2016-17 Enrollment Projections

TO: Paul K. Perzanoski, Superintendent of Schools, Brunswick, ME
FROM: Donald G. Kennedy, Ed.D., Demographic Specialist
DATE: January 10, 2017
RE: Enrollment Projections

We are pleased to send you the enclosed documents displaying the past, present, and projected enrollments for the Brunswick 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. This is NESDEC's first projection for Brunswick, however in the fall we will be able to compare the variance between this projection, and the district's 2017-18 actual enrollments.

The two factors now at work which will have the greatest effect upon future enrollments are: a smaller number of births to Brunswick residents, combined with the resumption of in-migration (which had slowed, due to out-migration of families as well as the 2008 real estate slowdown). The students currently in Grades 1-10 were born during a period when Brunswick was averaging 228 births per year. More recently (and expected over the next 6-7 years) are 172-190 births annually…averaging about 185 births per year – about 43 fewer births per year than the previous pace. 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 – **the births in Maine shrunk by 4.7%;** and Massachusetts births declined by only 3.9% over these three years. In the real estate decline which followed, however, fewer new families moved into the state, a factor which lead to a rise in the median age, and hence contributing to the present smaller number of local births. 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 November, 2016 in RI was 5.3%; CT 4.7%; US non-farm unemployment 4.6%; **ME 4.0%;** New England average 3.6%; VT 3.2%; MA 2.9% and NH 2.7% - other nearby states: PA 5.7%; NY 5.1%; and NJ 5.0%. 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 Brunswick births and Kindergarten enrollments is displayed on the B-K graph. Brunswick, over the past seven years, has registered only about 81 Kindergarteners for every 100 births (five years previous), a relationship which has been relatively steady. This fall, however, there were a robust 111 Kindergarteners registered for every 100 births as opposed to only 78 Kindergarteners registered for every 100 births in 2014-15. Next year's Grade 1 is expected to be about -2% smaller in number than the previous year's Kindergarten class.

"Hidden Trends" within the district: Like many nearby communities, Brunswick 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 having little to do with students moving into the community (in the case of Brunswick the trend is to increase by about 7%, in the Grade 8-to-9 transition). Regarding the Grade 1-8 stability, if last year the Grade 1-7 total was 1,200 children, then (if no one moved in or out) this fall's Grades 2-8 would equal about 1,200 – 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 Brunswick, we know that the school district is currently experiencing a fluctuation of "net out-/ in-migration" of families with school age children. For example, the 1,207 children in Grades 1-7 in 2014-15 **increased by 29 children** to 1,236 students in Grades 2-8 in 2015-16. Then the 1,261 children in Grades 1-7 in 2015-16 **decreased by 4 children** to 1,247 students in Grades 2-8 in 2016-17. This fluctuation has averaged +7 children per year in each of the most recent five years. Thus there are families both moving into (and out of) usually stable Grades 1-8. Analysis of these hidden trends provides an additional benchmark by which to assess enrollment trends.

At this point, enrollments are generally flat, or on the side of growth. Over the next three years, K-1 enrollments are forecast to increase by 6 children; Grades 2-5 to increase by 5 students; Grades 6-8 to decrease by 3 pupils; and the high school level to decrease by 9 students...all within the next three years – as classes move up the grades. After that point these projections show decreasing enrollment in Grades K-1 of 8 children; Grades 2-5 to decrease by 7 students, combined with an increase in enrollment of 11 students at Grades 6-8; and an increase of 46 pupils in Grades 9-12 – as the larger classes work their way up 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 number of babies-yet-to-be-born...it is quite likely that the birth numbers will increase as 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

become more stable in the region, additional in-migration may occur in Brunswick. Many communities in the region sold during 2008-2014 only about 60-80% as many homes as in 2003-2007. Building permits had slowed as well (although Brunswick issued 86 building permits in 2005, the number slowed to only 26 in 2012; 34 in 20013; 34 in 2014; 21 in 2015; and rose to 26 through October in 2016); see the "Additional Data" table below. It may be of interest that 94 Brunswick residents currently attend public schools elsewhere, as this statistic was only 36 in 2012. As additional families move in, the currently improved pace of growth may be maintained. See the description on Page 4 below regarding "reliability of projections". The birth numbers used in the projections, through 2013, are from the ME Department of Public Health. The "estimated" years, beginning with 2014 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 Brunswick residents born out-of-state (information which will eventually become known to the ME 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.

