



Demographic Study Update

for the

**Katonah-Lewisboro
Union Free School District**

December 2018

Prepared By:

Richard S. Grip, Ed.D.

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Executive Summary

Statistical Forecasting LLC (“Statistical Forecasting”) completed a demographic study update for the Katonah-Lewisboro Union Free School District (“Katonah-Lewisboro”). The previous study was completed for the district in November 2017. The purpose of the current study is to project enrollments from 2019-20 through 2023-24, a five-year projection period. Information was collected related to community birth counts, historical enrollments, home sales, and new housing starts.

Historical Enrollment Trends

In 2018-19, enrollment (K-12) in Katonah-Lewisboro is 2,961. After peaking in 2005-06 with 4,115 students, enrollment has declined in each of the last thirteen years, which represents a loss of 1,154 students (-28.0%) over this time period.

At the elementary level (grades K-5), enrollment had declined for 17 consecutive years (1999-2000 to 2015-16) before stabilizing. Enrollment is 1,213 in 2018-19 and has been fairly stable in the last four years, ranging from 1,213-1,236 students per year.

For John Jay Middle School, which contains grades 6-8, enrollment has been declining, in general, since 2006-07. In 2018-19, enrollment is 694, which represents a loss of 348 students from the peak enrollment of 1,042 in 2001-02.

Finally, for John Jay High School, which contains grades 9-12, enrollment peaked in 2007-08 with 1,311 students. After a period of stable enrollment, the school has experienced declining enrollment in each of the last nine years. Enrollment is 1,054 in 2018-19, which represents a loss of 257 students from the peak enrollment in 2007-08.

Student Withdrawals and New Registrants

Student withdrawals and new registrations were reviewed from 2013-14 to 2017-18. In the last five years, there has been a net gain of students, as new registrants exceeded withdrawals. The net gain of students has ranged from 41-91 students in the last three years.

Non-Public School Enrollments

From 2013-14 to 2018-19, the number of Katonah-Lewisboro resident students (K-12) attending non-public schools has been fairly constant, ranging from 227-254 students per year. In 2018-19, 7.4% of the Katonah-Lewisboro resident student population attends non-public schools. Two-thirds of Katonah-Lewisboro’s non-public school population attends one of five schools. The Harvey School and The Rippowam Ciskqua School receive the greatest number of Katonah-Lewisboro resident students, accounting for 39% of the Katonah-Lewisboro resident student population attending non-public schools.

Kindergarten and First Grade Replacements

Kindergarten replacements were analyzed to determine whether there was any relationship between overall enrollment change and kindergarten replacement, which is the numerical difference between the number of graduating 12th graders and the number of entering kindergarten students. The district has experienced negative kindergarten replacement in the last five years, and negative first grade replacement for the eight years prior. Negative kindergarten replacement occurs when the number of graduating 12th grade students is larger than the number of kindergarten students replacing them in the next year. Since the district had a half-day kindergarten program prior to instituting a full-day program in 2014-15, it was more appropriate to compare the 12th grade student population to the first grade student population, as the district gains a number of students from kindergarten to first grade when parents elect to send their child to a full-day kindergarten program elsewhere before enrolling them in the public school district for the first grade. Since the full-day program was instituted, the district has lost an average of 121 students per year due to kindergarten replacement. In each of the last five years, the district's losses due to negative kindergarten replacement have been partially offset by a net inward migration of students in the other grades (K to 1, 1 to 2, 2 to 3, etc.) as 11 of 13 average survival ratios (four-year trend) were above 1.000.

Birth Counts

The number of births in the Katonah-Lewisboro attendance area, which is used to project kindergarten enrollments, declined from a high of 219 in 2002 to a low of 104 in 2012. However, in the last four years, births have stabilized, ranging from 112-124 births per year.

Potential New Housing

Planning and Zoning Departments were contacted in Bedford (Katonah), Lewisboro, Pound Ridge, and North Salem. There are no pending residential subdivisions in Pound Ridge or North Salem that would impact the school district. Regarding Katonah and Lewisboro, there has been little change in the status of many of the pending developments since the November 2017 demographic study. There is the potential for 59 detached single-family homes and 89 multi-family units in Lewisboro and 32 detached single-family homes in Katonah for a total of 180 units. Using statewide multipliers published by Econsult Solutions Inc., 90 school-age children are projected to be generated from the new housing developments. As this represents school-age children, the number of public school children is likely to be lower. However, the baseline enrollment projections were not adjusted for the additional children anticipated from the new housing developments since it is unclear whether all of the proposed residential developments will ever get constructed as many of the developments have been in the housing pipeline for more than five years. It is recommended that the Board continue to monitor the status of all proposed developments to determine the future impact on the school district.

Home Sales

Home sales in the Katonah-Lewisboro attendance area were reviewed from 2000-2018. Home sales peaked at 318 in 2004 before declining through 2009 due to the banking and financial crises. After hitting a low of 131 home sales in 2009, the number of sales has been steadily increasing, as there were nearly 300 home sales in 2016. Since then, the number of sales has been lower. In 2017, there were 239 home sales. As of October 2018, there were 197 home sales with an additional 35 sales pending. If all homes under contract close by the end of the year, there would be 232 home sales in 2018, which would be similar to the total in 2017.

It appears that the increase in home sales is having an effect on enrollment in the district. As discussed previously in the report, 11 of 13 average survival ratios (four-year trend) were above 1.000, indicating net inward migration. While not known for certain, it is likely that the increase in home sales has resulted in an inward migration of parents with school-age children and an increase in the survival ratios, as buyers are likely to be families with children.

Enrollment Projections

Enrollments were computed for a five-year period, 2019-20 through 2023-24. To provide a range for future enrollments, two sets of projections were computed based on three and four years of historical enrollments. Using four historical years will best serve the district for its planning needs as the added year tends to smooth out any variations in the survival ratios, yet will still capture the most recent trends of in-migration, particularly in the lower elementary grades.

Using three years of historical data, total enrollment (K-12) is projected to slowly decline throughout the projection period and be 2,766 in 2023-24, which would be a loss of 195 students from the 2018-19 enrollment of 2,961. Using four years of historical data, total enrollment is projected to decline at a slightly slower rate and be 2,806 in 2023-24, which would be a loss of 155 students from the 2018-19 enrollment. The projected decline in enrollment appears to be partially due to negative kindergarten replacement, which is projected to continue in the future. In the next five years, the loss of students due to this phenomenon is projected to range between 46-117 students per year.

Enrollment projections were also computed at the individual school level. At the elementary level, the largest gain is projected at Increase Miller (+55). The enrollments at the remaining two schools are projected to be similar to the 2018-19 enrollments.

For John Jay Middle School (grades 6-8), enrollment is projected to slowly decline through 2020-21 before reversing trend. Enrollment is projected to be 690 in 2023-24, which would be a loss of four (4) students from the 2018-19 enrollment of 694.

For John Jay High School (grades 9-12), enrollment is projected to decline throughout the projection period. Enrollment is projected to be 867 in 2023-24, which would be a loss of 187 students from the 2018-19 enrollment of 1,054.

Final Thoughts

In 2018-19, Katonah-Lewisboro's total enrollment (K-12) declined for the 13th consecutive year. While a decline in total enrollment is projected to occur for the next five years, a small gain in enrollment is projected at the elementary school level while middle school enrollment is projected to be similar to the current 2018-19 enrollment. In the last four years, enrollments in the elementary schools have stabilized. As a result, middle school enrollments are projected to be fairly stable by the end of the projection period. The district's overall projected decline in enrollment is due to the enrollment decline projected at the high school, as the smaller cohorts from the elementary and middle school grades advance through the system.

Introduction

Statistical Forecasting completed a demographic study update for the Katonah-Lewisboro Union Free School District (“Katonah-Lewisboro”). The previous study was completed for the district in November 2017. The purpose of the current study is to project enrollments from 2019-20 through 2023-24, a five-year projection period. Information was collected related to community birth counts, historical enrollments, home sales, and new housing starts.

Enrollment Projections from November 2017 Report

In our previous demographic study, enrollments were projected from 2018-19 through 2022-23, a five-year projection period. Table 1 below compares the actual and projected enrollments in 2018-19 for the entire district (K-12), as well as for the elementary (K-5), middle (6-8), and high (9-12) school grade configurations. Since two projections were computed in the previous study, the table shows the percent error by year for each of the projections. Positive error rates indicate over-projections while negative error rates indicate under-projections.

Table 1
Comparison of Projected to Actual Enrollments
from November 2017 Report

Year	Actual Enrollment 2018-19	Projected CSR 3-YR 2018-19			Projected CSR 4-YR 2018-19		
		Count	Diff.	% Error	Count	Diff.	% Error
Total (K-12)	2,961	2,992	+31	+1.0%	2,980	+19	+0.6%
Elementary (K-5)	1,213	1,231	+18	+1.5%	1,221	+8	+0.7%
Middle (6-8)	694	696	+2	+0.3%	697	+3	+0.4%
High (9-12)	1,054	1,065	+11	+1.0%	1,062	+8	+0.8%

As the table shows, total enrollment (K-12) was over-projected by 31 students (+1.0%) in the first projection and by 19 students (+0.6%) in the second projection. In a survey of educational planners who complete enrollment projections, two-thirds believe that an error rate of 1% per year for the total enrollment is acceptable¹. For a five-year projection, this would mean that a 5% error rate would be acceptable. While the second projection’s error rate was well within 1% for the first projection year, the first projection’s error rate was right on the recommended threshold.

¹ Schellenberg, S. J., & Stephens, C. E. (1987). Enrollment projection: variations on a theme. Paper presented at the Annual Meeting of the American Educational Research Association, Washington D.C., (ERIC Document Reproduction Service No. ED 283 879)

At the grade configuration level, all of the enrollments were slightly over-projected. For the elementary grades, enrollments were over-projected by eighteen (18) and eight (8) students respectively, which corresponds to error rates of +1.5% and +0.7%. Most of the error was due to an over-projection of kindergarten students. At the middle school level, enrollments were over-projected by two (2) students (+0.3%) in the first projection and three (3) students (+0.4%) in the second projection. At the high school level, enrollments were over-projected by 11 students (+1.0%) in the first projection and by eight (8) students (+0.8%) in the second projection.

