



2011-12 Enrollment Projections



TO: Dr. Charles E. Gobron, Superintendent of Schools, Northborough-Southborough, MA
FROM: Donald G. Kennedy, Ed.D., Demographic Specialist
DATE: December 1, 2011
RE: Enrollment Projections

We are pleased to send you the enclosed documents displaying the past, present, and projected enrollments for the Northborough-Southborough-Algonquin School Districts. 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.

NESDEC's enrollment projection totals from fall of 2010 came within 0.5% of the actual Grade 1-12 **Southborough** enrollment total for fall, 2011 (1,904 projected v. 1,894 actual). In Grades 1-5, 768 pupils were projected v. 765 enrolled. At the Grade 6-8 level, 517 students were projected v. 509 enrolled. And in Grades 9-12, 619 pupils were forecast v. 620 enrolled. The forecast for **Northborough** students came within 0.6% of the actual Grade 1-12 enrollments (2,507 pupils projected v. 2,521 enrolled). In Grades 1-5, 1,041 students were forecast v. 1,043 actual. In Grades 6-8, 660 students projected v. 655 enrolled. At the high school level, 806 were forecast v. 823 enrolled.

The two factors at work which will have the greatest effect upon future enrollments are: a declining number of births to both **Northborough and Southborough** residents and, to a lesser degree, b. fluctuating in-migration (due to the real estate slowdown). In the decade from 1996-2005, **Northborough** averaged 176 births per year; more recently (and expected over the next 6-7 years) are about 120-136 births annually, about 50 fewer per year than the prior decade. **Southborough**, in the same decade, averaged 136 births per year; more recently, **Southborough** has had 77-120 births, about 40 fewer than the earlier decade.

CC: BO & Admin

The ever-changing relationship between **Northborough-Southborough** births and Kindergarten enrollments is displayed on the B-K graphs. **Northborough**, over the past seven years, has registered about 116 Kindergarteners for every 100 births (five years previous), a relationship which has been quite stable...this fall there were awhopping 147 Kindergarteners for every 100 births five-years-prior, the highest ratio in over ten years...and the reason for NESDEC's "under-projection". Note on the graph, however, that there was one year (2005) in which there were only 95 Kindergarteners for every 100 births. **Southborough** has been averaging 113 Kindergarteners per 100 births, yet this fall had only 108 Kindergarteners per 100 births five-years-prior. Grade 1 is expected to continue to be about 4% larger than the previous year's Kindergarten class in **Northborough** and 7% larger in **Southborough**.

Like many nearby communities **Northborough and Southborough** continue to experience enrollment fluctuations of in/out-migration in Grades 1-12. Over the past ten years, there were three years with net in-migration in **Northborough** (2004, 2010 and 2011); in **Southborough** there was in-migration only in 2002...(in 2010 there was -1% out-migration and -2% in 2011). **K-12 enrollments are forecast to shrink by an average of 60 students per year in Northborough, and by 29 pupils per year in Southborough. As much of the decline is expected to be triggered by smaller Kindergarten classes replacing the larger groups of graduating seniors, enrollment declines will begin at the elementary level and work upward through the grades. The declines at Algonquin High School should average about 12 students per year. However the cycles of employment and availability of real estate may be altered within the next 3-4 years, thereby affecting student enrollments.**

Will these patterns really last for as long as ten years? Perhaps not. Also, as soon as the economy and real estate situation improve in the region, net in-migration could return to Northborough-Southborough. Many communities in the region sold during 2007 through 2011-to-date only about 60-80% as many homes as in 2005-2007. Building permits have generally fluctuated as well; see the "Additional Data" table below. **The real estate slowdown might reverse itself in Northborough-Southborough before the 2016-17 school year, thus school enrollment declines may be slowed.** See also the description on Page 4 below regarding "reliability of projections".

