



2016-17 Enrollment Projections

TO: Timothy J. Farmer, Superintendent of Schools, Sharon, MA
FROM: Donald G. Kennedy, Ed.D., Demographic Specialist
DATE: March 6, 2017
RE: Enrollment Projections (related to projections of January 11, 2017)

We are pleased to send you the enclosed documents displaying the past, present, and projected enrollments for the Sharon 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. It is worth noting that this time of transition is the most difficult of the past 25 years to reliably forecast future enrollments, due to the irregular/uneven pace of communities recovering from the effects of the economic cycle upon real estate markets and school enrollments.

NESDEC's enrollment projection totals from fall of 2014 data came within 121 students of the actual Grade K-12 enrollment total for fall, 2016 (3,541 projected v. 3,420 actual) – no data was sent to NESDEC in 2015-16, thus the forecast for 2016-17 was based upon data that was two years old. We have adjusted the ratios for future projections. In Grades K-5, 1,544 pupils were projected v. 1,511 enrolled; in Grades 6-8, 897 pupils were projected v. 851 registered; and in Grades 9-12, 1,100 pupils were forecast v. 1,058 enrolled.

The two factors now at work which will have the greatest effect upon future enrollments are: a. a fairly steady number of births to Sharon residents and, b. substantial in-migration of new families - which had slowed, due to the 2008 Recession. The students currently in Grades 1-10 were born during a period when Sharon was averaging 151 births per year. More recently (and expected over the next 6-7 years) are 130-148 births annually... averaging about 141 births per year, 10 fewer per year than previously. 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 December, 2016 in RI was 4.9%; US non-farm unemployment 4.7%; CT 4.4%; ME 3.8%; New England average 3.6%; VT 3.2%; **MA 3.1%** and NH 2.7% - other nearby states: PA 5.4%; NY 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 Sharon births and Kindergarten enrollments is displayed on the B-K graph. Sharon, over the past seven years, has registered about 150 Kindergarteners for every 100 births (five years previous), a relationship which has been slightly increasing. This fall there were 163 Kindergarteners for every 100 births as opposed to the 126 Kindergarteners for every 100 births in 2013-14. NESDEC Kindergarten projections (from two-year old data) for 2015-16 anticipated 201 children v. 212 enrolled. Next year's Grade 1 is expected to be about +22% larger than the previous year's Kindergarten class – partly a function of the high cost of Sharon real estate at this time.

“Hidden Trends” within the district: Like many nearby communities, Sharon 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 a -2% decrease for reasons having little to do with students moving out of the community. Regarding the Grade 1-8 stability, if last year the Grade 1-7 total was 1,800 children, then (if no one moved in or out) this fall's Grades 2-8 would equal about 1,800 – 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 Sharon, we know that the school district is currently experiencing “net in-migration” of families with school age children. For example, the 1,822 children in Grades 1-7 in 2014-15 increased by 30 children to 1,861 students in Grades 2-8 in 2015-16, and the 1,843 children in Grades 1-7 in 2015-16 increased by 72 children to 1,915 students in Grades 2-8 in 2016-17. These fluctuations have averaged about +76 students per year for the last five years.** The presence of an 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 preliminary projections, K-5 enrollments are forecast to increase by 250 children; Grades 6-8 to grow by 48 students; and the high school level to increase by about 41 pupils...all within the next three years – as the larger classes move up the grades. After that point these projections show an increase in enrollment in Grades K-5 of 183 students; Grades 6-8 an increase of 299 pupils; and a rise of 217 pupils 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 improved 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 Sharon. Many communities in the region sold during 2008-2014 only about 60-80% as many homes as in 2003-2007. **In the case of Sharon, an average of 217 single-family homes were being sold in 2003-07; this pace declined to only 164 homes sold in 2010 (76% of the earlier pace). However, 268 homes were sold in 2013 and 245 homes in 2016, as the community recovered its stronger pace in real estate sales. Similarly, an average of 23 condos was being sold annually prior to the Recession. That rate declined to only 16 units sold in 2011 (48% of the earlier pace); more recently sales have increased to 33 condo units in 2015, and 22 units in 2016.** Building permits had slowed as well; see the “Additional Data” table below. **As additional families move in, any 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 Sharon 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.