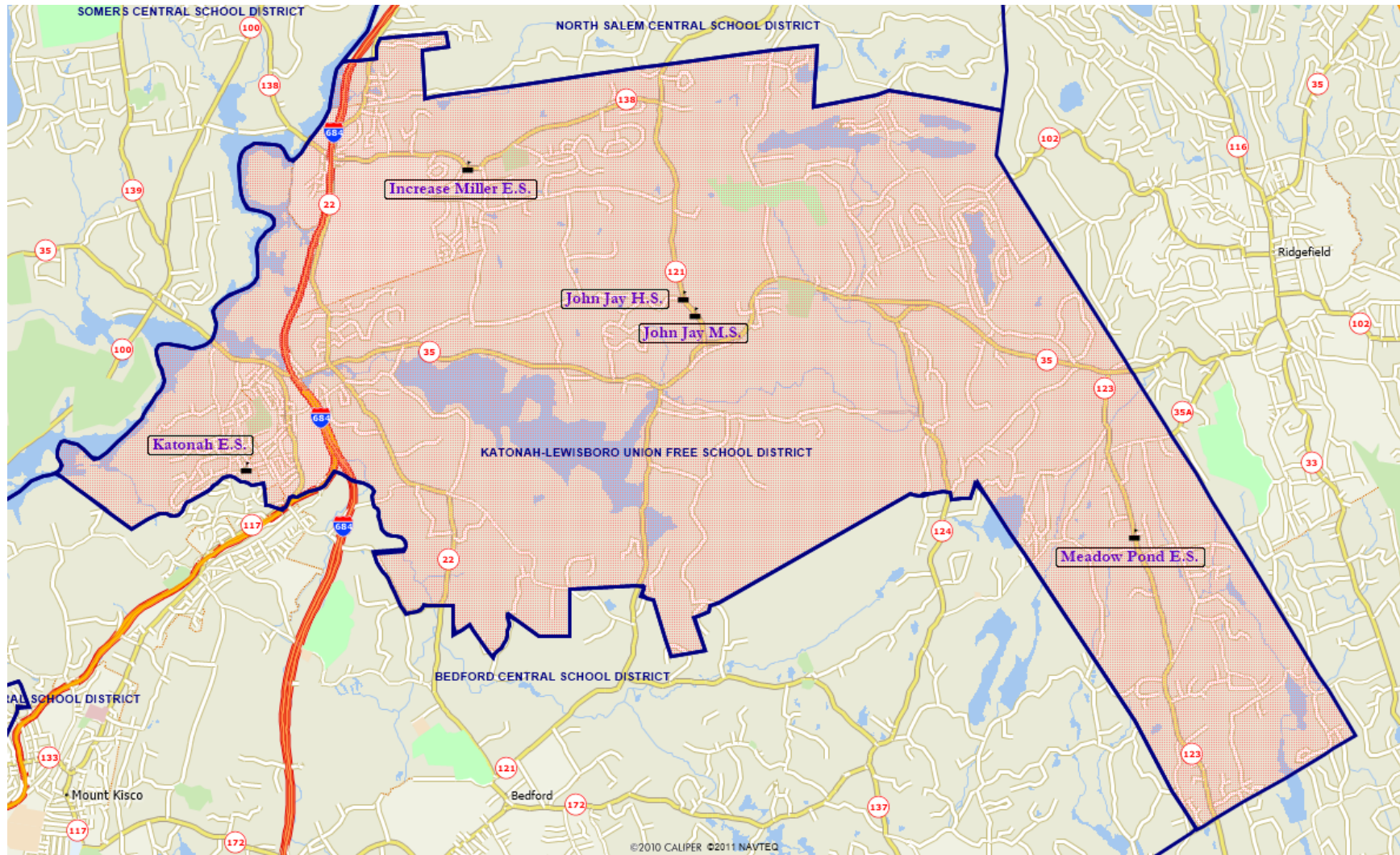
The accuracy of the projections is contingent on the most recent historical trends continuing into the future. If there is a departure from these trends caused by, for example, numerous new housing starts, changes in school district policy, changes to immigration laws, an economic downturn, a change in the housing resale market, etc., the enrollment projections presented are less likely to be accurate in future years, as this analysis does not forecast future trends. Therefore, the projections need to be revised annually to detect potential reversals in enrollment trends. Changes in enrollment are dependent on several factors such as birth counts, migration of students into or out of the school district, the presence of alternative schools such as charter schools, private schools, or parochial schools, and school district policy changes.

District Overview

Katonah-Lewisboro has five schools that serve children in grades kindergarten through twelve. The district receives children from the unincorporated hamlet of Katonah in the Town of Bedford, approximately the northern one-third of the Town of Bedford, the Town of Lewisboro, and also small sections of the Towns of Pound Ridge and North Salem. There are three elementary schools educating children in grades K-5 (Increase Miller, Katonah, and Meadow Pond). John Jay Middle School contains grades 6-8 while John Jay High School contains grades 9-12. The locations of the schools are shown in Figure 1.

In this study, historical enrollments from 1999-2000 through 2018-19, a twenty-year period, were obtained from the New York State Basic Education Data System (“BEDS”) reports and were used to project enrollments for five years into the future. Future enrollments were projected using the Cohort-Survival Ratio method.

Figure 1
School Locations - Katonah-Lewisboro Union Free School District



Explanation of the Cohort-Survival Ratio Method

In 1930, Dublin and Lodka provided an explicit age breakdown, which enabled analysts to follow each cohort through its life stages and apply appropriate birth and death rates for each generation. A descendant of this process is the Cohort-Survival Ratio (“CSR”) method, which is used to project public school enrollments. In this method, a survival ratio is computed for each grade progression, which essentially compares the number of students in a particular grade to the number of students in the previous grade during the previous year. The survival ratio indicates whether the enrollment is stable, increasing, or decreasing. A survival ratio of 1.00 indicates stable enrollment, less than 1.00 indicates declining enrollment, while greater than 1.00 indicates increasing enrollment. If, for example, a school district had 100 fourth graders and the next year only had 95 fifth graders, the survival ratio would be 0.95.

The CSR method assumes that what happened in the past will also happen in the future. In essence, this method provides a linear projection of the population. The CSR method is most applicable for districts that have relatively stable increasing or decreasing trends without any major unpredictable fluctuations from year to year. In school districts encountering rapid growth not experienced historically (a change in the historical trend), the CSR method must be modified and supplemented with additional information. As an example, in previous years, the district’s enrollment did not decline as much as expected. To account for more recent trends, a smaller number of years of historical enrollment (three) were used to compute the survival ratios to capture the current growth patterns in the school district. Recent home sales, private school enrollments, student withdrawals, and new registrations were also reviewed and influenced the decision to use fewer years of historical enrollment to generate survival ratios.

In this study, survival ratios were calculated using historical data from the last twenty years for birth to kindergarten, kindergarten to first grade, first grade to second grade, etc. Due to the fluctuation in survival ratios from year to year, it is appropriate to calculate an average survival ratio, which is then used to calculate grade enrollments five years into the future.

Historical Enrollment Trends

Historical enrollments (K-12) for Katonah-Lewisboro from 1999-2000 through 2018-19, a twenty-year period, are shown in Figure 2 and Table 2. Enrollment increased through 2002-03, where it was then essentially constant for the next three years. Peak enrollment occurred in 2005-06, when there were 4,115 students in the district. Enrollment began declining in 2006-07 and has declined in each of the last thirteen years. In 2018-19, enrollment is 2,961, which represents a loss of 1,154 students (-28.0%) since the 2005-06 peak enrollment.

Figure 2
Historical Enrollments (K-12) in Katonah-Lewisboro
1999-2000 to 2018-19

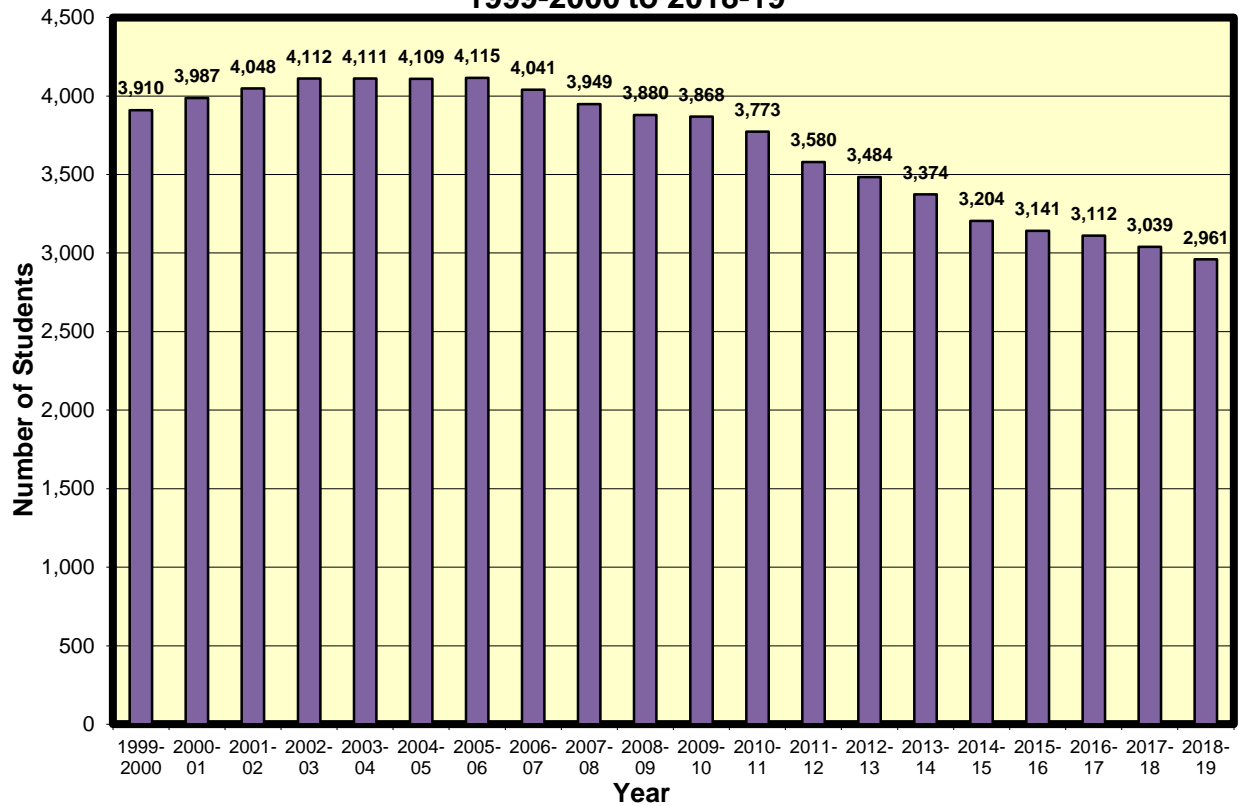


Table 2
Katonah-Lewisboro Historical Enrollments
1999-2000 to 2018-19

Year¹	K	1	2	3	4	5	6	7	8	9	10	11	12	SE²	K-5 Total	6-8 Total	9-12 Total	K-12 Total
1999-2000	300	353	315	337	351	354	332	292	279	271	227	251	244	4	2,014	903	993	3,910
2000-01	302	321	354	321	346	357	350	343	290	288	265	218	229	3	2,004	983	1,000	3,987
2001-02	297	318	325	363	315	349	356	346	340	289	285	251	211	3	1,970	1,042	1,036	4,048
2002-03	298	323	313	325	355	311	330	355	346	328	285	283	257	3	1,928	1,031	1,153	4,112
2003-04	268	317	315	309	327	362	321	327	352	334	321	269	284	5	1,903	1,000	1,208	4,111
2004-05	269	287	315	318	307	328	367	319	319	362	328	316	267	7	1,831	1,005	1,273	4,109
2005-06	285	294	289	306	320	305	318	369	319	310	349	327	315	9	1,800	1,006	1,309	4,115
2006-07	235	302	283	299	310	320	308	320	371	323	304	348	318	0	1,749	999	1,293	4,041
2007-08	251	260	300	281	305	312	305	307	317	355	309	303	344	0	1,709	929	1,311	3,949
2008-09	260	261	264	309	281	309	314	311	312	308	350	306	295	0	1,684	937	1,259	3,880
2009-10	262	279	257	266	313	286	303	310	317	307	313	352	303	0	1,663	930	1,275	3,868
2010-11	215	275	282	267	271	318	278	296	305	314	299	302	351	0	1,628	879	1,266	3,773
2011-12	190	225	279	272	252	269	306	275	287	304	314	290	294	23	1,497	871	1,212	3,580
2012-13	189	197	230	280	278	248	265	308	285	273	299	319	288	25	1,437	858	1,189	3,484
2013-14	174	210	195	233	279	277	242	267	303	279	275	300	322	18	1,386	812	1,176	3,374
2014-15	149	190	211	204	228	286	267	244	257	293	281	278	293	23	1,278	777	1,149	3,204
2015-16	200	174	191	221	207	228	292	267	248	249	296	275	283	10	1,231	807	1,103	3,141
2016-17	167	224	177	213	233	216	239	295	267	241	258	295	281	6	1,236	801	1,075	3,112
2017-18	176	176	234	183	216	237	208	245	298	265	240	260	294	7	1,229	751	1,059	3,039
2018-19	175	202	182	239	187	218	240	209	245	297	264	237	256	10	1,213	694	1,054	2,961

Notes: ¹Data were obtained from the New York State Department of Education BEDS reports and the Katonah-Lewisboro Union Free School District.

