2017-18 Enrollment Projections

TO: Ms. Mary Gormley, Superintendent of Schools, Milton, MA
FROM: Donald G. Kennedy, Ed.D., Demographic Specialist
DATE: November 15, 2017
RE: Revised Enrollment Projections (dated October 12, 2017)

We are pleased to send you the enclosed documents displaying the past, present and projected enrollments for the Milton School District. We have used the figures given to us by the District and we assume that the method of collecting the enrollment data has been consistent from year to year.

The primary factor driving the intensity of Milton's growth is the number of new families with children of school age who are moving into Milton in recent years - insuring that continued enrollment increases can be foreseen. NESDEC's enrollment projection totals from fall of 2016 data came within 12 students of the actual Grade K-12 enrollment total for fall, 2016 (4,088 projected v. 4,076 actual). In Grades K-5, 2,190 pupils were projected v. 2,152 enrolled. In Grades 6-8, 908 students were forecast v. 911 enrolled; and at the high school, 990 pupils were forecast v. 1,013 actual.

The two factors now at work which will have the greatest effect upon future enrollments are: a. a steady number of births to Milton residents and, b. a buildup to new in-migration - which had slowed, due to the 2008 Recession. The students currently in Grades 2-10 were born during a period when Milton was averaging 287 births per year. More recently (and expected over the next 6-7 years) are 262-293 births annually… averaging about 2 births more per year. Hard-hit Connecticut experienced an 8.6% decline in births from 2007 to 2009 (in part caused by the economic Recession), the largest decline among the six New England states – followed by an 8.1% decline in Rhode Island births, the two states with the highest rates of unemployment in the New England region – **Massachusetts births declined by only -3.9%** over these three years. Economists are forecasting a slow-yet-steady recovery from the current rates of unemployment which, in turn, may lead to additional in-migration and births. The unemployment rate as of September, 2017 in CT was 4.6%; RI 4.2%; US non-farm unemployment 4.2%; **MA 3.9%;** New England average 3.9%; ME 3.7%;

VT 2.9%; and NH 2.7% - other nearby states: NY 4.9%; PA 4.8%; and NJ 4.7%. The rate of unemployment influences the likelihood of improving real estate sales, residential construction and thus affects the number of new families moving into the community – the US unemployment rate was above 10% during the Great Recession of 2008.

The ever-changing relationship between Milton births and Kindergarten enrollments is displayed on the B-K graph. Milton, over the past seven years, has registered about 123 Kindergarteners for every 100 births (five years previous), a relationship which has been increasing. This fall there were 122 Kindergarteners for every 100 births as opposed to only 100 Kindergarteners for every 100 births in 2010-11. NESDEC's Kindergarten projections for 2017-18 anticipated 385 children v. 356 enrolled. Next year's Grade 1 is expected to be about 2% larger than the previous year's Kindergarten class.

"Hidden Trends" within the district: Like many nearby communities, Milton continues to experience fluctuations in enrollment and in/out-migration in Grades 1-8. There are additional trends and counter-trends to consider. More so than other grade levels, **Grades 1-8 in most districts tend to be quite stable in their numbers.** Grades 9-12 are excluded from the calculation as there tends to be additional fluctuation for reasons (especially Career and Technical High Schools) having little to do with students moving in/out of the community. Regarding the Grade 1-8 stability, if last year the Grade 1-7 total was 2,300 children, then (if no one moved in or out) this fall's Grades 2-8 again would equal about 2,300 – the same cohort of children. Because Grades 1-8 tend to be the most stable in total K-12 enrollment, these Grades 1-8 are excellent places to discover "hidden trends" that otherwise might go unnoticed and provide a useful yardstick by which to measure a district's tendency toward in-/out-migration. In the case of Milton, we know that the school district is currently experiencing "net out-migration" of families with school age children. For example, the 2,364 children in Grades 1-7 in 2015-16 **decreased by 34 children** to 2,330 students in Grades 2-8 in 2016-17, and the 2,368 children in Grades 1-7 in 2017-18 **decreased by 34 children** to 2,334 students in Grades 2-8 in 2017-18. This net decrease has averaged about -30 students per year over the last five years (with decreases in five-out-of-five school years). The presence of a mixed in-migration trend is evidence of the complexity of enrollments in these unsettled economic times. Analysis of these hidden trends provides an additional benchmark by which to assess enrollment trends.

Over the next three years of these projections, K-5 enrollments are forecast to increase by +151 children; Grades 6-8 to increase by +61 pupils and the high school level to increase by +7 students (all within the next three years – as classes move up the grades. After that point these projections show an increase in enrollment in Grades K-5 of +89 students, combined with an increase of +128 students at Grades 6-8; and an increase of +112 students in Grades 9-12 – as classes age their way through the grades. That said, it is possible that real estate turnover will have increased further, bringing in additional new families - see the "Projections" page. Although the Year #1-3 forecast likely will occur, the longer-term future is better viewed as a possible direction which may be affected by consistently improving real estate conditions. That longer-term future also will be affected

by the real estate market and the number of babies-yet-to-be-born…it is quite likely that the birth numbers will increase as the new families move in.

