



Demographic Study Update

for the

Vernon Township School District

July 2013

Prepared By:

Richard S. Grip, Ed.D.

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Executive Summary

Statistical Forecasting LLC performed two sets of enrollment projections using the Cohort-Survival Ratio Method for the Vernon Township School District as an update to our February 2011 demographic study. Total enrollment is projected to be 2,996-3,040 students in 2017-18, which would be a loss of 600-644 students from the 2012-13 enrollment of 3,640 students. The decline in enrollment appears to be due in part to negative kindergarten replacement, which occurs when the number of graduating 12th grade students is more than the number of kindergarten students replacing them in the next year. In the next five years, the projected loss of students due to this phenomenon ranges between 39-116 students. However, the declines are projected to become much smaller throughout the projection period. This could indicate that enrollments in the district may begin to stabilize shortly after 2017-18, as graduating 12th classes and incoming kindergarten classes become approximately the same size.

Enrollment was also computed by existing grade configurations. The lower elementary grades (PK-1) are projected to have 494-499 students in 2017-18, which would represent a loss of 15-20 students from the 2012-13 enrollment of 514 students. Grades 2-4 are projected to have 677-693 students in 2017-18, which would represent a loss of 98-114 students from the 2012-13 enrollment of 791 students. Grades 5-6 are projected to have 453-459 students in 2017-18, which would represent a loss of 103-109 students from the 2012-13 enrollment of 562 students. Grades 7-8 are projected to have 450-451 students in 2017-18, which would represent a loss of 114-115 students from the 2012-13 enrollment of 565 students. Finally, enrollment in grades 9-12 is projected to be 922-938 students in 2017-18, which would represent a loss of 270-286 students from the 2012-13 enrollment of 1,208 students.

The decline in enrollment can also be attributed to the decline in the birth rate in Vernon Township. While there were 400 births in 1990, only 209 occurred in 2009, which is nearly a 50% decline. In addition, the fertility rate in Vernon Township is lower than that of Sussex County and the State of New Jersey, not only for all women aged 15-49, but also for those aged 20-34, which corresponds to the ages when most females have their children.

Regarding the impact of new housing, when comparing to our previous study, there are currently no additional residential subdivisions before the planning board. Since the last study, only two of six residential developments have started construction. For the remaining developments, there has been little or no activity since our last report. There remains the potential for 167 new housing units, which may generate an additional 88 children. Due to the uncertain housing market, it is not clear if and when the proposed developments will be constructed. As a result, the baseline enrollment projections were not adjusted to account for additional children from new housing.

The capacities of the school buildings in the Vernon Township School District were compared to the projected enrollment in the 2017-18 school year. Due to declining enrollment in the district, it is anticipated that there would be ample seating throughout the district.

Introduction

Statistical Forecasting LLC was contracted to perform a demographic study update for the Vernon Township School District. The previous study was completed for the district in February 2011. The purpose of the study is to compute grade-by-grade enrollment projections for 2013-14 through 2017-18 and to provide additional information relating to population trends, birth rates, historical enrollment data, and the effect of new housing starts. The update should serve as a planning tool for the future direction of the district.

Enrollment Projections from February 2011 Report

In our previous demographic study, enrollments were projected from 2011-12 through 2015-16. In Table 1 below, actual enrollments are compared to the projected enrollments for the first two years of the projection period. Since two different sets of projections were computed in the previous study, the table shows the percent error by year for each of the projections.

In our previous study, enrollment was predicted to steadily decline for the entire five-year projection period. While the anticipated decline in enrollment has come to fruition, the projected enrollments for the district were greater than the actual enrollments. Error rates ranged between +0.6% to +1.2% for the method using cohort-survival ratios based on an average of four years of historical data, and ranged between +1.2% to +1.5% for the method using cohort-survival ratios based on an average of five years of historical data. Positive error rates indicate over-projections while negative error rates indicate under-projections. Most of the error was related to projecting pre-kindergarten students. In the previous report, it was assumed that the state-mandated pre-kindergarten program for at-risk children would be rolled out over the course of the projection period. We had anticipated an additional 27 children in 2011-12 and 34 children in 2012-13 as a result of this program. Due to the lack of state funding, this program has not been instituted and

it is unclear if and when it will be. If the additional 27 pre-kindergarten children were removed from the 2011-12 projections, error rates instead would have been +0.5% to +0.8%. Likewise, if the additional 34 pre-kindergarten children were removed from the 2012-13 projections, error rates instead would have been -0.4% to +0.2%. In a survey of educational planners who complete enrollment projections, two-thirds believe that an error rate of 1% per year is acceptable¹. For a five-year projection, this would mean that a 5% error rate would be acceptable. Both projections are slightly outside of this parameter in the first year of the projection (yet would be within the range if the extra pre-kindergarten students are factored out) and are well within the error range in the second year of the projection.