²Ungraded special education enrollment

Table 3
Katonah-Lewisboro Historical Survival Ratios
1999-2000 to 2018-19

Progression Years	B-K	K-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
1999-2000 to 2000-01	N/A	1.0700	1.0028	1.0190	1.0267	1.0171	0.9887	1.0331	0.9932	1.0323	0.9779	0.9604	0.9124
2000-01 to 2001-02	N/A	1.0530	1.0125	1.0254	0.9813	1.0087	0.9972	0.9886	0.9913	0.9966	0.9896	0.9472	0.9679
2001-02 to 2002-03	N/A	1.0875	0.9843	1.0000	0.9780	0.9873	0.9456	0.9972	1.0000	0.9647	0.9862	0.9930	1.0239
2002-03 to 2003-04	N/A	1.0638	0.9752	0.9872	1.0062	1.0197	1.0322	0.9909	0.9915	0.9653	0.9787	0.9439	1.0035
2003-04 to 2004-05	N/A	1.0709	0.9937	1.0095	0.9935	1.0031	1.0138	0.9938	0.9755	1.0284	0.9820	0.9844	0.9926
2004-05 to 2005-06	N/A	1.0929	1.0070	0.9714	1.0063	0.9935	0.9695	1.0054	1.0000	0.9718	0.9641	0.9970	0.9968
2005-06 to 2006-07	N/A	1.0596	0.9626	1.0346	1.0131	1.0000	1.0098	1.0063	1.0054	1.0125	0.9806	0.9971	0.9725
2006-07 to 2007-08	1.1461	1.1064	0.9934	0.9929	1.0201	1.0065	0.9531	0.9968	0.9906	0.9569	0.9567	0.9967	0.9885
2007-08 to 2008-09	1.1927	1.0398	1.0154	1.0300	1.0000	1.0131	1.0064	1.0197	1.0163	0.9716	0.9859	0.9903	0.9736
2008-09 to 2009-10	1.3646	1.0731	0.9847	1.0076	1.0129	1.0178	0.9806	0.9873	1.0193	0.9840	1.0162	1.0057	0.9902
2009-10 to 2010-11	1.2216	1.0496	1.0108	1.0389	1.0188	1.0160	0.9720	0.9769	0.9839	0.9905	0.9739	0.9649	0.9972
2010-11 to 2011-12	1.3768	1.0465	1.0145	0.9645	0.9438	0.9926	0.9623	0.9892	0.9696	0.9967	1.0000	0.9699	0.9735
2011-12 to 2012-13	1.1455	1.0368	1.0222	1.0036	1.0221	0.9841	0.9851	1.0065	1.0364	0.9512	0.9836	1.0159	0.9931
2012-13 to 2013-14	1.1447	1.1111	0.9898	1.0130	0.9964	0.9964	0.9758	1.0075	0.9838	0.9789	1.0073	1.0033	1.0094
2013-14 to 2014-15	1.2735	1.0920	1.0048	1.0462	0.9785	1.0251	0.9639	1.0083	0.9625	0.9670	1.0072	1.0109	0.9767
2014-15 to 2015-16	1.4493	1.1678	1.0053	1.0474	1.0147	1.0000	1.0210	1.0000	1.0164	0.9689	1.0102	0.9786	1.0180
2015-16 to 2016-17	1.4649	1.1200	1.0172	1.1152	1.0543	1.0435	1.0482	1.0103	1.0000	0.9718	1.0361	0.9966	1.0218
2016-17 to 2017-18	1.6923	1.0539	1.0446	1.0339	1.0141	1.0172	0.9630	1.0251	1.0102	0.9925	0.9959	1.0078	0.9966
2017-18 to 2018-19	1.4113	1.1477	1.0341	1.0214	1.0219	1.0093	1.0127	1.0048	1.0000	0.9966	0.9962	0.9875	0.9846
Avg. 20-Year Ratios	N/A	1.0812	1.0039	1.0190	1.0054	1.0079	0.9895	1.0025	0.9971	0.9841	0.9910	0.9869	0.9891
Maximum Ratio	1.6923	1.1678	1.0446	1.1152	1.0543	1.0435	1.0482	1.0331	1.0364	1.0323	1.0361	1.0159	1.0239
Minimum Ratio	1.1447	1.0368	0.9626	0.9645	0.9438	0.9841	0.9456	0.9769	0.9625	0.9512	0.9567	0.9439	0.9124
Avg. 3-Year Ratios	1.5228	1.1008	1.0394	1.0276	1.0180	1.0132	0.9878	1.0150	1.0051	0.9946	0.9960	0.9976	0.9906
Avg. 4-Year Ratios	1.5044	1.1072	1.0320	1.0568	1.0301	1.0233	1.0080	1.0134	1.0034	0.9870	1.0094	0.9973	1.0010

Notes: Orange shaded cells reflect birth-to-kindergarten survival ratios for a half-day kindergarten program.

Green shaded cells reflect birth-to-kindergarten survival ratios for a full-day kindergarten program.

Blue shaded cells reflect kindergarten-to-first grade survival ratios for a full-day kindergarten program.

Table 3 shows computed grade-by-grade survival ratios for the past twenty years, 1999-2000 to 2018-19. In addition, the average, minimum, and maximum survival ratios are shown for the past twenty years along with the three-year and four-year averages, which will be used to project future enrollments. Survival ratios from birth-to-kindergarten could not be computed for the entire twenty-year period since birth data by the school district's geographical boundaries were not available prior to 2002. The average survival ratios also indicate the net migration by grade, where values over 1.000 reflect inward migration and values below 1.000 reflect outward migration. Eleven of the 13 average survival ratios in the four-year trend were above 1.000, indicating a general net inward migration. All of the survival ratios in the four-year trend at the elementary and middle school levels were above 1.000.

Factors related to inward migration include families with school children purchasing an existing home or a new housing unit. The reasons for families moving into a community vary. For instance, a family could move into the Katonah-Lewisboro area for economic reasons, as it provides convenient mass transportation to New York City for commuting to work. Another plausible reason for inward migration is the reputation of the school district, as the appeal of a school district draws families into a community, resulting in transfers of students into the district. On the flip side, outward migration is caused by families with children moving out of the community, perhaps due to difficulty in finding employment or affordable housing. Outward migration in the school district can also be caused by parents choosing to withdraw their children from public school to attend private or parochial schools, or to attend a different public school district. The district does collect data on new registrants and withdrawals which will be discussed later in the report.

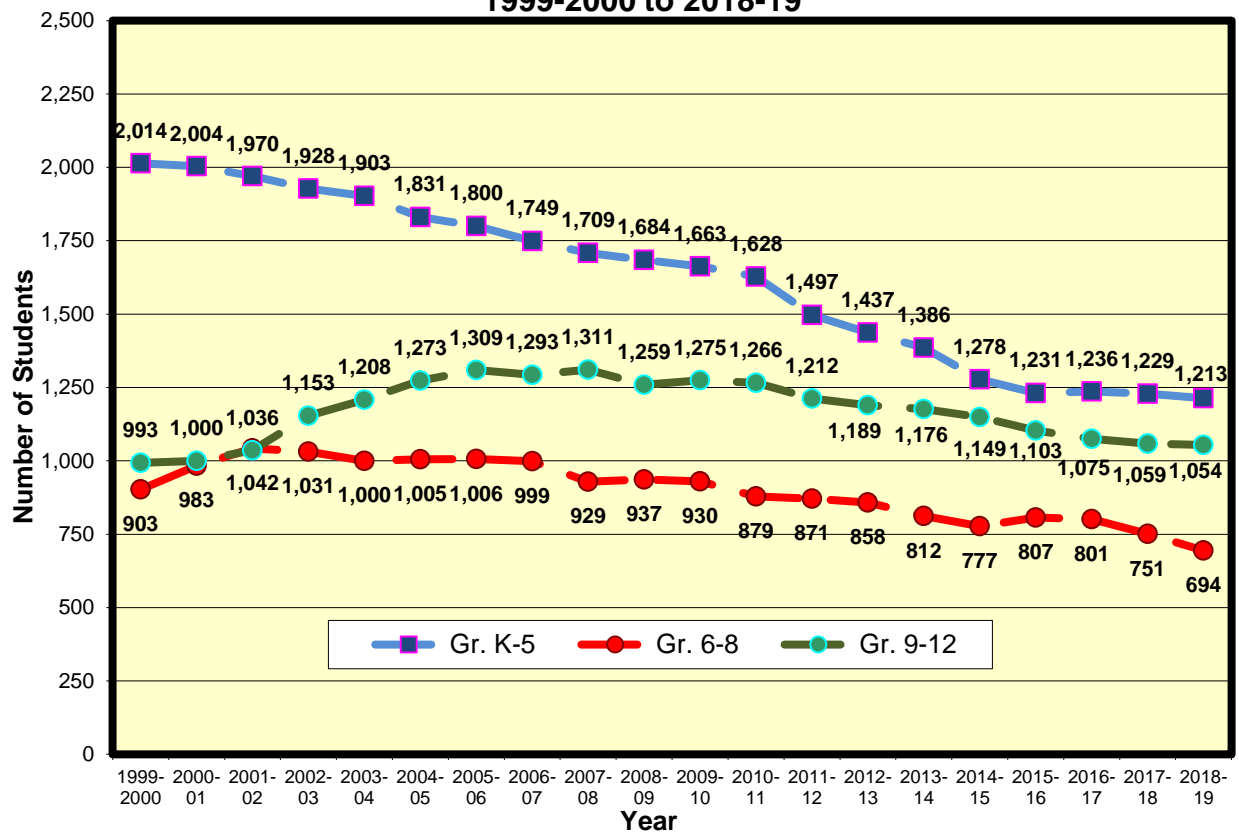
Since full-day kindergarten was instituted in the district for the first time in September 2014, there are only five historical birth-to-kindergarten survival ratios that reflect the program change, which are shaded green in Table 3. In addition, there are only four historical full-day kindergarten-to-first grade survival ratios, which are shaded blue in Table 3.