Will these patterns of increasing enrollments really last for as long as ten years? That is difficult to answer. All projections are more reliable for Years #1-5 in the future; and less reliable in Years #6-10 – as some many factors can change. As soon as the economy and real estate situation becomes more stable in the region, additional in-migration may occur in Milton. Many communities in the region sold during 2008-2014 only about 60-80% as many homes as in 2003-2007. In the case of Milton, an average of 302 single-family homes were being sold "on the bubble" in 2003-07; this pace declined to only 233 homes sold in 2010 (77% of the earlier pace). However, 305 homes were sold in 2015 and 307 homes in 2016 – a pace matched in 2017 through September. "On the bubble" prior to the 2008 Recession, median sales prices were as high as $469,000 (in 2004), dipping to $444,500 in 2011; in 2017 the median has risen to $615,000. Condo sales volume, of about 20-30 units, performed similarly. Building permits also had slowed as well; see the "Additional Data" table below. As additional families move in, forecasted declines may moderate. See the description on Page 4 below regarding "reliability of projections". The birth numbers used in the projections, through 2015, are from the MA Department of Public Health. The "estimated" years, beginning with 2016 are a rolling five-year average, which NESDEC has found to be the most accurate method of estimation. Local City/Town Clerks have up-to-date information on local births however do not have access to the number of Milton residents born out-of-state (information which will eventually become known to the MA DPH).

The two most difficult grades to forecast in all districts are Kindergarten and Grade 9. The latter is difficult to anticipate, as there are so many options for Grade 9 (in vocational or agricultural schools, private or parochial non-public schools, etc.). Kindergarten can be difficult to project based upon births alone, as many districts have large numbers of "net move-ins/move-outs" who are ages 1-4. **Some districts take extra steps to track 3 and 4-year olds with a local census, or report to NESDEC the known number of 4-year olds in local preschools/nursery schools which typically enroll Kindergarteners in the district. Knowing this information helps NESDEC to project Kindergarteners more reliably…as does data from the Kindergarten Screening in districts which also track 3 and 4-year old siblings (or neighbors) at that time. The more data, in addition to births, which is sent to NESDEC regarding the incoming Kindergarten class, the greater is the chance that "enrollment surprises" will be minimized.**

Will many new families be moving into our school district? Everyday across America, 10,000 "Baby Boomers" celebrate their 65th birthday - a phenomenon which will continue for a decade. New England has a disproportionately large share of these senior citizens, many of whom had planned to "downsize" their living arrangements, yet postponed putting homes on the market due to the Great Recession. School enrollments are influenced strongly by the number of real estate sales, as these contribute new families moving into many districts. In over 80% of districts, the number of real estate sales is 4-5 times larger than the number of building permits for new residential construction – **thus the number of real estate sales often is a more important factor than building permits.**

In New England, how rapidly will additional homes be placed on the market? A mid-2014 study using data from the Federal Housing Finance Agency, Bureau of Economic Analysis and the U.S. Census Bureau directly links home prices to the "real Gross Domestic Product" (GDP) in each of the nine regions in the country. However New England ranks only 7th among the 9 regions in the recovery of its regional economy (as measured in "the bubble" prior to the Recession, in "real GDP"). Comparing the regional economies from 2 Quarter of 2007 to 4 Quarter 2013: W. South Central = +18.6% (that is, many jobs are available); W. North Central +11.8%; Pacific +7.4%; E. South Central + 5.6%; Middle Atlantic + 5.1%; Mountain + 4.1%; **New England +3.4%;** South Atlantic + 2.1%; and E. North Central + 2.0%. Home sales prices are +14.6% in the W. South Central region (including Texas, Arkansas, Louisiana, and Oklahoma) with the strongest "real G.D.P." v. -4.4% in New England. Thus, although real estate sales and rentals are very strong in some New England towns and cities, there are many senior citizens still refraining from placing their homes on the market – as house prices still may be rising. New England births, however, are likely to remain at low levels, due to the advanced age of the New England population.

Continuing Declines Expected in New England's PK-12 Enrollments

The US Department of Education, from 2013 to 2025, anticipates changes in PK-12 enrollment of **+7.8%** in the South; **+4.47%** in the West, **-2.7%** in the Midwest; and **-4.8%** in the Northeast.