As noted above, the number of births is an important variable in projecting future school enrollments, thus changing trends in births can be of special interest. U.S. births steadily increased from 2003 onward, reaching the highest peak in two decades, in 2007. However, U.S. births dropped 2% in 2008 (compared with 2007) and declined by an additional 2.6% in 2009 (compared with 2008). The Pew Research Center analyzed data from 25 states and found that the states hit hardest by the Recession (such as Michigan) had the greatest decline in births. Although additional factors may be involved, during times of substantial and prolonged economic difficulty,

persons expecting to lose their employment and/or their homes, may postpone having children. The Pew Center estimates that 14% of Americans aged 18-34 postponed having a child because of the recent recession (2% with incomes above \$75,000 postponed having a child, with higher rates of postponement in lower income brackets).

Among the six New England states, hard-hit Connecticut dropped by 8.6% over the two-year period from 41,684 births in 2007 to 38,083 in 2009; similarly, Rhode Island experienced an 8.1% decline from 12,503 births in 2007 to 11,494 births in 2009; mothers in Vermont gave birth to 6,492 children in 2007 and 6,118 babies in 2009, a 5.8% decline; Maine dropped by 4.7% from 14,177 children in 2007 to 13,506 babies in 2009; New Hampshire experienced a 4.4% decrease from 14,397 births in 2007 compared with only 13,764 children born in 2009; lastly, **Massachusetts** declined by only 3.9% from 77,731 births in 2007 to 74,643 children born in 2009. Overall, in the 275+ enrollment projections prepared by NESDEC during 2009-10, about 2/3 of districts were continuing to shrink in enrollment; whereas about 1/3 of districts appeared to be experiencing flat enrollments or some growth (of 0.5% or more per year) in the K-12 student population. Because of the higher median ages among the New England population, births in the region generally have been declining over the past several years; thus the Recession has accelerated an on-going trend. The rate of unemployment also indirectly affects the number of births and school enrollments. Although these rates may change monthly, recent rates of unemployment have been about 10.5% in RI; 8.9% in CT; 7.5% in ME; 7.3% in MA; 5.8% in VT; and 5.4% in NH.

If your district has need for further assistance in the area of long range facilities planning, we would urge you to call so that we might discuss our planning services which include our Demographic and Long-Range Enrollment Projection Studies.

We have enclosed suggestions for interpreting the printout and a brief description of the modified cohort survival methodology used in preparing the projections. As always, we would be delighted to hear from you regarding ways in which we might make the enrollment forecasts more useful to you. Please don't hesitate to call or email us at ep@nesdec.org. Best wishes for the school year.



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 are normally quite responsive to these fluctuations.
2. Look down the K and 1 columns and note 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 in-migration has probably occurred; if it is smaller, then out-migration has probably 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/junior high, 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

The cohort survival technique is the most frequently used method of preparing enrollment forecasts. NESDEC uses that technique, 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. 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 2010-11, increased to 104 students in Grade 2 in 2011-12, 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 possibility for change in the underlying assumptions/trends.

Projections based upon **the children already 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**. The least 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 difficulties); b. the District size was below 500 students, thus subject to fluctuations; 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 be starting. **In light of this, 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 8.0:

1. Click on Tools Menu;
2. Choose “Select & Zoom;”
3. Choose “Snapshot Tool;”
4. 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;
5. Click in the document where you would like the information to appear;*
6. 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 Peggy, Don, or Carol.

*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.