Historical enrollments are also shown in Table 2 and Figure 3 by level (K-5, 6-8, and 9-12), which represents the current configuration of the school district. Self-contained special education/ungraded students were incorporated into the totals by level.

At the K-5 level, enrollment had declined for 17 consecutive years (1999-2000 to 2015-16) before stabilizing. Enrollment is 1,213 in 2018-19, which represents a loss of 801 students from the 1999-2000 enrollment of 2,014. Elementary enrollment has been fairly stable in the last four years, ranging from 1,213-1,236 students per year.

For John Jay Middle School, which contains grades 6-8, enrollment increased through 2001-02, peaking at 1,042 students. Enrollment was essentially constant from 2003-04 to 2006-07 at approximately 1,000 students. Since then, enrollment has been declining, in general. In 2018-19, enrollment is 694, which represents a loss of 348 students from the peak enrollment in 2001-02.

Figure 3
Historical Enrollments by Level
1999-2000 to 2018-19



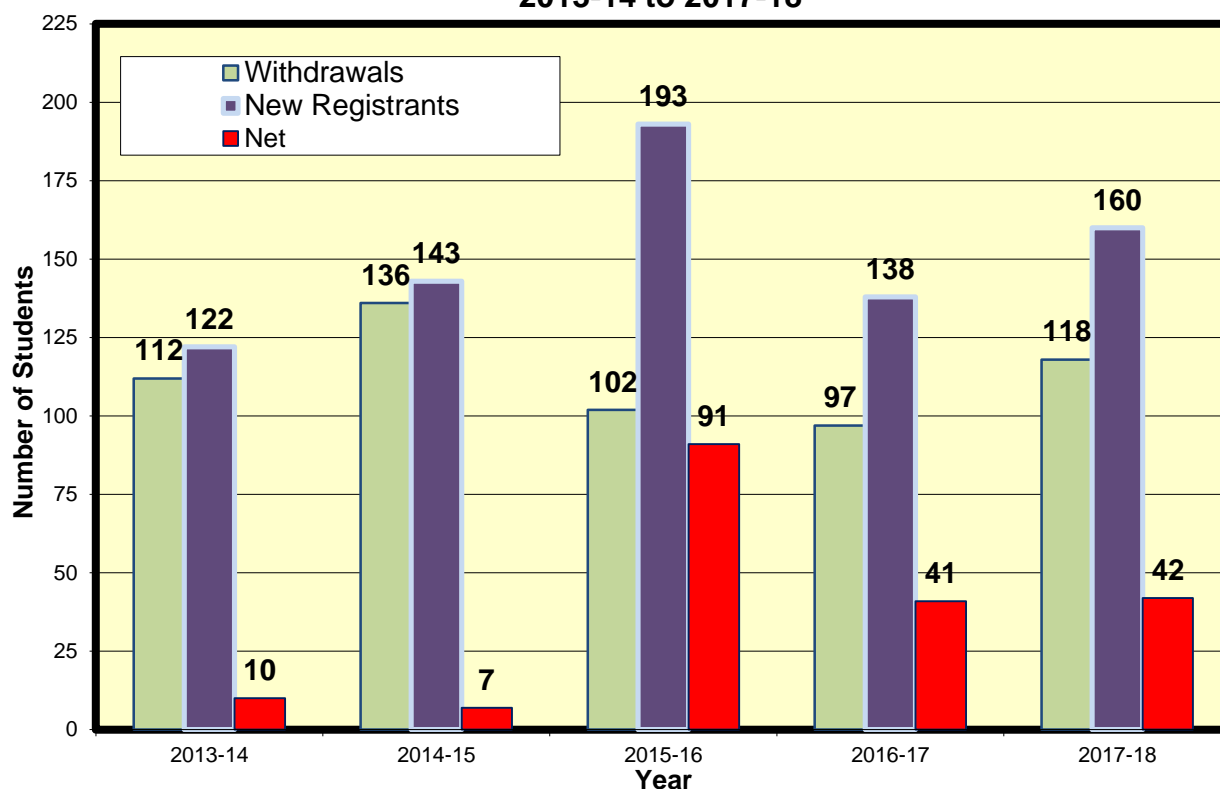
Finally, for John Jay High School, which contains grades 9-12, enrollment increased through 2007-08, peaking at 1,311 students. After a period of stable enrollment, the school has experienced declining enrollment in each of the last nine years. Enrollment is 1,054 in 2018-19, which represents a loss of 257 students from the peak enrollment in 2007-08.

Student Withdrawals and New Registrants

Student withdrawals and new registrations were reviewed from 2013-14 to 2017-18 and are displayed in Figure 4. For each school year, the data were collected from September 1 to August 31 of the following year. For example, data from 2017-18 represent withdrawals and new registrations that occurred from September 1, 2017 through August 31, 2018. In each of the last five years, there has been a net gain of students, as new registrants exceeded withdrawals. In the last three years, the net gain of students has ranged from 41-91 students. Highlights of the 2017-18 data are as follows:

- 118 students withdrew from the district, of which 42 students (36%) relocated out of the district.
- 16 students (14%) withdrew to attend either The Harvey School (n = 9) or The Windward School (n = 7).
- 160 new children entered the district, of which 41 students (26%) returned from private or parochial schools to attend public school.

Figure 4
Student Withdrawals and New Registrants
2013-14 to 2017-18



Non-Public School Enrollments

In Table 4 following, the number of Katonah-Lewisboro resident students attending non-public schools is shown from 2013-14 through 2017-18, which represents a five-year historical period. Counts are shown by school for elementary (K-6) and secondary (7-12). Pre-kindergarten students were excluded. The number of non-public students (K-12) has been fairly constant, ranging from 227-254 students per year. At the elementary level, the number of Katonah students attending non-public schools has ranged from 78-92. At the secondary level, the number of Katonah students attending non-public schools has ranged from 141-162 with no apparent increasing or declining trend. In 2017-18, the number of Katonah-Lewisboro resident students attending non-public schools represented 7.4% of the Katonah-Lewisboro resident student population.

Two-thirds of Katonah-Lewisboro's non-public school population attends one of five schools, which have consistently educated the largest number of Katonah-Lewisboro students over the five-year period. In 2017-18, the five non-public schools that had the greatest number of Katonah-Lewisboro resident students were:

1. The Harvey School – 56 students (23.6% of Katonah-Lewisboro non-public population)
2. The Rippowam Cisqua School – 37 students (15.6%)
3. Hackley School – 23 students (9.7%)
4. St. Patrick School – 21 students (8.9%)
5. John F. Kennedy Catholic High School – 15 students (6.3%)

Table 4
Non-Public School Enrollments of Katonah-Lewisboro Resident Students

School	2013-14			2014-15			2015-16			2016-17			2017-18		
	K-6	7-12	Total	K-6	7-12	Total	K-6	7-12	Total	K-6	7-12	Total	K-6	7-12	Total
Archbishop Stepinac High School	0	0	0	0	0	0	0	2	2	0	5	5	0	5	5
Chapel School (The)	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
Cheder Chabad Of Monsey	1	1	2	1	1	2	1	0	1	1	0	1	1	1	2
Collegiate School	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Convent Of The Sacred Heart	0	0	0	0	0	0	0	1	1	0	1	1	0	2	2
Corpus Christi-Holy Rosary School	3	0	3	3	0	3	3	0	3	2	0	2	2	0	2
Fordham Preparatory School	0	5	5	0	7	7	0	6	6	0	8	8	0	6	6
French-American School	2	0	2	0	0	0	2	0	2	0	0	0	0	0	0
Fusion Academy Westchester	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
German School Ny	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Gow School (The)	0	2	2	0	2	2	0	0	0	0	0	0	0	0	0
Hackley School	4	14	18	6	15	21	10	15	25	10	10	20	11	12	23
Harvey School (The)	6	43	49	5	46	51	7	56	63	8	51	59	5	51	56
Horace Mann Upper School	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
Hudson Valley Christian Academy	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
Iona Prep School	0	10	10	0	7	7	0	6	6	0	6	6	0	8	8
John Cardinal O'Connor School	1	0	1	0	0	0	0	0	0	1	0	1	1	0	1
John F. Kennedy Catholic High School	0	27	27	0	23	23	0	18	18	0	14	14	0	15	15
Longview School	1	1	2	0	1	1	0	1	1	0	0	0	0	0	0
Maplebrook School (The)	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
Masters School (The)	1	9	10	1	8	9	1	6	7	2	8	10	1	10	11
Millbrook School	0	4	4	0	5	5	0	6	6	0	4	4	0	4	4
Montfort Academy	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0
Oakwood Friends School	0	0	0	0	0	0	0	1	1	0	1	1	0	0	0
Our Montessori School	1	0	1	1	0	1	3	0	3	4	0	4	2	0	2
Poughkeepsie Day School	0	0	0	3	0	3	2	1	3	0	0	0	0	0	0
Professional Children's School	0	1	1	0	0	0	0	0	0	0	1	1	0	1	1
Regis High School	0	1	1	0	2	2	0	3	3	0	1	1	0	0	0
Rippowam Cisque School (The)	35	13	48	33	13	46	31	18	49	29	11	40	27	10	37
Robert Louis Stevenson School	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
Ross School	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
Rye Country Day School	1	6	7	1	5	6	1	4	5	1	3	4	1	3	4
School For Young Performers	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
School Of The Holy Child	0	3	3	0	3	3	0	2	2	0	2	2	0	3	3
Seed Day Care Center (The)	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
Solomon Schechter School- Westchester	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
Solomon Schechter Upper School	0	0	0	0	0	0	0	1	1	0	1	1	0	1	1
Soundview Prep School	0	4	4	0	3	3	0	3	3	0	0	0	0	0	0
St. Augustine School	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
St. Elizabeth Ann Seton School	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
St. Patrick School	23	5	28	20	1	21	14	1	15	16	2	18	17	4	21
St. Patrick School	3	1	4	3	2	5	2	0	2	2	1	3	2	1	3
Saints Philip and James School	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Storm King School	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0
Trinity Pawling School	0	5	5	0	5	5	0	5	5	0	5	5	0	8	8
Ursuline School	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2
Westfield Day School (The)	0	2	2	0	1	1	0	0	0	4	0	4	0	0	0
Windward School	8	1	9	8	1	9	7	3	10	0	0	0	5	0	5
Windward School- MS Campus	0	0	0	0	0	0	0	0	0	5	2	7	3	5	8
Total	92	162	254	88	156	244	84	161	245	86	141	227	78	159	237

Source: New York State Department of Education BEDS Report

Kindergarten and First Grade Replacement

Kindergarten replacements were analyzed to determine whether there was any relationship between overall enrollment change and kindergarten replacement, which is the numerical difference between the number of graduating 12th graders and the number of entering kindergarten students. The district has experienced negative kindergarten replacement in the last five school years, and negative first grade replacement for the eight years prior. Negative kindergarten replacement occurs when the number of graduating 12th grade students is larger than the number of kindergarten students replacing them in the next year. Conversely, positive kindergarten replacement occurs when the number of graduating 12th grade students is less than the number of kindergarten students entering the district in the next year. The district has not experienced positive kindergarten replacement since 2005-06, the last year it experienced a gain in enrollment. Since the district had a half-day kindergarten program prior to instituting a full-day program in 2014-15, it was more appropriate to compare the 12th grade student population to the first grade student population, as the district gains a number of students from kindergarten to first grade when parents elect to send their child to a full-day kindergarten program elsewhere before enrolling them in the public school district for the first grade. Since the full-day program was instituted, the district has lost an average of 121 students per year due to kindergarten replacement. As shown in Figure 5, the loss of students due to kindergarten replacement was 119 students in 2018-19, as 294 12th graders graduated in 2017-18 and were replaced by 175 kindergarten students in 2018-19.