NESDEC

Brunswick, ME Historical Enrollment

School District: **Brunswick, ME** **1/9/2017**

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	216	**2006-07**	0	212	227	253	209	261	244	229	236	245	288	268	248	212	0	3132	3132
2002	223	**2007-08**	0	212	220	215	225	220	251	235	227	231	267	267	232	218	0	3020	3020
2003	220	**2008-09**	0	190	212	221	212	218	219	237	244	231	262	231	249	223	0	2949	2949
2004	223	**2009-10**	0	203	162	169	191	192	195	184	211	220	229	231	214	232	0	2633	2633
2005	262	**2010-11**	0	181	174	150	166	171	180	186	186	207	233	223	219	206	0	2482	2482
2006	261	**2011-12**	0	182	174	189	142	167	175	178	180	181	215	226	205	200	0	2414	2414
2007	260	**2012-13**	0	160	168	168	180	144	154	174	168	181	185	216	214	197	0	2309	2309
2008	228	**2013-14**	0	177	173	180	179	184	152	168	176	170	213	191	221	213	0	2397	2397
2009	223	**2014-15**	0	174	170	186	181	187	183	142	158	170	180	191	209	223	0	2354	2354
2010	162	**2015-16**	0	163	180	176	192	184	184	184	151	165	198	185	184	194	0	2340	2340
2011	172	**2016-17**	0	191	153	185	176	170	185	188	184	159	158	191	196	194	0	2330	2330

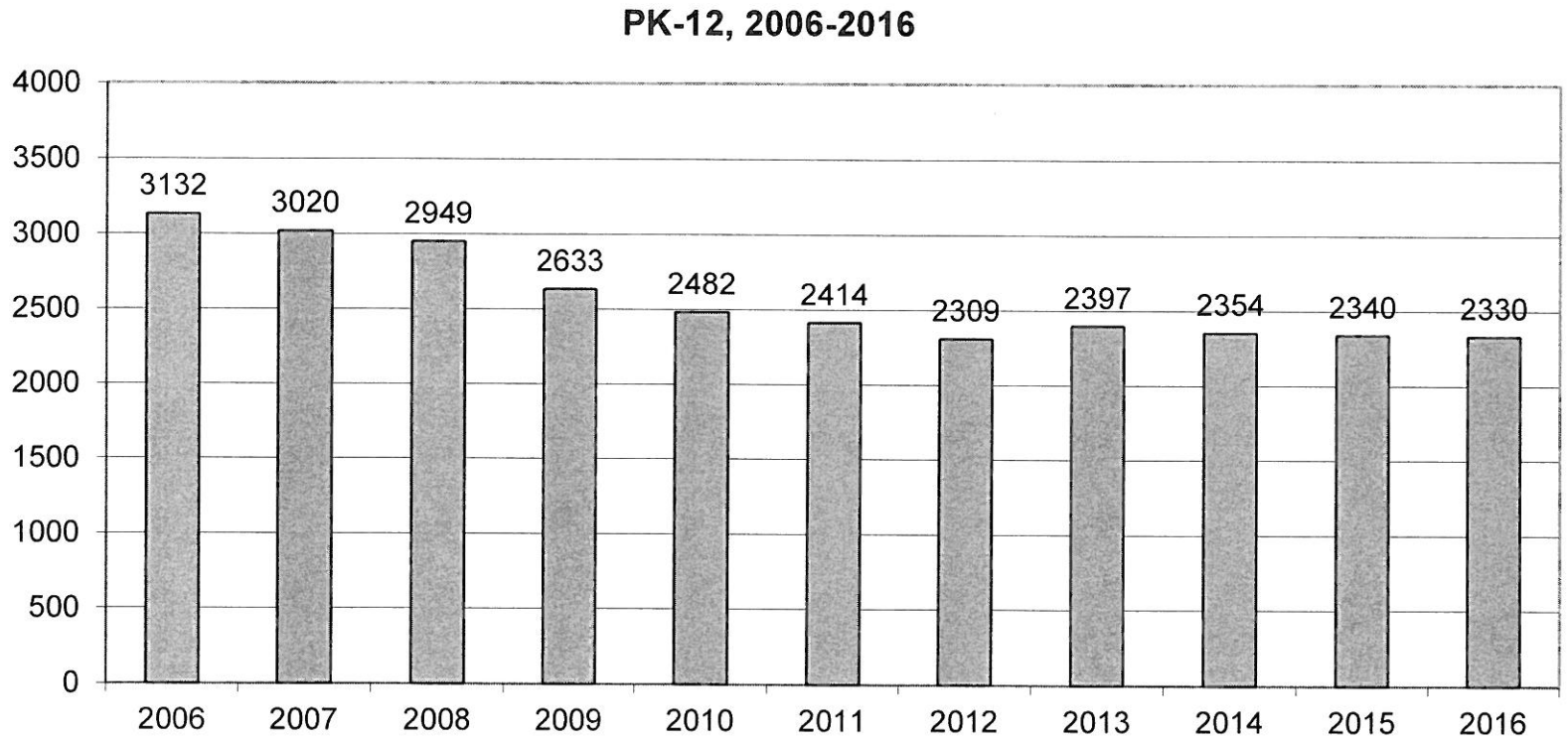
Historical Enrollment in Grade Combinations