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.

Sharon, MA Historical Enrollment

School District: Sharon, MA

3/6/2017

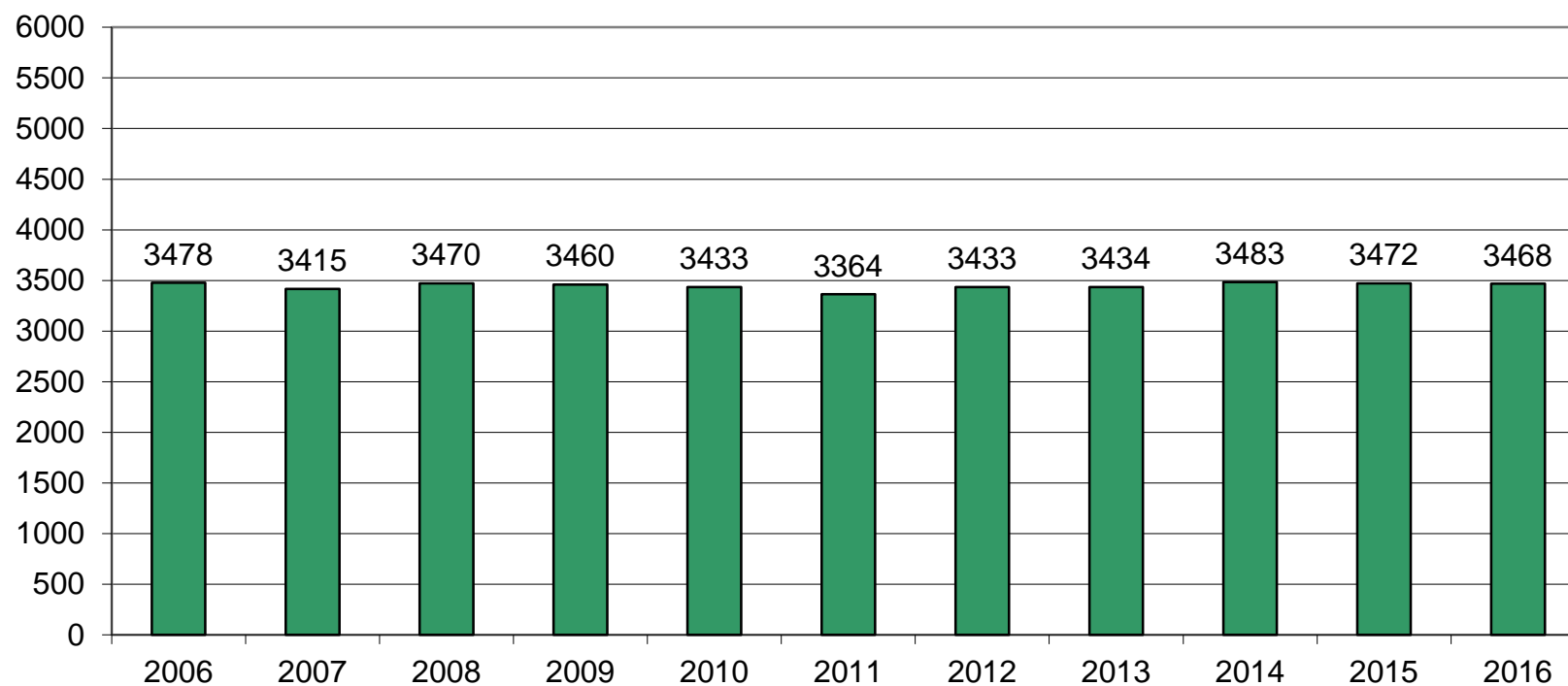
Historical Enrollment By Grade																			
Birth Year	Births	School Year	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	UNGR	K-12	PK-12
2001	164	2006-07	63	213	221	231	284	242	274	314	269	262	282	254	289	280	0	3415	3478
2002	181	2007-08	57	189	228	222	233	284	245	275	312	270	280	282	251	287	0	3358	3415
2003	162	2008-09	53	196	212	248	221	235	290	255	286	319	272	280	284	248	71	3417	3470
2004	190	2009-10	76	222	218	215	257	229	242	297	256	290	318	273	286	281	0	3384	3460
2005	144	2010-11	46	207	227	214	272	240	243	282	250	257	318	255	312	310	0	3387	3433
2006	140	2011-12	43	195	198	261	224	230	269	240	248	305	251	310	313	277	0	3321	3364
2007	155	2012-13	46	207	227	214	272	240	243	282	250	257	318	255	312	310	0	3387	3433
2008	149	2013-14	61	187	230	227	224	292	266	248	289	258	258	324	256	314	0	3373	3434
2009	102	2014-15	49	212	238	242	259	247	304	281	251	296	256	266	323	259	0	3434	3483
2010	125	2015-16	51	184	237	248	249	262	256	306	285	255	287	257	268	327	0	3421	3472
2011	130	2016-17	48	212	235	250	271	268	275	266	306	279	250	282	260	266	0	3420	3468