State	Fall 2013	Fall 2025 Projected	PK-12 Decline	% Change, 2013-2025
CT	546,200	468,600	-77,600	-14.2%
ME	183,995	161,900	-22,095	-12.0%
MA	955,739	910,700	-45,039	-4.7%
NH	186,310	159,100	-52,410	-14.6%
RI	142,008	133,900	-8,108	-5.7%
VT	88,690	79,600	-9,090	-10.3%

Source: USDE, National Center for Education Statistics, *Projections of Education Statistics to 2025*, Table 3, pages 40-41.

Despite overall declines regionwide, NESDEC has found in over 300 sets of enrollment projections during 2016-17 that about 29% of the districts are expected to increase their enrollment by some amount over the next decade – with 71% of the districts forecast to decline below their 2016-17 PK-12 total enrollments.

Analyzing Your Enrollment

Historical Public Enrollments

1. After the "YEAR" column can be found the "BIRTHS" column. The number of births to residents for each of eleven years is displayed. Note any trends, e.g., have births been decreasing? increasing? leveling off? Kindergarten and Grade 1 enrollments normally are quite responsive to these fluctuations.

2. Look **down** the K and 1 columns, noting the direction of the trend. This affords a comparison of these classes over a ten-year period. Add the K and Grade 1 enrollments of the first school year recorded, and compare them with the sum of the current K and Grade 1 enrollments.

3. Take the first K class and follow it diagonally to trace its movement to Grade 1, 2, etc. up to its current 10th grade status. This comparison (which can be accomplished for other classes also) gives some measure of the effects of migration in your school district. If a sixth grade class today is larger than it was as a K class six years ago, then net in-migration probably has occurred; if it is smaller, then net out-migration probably has occurred.

4. Compare each K class with the previous year's graduating class. Note which is larger and by what amount one surpasses the other. Larger graduating classes generally reflect declining enrollments; larger K classes generally indicate increasing enrollments.

5. In the "Grade Combinations" section, note the trends of elementary, middle school and high school enrollments. A significant and consistent trend in these summaries usually results in the corresponding trend for projected enrollments. If enrollments are leveling off in the elementary grades after a period of decline, then the secondary enrollments might be expected to continue to decline for several years until the leveling off experience has had time to take hold at the secondary grades.

Enrollment Projections

1. Note the trends exhibited in the total K-12 (or 1-12) projection for the next five years as well as the projections for various grade

combinations. The trends on this page should generally exhibit a continuation of the trends mentioned above for historical enrollments, although the **rate** of change may be quite different.

2. Look at the births in the most recent years and note whether the trend is up, down, or level.

3. Make similar comparisons as appropriate on this page as were suggested for the "Historical Public Enrollments" page.

PROJECTION METHODOLOGY

Cohort component (survival) technique is a frequently used method of preparing enrollment forecasts. NESDEC uses this method, but modifies it in order to move away from forecasts which are wholly computer or formula driven. Such modification permits the incorporation of important, current town-specific information into the generation of the enrollment forecasts (such as the volume of real estate sales, building permits, in/out-migration, etc.). 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 100 students enrolled in Grade 1 in 2014-15, increased to 104 students in Grade 2 in 2015-16, the percentage of survival would have been 104% or a ratio of 1.04. Such ratios are calculated between each pair of grades or years in school over several recent years.

After study and analysis of the historical ratios, and based upon a reasonable set of assumptions regarding births, migration rates, retention rates, etc., ratios most indicative of future growth patterns are determined for each pair of grades. The ratios thus selected are applied to the present enrollment statistics for a pre-determined number of 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 account for increases or decreases in the size of a grade enrollment as it moves on to the next grade. Each ratio represents the cumulative effect of the following factors:

1. Real estate turnover and new residential construction;
2. Migration, in or out, of the schools;
3. Drop-outs, transfers, etc.;
4. Births to residents;
5. Retention in the same grade.

RELIABILITY OF ENROLLMENT PROJECTIONS

Projections can serve as useful guides to school administrators for educational planning. In this regard, the projections are generally most reliable when they are closest in time to the current year. Projections six to ten years out may serve as a guide to future enrollments, and are useful for facility planning purposes. However, they should be viewed as subject to change given the likelihood of changes in the underlying assumptions/trends.

Projections that are based upon **the children who already are in the district** (the current K-12 population only) will be the most reliable; the second level of reliability will be for those children already **born into the community but not yet old enough to be in school.** A less reliable category is the group for which an estimate must be made **to predict the number of births**, thereby adding an additional variable. See these three multi-colored groupings on the "Projected Enrollment" slide/page.

How often do the actual enrollments closely match the NESDEC projections? The research literature reports the closest that enrollment forecasters are likely to come to actual enrollments is about 1% variance per year-from-the-known-data. That is, a 1% variance from projection-to-actual "one-year-out" into the future (2% variance "two-years-out" … 10% variance "ten-years-out"). NESDEC reaches this "highest possible" standard in about 90% of cases. When our NESDEC variance is greater, the reasons often are one of the following: a. imbedded/intervening "hidden" variables (examples: a parochial school closed or other students returned from non-public schools, a charter school opened, the Kindergarten program changed entrance age or to extended/full-day, the high school toughened its course credit/graduation requirements, the District set new attendance boundaries for elementary schools, or the District had well-publicized budget/referendum academic accreditation difficulties); b. the District size was below 500 students, thus subject to fluctuations in total numbers; or c. the District has not done enrollment projections on an annual basis.

