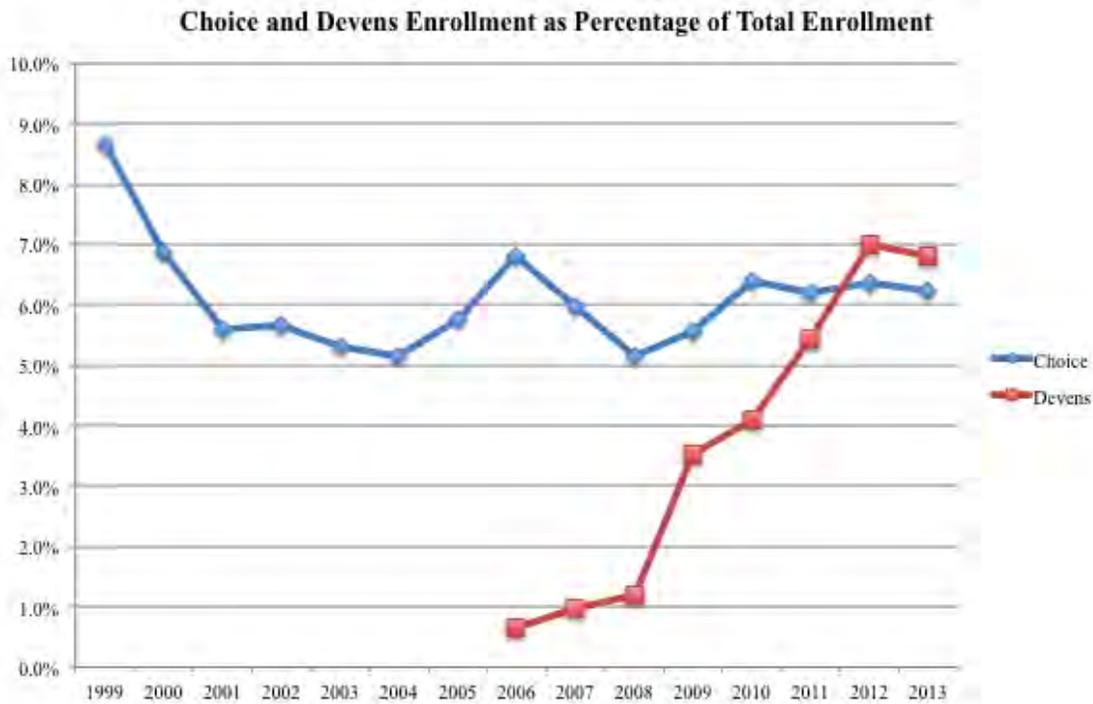
- 2 Maintain existing classroom guidelines and reallocate eliminated classroom teacher salary expenditures to fund other system wide instructional needs or instructional improvement initiatives, including at HES.
- 3 Reduce staff, while maintaining class size guidelines in order to reduce personnel costs.

Secondary Level – The Bromfield School

- 1 As enrollments decline, maintain departmental staff levels so that additional electives and course offerings can be made available to the students.
- 2 Reduce staff where enrollment decline allows in order to reduce personnel costs.
- 3 Modify class size guidelines to support lower class sizes that allow for greater individualized instructional practices.

Non-Resident Enrollment Management Practices

In recent years the school choice—in non-resident K-12 student population combined with the Deven’s K-12 student population has grown to approximately 140 students or 12 percent of the total Harvard K-12 enrollment.



The existing level of HPS staffing at both Hildreth and Bromfield Schools has been sufficient to meet all grade level needs without requiring additional staffing levels.

It is anticipated the Devens enrollment will continue to climb as a result of expected residential construction in the Devens community. This will require school choice-in enrollments to be

closely monitored so that total K-12 school choice-in enrollments can be reduced as the Devens enrollment increases.

It is anticipated a reduction in revenue derived from less School Choice-In students will be more than off-set by greater revenue from an expanding Devens K-12 student enrollments.

It is also recommended per grade Choice-In positions at all grade levels be limited to no more than 10 school choice students, to avoid the need to staff an additional teacher section driven strictly by on school choice.

It is further recommended that School Choice-In be limited to 7% of the student population. While it is expected that increased enrollment from Devens will allow Choice-In enrollment to be scaled back the Sub-Committee felt it would be useful to establish a specific cap on Choice-In to make clear to the community that while Choice-In is an important tool in managing enrollment, it is being closely managed and will not be significantly expanded beyond its historical 5-7% level of use since 2004.

The Declining Enrollment Sub-Committee recognizes that there may be extenuating circumstances that may justify deviating from the school choice grade level enrollment cap of 10 students per grade level. One such example would be an enrollment decline at a particular grade level that is projected to be an isolated one year phenomenon, creating a grade level section “valley” between adjacent grades. In this case, bringing in a higher number of school choice students may help support the current grade level structure and avoid the disruptive impact of transferring grade level teaching personnel each year as this smaller cohort of students progresses through the grades.

Summary of Proposed Non-Resident Enrollment Guidelines

- Harvard’s non-resident K-12 student population produced by school choice-in and Deven’s students combined should be managed so that increased Devens enrollments can allow School Committee to consider decreasing School Choice enrollment numbers.
- Choice-In will be managed so as not to exceed 7% of student enrollment.
- To the maximum extent possible, Harvard’s school choice-in grade level enrollments should not exceed 10 students per grade level to avoid the need to staff a grade level teaching section driven solely by School choice-in students at that grade level.
- The 10 student enrollment cap for school choice students at each grade level can be overridden by the School Committee whenever it is determined an extenuating circumstance exists, such as a discontinuous one year enrollment dip (between adjacent grade levels) which does not produce enough students to justify maintaining a current grade level structure.