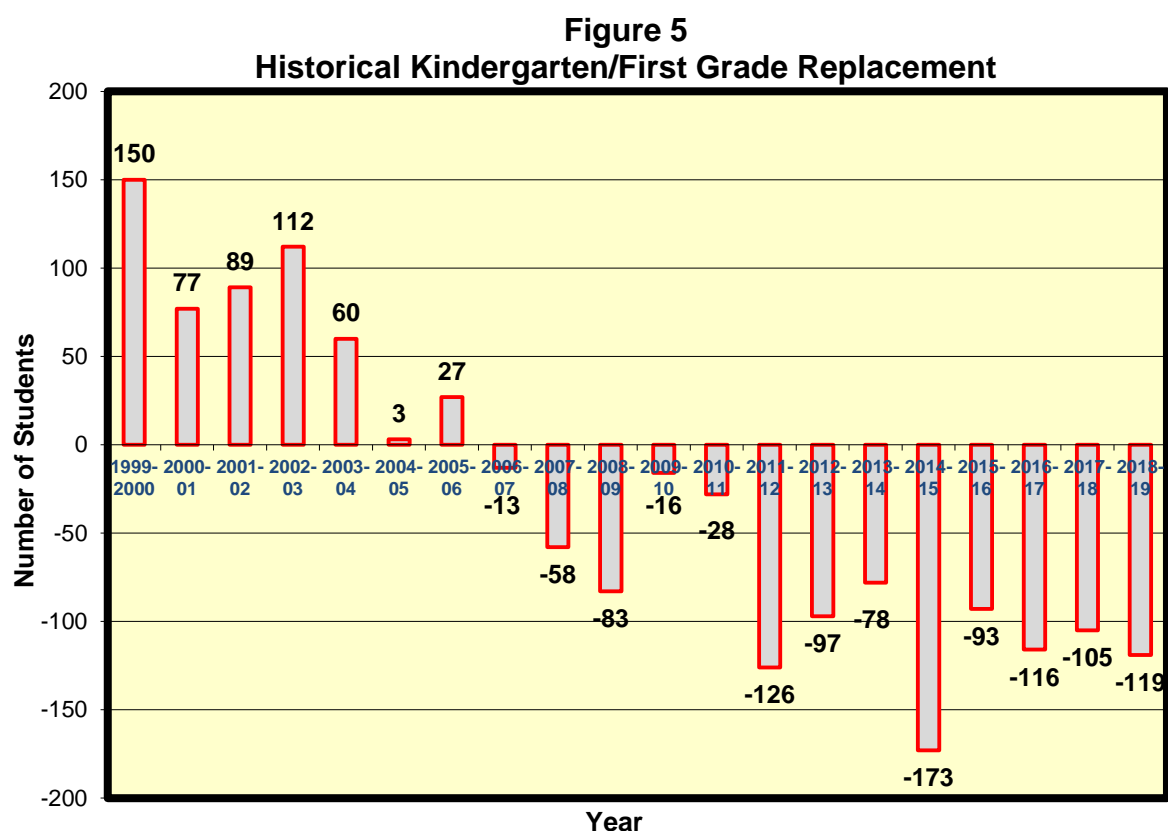
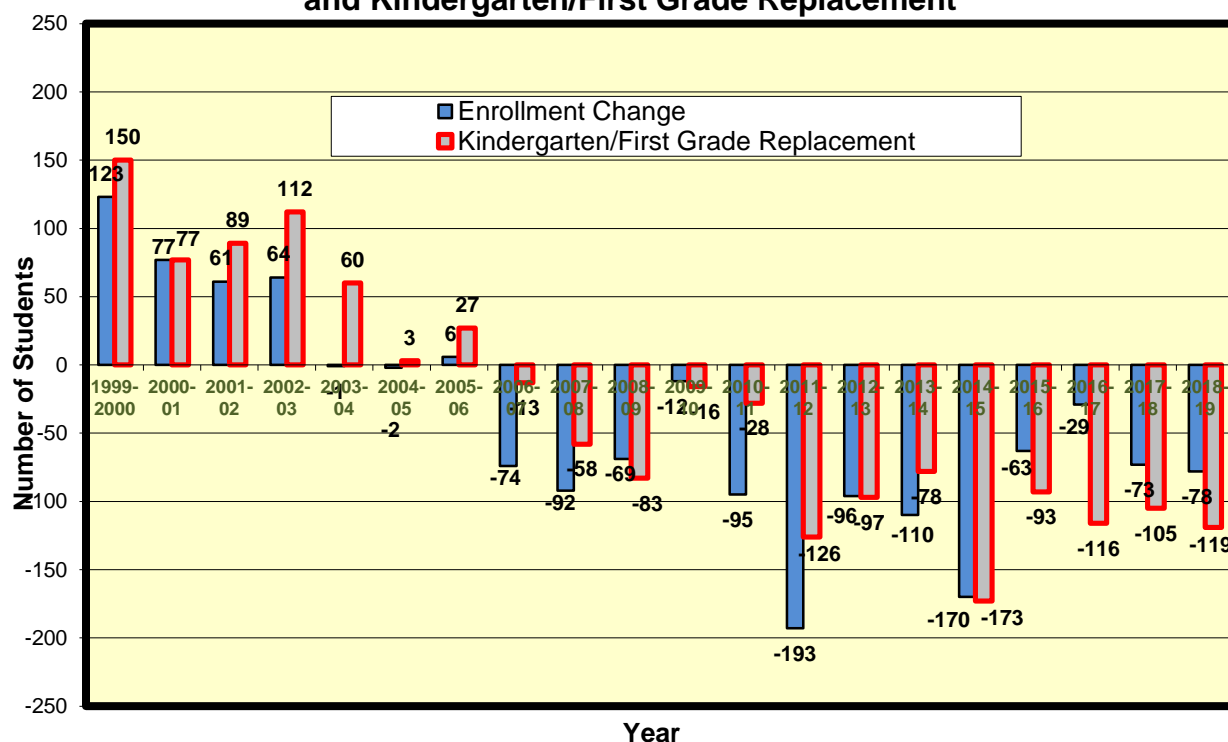


Figure 6 shows the annual change in enrollment compared to kindergarten/first grade replacement. As the figure demonstrates, there appears to be a strong relationship between the overall change in enrollment and kindergarten/first grade replacement. Although this data represents a small sample, the correlation coefficient between the two variables was 0.89, indicating a strong relationship. Correlation coefficients measure the relationship or association between two variables; this does not imply that there is cause and effect between the two variables. Other variables, known as lurking variables, may have an effect on the true relationship between kindergarten/first grade replacement and total enrollment change. Negative correlation coefficients indicate that as one variable is increasing (decreasing), the other variable is decreasing (increasing). Positive correlation coefficients indicate that as one of the variables increases (decreases), the other variable increases (decreases) as well. The computed linear correlation coefficient is always between -1 and $+1$. Values near -1 or $+1$ indicate a strong linear relationship between the variables while values near zero indicate a weak linear relationship. Based on the correlation of 0.89, there appears to be a strong statistical relationship between kindergarten/first grade replacement and enrollment change in the school district in the last twenty years.

In 2018-19, the district's enrollment declined by 78 students, which is less than the negative kindergarten replacement (-119). In each of the last five years, the district's losses to negative kindergarten replacement have been partially offset by a net inward migration of students in the other grades (K to 1, 1 to 2, 2 to 3, etc.). This was confirmed earlier as 11 of 13 average survival ratios (four-year trend) were above 1.000. In addition, there has been a net gain of students (new registrants – withdrawals) in the last five years as shown in Figure 4.

Figure 6
Comparison of K-12 Enrollment Change
and Kindergarten/First Grade Replacement



Birth Data

Birth data were needed to compute kindergarten enrollments, which were calculated as follows. Birth data, which are lagged five years behind their respective kindergarten classes, were used to calculate the survival ratio for each birth-to-kindergarten cohort. For instance, in 2013, there were 124 births in the Katonah-Lewisboro attendance area. Five years later (the 2018-19 school year), 175 children enrolled in kindergarten, which is equal to a survival ratio of 1.411 from birth to kindergarten. Birth counts and birth-to-kindergarten survival ratios are displayed in Table 5. Values greater than 1.000 indicate that some children are born outside of a school district's attendance boundaries and are attending kindergarten in the school district five years later, i.e. an inward migration of children. This type of inward migration is typical in school districts with excellent reputations, because the appeal of a good school district draws families into the community. Inward migration is also seen in communities where there are a large number of new housing starts, with families moving into the community having children of age to attend kindergarten. Birth-to-kindergarten survival ratios that are below 1.000 indicate that a number of children born within a community are not attending kindergarten in the school district five years later. This is common in communities where a high proportion of children attend private, parochial, or out-of-district special education facilities, or where there is a net migration of families moving out of the community. It is also common in school districts that have a half-day kindergarten program, where parents choose to send their child to a private full-day kindergarten for the first year.