Annual updates allow for early identification of recent changes in historical trends. When the actual enrollment in a grade is significantly different (high or low) from the projected number, it is important (yet difficult) to determine whether this is a one-year aberration or whether a new trend may have begun. **In light of this possibility, NESDEC urges all school districts to have updated enrollment forecasts developed by NESDEC each October.** This service is available at no cost to affiliated school districts.

Using This Information Electronically

If you would like to extract the information contained in this report for your own documents or presentations, you can use Adobe Acrobat reader to convert the desired information to a "snapshot," which can be inserted into PowerPoint slides, Word documents, etc. Because the snapshot tool creates a graphic, the image is not editable.

Steps for Using The Snapshot Tool in Adobe Acrobat Reader:

1. Click on Edit Menu (earlier versions of Adobe Reader might require you to click on the Tools menu and then choose "Select and Zoom;");
2. Choose "Take a Snapshot" (or "Snapshot Tool" in earlier versions);
3. Click and drag around the text, chart, and/or graphics that you would like to capture: your selection will be copied to the clipboard automatically;
4. Click in the document where you would like the information to appear;*
5. Give Paste command.

If you have an earlier version of Adobe Acrobat and these instructions don't work for you, contact your tech support person, or NESDEC and we will try to assist you. Telephone (508)481-9444 or ep@nesdec.org. Ask for Carol or Christina.

*You may paste your snapshot onto a PowerPoint slide, onto an Excel sheet, or even into a graphics program to save as a separate graphic file (in .jpg or other format), so that it is available for inserting into future documents.

Milton, MA Historical Enrollment

School District: **Milton, MA** **10/12/2017**

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
2002	318	**2007-08**	139	249	300	324	292	290	279	296	293	278	246	288	259	249	0	3643	3782
2003	291	**2008-09**	141	300	288	305	330	326	276	284	281	290	262	260	294	255	0	3751	3892
2004	331	**2009-10**	112	337	330	290	312	336	300	303	279	279	278	258	275	271	0	3848	3960
2005	314	**2010-11**	103	314	359	325	295	315	341	289	284	277	242	275	252	262	0	3830	3933
2006	296	**2011-12**	99	302	337	351	333	295	311	323	258	276	238	241	276	252	0	3793	3892
2007	282	**2012-13**	101	323	331	337	349	329	295	321	310	266	236	237	234	268	0	3836	3937
2008	272	**2013-14**	91	314	339	323	337	339	333	311	294	305	244	244	234	228	1	3846	3937
2009	264	**2014-15**	84	350	341	352	326	327	344	337	289	290	262	247	236	226	6	3933	4017
2010	258	**2015-16**	125	335	363	349	346	335	343	328	300	273	248	262	255	230	6	3973	4098
2011	248	**2016-17**	139	365	337	371	351	353	338	329	289	299	240	240	263	239	5	4019	4158
2012	293	**2017-18**	136	356	373	348	363	357	355	322	303	286	272	238	240	263	1	4077	4213