Voluntary Outward Migration of Harvard Students

In addition to analyzing quantitative data such as real estate sales and birth rates, the Declining Enrollment Subcommittee considered feedback from parents and students currently educated both within and outside of the District. The purpose of this work was to gain an understanding of parent and student perspective in regard to Bromfield's ability to provide a comprehensive education within the scope of a small school, with the challenges of a small district that is trending smaller.

Although the percentage of Harvard's voluntary outward migration of students is considerably lower than many surrounding towns, the Subcommittee felt it important to gain an understanding of drivers of voluntary migration as a part of the overall declining enrollment trend.

Of the thirty-three (33) students with families who have elected to enroll their children at charter schools or have "choiced-out" to other area public schools (an outplacement rate of approximately 3%), eleven (11) were contacted directly by phone. When asked to share their top three reasons for selecting an alternative school to Bromfield,

- 100% of those surveyed cited "increased course selection" as a driver
- 91% cited "gaining a broader perspective"
- 64% cited "delivery of instruction"

Additionally, in analyzing the results of the 2012 Climate Survey distributed by School Council to all parents and students within the district, the Committee learned the following information

- 54.5% of students are satisfied with the variety of elective options available. 45.5% are not.
- 62% of parents are satisfied or somewhat satisfied with the variety of elective options available to their children. 24% are dissatisfied or somewhat dissatisfied.
- Both parents and students suggested additional electives in the arts, languages, history, computer sciences, study skills, business and "hands-on" courses such as woodworking and home economics as examples of preferred electives.

Teachers and administrators from the Bromfield also contributed to the dialogue. Much of what they said supported the survey results. Administrators and faculty recognized the current trend in declining enrollment as an opportunity to offer additional electives to students, as a way to expand upon the limited (but adequate) courses currently available in our small district. In addition, department heads saw declining enrollment as a way to eliminate the need to stretch some teachers beyond their usual load of 5 to 6 classes per day, and a way to reduce the sizes of AP and honors math classes which typically run in the high 20's for student enrollment. In particular, more manageable class size for science labs was cited as beneficial. And, regardless of the subject area, declining enrollment offers an opportunity to remedy scheduling conflicts that interfere with students enrolling in their preferred electives currently offered. Reducing the

variety of courses from an already limited selection does not appear to be a viable option. The question arises: In a time of declining enrollment, how will the School Committee ensure the children of Harvard continue to receive a comprehensive education to the high standard the community desires?

Other Recommendations

Several staffing and academic program needs currently exist within the Harvard Public Schools. It is therefore the recommendation of the Declining Enrollment Subcommittee that grade level enrollment decline not only be considered to accomplish cost savings to the school district, but that consideration also be given to utilize savings to address identified personnel and program support needs.

Hildreth Elementary School

- 1 Provide funds to hire a full-time or part-time Library Media Specialist.
- 2 Provide additional support services (Math Tutors, Reading Tutors), as needed.
- 3 Due to the fact enrollment decline is projected to impact HES several years before the upper grades at TBS, personnel and program cost savings due to enrollment decline at HES could also be utilized to provide funding for personnel and program needs at TBS.
- 4 Reduced class size guidelines

The Bromfield School

Mathematics Department

- 1 Eliminate 2 to 3 additional classes existing math staff traditionally cover. Asking a subset of teachers to carry six (6) classes per day is not an effective use of their instructional time.
- 2 Utilize declining enrollment to lower class size in AP and Honors math classes which are in high demand and typically run in the high 20's.
- 3 Add on additional math department elective, such as, College Prep Course in Probability & Statistics.

World Language Department

- 1 Utilize declining enrollment to address class size issues - reduce enrollments in sections with high enrollment by offering additional classes.
- 2 Avoid single course conflicts by offering a 2nd section of classes in high demand.

Social Studies Department

- 1 Additional electives could be added, such as Government/Civics, Comparative Religion, Political Science, Philosophy and Sociology.
- 2 Provide additional staffing to create more flexibility in course offerings

Science Department

- 1 Our science lab facilities are undersized relative to new state guidelines on square footage per student, and would therefore benefit from lower class size.

- 2 Additional electives could be added, such as environmental science, astrophysics, astronomy and biochemistry.

English Department

- 1 Add teaching personnel to decrease class size to allow for more frequent and higher quality feedback on student assignments, and more effective student-teacher conferencing on writing assignments.
- 2 Additional electives could be added, such as Shakespeare, public speaking, media literacy, and film critiquing.

Closing

This report has sought to explain the forces driving school enrollment, the resulting enrollment forecast, implications for staffing, section and class sizes, and management options available to the town that result from expected declining enrollment.

It is clearly understood that the utilization of any cost savings resulting from declining enrollment must be considered in light of the expressed will and priorities of the people of the town, and the budgetary guidance provided to the School Committee by the Finance Committee going forward.

Appendix

Harvard Public Schools
2013/2014 Enrollment
as of 10/01/13

Grade Level	Harvard Residents	Devens Residents	Choice Students	Total Students
Pre-K	9	4		
K	42	11	4	57
1	56	8	6	70
2	64	9		73
3	51	6	9	66
4	80	5	3	88
5	86	7	2	95
HES Totals	388	50	24	462
6	79	8	2	89
7	82	1	18	101
8	90	7	2	99
9	97	5	3	105
10	86	6	11	103
11	103	5	5	113
12	86	2	12	100
TBS Totals	623	34	53	710
HPS TOTAL	1,011	84	77	1172