Historical Enrollment in Grade Combinations									
Year	PK-5	K-5	K-6	K-8	5-8	6-8	7-8	7-12	9-12
2006-07	1528	1465	1779	2310	1119	845	531	1636	1105
2007-08	1458	1401	1676	2258	1102	857	582	1682	1100
2008-09	1455	1402	1657	2262	1150	860	605	1689	1084
2009-10	1459	1383	1680	2226	1085	843	546	1704	1158
2010-11	1449	1403	1685	2192	1032	789	507	1702	1195
2011-12	1420	1377	1617	2170	1062	793	553	1704	1151
2012-13	1449	1403	1685	2192	1032	789	507	1702	1195
2013-14	1487	1426	1674	2221	1061	795	547	1699	1152
2014-15	1551	1502	1783	2330	1132	828	547	1651	1104
2015-16	1487	1436	1742	2282	1102	846	540	1679	1139
2016-17	1559	1511	1777	2362	1126	851	585	1643	1058

Historical Percentage Changes			
Year	K-12	Diff.	%
2006-07	3415	0	0.0%
2007-08	3358	-57	-1.7%
2008-09	3417	59	1.8%
2009-10	3384	-33	-1.0%
2010-11	3387	3	0.1%
2011-12	3321	-66	-1.9%
2012-13	3387	66	2.0%
2013-14	3373	-14	-0.4%
2014-15	3434	61	1.8%
2015-16	3421	-13	-0.4%
2016-17	3420	-1	0.0%
Change	5		0.1%

Sharon, MA Historical Enrollment

PK-12, 2006-2016



Sharon, MA Projected Enrollment

School District: Sharon, MA

3/6/2017

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
2011	130		2016-17	48	212	235	250	271	268	275	266	306	279	250	282	260	266	0	3420	3468
2012	148		2017-18	50	256	259	247	272	288	279	284	268	308	274	251	284	261	0	3531	3581
2013	143		2018-19	52	247	313	272	269	289	300	288	286	270	302	276	252	286	0	3650	3702
2014	143	0	2019-20	54	247	302	329	296	286	301	310	291	288	265	304	277	253	0	3749	3803
2015	140	(prov.)	2020-21	56	242	302	317	358	315	298	311	313	293	282	267	306	279	0	3883	3939
2016	141	(est.)	2021-22	58	243	296	317	345	381	328	308	314	315	287	284	268	308	0	3994	4052
2017	143	(est.)	2022-23	60	247	297	311	345	367	397	339	311	316	309	289	286	269	0	4083	4143
2018	142	(est.)	2023-24	62	245	302	312	338	367	383	411	342	313	310	311	291	288	0	4213	4275
2019	142	(est.)	2024-25	64	245	300	317	339	359	383	396	415	344	307	312	313	293	0	4323	4387
2020	141	(est.)	2025-26	66	244	300	315	345	361	374	396	399	418	337	309	314	315	0	4427	4493
2021	142	(est.)	2026-27	68	245	298	315	343	367	376	387	399	402	410	339	311	316	0	4508	4576

*Projections should be updated on an annual basis in order to reflect changes in births, real estate sales, in-/out-migration of families, and housing construction.