Historical Enrollment in Grade Combinations

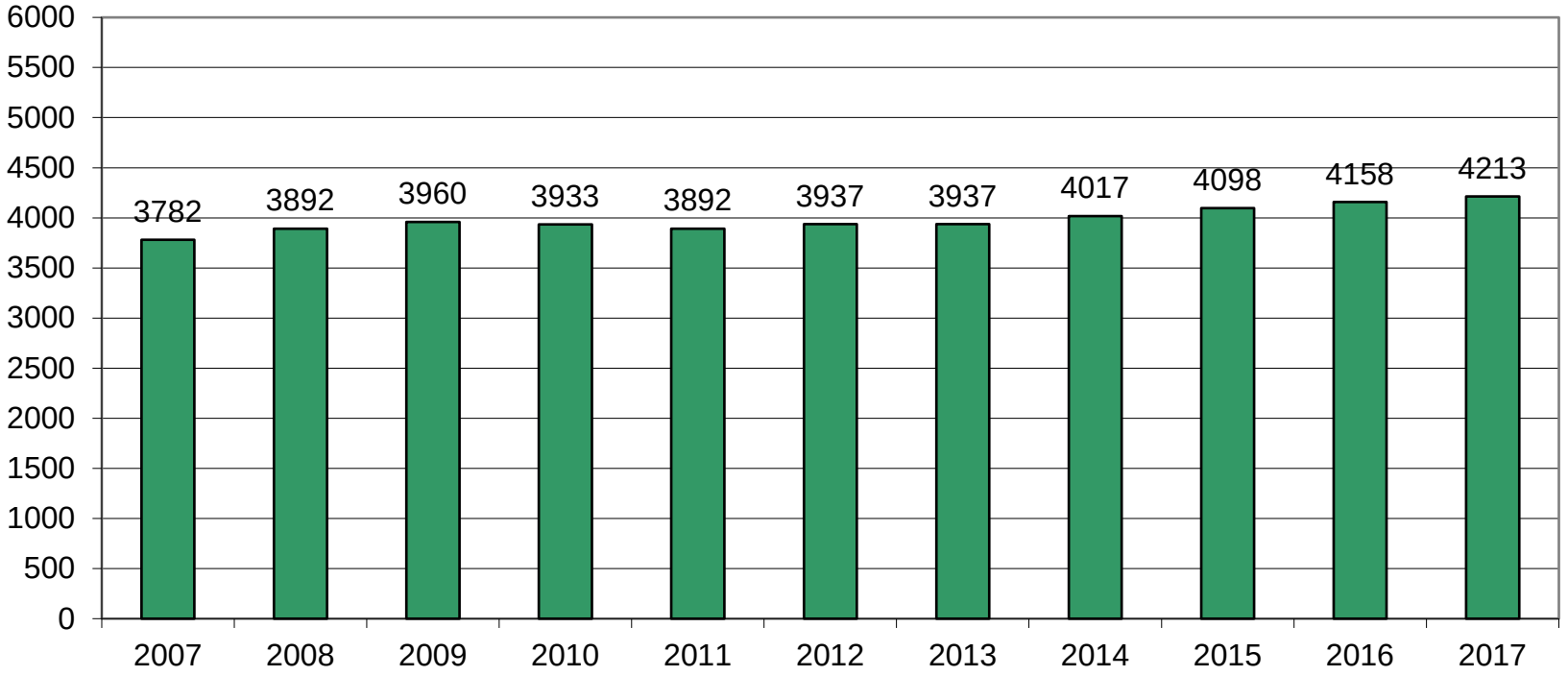
Year	PK-5	K-5	K-6	K-8	5-8	6-8	7-8	7-12	9-12
2007-08	1873	1734	2030	2601	1146	867	571	1613	1042
2008-09	1966	1825	2109	2680	1131	855	571	1642	1071
2009-10	2017	1905	2208	2766	1161	861	558	1640	1082
2010-11	2052	1949	2238	2799	1191	850	561	1592	1031
2011-12	2028	1929	2252	2786	1168	857	534	1541	1007
2012-13	2065	1964	2285	2861	1192	897	576	1551	975
2013-14	2076	1985	2296	2895	1243	910	599	1549	950
2014-15	2124	2040	2377	2956	1260	916	579	1550	971
2015-16	2196	2071	2399	2972	1244	901	573	1568	995
2016-17	2254	2115	2444	3032	1255	917	588	1570	982
2017-18	2288	2152	2474	3063	1266	911	589	1602	1013

Historical Percentage Changes

Year	K-12	Diff.	%
2007-08	3643	0	0.0%
2008-09	3751	108	3.0%
2009-10	3848	97	2.6%
2010-11	3830	-18	-0.5%
2011-12	3793	-37	-1.0%
2012-13	3836	43	1.1%
2013-14	3846	10	0.3%
2014-15	3933	87	2.3%
2015-16	3973	40	1.0%
2016-17	4019	46	1.2%
2017-18	4077	58	1.4%
Change		**434**	**11.9%**