Table 1
Comparison of Projected to Actual Enrollment
from February 2011 Report

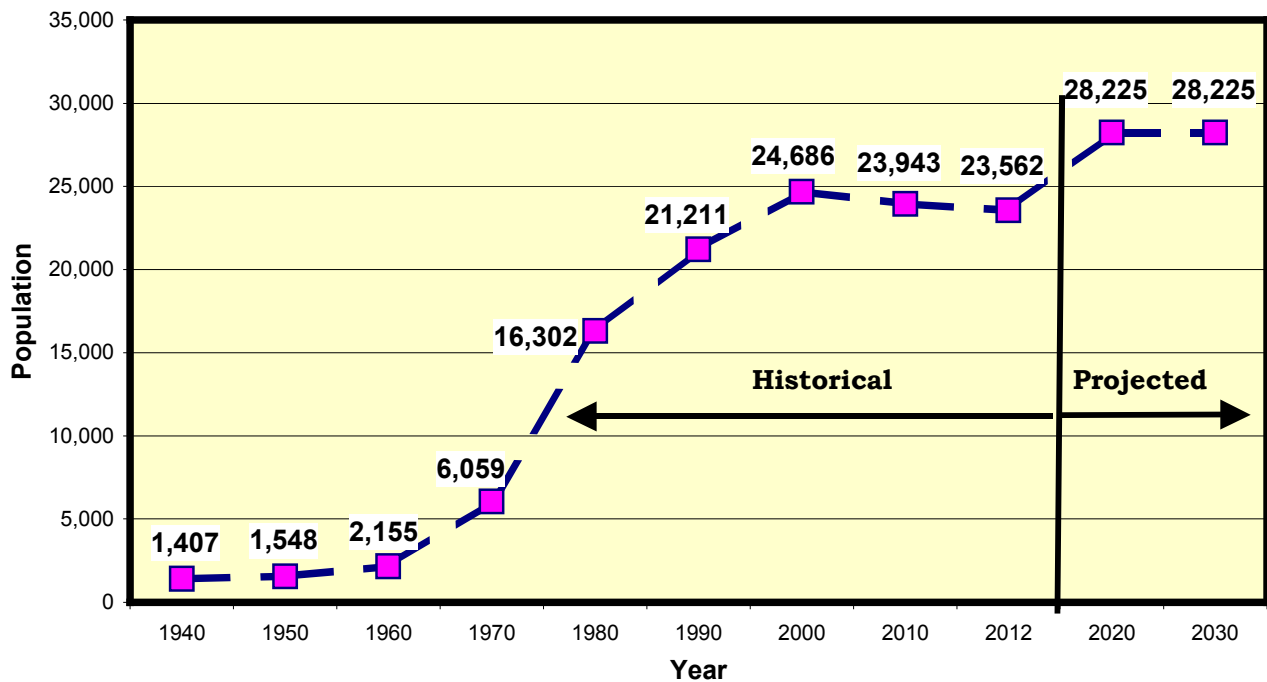
Year	Actual Enrollment	Projected Enrollment (CSR 4-Yr)	% Error CSR (4-Yr)	Projected Enrollment (CSR 5-Yr)	% Error CSR (5-Yr)
2011-12	3,806.5	3,853	+1.2%	3,863	+1.5%
2012-13	3,640	3,661	+0.6%	3,682	+1.2%

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)

Population Trends in Vernon Township

Located in Sussex County, Vernon Township (“Vernon”) contains a land area of approximately 68.23 square miles and an additional 2.35 square miles of water area. According to the 2010 decennial census, Vernon had 23,943 residents, which is approximately 350.9 persons per square mile. Historical and projected populations for Vernon from 1940 to 2030 are shown in Figure 1 and Table 2.

Figure 1
Historical and Projected Populations for Vernon Township
1940-2030



During the 1960's, Vernon grew at an extraordinary rate, nearly tripling during the decade. In the 1970s, the population continued its high rate of growth by more than doubling. While population growth continued from 1980-2000, it was at a much slower rate. In the more recent decade from 2000 to 2010, the population *declined* in Vernon by 3.0%. The estimated population in 2012 is 23,562 persons, which would be a 1.6% decline in the population from

2010. The United States Census Bureau publishes estimates every July 1st following the last decennial census. Estimates are computed using the decennial census base counts, number of births and deaths in a community, and migration data (both domestic and international).