Table 5
Birth Counts and Historical Birth-to-Kindergarten Survival Ratios
in the Katonah-Lewisboro School District

Birth Year ¹	Total Number of Births in School Attendance Area	Number of Kindergarten Students Five Years Later	Birth-to-Kindergarten Survival Ratio
2002	219	251	1.146
2003	218	260	1.193
2004	192	262	1.365
2005	176	215	1.222
2006	138	190	1.377
2007	165	189	1.145
2008	152	174	1.145
2009	117	149	1.274
2010	138	200	1.449
2011	114	167	1.465
2012	104	176	1.692
2013	124	175	1.411
2014	112	N/A	N/A
2015	124	N/A	N/A
2016	124	N/A	N/A

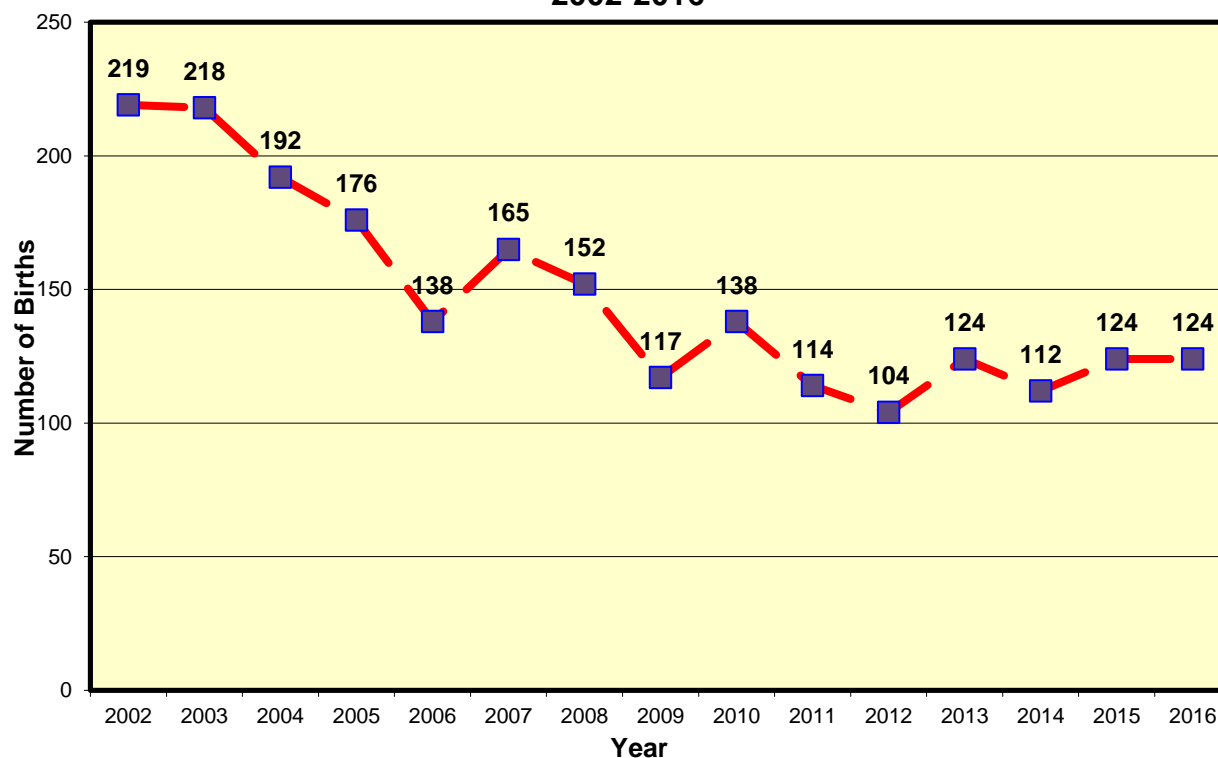
Notes: ¹Birth data were provided by the New York State Department of Health from 2002-2016. Blue shaded cells reflect implementation of a full-day kindergarten program

Birth-to-kindergarten survival ratios have been consistently above 1.000 in Katonah-Lewisboro and have ranged from 1.145 to 1.692 in the last twelve years. Since birth data by the district's geographical area were not available prior to 2002, birth-to-kindergarten survival ratios could not be computed prior to that year. Birth-to-kindergarten survival ratios have increased since implementing a full-day kindergarten program. The increase in the birth-to-kindergarten survival ratios may not only be related to the change to a full-day kindergarten program, but also may be due to an increase in the number of families moving into the school district's geographical catchment area with children under the age of five.

Birth data were geocoded by the New York State Department of Health from 2002-2016 by assigning geographic coordinates to a birth mother based on her street address, which allows for tabulation of births by the school district's attendance area. Birth data were not yet available for 2017 or 2018 and were estimated by using a four-year rolling average. The 2017 and 2018 birth cohorts will become the kindergarten classes of 2022 and 2023. The birth counts used for these years were 121 and 120 respectively.

Figure 7 shows the number of births in the Katonah-Lewisboro attendance area since 2002. Births have declined from a high of 219 in 2002 to a low of 104 in 2012. However, in the last four years, births have stabilized, ranging from 112-124 births per year.

Figure 7
Historical Birth Counts for the
Katonah-Lewisboro School District
2002-2016



New Housing Growth

Planning and Zoning Departments were contacted in Bedford (Katonah), Lewisboro, Pound Ridge, and North Salem to provide a status update regarding new housing developments as reported in the November 2017 demographic study.

1. Katonah CDP

Mr. Jeffrey Osterman, Director of Planning for the Town of Bedford, provided information regarding current and future development in the hamlet of Katonah. As shown in Table 6, there is the potential for three residential developments. Changes to the status in a development since the last demographic study have been bolded. Since our last report in November 2017, there has been no change in the status of either the Bailey Hall or American Capital Enterprises developments. Neither of these developments have had any significant changes in status since 2014. In total, there is the potential for 32 detached single-family homes.

Table 6
Potential New Residential Subdivisions in Katonah

Development	Number of Units	Housing Type	Notes
Bailey Hall	21	Single-Family	Has not been approved. In FEIS phase (Final Environmental Impact Statement). No change in status since 2014 report.
American Capital Enterprises	10	Single-Family	Has not been approved. Preparing Draft Environmental Impact Statement (DEIS). To be located on Upper Hook Road. No change in status since 2014 report.
Hillside Avenue	1	Single-Family	Approved. Currently under construction.
Total	32		

Source: Mr. Jeffrey Osterman, Director of Planning for the Town of Bedford

Note: Bolded text reflects a change in status from the November 2017 demographic study.

2. Town of Lewisboro

Ms. Ciorsdan Conran, Lewisboro Planning Board Secretary, provided information regarding current and future development in Lewisboro. A list of potential developments, number of new housing units, and development status follows in Table 7, which is an update to the table shown in the November 2017 demographic study. In most instances, there was little change in the status of the developments. New developments that have been added to the table are shaded blue. Changes to the status in a development have been bolded. The notable changes from the previous demographic study are as follows:

- There is the potential for an additional four (4) detached single-family homes (Dedvukaj, Goncalves, J2 Boniello, and Pinetti).
- Three additional units have been occupied at Falcon Ridge in the last year.
- Five COs were issued in Laurel Ridge (formerly known as Oakridge Gardens) in the last year.
- The number of units at Wilder Balter was reduced from 46 to 42 and the bedroom distribution was changed with fewer one-bedroom units, and more two- and three-bedroom units.

Table 7
Potential New Residential Subdivisions in the Town of Lewisboro

Development	Number of Units	Housing Type	Status
Arias/Lexus	2	Single-Family	Plat filed, one unit occupied
Cedar Knolls	2	Single-Family	Plat filed, one unit occupied
Dedvukaj	1	Single-Family	Pending
Falcon Ridge	11	Single-Family	Four units occupied, one unit under construction
Goncalves	1	Single-Family	Pending
Hayes Stein	3	Single-Family	Plat filed, one unit occupied
J2 Boniello	1	Single-Family	One unit occupied
JVG Estates (Formerly Popoli)	6	Single-Family	Plat filed, one unit occupied, one building permit has been pulled
Leitner/Hubsher	2	Single-Family	Plat filed, one unit occupied
Mumbach	3	Single-Family	Plat filed, two units occupied
Laurel Ridge (formerly Oakridge Gardens)	47	Condo	Certificates of Occupancy issued for 30 units. Units are 2-bedroom.
Plechavicius	3	Single-Family	Plat filed, one unit occupied
Pinetti	1	Single-Family	CO pending
Pinheiro	2	Single-Family	Plat filed, one unit occupied
Silvermine	13	Single-Family	Pending
SSEL	2	Single-Family	Pending
Syms	2	Single-Family	Plat filed, one unit occupied, one building permit has been pulled
Todd Management Subdivision	4	Single-Family	Pending
Wilder Balter	42	Townhouse	Pending- Affordable townhouse rental units with 10 1-BR, 22 2-BR, and 10 3-BR
Total	59 Detached Single-Family, 47 Multi-Family (Market-rate), 42 Multi-family (Affordable)		

Source: Ms. Ciorsdan Conran, Lewisboro Planning Board Secretary

Notes: Blue-shaded developments are new from the November 2017 demographic study.

Bolded text reflects a change in status from the November 2017 demographic study.

With respect to historical new construction in Lewisboro, the number of COs issued for new homes is shown in Table 8. A total of 45 COs were issued from 2013-2018. Of the 20 COs issued in 2017 and 2018, twelve (12) were issued for Laurel Ridge.

Table 8
Number of Residential Certificates of Occupancy by Year
in the Town of Lewisboro

Year	COs
2013	2
2014	2
2015	11
2016	10
2017	8
2018 (thru October 24, 2018)	12
Total	45

Source: Town of Lewisboro Building Department

3. Town of North Salem

Ms. Dawn Onufrik, North Salem Planning Board Secretary, provided information regarding current and future development in the section of the town that sends to Katonah-Lewisboro. Ms. Onufrik stated that there are no development applications before the planning board in that section of the town, which is unchanged from our last demographic study.

4. Town of Pound Ridge

Ms. Karen Taft, Pound Ridge Planning Board Administrator, provided information regarding current and future development in the section of the town that sends to Katonah-Lewisboro School. Ms. Taft stated that there are no potential developments in that section of the town, which is unchanged from our last demographic study.

Estimate of School-Age Children from New Housing

In the process of determining how many children will come from the new housing units in Katonah and Lewisboro, statewide multipliers published by Econsult Solutions Inc. (“ESI”)² were utilized. The resource provides housing multipliers (student yields) based on housing type, number of bedrooms, and housing tenure (ownership versus rental). The multipliers used in this report project the number of school-age children based on information collected from a sample of households in New York from the 2011-2015 American Community Survey Public Use Microdata Series (“PUMS”). Student multipliers are greatest for detached single-family homes and smallest for apartments, townhouses, and condominiums. While the multipliers are for school-age children and not those attending public school, the estimate will provide the school district with an approximation of the number of new school children.

There is the potential for 59 detached single-family homes and 89 multi-family units in Lewisboro and 32 detached single-family homes in Katonah for a total of 180 units. To project the number of school-age children from the new housing units, several assumptions were made:

1. The student yield multipliers used from ESI would be from a sample of New York households and these multipliers would be representative of the families moving into Katonah or Lewisboro.
2. The estimated number of students reflects units yet to be completed (e.g., seven (7) units in Falcon Ridge have yet to be constructed).
3. All detached single-family homes were assumed to have four bedrooms and have the following student yield multiplier: 0.924.
4. All multi-family units were assumed to have the following student yield multiplier: 0.334.

In total, 90 school-age children are projected to be generated from the new housing developments. As this represents school-age children, the number of public school children is likely to be lower. The baseline enrollment projections were not adjusted for the additional children anticipated from the new housing developments since it is unclear whether all of the proposed residential developments will ever get constructed as many of the developments have been in the housing pipeline for more than five years. It is recommended that the Board continue to monitor the status of all proposed developments to determine the future impact on the school district.

² Retrieved from <https://econsultsolutions.com/wp-content/uploads/2018/04/NY.pdf> on October 29, 2018.