Milton, MA Historical Enrollment

PK-12, 2007-2017



Milton, MA Projected Enrollment

School District: **Milton, MA** **10/12/2017**

Enrollment Projections 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
2012	293		**2017-18**	136	**356**	**373**	**348**	**363**	**357**	**355**	**322**	**303**	**286**	**272**	**238**	**240**	**263**	**1**	**4077**	**4213**
2013	289		**2018-19**	137	**384**	**364**	**383**	**344**	**371**	**365**	**339**	**289**	**296**	**252**	**268**	**240**	**233**	**1**	**4129**	**4266**
2014	324		**2019-20**	138	**430**	**392**	**373**	**379**	**351**	**379**	**349**	**304**	**282**	**261**	**249**	**271**	**233**	**1**	**4254**	**4392**
2015	262		**2020-21**	139	**348**	**439**	**402**	**369**	**387**	**358**	**362**	**313**	**297**	**249**	**257**	**251**	**263**	**1**	**4296**	**4435**
2016	283	(est.)	**2021-22**	140	**376**	**356**	**450**	**398**	**377**	**395**	**342**	**325**	**306**	**262**	**246**	**260**	**244**	**1**	**4338**	**4478**
2017	290	(est.)	**2022-23**	141	**386**	**384**	**365**	**445**	**407**	**385**	**377**	**307**	**318**	**270**	**258**	**248**	**252**	**1**	**4403**	**4544**
2018	290	(est.)	**2023-24**	142	**385**	**394**	**394**	**361**	**455**	**416**	**368**	**338**	**300**	**280**	**266**	**261**	**241**	**1**	**4460**	**4602**
2019	290	(est.)	**2024-25**	143	**385**	**393**	**404**	**390**	**369**	**465**	**397**	**330**	**330**	**264**	**276**	**269**	**253**	**1**	**4526**	**4669**
2020	283	(est.)	**2025-26**	144	**376**	**393**	**403**	**400**	**398**	**377**	**444**	**356**	**322**	**291**	**260**	**279**	**261**	**1**	**4561**	**4705**
2021	287	(est.)	**2026-27**	145	**382**	**384**	**403**	**399**	**409**	**406**	**360**	**398**	**348**	**284**	**287**	**263**	**271**	**1**	**4595**	**4740**
2022	288	(est.)	**2027-28**	146	**383**	**390**	**394**	**399**	**408**	**418**	**388**	**323**	**389**	**307**	**280**	**290**	**255**	**1**	**4625**	**4771**

*Projections should be updated annually to reflect changes in in/out-migration of families, real estate sales, residential construction, and births.

Based on an estimate of births Based on children already born Based on students already enrolled

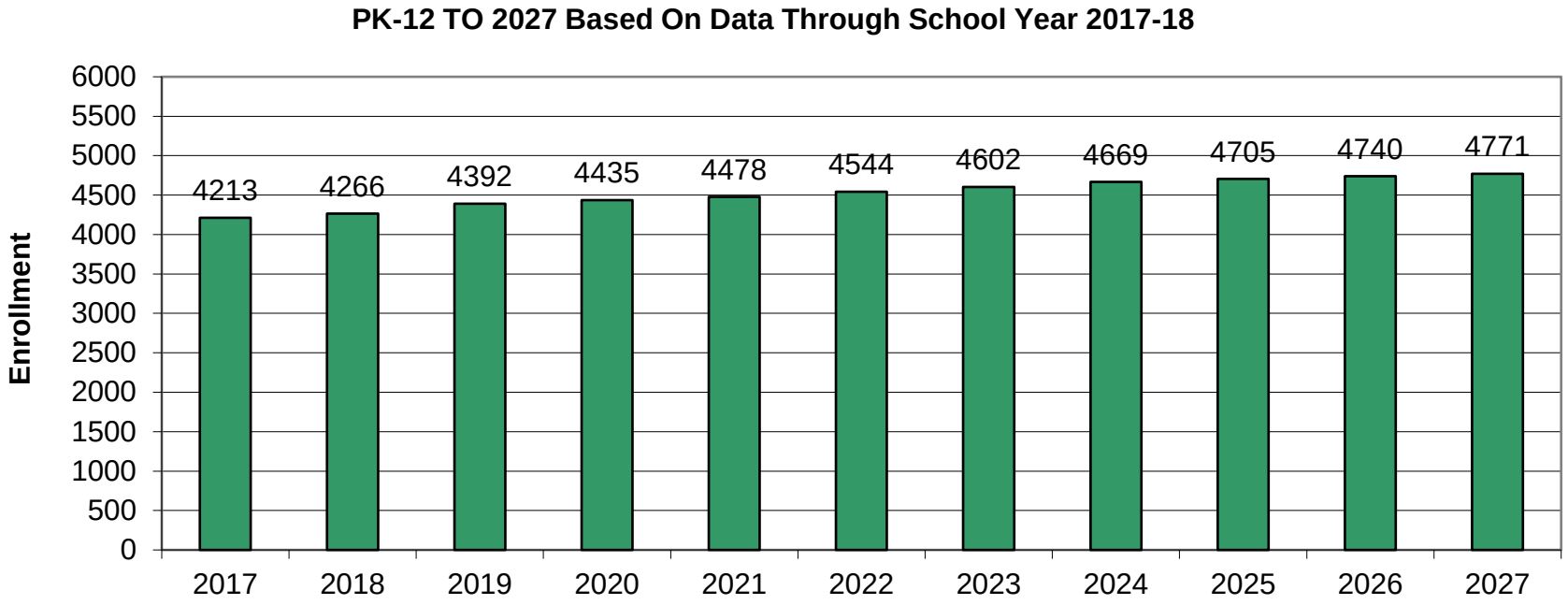
Projected Enrollment in Grade Combinations*