Table 2
Historical and Projected Populations for
Vernon Township from 1940-2030

<u>Year</u>	<u>Vernon Township Population</u>	<u>Percent Change</u>
HISTORICAL¹		
1940	1,407	N/A
1950	1,548	+10.0%
1960	2,155	+39.2%
1970	6,059	+181.2%
1980	16,302	+169.1%
1990	21,211	+30.1%
2000	24,686	+16.4%
2010	23,943	-3.0%
2012 (est.)	23,562	-1.6%
PROJECTED²		
2020	28,225	+19.8%
2030	28,225	+0.0%

Notes: ¹Source: United States Census Bureau

²Source: North Jersey Transportation Planning Authority, Inc. (2009)

Population projections for 2020 and 2030 were prepared by the North Jersey Transportation Planning Authority (“NJTPA”). In our previous report, NJTPA projected that Vernon’s population would be 31,400 in 2020 and 32,700 in 2030. The revised values above project the population to be 28,225 in both 2020 and 2030, which are much lower than the previous projections. However, since these projections were based on the 2000 Census and not

the most recent 2010 Census that showed a decline in the township's population, the 2020 and 2030 projections will likely be revised again by the NJTPA. Since the population in Vernon has been declining since 2000, it is likely that the NJTPA's projections will be lower to reflect the recent historical trends.

Selected Demographic Characteristics

In Table 3 below, selected demographic characteristics of Vernon are compared from the 2000 Census, the 2007-2011 American Community Survey ("ACS"), and the 2010 Census. While some Census variables account for everyone in the population (e.g., age and race), other variables are collected from a sample (e.g., median family income, educational attainment, and poverty status). The ACS replaced the long form of the Census, last administered in 2000 to approximately 16% of the population in the United States. For small municipalities such as Vernon, ACS data represent a sample collected over a five-year time period, where the estimates represent the average characteristics between January 2007 and December 2011. This information does not represent a single point in time like the long form of earlier Censuses.

Regarding ethnicity, Vernon is nearly entirely White. In 2010, Vernon was 95.2% White as compared to 96.6% in 2000. Blacks/African Americans make up the largest minority group at 1.4% in 2010, which is a small increase from the 0.8% that existed in 2000. The Census Bureau does not consider Hispanic as a separate race; rather it identifies the percentage of people having Hispanic origin. Hispanics in the Census population can be part of the White, Black, Asian, or any of the other race categories. It is not a mutually exclusive race category. The concentration of persons having Hispanic origin increased from 3.6% in 2000 to 6.4% in 2010.

Table 3
Selected Demographic Characteristics of Vernon Township

Race Origin	2000	2010
White	96.6%	95.2%
Black/African American	0.8%	1.4%
American Indian/ Alaska Native	0.1%	0.2%
Asian	0.7%	0.8%
Native Hawaiian/ Pacific Islander	0.0%	0.0%
Other race	0.8%	1.1%
Two or more races	1.1%	1.4%
Total	100.0%¹	100.0%¹
Hispanic origin	3.6%	6.4%
Age		
Under 18	30.6%	24.3%
18-64	63.1%	67.3%
65 and over	6.3%	8.4%
Median age	35.4 years	40.5 years
Educational Attainment		
Bachelor's degree or higher	25.3%	18.1%
Graduate or professional degree	7.7%	8.2%
Income		
Median family income	\$72,609	\$89,722
Percentage of persons in poverty under age 18	3.0%	5.9%
Housing Units		
Total number	9,994	10,958
Occupied units	8,368 (83.7%)	8,622 (78.7%)
Vacant units for seasonal, recreational, or occasional use	1,103 (11.0%)	1,755 (16.0%)
Owner-occupied units	7,190 (85.9%)	7,635 (88.6%)
Renter-occupied units	1,178 (14.1%)	987 (11.4%)
Median value of an owner-occupied unit	\$150,800	\$279,200
Housing Type¹		
1-unit, attached or detached	82.7%	81.4%
2-4 units	1.5%	1.5%
5-9 units	7.5%	11.1%
10-19 units	6.7%	4.4%
20 or more units	1.3%	0.8%
Mobile home, boat, RV, van, etc.	0.4%	0.8%

Sources: American Community Survey (2007-2011), United States Census Bureau (2000 and 2010)

Notes: ¹Data may not sum to 100.0% due to rounding.

The median age in Vernon has increased from 35.4 years in 2000 to 40.5 years in 2010. During the same time period, the percentage of people under the age of 18, which corresponds to school-age children, declined from 30.6% to 24.3%. This represents a sizable decline in the school-age population.

Regarding educational attainment for adults aged 25 and over, 18.1% of the population had a bachelor's degree or higher in 2010 as compared to 25.3% in 2000, indicating a less-educated current population. Persons with graduate or professional degrees slightly increased from 7.7% to 8.2% during this time period.

Median family income increased from \$72,609 in 2000 to \$89,722 in 2010, a gain of 23.6%. However, during this time period, the percentage of children under the age of 18 that were in poverty nearly doubled from 3.0% to 5.9%.