Year	K-1	K-5	2-5	K-8	5-8	6-8	7-8	7-12	9-12
2006-07	439	1406	967	2116	954	710	481	1497	1016
2007-08	432	1343	911	2036	944	693	458	1442	984
2008-09	402	1272	870	1984	931	712	475	1440	965
2009-10	365	1112	747	1727	810	615	431	1337	906
2010-11	355	1022	667	1601	759	579	393	1274	881
2011-12	356	1029	673	1568	714	539	361	1207	846
2012-13	328	974	646	1497	677	523	349	1161	812
2013-14	350	1045	695	1559	666	514	346	1184	838
2014-15	344	1081	737	1551	653	470	328	1131	803
2015-16	343	1079	736	1579	684	500	316	1077	761
2016-17	344	1060	716	1591	716	531	343	1082	739

Historical Percentage Changes

Year	K-12	Diff.	%
2006-07	3132	0	0.0%
2007-08	3020	-112	-3.6%
2008-09	2949	-71	-2.4%
2009-10	2633	-316	-10.7%
2010-11	2482	-151	-5.7%
2011-12	2414	-68	-2.7%
2012-13	2309	-105	-4.3%
2013-14	2397	88	3.8%
2014-15	2354	-43	-1.8%
2015-16	2340	-14	-0.6%
2016-17	2330	-10	-0.4%
Change		**-802**	**-25.6%**

Brunswick, ME Historical Enrollment



Brunswick, ME Projected Enrollment

School District: Brunswick, ME

1/9/2017

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	172		2016-17	0	191	153	185	176	170	185	188	184	159	158	191	196	194	0	2330	2330
2012	184		2017-18	0	173	187	160	188	174	169	184	188	188	170	153	198	195	0	2327	2327
2013	190		2018-19	0	179	169	196	162	186	173	168	184	192	201	165	159	197	0	2331	2331
2014	186	(est.)	2019-20	0	175	175	177	199	160	185	172	168	188	205	195	171	159	0	2329	2329
2015	183	(est.)	2020-21	0	172	171	183	180	197	159	184	172	172	201	199	203	171	0	2364	2364
2016	183	(est.)	2021-22	0	172	168	179	186	178	196	158	184	176	184	195	207	202	0	2385	2385
2017	185	(est.)	2022-23	0	174	168	176	182	184	177	195	158	188	188	178	203	206	0	2377	2377
2018	186	(est.)	2023-24	0	174	170	176	179	180	183	176	195	161	201	182	185	202	0	2364	2364
2019	185	(est.)	2024-25	0	174	170	178	179	177	179	182	176	199	172	195	189	184	0	2354	2354
2020	184	(est.)	2025-26	0	173	170	178	181	177	176	178	182	180	213	167	203	188	0	2366	2366
2021	185	(est.)	2026-27	0	173	169	178	181	179	176	175	178	186	193	207	174	202	0	2371	2371