Year	PK-5	K-5	K-6	K-8	5-8	6-8	7-8	7-12	9-12
2017-18	2288	2152	2474	3063	1266	911	589	1602	1013
2018-19	2348	2211	2550	3135	1289	924	585	1578	993
2019-20	2442	2304	2653	3239	1314	935	586	1600	1014
2020-21	2442	2303	2665	3275	1330	972	610	1630	1020
2021-22	2492	2352	2694	3325	1368	973	631	1643	1012
2022-23	2513	2372	2749	3374	1387	1002	625	1653	1028
2023-24	2547	2405	2773	3411	1422	1006	638	1686	1048
2024-25	2549	2406	2803	3463	1522	1057	660	1722	1062
2025-26	2491	2347	2791	3469	1499	1122	678	1769	1091
2026-27	2528	2383	2743	3489	1512	1106	746	1851	1105
2027-28	2538	2392	2780	3492	1518	1100	712	1844	1132

Projected Percentage Changes

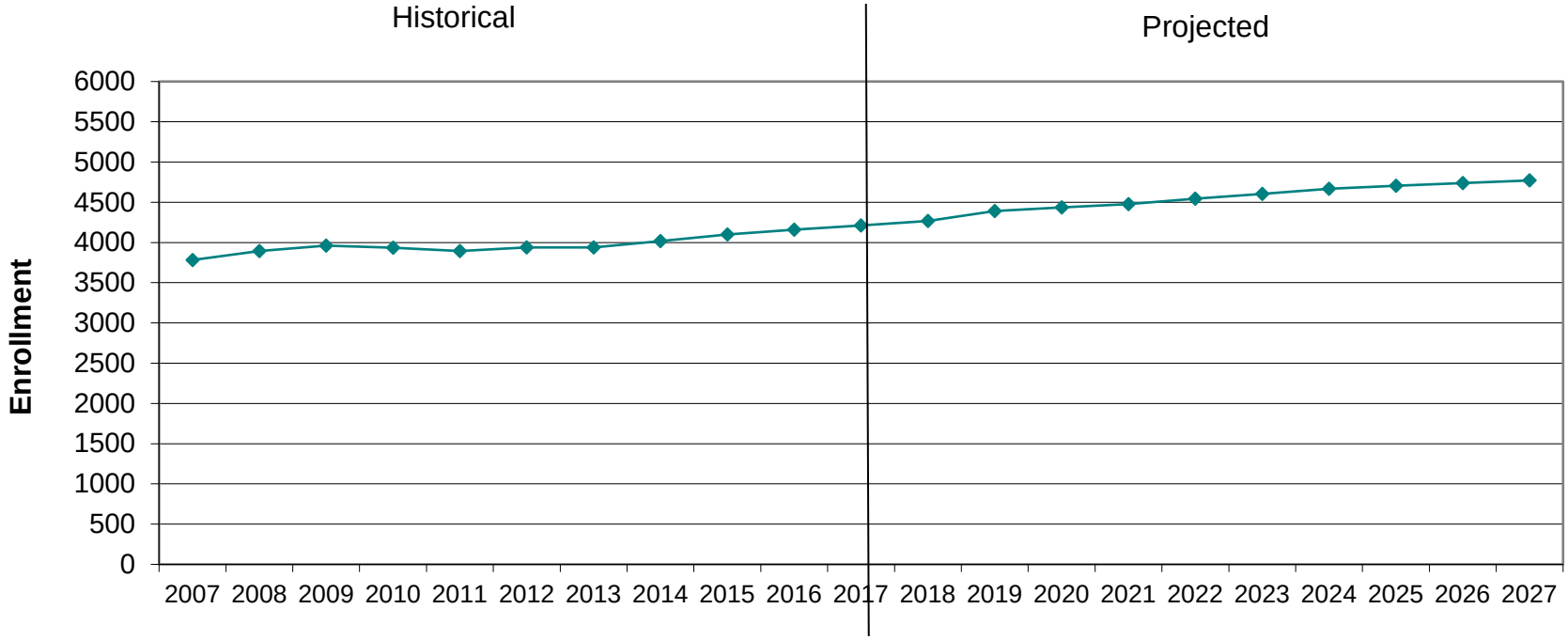
Year	K-12	Diff.	%
2017-18	4077	0	0.0%
2018-19	4129	52	1.3%
2019-20	4254	125	3.0%
2020-21	4296	42	1.0%
2021-22	4338	42	1.0%
2022-23	4403	65	1.5%
2023-24	4460	57	1.3%
2024-25	4526	66	1.5%
2025-26	4561	35	0.8%
2026-27	4595	34	0.7%
2027-28	4625	30	0.7%
Change		**548**	**13.4%**