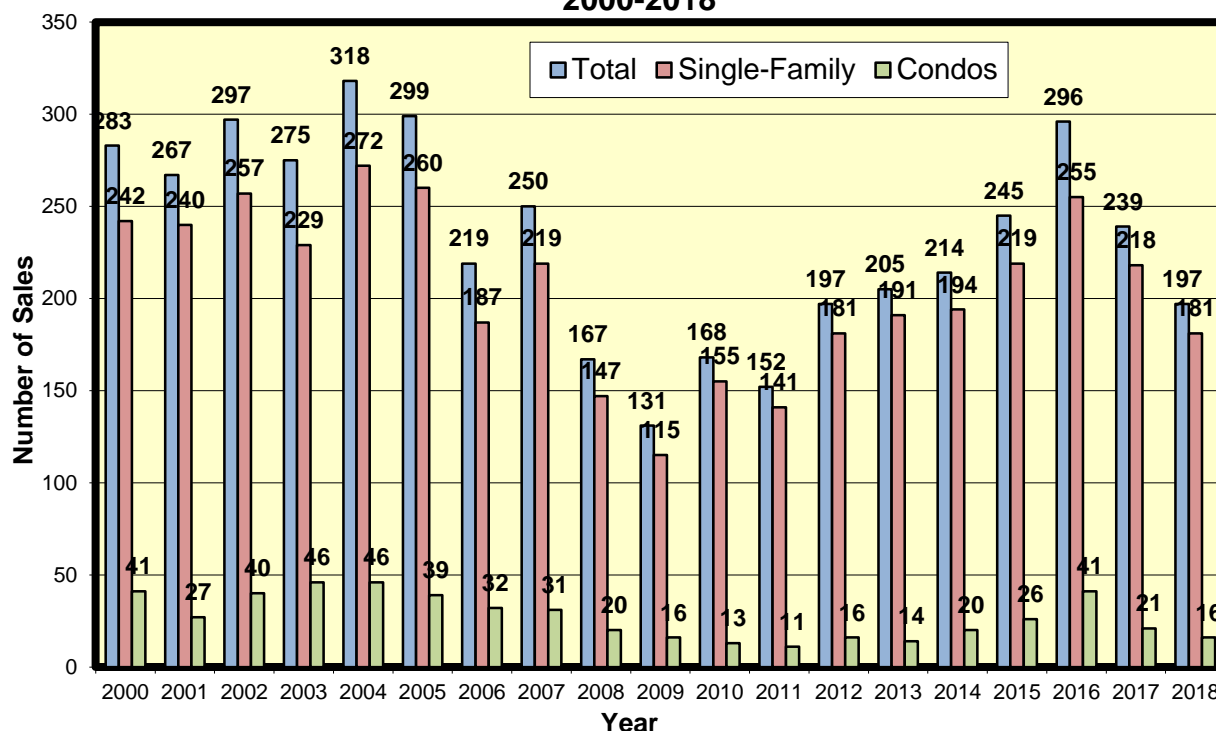
Home Sales

In Figure 8 following, the number of annual home sales is shown from 2000-2018 for the area served by Katonah-Lewisboro. Total home sales are broken down for detached single-family homes and condos. The majority of home sales are for detached single-family homes. In the last five years, 90% of the sales were for detached single-family homes.

Home sales peaked at 318 in 2004 before declining through 2009 due to the banking and financial crises. After hitting a low of 131 home sales in 2009, the number of sales has been steadily increasing, as there were nearly 300 home sales in 2016. Since then, the number of sales has been lower. In 2017, there were 239 home sales. As of October 2018, there were 197 home sales with an additional 35 sales pending. If all homes under contract close by the end of the year, there would be 232 home sales in 2018, which would be similar to the total in 2017.

It appears that the increase in home sales is having an effect on enrollment in the district. As discussed previously in the report, 11 of 13 average survival ratios (four-year trend) were above 1.000, indicating net inward migration. While not known for certain, it is likely that the increase in home sales has resulted in an inward migration of parents with school-age children and an increase in the survival ratios, as buyers are likely to be families with children. This was evident as all of the survival ratios at the elementary and middle school levels were above 1.000, which are the grades parents are more likely move into a district with school-age children.

Figure 8
Home Sales in Katonah-Lewisboro Sending Area
2000-2018



Enrollment Projections

Enrollments were calculated using cohort-survival ratios in two separate projections based on the last three and four years of historical enrollment data. Enrollments were computed for each grade from 2019-20 through 2023-24, a five-year period.

Projected K-12 enrollments using cohort-survival ratios based on historical data from the last three years follows in Table 9 and Figure 9. Total enrollment is projected to slowly decline throughout the projection period and be 2,766 in 2023-24, which would be a loss of 195 students from the 2018-19 enrollment of 2,961.

Table 9
Projected Grade K-12 Enrollments Using Cohort-Survival Ratios
and 3 Years of Historical Data
2019-20 to 2023-24

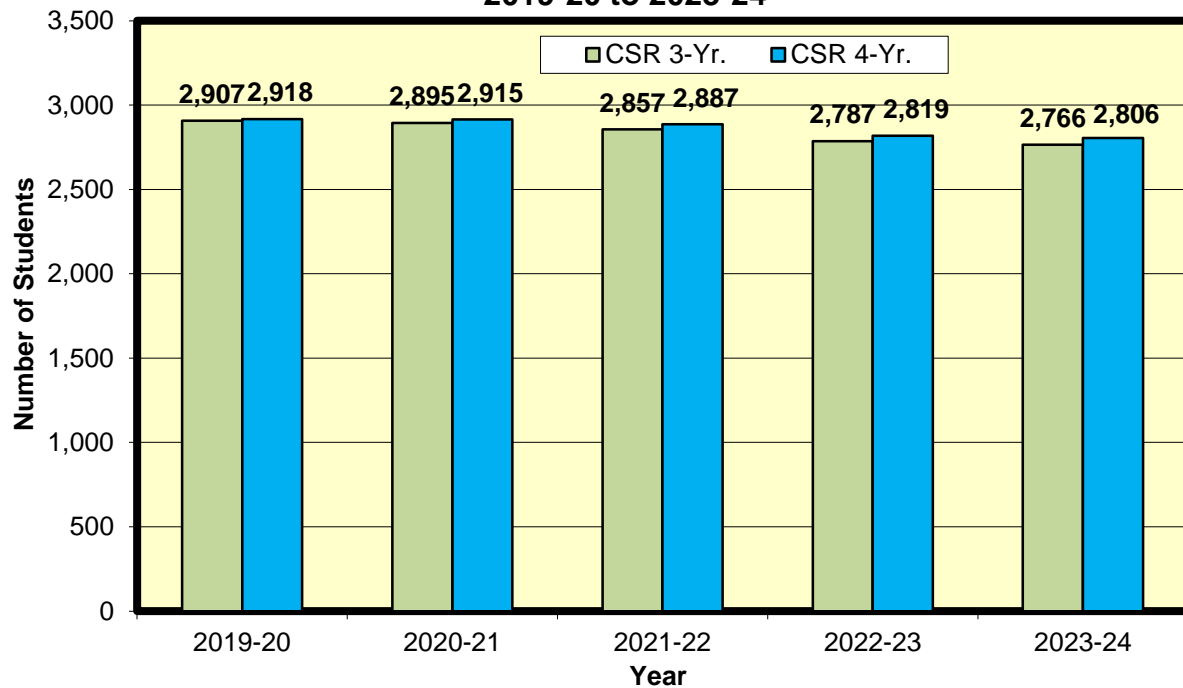
Year	K	1	2	3	4	5	6	7	8	9	10	11	12	Sp. Ed	K-12 Total
2019-20	171	193	210	187	243	189	215	244	210	244	296	263	235	7	2,907
2020-21	189	188	201	216	190	246	187	218	245	209	243	295	261	7	2,895
2021-22	189	208	195	207	220	193	243	190	219	244	208	242	292	7	2,857
2022-23	184	208	216	200	211	223	191	247	191	218	243	208	240	7	2,787
2023-24	183	203	216	222	204	214	220	194	248	190	217	242	206	7	2,766

Projected K-12 enrollments using cohort-survival ratios based on historical data from the last four years follows in Table 10 and Figure 9. Using this method, total enrollment is projected to decline at a slower rate and be 2,806 in 2023-24, which would be a loss of 155 students from the 2018-19 enrollment.

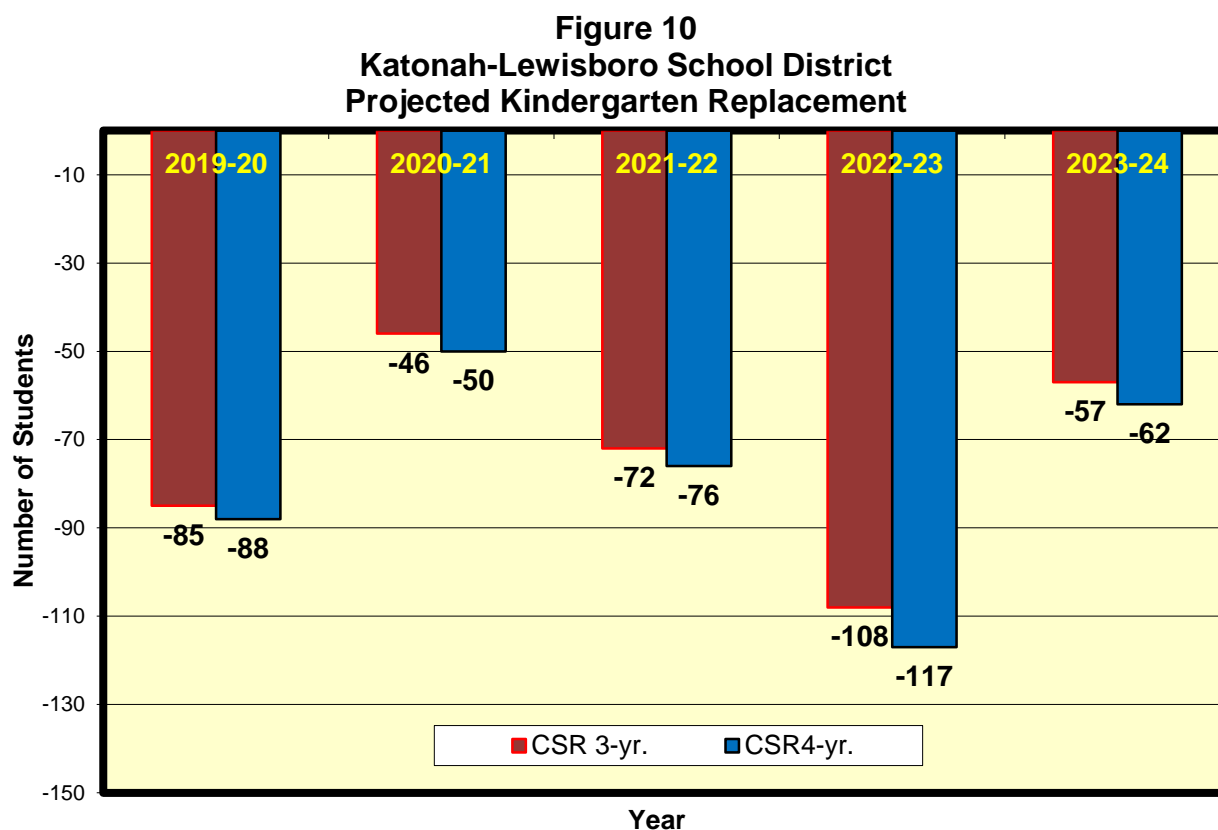
Table 10
Projected Grade K-12 Enrollments Using Cohort-Survival Ratios
and 4 Years of Historical Data
2019-20 to 2023-24

Year	K	1	2	3	4	5	6	7	8	9	10	11	12	Sp. Ed	K-12 Total
2019-20	168	194	208	188	246	191	220	243	210	242	300	263	237	8	2,918
2020-21	187	186	200	215	194	252	193	223	244	207	244	299	263	8	2,915
2021-22	187	207	192	207	221	199	254	196	224	241	209	243	299	8	2,887
2022-23	182	207	214	199	213	226	201	257	197	221	243	208	243	8	2,819
2023-24	181	202	214	221	205	218	228	204	258	194	223	242	208	8	2,806

Figure 9
Katonah-Lewisboro School District
Enrollment Projections
2019-20 to 2023-24



As discussed earlier in the report, the school district has experienced negative kindergarten replacement in the last five school years and negative first grade replacement for the eight years prior. The projected decline in enrollment appears to be partially due to negative kindergarten replacement, which is projected to continue in the future. In the next five years, the loss of students due to this phenomenon is projected to range from 46-117 students per year as shown in Figure 10.