*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

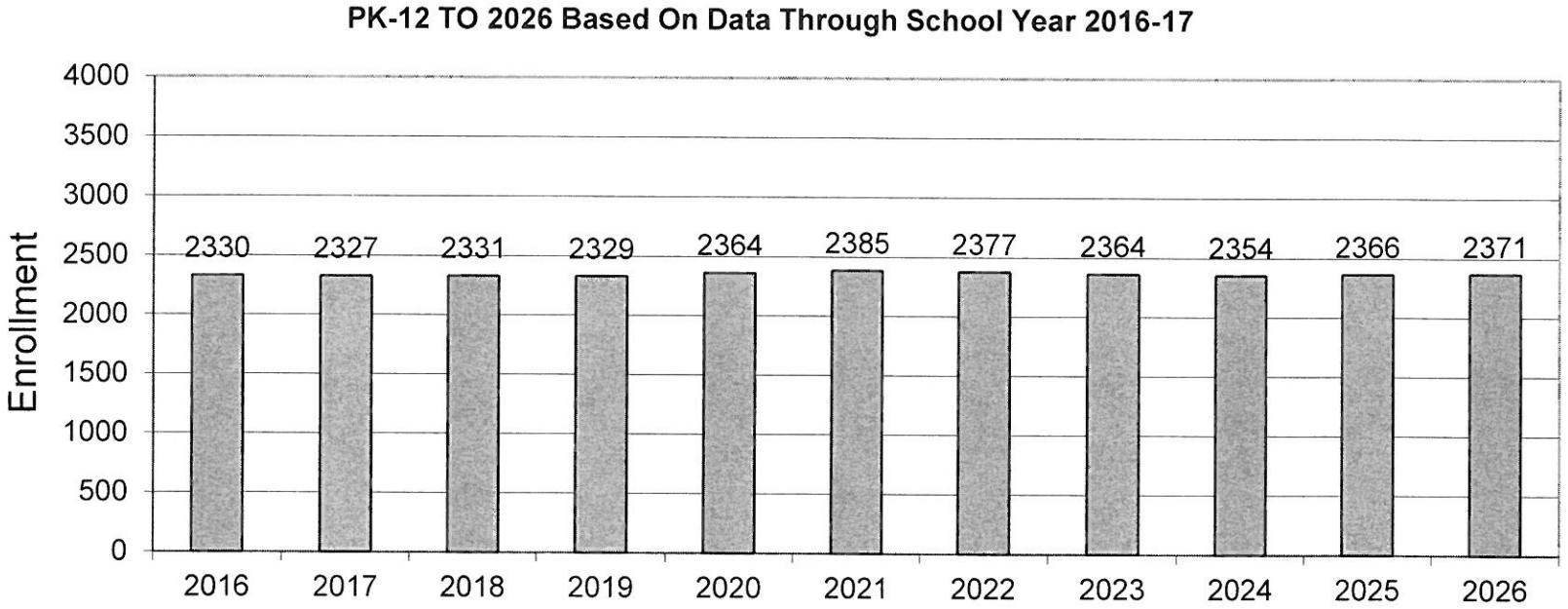
Projected Enrollment in Grade Combinations*

Year	K-1	K-5	2-5	K-8	5-8	6-8	7-8	7-12	9-12
2016-17	344	1060	716	1591	716	531	343	1082	739
2017-18	360	1051	691	1611	729	560	376	1092	716
2018-19	348	1065	717	1609	717	544	376	1098	722
2019-20	350	1071	721	1599	713	528	356	1086	730
2020-21	343	1062	719	1590	687	528	344	1118	774
2021-22	340	1079	739	1597	714	518	360	1148	788
2022-23	342	1061	719	1602	718	541	346	1121	775
2023-24	344	1062	718	1594	715	532	356	1126	770
2024-25	344	1057	713	1614	736	557	375	1115	740
2025-26	343	1055	712	1595	716	540	362	1133	771
2026-27	342	1056	714	1595	715	539	364	1140	776

Projected Percentage Changes

Year	K-12	Diff.	%
2016-17	2330	0	0.0%
2017-18	2327	-3	-0.1%
2018-19	2331	4	0.2%
2019-20	2329	-2	-0.1%
2020-21	2364	35	1.5%
2021-22	2385	21	0.9%
2022-23	2377	-8	-0.3%
2023-24	2364	-13	-0.5%
2024-25	2354	-10	-0.4%
2025-26	2366	12	0.5%
2026-27	2371	5	0.2%
Change		41	1.8%