Milton, MA Projected Enrollment

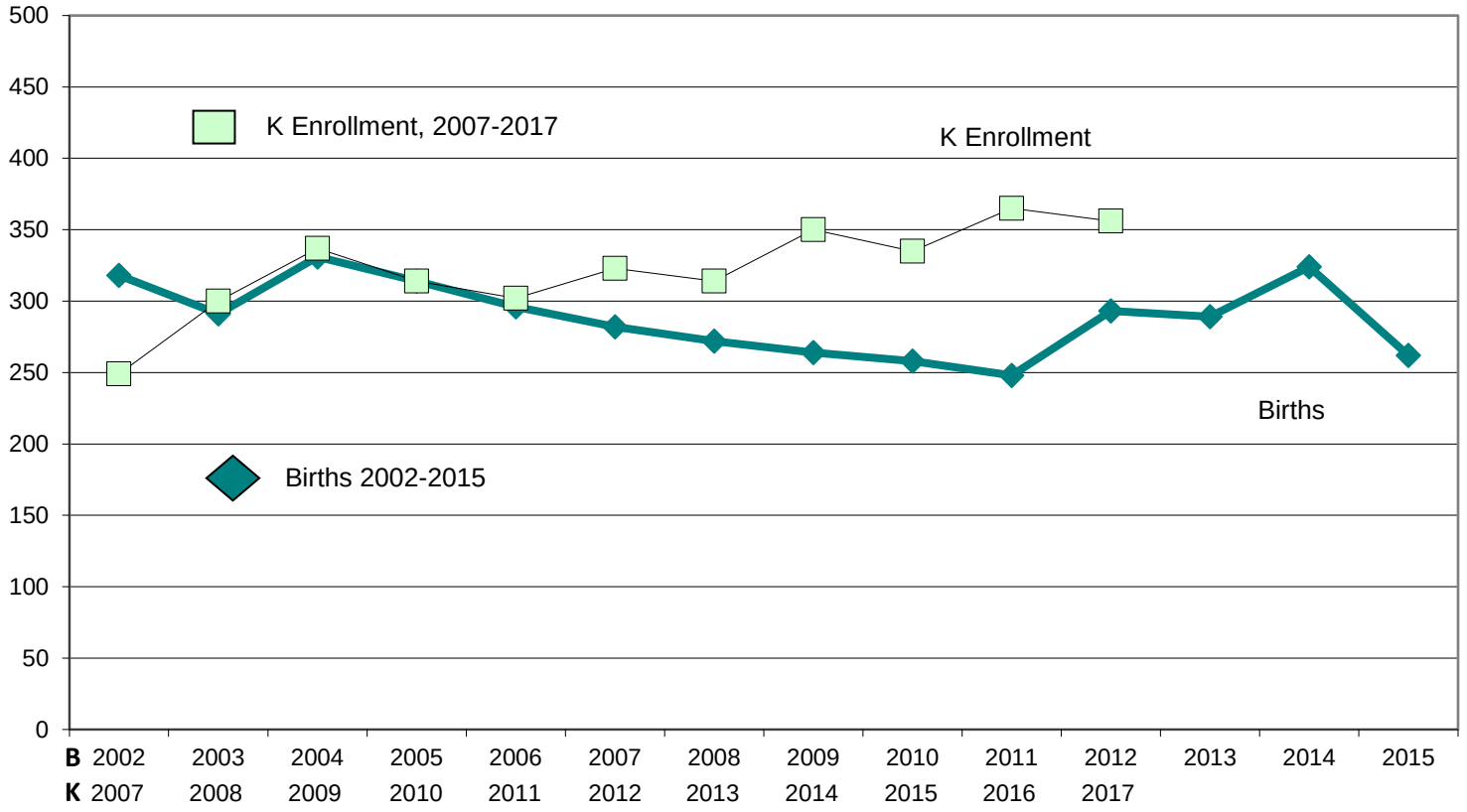


Milton, MA Historical & Projected Enrollment

PK-12, 2007-2027



Milton, MA Birth-to-Kindergarten Relationship



Milton, MA Additional Data

Building Permits Issued		
Year	Single-Family	Multi-Units
2005	24	0
2013	5	0
2014	7	0
2015	5	0
2016	24	0
2017	9 to Aug. 31	0

Source: HUD and Building Department

Enrollment History		
Year	Voc-Tech 9-12 Total	Non-Public K-12 Total
2005-06	40	1140
2013-14	46	1013
2014-15	50	1021
2015-16	51	1011
2016-17	49	1048
2017-18	56	n/a

Residents in Non-Public Independent and Parochial Schools (General Education)														
Enrollments Jan. 1, 2017	K	1	2	3	4	5	6	7	8	9	10	11	12	K-12 TOTAL
	81	29	26	49	35	46	59	116	112	137	130	127	101	1048

K-12 Home-Schooled Students	
2017	4

K-12 Residents "Choiced-out" or in Charter or Magnet Schools	
2017	6

K-12 Special Education Outplaced Students	
2017	51

K-12 Choiced-In, Tuitioned-In, & Other Non-Residents	
2017	0

The above data were used to assist in the preparation of the enrollment projections. If additional demographic work is needed, please contact our office.