Based on an estimate of births

Based on children already born

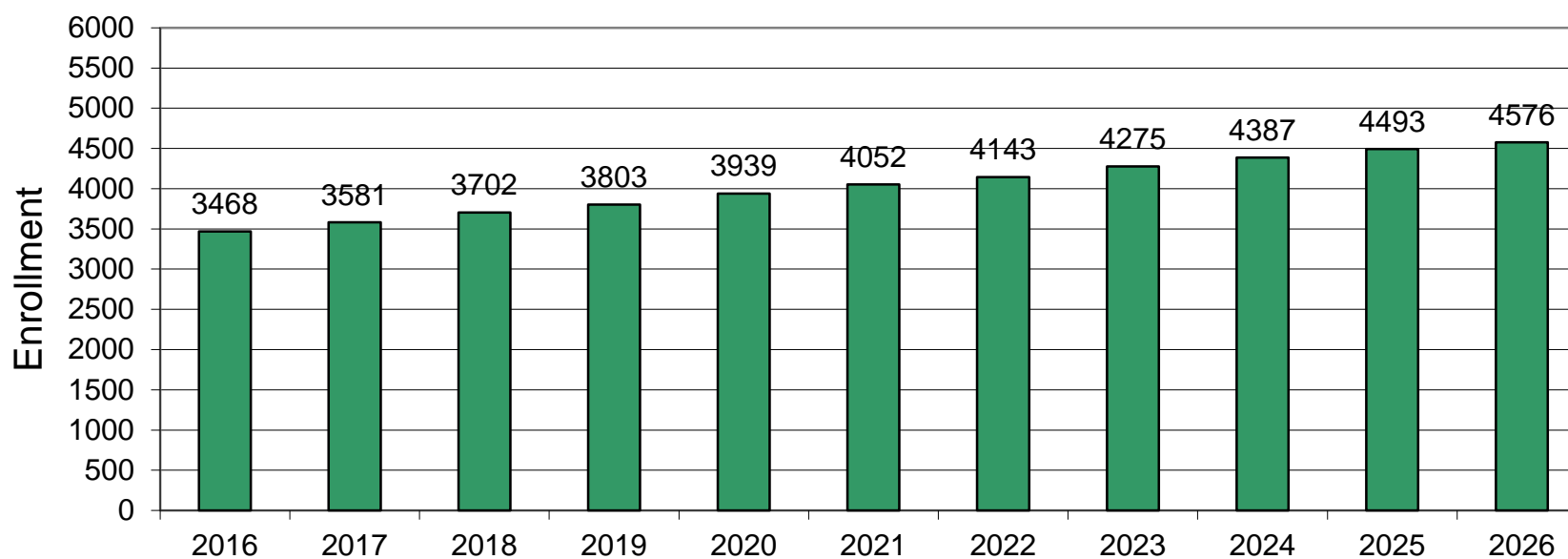
Based on students already enrolled

Projected Enrollment in Grade Combinations*									
Year	PK-5	K-5	K-6	K-8	5-8	6-8	7-8	7-12	9-12
2016-17	1559	1511	1777	2362	1126	851	585	1643	1058
2017-18	1651	1601	1885	2461	1139	860	576	1646	1070
2018-19	1742	1690	1978	2534	1144	844	556	1672	1116
2019-20	1815	1761	2071	2650	1190	889	579	1678	1099
2020-21	1888	1832	2143	2749	1215	917	606	1740	1134
2021-22	1968	1910	2218	2847	1265	937	629	1776	1147
2022-23	2024	1964	2303	2930	1363	966	627	1780	1153
2023-24	2009	1947	2358	3013	1449	1066	655	1855	1200
2024-25	2007	1943	2339	3098	1538	1155	759	1984	1225
2025-26	2005	1939	2335	3152	1587	1213	817	2092	1275
2026-27	2012	1944	2331	3132	1564	1188	801	2177	1376

Projected Percentage Changes			
Year	K-12	Diff.	%
2016-17	3420	0	0.0%
2017-18	3531	111	3.2%
2018-19	3650	119	3.4%
2019-20	3749	99	2.7%
2020-21	3883	134	3.6%
2021-22	3994	111	2.9%
2022-23	4083	89	2.2%
2023-24	4213	130	3.2%
2024-25	4323	110	2.6%
2025-26	4427	104	2.4%
2026-27	4508	81	1.8%
Change	1088		31.8%