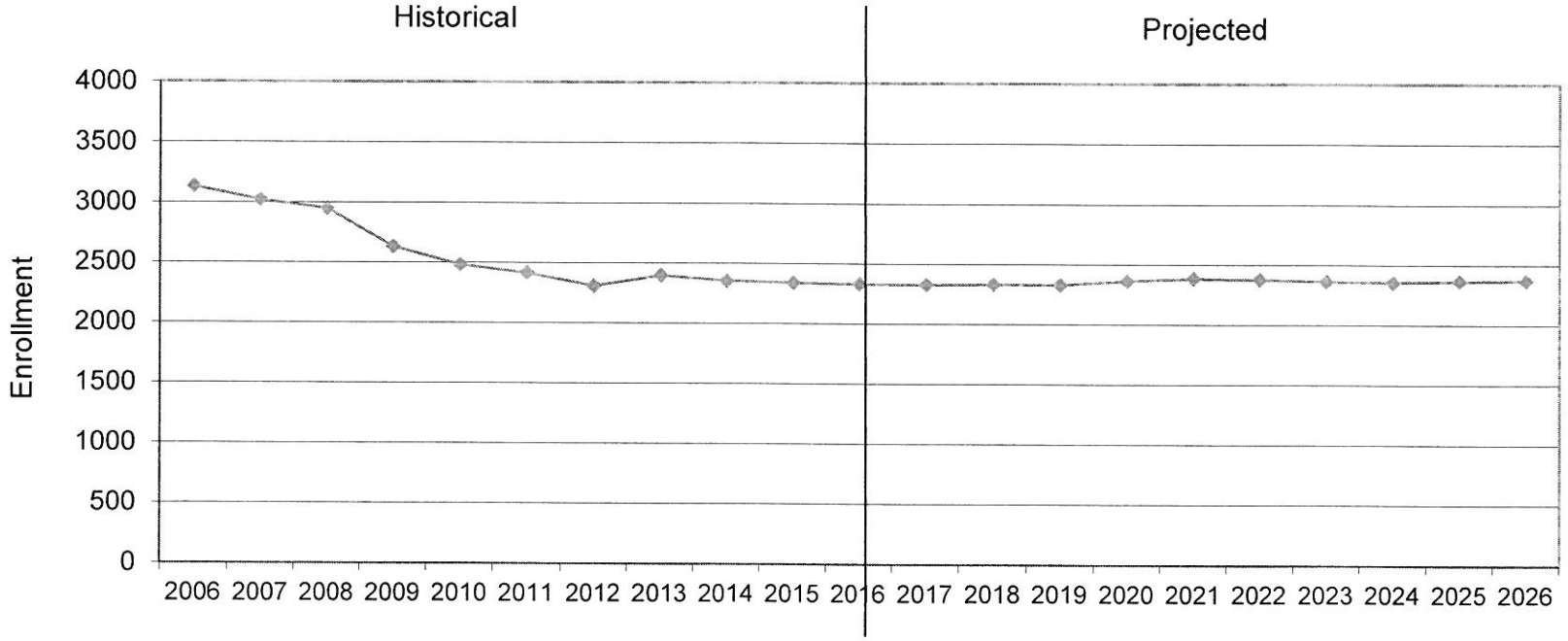
Brunswick, ME Projected Enrollment



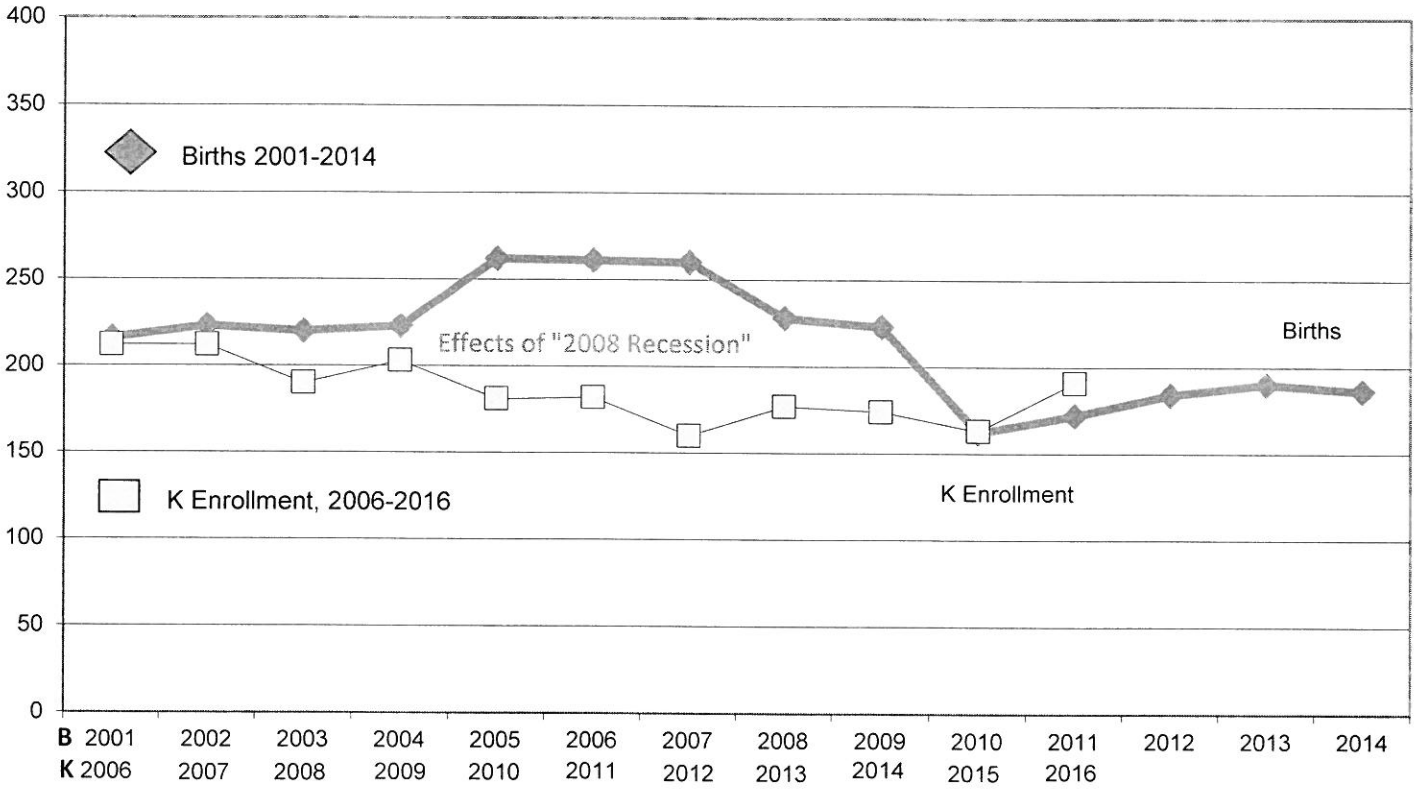
NESDEC

Brunswick, ME Historical & Projected Enrollment

PK-12, 2006-2026



Brunswick, ME Birth-to-Kindergarten Relationship



Brunswick, ME Additional Data

Building Permits Issued		
Year	Single-Family	Multi-Units
2005	80	6
2012	26	0
2013	34	0
2014	34	0
2015	21	2
2016	26 to Oct 31	0

Source: HUD and Building Department

Enrollment History		
Year	Voc-Tech 9-12 Total	Non-Public K-12 Total
2005-06	n/a	n/a
2012-13	n/a	n/a
2013-14	n/a	n/a
2014-15	n/a	n/a
2015-16	n/a	n/a
2016-17	n/a	n/a

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
	0	0	0	0	0	0	0	0	0	0	0	0	0	n/a

K-12 Home-Schooled Students	
2016	46

was 35 in 2012, and 53 in 2015

K-12 Residents "Choiced-out" or in Charter or Magnet Schools	
2016	94

was 36 in 2012, and 85 in 2015

K-12 Special Education Outplaced Students	
2016	13

was 8 or 9 in each of prior four years

K-12 Choiced-In, Tuitioned-In, & Other Non-Residents	
2016	35

was 50 in 2012, and 30 in 2015

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

NESDEC Enrollment Projection Service Form EP5

Name of School District: Brunswick

ADDITIONAL INFORMATION

# of Residents Homeschooled	
School Year	K-12 Total
2012	35
2013	39
2014	47
2015	53
2016	46

# "Choiced-Out" or in Charter or Magnet Schools	
School Year	K-12 Total
2012	36
2013	38
2014	41
2015	85
2016	94

# of Out-Placed Special Educ. Students	
School Year	K-12 Total
2012	9
2013	8
2014	8
2015	8
2016	13

# of "Choiced-In" and Non-Resident Students	
School Year	K-12 Total
2012	50
2013	50
2014	42
2015	30
2016	35

Please indicate any changes in your community/district that may affect enrollment.
Examples: recent uptick in the number of rented/leased homes, opening a new or renovated school, addition of full-day Kindergarten, opening/closing of a Charter or Magnet school/private school; change in high school accreditation status, etc.