Southborough, MA Historical Enrollment

School District: Southborough, MA

12/1/2011

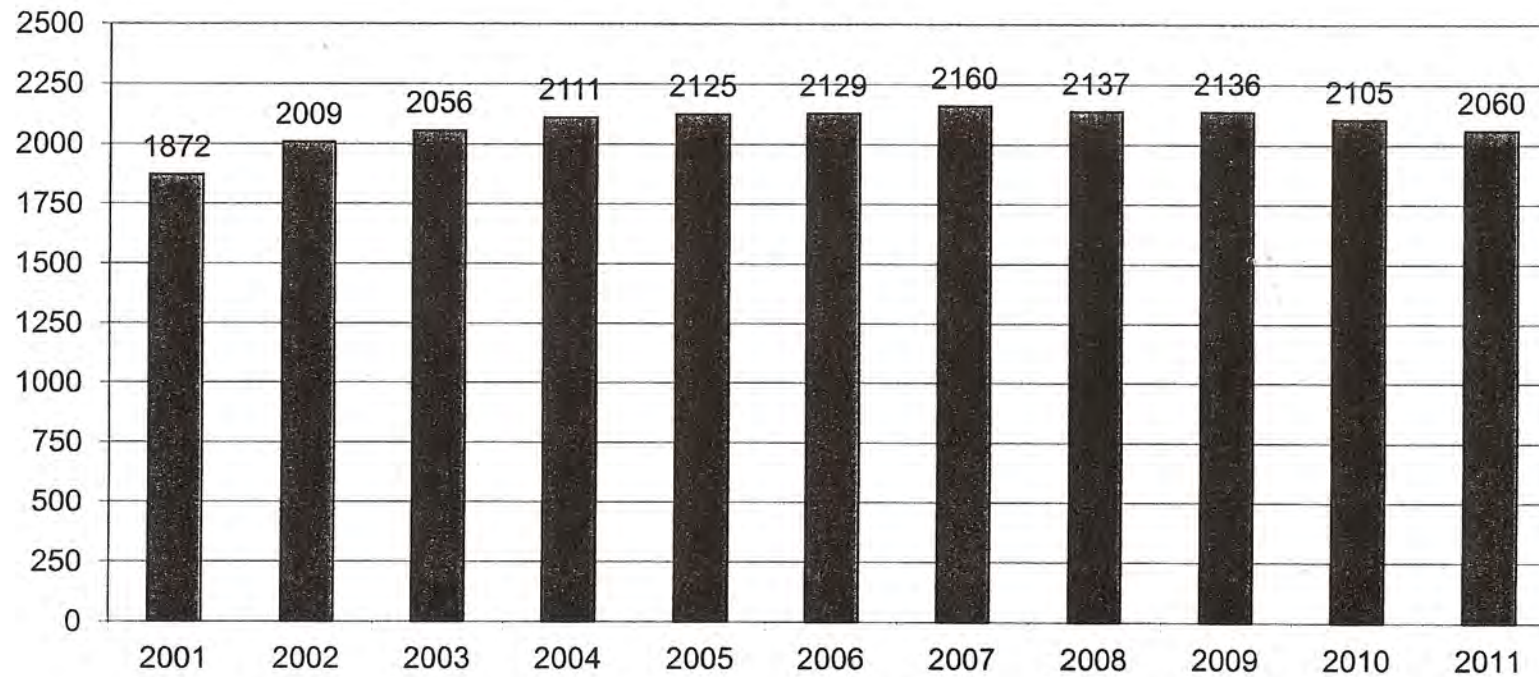
Historical Enrollment By Grade																			
Birth Year	Births	School Year	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	UNGR	K-12	PK-12
1996	143	2001-02	17	169	200	150	184	165	173	167	152	138	105	93	74	85	0	1855	1872
1997	151	2002-03	29	182	183	202	160	186	176	174	168	154	119	108	92	76	0	1980	2009
1998	143	2003-04	46	149	194	177	196	165	178	173	170	159	130	121	106	92	0	2010	2056
1999	147	2004-05	48	168	166	192	182	197	163	176	168	172	126	128	120	105	0	2063	2111
2000	154	2005-06	38	169	175	168	192	175	197	160	167	166	139	126	133	120	0	2087	2125
2001	144	2006-07	45	166	179	176	167	184	173	185	157	167	134	137	129	130	0	2084	2129
2002	133	2007-08	58	151	174	183	181	170	186	173	183	159	147	133	136	126	0	2102	2160
2003	132	2008-09	53	143	163	177	182	177	163	179	173	181	133	143	132	138	0	2084	2137
2004	125	2009-10	53	145	153	157	178	185	176	157	173	176	164	140	144	135	0	2083	2136
2005	92	2010-11	45	113	161	151	157	180	188	178	156	174	156	164	144	138	0	2060	2105
2006	120	2011-12	37	129	115	160	150	157	183	186	164	159	155	159	160	146	0	2023	2060