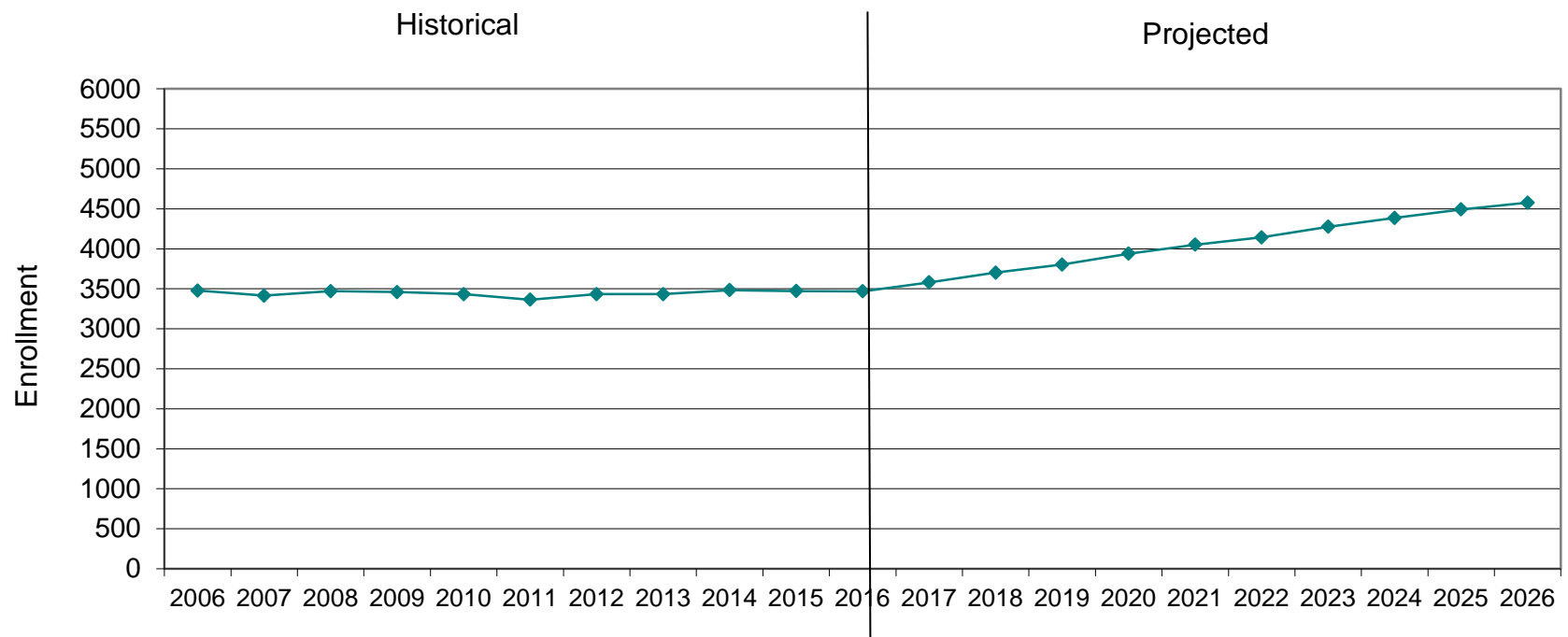
Sharon, MA Projected Enrollment

PK-12 TO 2026 Based On Data Through School Year 2016-17

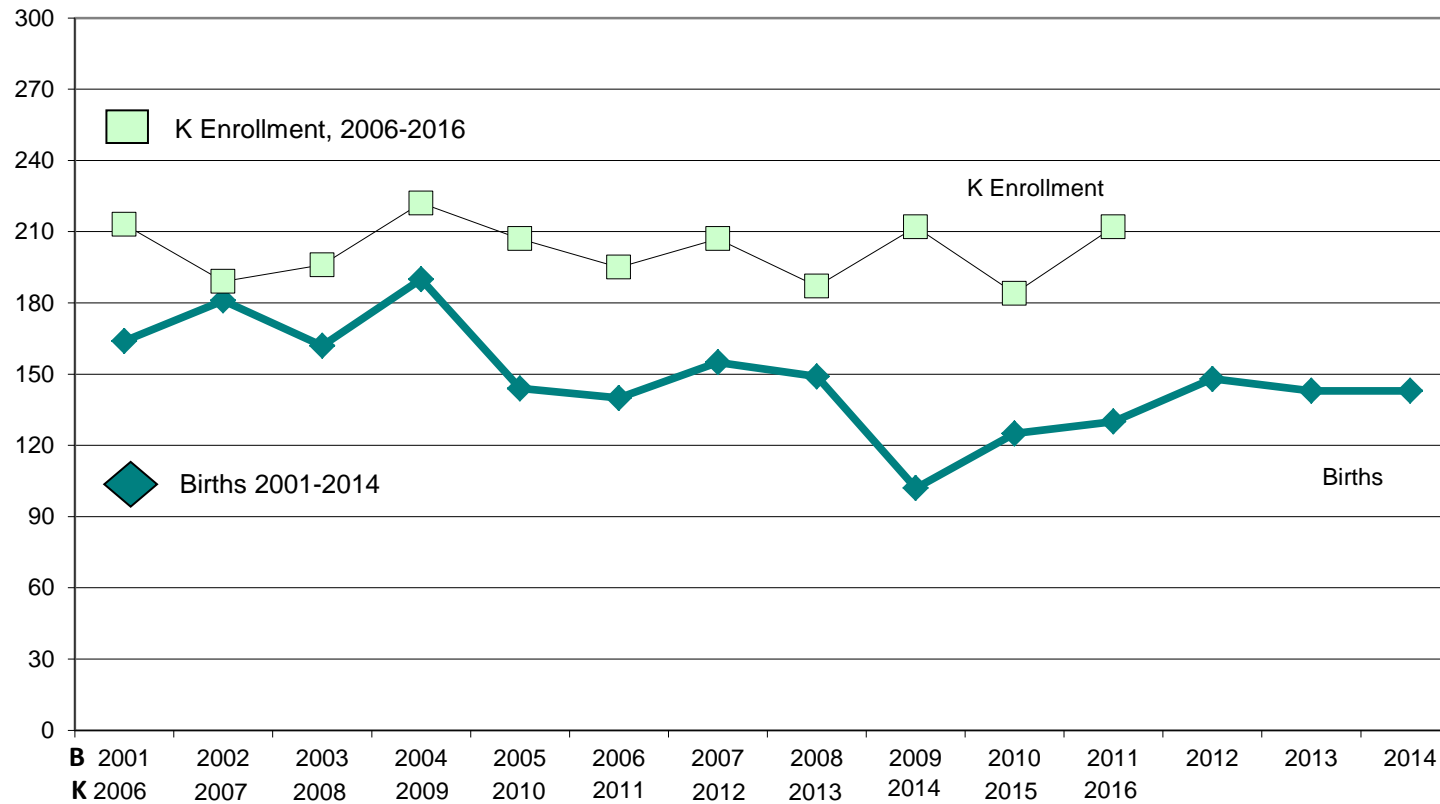


Sharon, MA Historical & Projected Enrollment

PK-12, 2006-2026



Sharon, MA Birth-to-Kindergarten Relationship



Sharon, MA Additional Data

Building Permits Issued		
Year	Single-Family	Multi-Units
2005	12	0
2012	32	0
2013	21	0
2014	16	0
2015	10	0
2016	16	0

Source: HUD and Building Department

Enrollment History		
Year	Voc-Tech 9-12 Total	Non-Public K-12 Total
2005-06	20	525
2012-13	n/a	n/a
2013-14	27	458
2014-15	25	474
2015-16	n/a	n/a
2016-17	19	235

Residents in Non-Public Independent and Parochial Schools (General Education)														
Enrollments as of Oct. 1	K	1	2	3	4	5	6	7	8	9	10	11	12	K-12 TOTAL
	20	18	11	25	15	19	13	34	19	16	17	16	12	235

K-12 Home-Schooled Students	
2016	20

K-12 Residents "Choiced-out" or in Charter or Magnet Schools	
2016	10

K-12 Special Education Outplaced Students	
2016	38

K-12 Choiced-In, Tuitioned-In, & Other Non-Residents	
2016	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.