Projected Enrollments by Grade Configuration

In Table 11 following, historical and projected enrollments are broken down by the current grade configurations (K-5, 6-8, and 9-12) in Katonah-Lewisboro for each of the enrollment projection calculations. Ungraded special education students were reassigned into each of the school configurations.

Table 11
Projected Enrollments for Grades K-5, 6-8,
and 9-12 for Each Projection Method

Historical	K-5		6-8		9-12	
2018-19	1,213		694		1,054	
Projected	K-5 CSR 3-YR	K-5 CSR 4-YR	6-8 CSR 3-YR	6-8 CSR 4-YR	9-12 CSR 3-YR	9-12 CSR 4-YR
2019-20	1,200	1,203	669	673	1,038	1,042
2020-21	1,237	1,242	650	660	1,008	1,013
2021-22	1,219	1,221	652	674	986	992
2022-23	1,249	1,249	629	655	909	915
2023-24	1,249	1,249	662	690	855	867
5-year Change	+36	+36	-32	-4	-199	-187

At the elementary level containing grades K-5, enrollment is projected to be fairly stable before increasing near the end of the projection period. In both projections, enrollment is projected to be 1,249 in 2023-24, which would represent a gain of 36 students from the 2018-19 enrollment of 1,213.

For John Jay Middle School (grades 6-8), enrollment is projected to slowly decline through 2020-21 before reversing trend. The CSR method based on three years of historical data is projecting enrollment to be 662 in 2023-24, which would represent a loss of 32 students from the 2018-19 enrollment of 694. Using CSR and four years of historical data, enrollment is projected to be 690 in 2023-24, which would be a loss of four (4) students from the 2018-19 enrollment.

For John Jay High School (grades 9-12), enrollment is projected to decline throughout the projection period. The CSR method based on three years of historical data is projecting enrollment to be 855 in 2023-24, which would represent a loss of 199 students from the 2018-19 enrollment of 1,054. Using CSR and four years of historical data, enrollment is projected to be 867 in 2023-24, which would be a loss of 187 students from the 2018-19 enrollment.

Elementary School Projections

In Tables 12-14 following, historical and projected enrollments are shown for each of the three elementary schools in the district. Only the last five years of historical enrollments are shown, as the district closed Lewisboro Elementary School after the 2013-14 year. As a result, the elementary attendance boundaries were changed, which would prevent a meaningful comparison of the historical enrollments beyond five years.

Two sets of elementary school projections were completed using data from the last three and four historical years. Like the district-wide analysis, grades one through five were computed using cohort survival ratios. Kindergarten enrollments were not computed using birth-to-kindergarten survival ratios as performed earlier in the district-wide projections. Instead, historical proportions of the number of kindergarten students in each elementary school from the last three years were used and multiplied by the projected kindergarten enrollments shown previously in Tables 9 and 10.

Since Increase Miller Elementary School is the only school that has had self-contained special education students in the last five years, it was assumed that this school will continue to have all of the self-contained special education students projected in Tables 9 and 10.

Due to the different methodology in projecting the elementary enrollments, the totals shown previously in Table 11, which was based on computing enrollments districtwide, and the aggregated projected grade counts by school in the forthcoming tables, are not exactly equal, but are within a reasonable tolerance.

1. Increase Miller Elementary School

In Table 12, historical enrollments for Increase Miller Elementary School are shown, along with projected enrollments from 2019-20 to 2023-24 using the CSR method with three and four years of historical data. In the last three years, enrollment has been slowly increasing. In 2018-19, enrollment is 476, which is a gain of 31 students from the 2015-16 enrollment of 445. In both projections, enrollments are projected to slowly increase. In the projections using CSR and three years of historical data, enrollment is projected to be 514 in 2023-24, which would be a gain of 38 students from the 2018-19 enrollment of 476. In the projections using CSR and four years of historical data, enrollment is projected to be 531 in 2023-24, which would be a gain of 55 students from the 2018-19 enrollment.

Table 12
Historical and Projected Enrollments of Increase Miller Elementary School

Historical ¹								
Year	K	1	2	3	4	5	SE	K-5 Total
2014-15	51	80	81	66	85	106	10	479
2015-16	68	58	77	82	67	83	10	445
2016-17	61	83	65	89	87	70	6	461
2017-18	58	59	86	70	92	90	7	462
2018-19	77	76	64	88	68	93	10	476
CSR 3-Yr. Ratios	0.3783 ²	1.1388	1.0604	1.0501	1.0026	1.0227		
CSR 4-Yr. Ratios	0.3783 ²	1.1660	1.0805	1.0375 ³	1.0220	1.0300		
Projected (CSR 3-Yr.)								
2019-20	65	88	81	67	88	70	7	466
2020-21	71	74	93	85	67	90	7	487
2021-22	71	81	78	98	85	69	7	489
2022-23	70	81	86	82	98	87	7	511
2023-24	69	80	86	90	82	100	7	514
Projected (CSR 4-Yr.)								
2019-20	64	90	82	66	90	70	8	470
2020-21	71	75	97	85	67	93	8	496
2021-22	71	83	81	101	87	69	8	500
2022-23	69	83	90	84	103	90	8	527
2023-24	68	80	90	93	86	106	8	531

Notes: ¹Data were provided by the Katonah-Lewisboro Union Free School District.

²Three-year average proportion of kindergarten students with respect to district totals

³Outlier was removed in calculation of survival ratio.

2. Katonah Elementary School

In Table 13, historical enrollments for Katonah Elementary School are shown, along with projected enrollments from 2019-20 to 2023-24 using the CSR method with three and four years of historical data. In the last five years, enrollment has been fairly stable, ranging from 406-432 students per year. Enrollment is projected to be fairly stable in the next five years. In the projection using CSR and three historical years, enrollment is projected to range from 391-403 students per year, which would be slightly below the 2018-19 enrollment of 406. In the projection using CSR and four years of historical data, enrollment is projected to range from 398-409 students per year, which would be similar to the 2018-19 enrollment.

Table 13
Historical and Projected Enrollments of Katonah Elementary School

Historical ¹								
Year	K	1	2	3	4	5	SE	K-5 Total
2014-15	61	59	69	75	72	79	0	415
2015-16	73	71	60	76	78	72	0	430
2016-17	55	79	70	66	80	82	0	432
2017-18	67	59	80	69	64	80	0	419
2018-19	61	68	58	81	70	68	0	406
CSR 3-Yr. Ratios	0.3529 ²	1.0438	0.9979	0.9991	0.9921	1.0313		
CSR 4-Yr. Ratios	0.3529 ²	1.0566	0.9939	1.0327	1.0123	1.0379		
Projected (CSR 3-Yr.)								
2019-20	60	64	68	58	80	72	0	402
2020-21	67	63	64	68	58	83	0	403
2021-22	67	70	63	64	67	60	0	391
2022-23	65	70	70	63	63	69	0	400
2023-24	65	68	70	70	63	65	0	401
Projected (CSR 4-Yr.)								
2019-20	59	64	68	60	82	73	0	406
2020-21	66	62	64	70	61	85	0	408
2021-22	66	70	62	66	71	63	0	398
2022-23	64	70	70	64	67	74	0	409
2023-24	64	68	70	72	65	70	0	409

Notes: ¹Data were provided by the Katonah-Lewisboro Union Free School District.

²Three-year average proportion of kindergarten students with respect to district totals

3. Meadow Pond Elementary School

In Table 14, historical enrollments for Meadow Pond Elementary School are shown, along with projected enrollments from 2019-20 to 2023-24 using the CSR method with three and four years of historical data. Enrollment has been declining in the school. In 2018-19, enrollment is 331, which is a loss of 53 students from the 2014-15 enrollment of 384. Despite the recent decline, enrollments are projected to increase for the first two years of the projection period before reversing trend. In the projections using CSR and three years of historical data, enrollment is projected to be 341 in 2023-24, which would be a gain of ten (10) students from the 2018-19 enrollment of 331. In the projection using CSR and four years of historical data, enrollment is projected to be 323 in 2023-24, which would be a loss of eight (8) students from the 2018-19 enrollment.

Table 14
Historical and Projected Enrollments of Meadow Pond Elementary School

Historical ¹								
Year	K	1	2	3	4	5	SE	K-5 Total
2014-15	37	51	61	63	71	101	0	384
2015-16	59	45	54	63	62	73	0	356
2016-17	51	62	42	58	66	64	0	343
2017-18	51	58	68	44	60	67	0	348
2018-19	37	58	60	70	49	57	0	331
CSR 3-Yr. Ratios	0.2689 ²	1.1373	1.0656	1.0385	1.0741	0.9826		
CSR 4-Yr. Ratios	0.2689 ²	1.1085	1.0215	1.0504	1.0652	0.9991		
Projected (CSR 3-Yr.)								
2019-20	46	42	62	62	75	48	0	335
2020-21	51	52	45	64	67	74	0	353
2021-22	51	58	55	47	69	66	0	346
2022-23	49	58	62	57	50	68	0	344
2023-24	49	56	62	64	61	49	0	341
Projected (CSR 4-Yr.)								
2019-20	45	41	59	63	75	49	0	332
2020-21	50	50	42	62	67	75	0	346
2021-22	50	55	51	44	66	67	0	333
2022-23	49	55	56	54	47	66	0	327
2023-24	49	54	56	59	58	47	0	323

Notes: ¹Data were provided by the Katonah-Lewisboro Union Free School District.

²Three-year average proportion of kindergarten students with respect to district totals