Historical Enrollment in Grade Combinations									
Year	PK-5	K-5	PK-1	K-8	4-5	6-8	7-8	7-12	9-12
2001-02	1058	1041	386	1498	338	457	290	647	357
2002-03	1118	1089	394	1585	362	496	322	717	395
2003-04	1105	1059	389	1561	343	502	329	778	449
2004-05	1116	1068	382	1584	360	516	340	819	479
2005-06	1114	1076	382	1569	372	493	333	851	518
2006-07	1090	1045	390	1554	357	509	324	854	530
2007-08	1103	1045	383	1560	356	515	342	884	542
2008-09	1058	1005	359	1538	340	533	354	900	546
2009-10	1047	994	351	1500	361	506	349	932	583
2010-11	995	950	319	1458	368	508	330	932	602
2011-12	931	894	281	1403	340	509	323	943	620

Historical Percentage Changes			
Year	K-12	Diff.	%
2001-02	1855	0	0.0%
2002-03	1980	125	6.7%
2003-04	2010	30	1.5%
2004-05	2063	53	2.6%
2005-06	2087	24	1.2%
2006-07	2084	-3	-0.1%
2007-08	2102	18	0.9%
2008-09	2084	-18	-0.9%
2009-10	2083	-1	0.0%
2010-11	2060	-23	-1.1%
2011-12	2023	-37	-1.8%
K-12 Change		168	9.1%

Southborough, MA Historical Enrollment

PK-12, 2001-2011



Southborough, MA Projected Enrollment

School District: Southborough, MA

12/1/2011

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
2006	120		2011-12	37	129	115	160	150	157	183	186	164	159	155	159	160	146	0	2023	2060
2007	98		2012-13	38	113	138	113	160	151	158	181	179	166	142	159	160	160	0	1980	2018
2008	84		2013-14	39	97	120	135	113	161	152	156	174	182	148	145	160	160	0	1903	1942
2009	77		2014-15	40	89	103	118	135	114	162	150	150	176	163	152	146	160	0	1818	1858
2010	94	(est.)	2015-16	41	109	95	101	118	136	115	160	144	152	157	167	153	146	0	1753	1794
2011	95	(est.)	2016-17	42	109	116	93	101	119	137	114	154	146	136	161	168	153	0	1707	1749
2012	90	(est.)	2017-18	43	103	116	114	93	102	120	135	109	156	131	139	162	168	0	1648	1691
2013	88	(est.)	2018-19	44	101	110	114	114	94	103	119	130	111	140	134	140	162	0	1572	1616
2014	89	(est.)	2019-20	45	102	108	108	114	115	95	102	114	132	99	143	134	140	0	1506	1551
2015	91	(est.)	2020-21	46	105	109	106	108	115	116	94	98	116	118	101	144	134	0	1464	1510
2016	90	(est.)	2021-22	47	104	112	107	106	109	116	115	90	99	104	121	101	144	0	1428	1475

*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	PK-1	K-8	4-5	6-8	7-8	7-12	9-12
2011-12	931	894	281	1403	340	509	323	943	620
2012-13	871	833	289	1359	309	526	345	966	621
2013-14	817	778	256	1290	313	512	356	969	613
2014-15	761	721	232	1197	276	476	326	947	621
2015-16	715	674	245	1130	251	456	296	919	623
2016-17	717	675	267	1089	256	414	300	918	618
2017-18	691	648	262	1048	222	400	265	865	600
2018-19	680	636	255	996	197	360	241	817	576
2019-20	687	642	255	990	210	348	246	762	516
2020-21	705	659	260	967	231	308	214	711	497
2021-22	701	654	263	958	225	304	189	659	470

Projected Percentage Changes			
Years	K-12	Diff.	%
2011-12	2023	0	0.0%
2012-13	1980	-43	-2.1%
2013-14	1903	-77	-3.9%
2014-15	1818	-85	-4.5%
2015-16	1753	-65	-3.6%
2016-17	1707	-46	-2.6%
2017-18	1648	-59	-3.5%
2018-19	1572	-76	-4.6%
2019-20	1506	-66	-4.2%
2020-21	1464	-42	-2.8%
2021-22	1428	-36	-2.5%
K-12 Change		-595	-29.4%

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.

Southborough, MA Projected Enrollment

PK-12 TO 2021 Based On Data Through School Year 2011-12