Regarding housing, there were 10,958 housing units in Vernon in 2010, which is a gain of 964 units (+9.6%) since 2000. During this time period, the occupancy rate declined from 83.7% to 78.7%. As the table shows, most of the vacant units are owned as recreational properties (i.e., second homes). In the last decade, the percentage of second homeowners has increased from 11.0% to 16.0%, demonstrating a shift in the type of homeowner in the community.

Regarding occupied units, 11.4% of the occupied units consisted of renters, which is a small decline from the 2000 percentage (14.1%). The median home price of an owner-occupied unit in 2010 was \$279,200, which was an 85.1% gain from the value reported in 2000 (\$150,800). With respect to housing type, the percentage of one-unit homes, either attached or detached, decreased slightly from 82.7% to 81.4% during this time period. The largest gain was

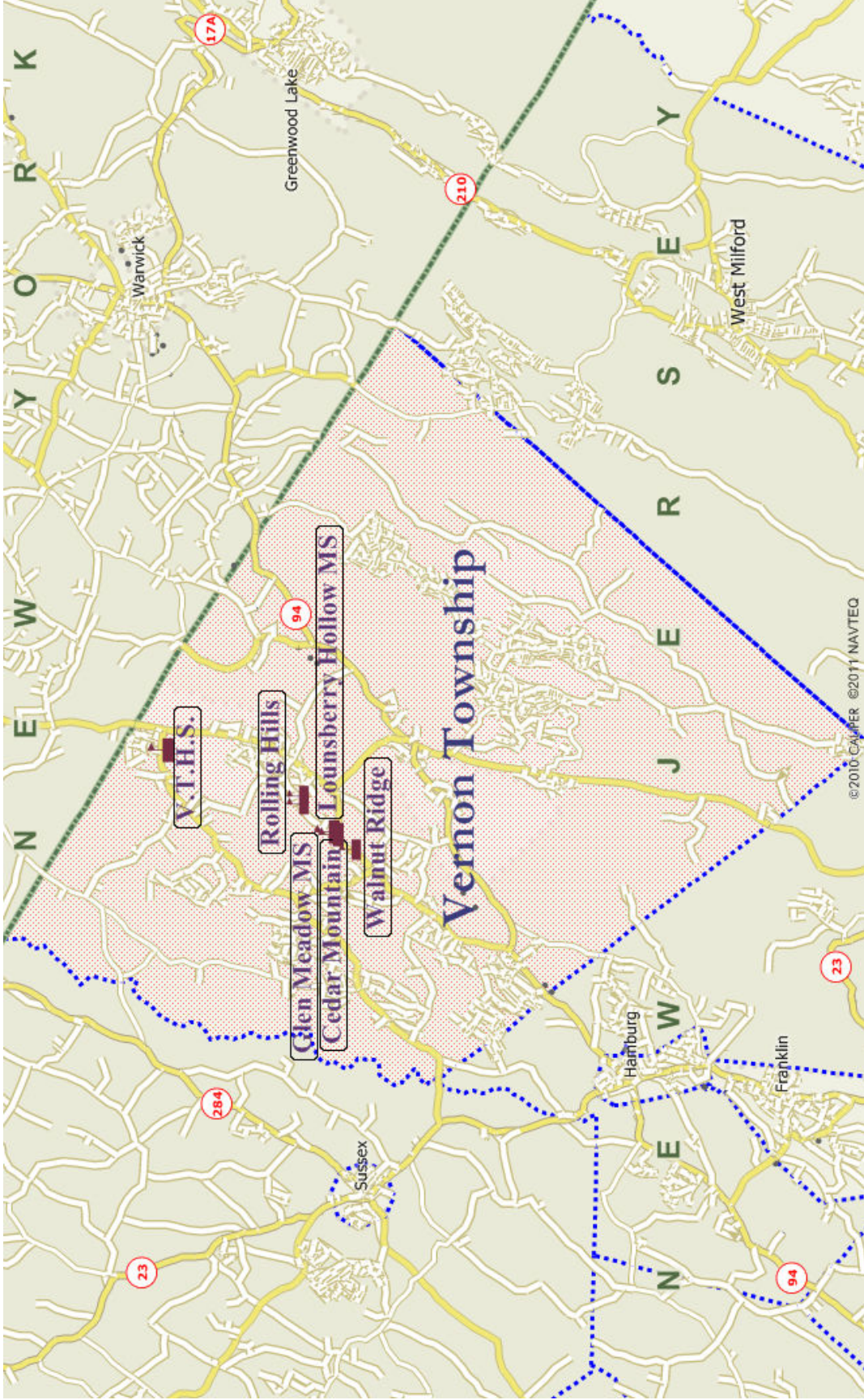
in the percentage of housing stock with 5-9 units, which increased from 7.5% to 11.1% in the last decade.

If the renter population contains school-age children, a more mobile student population within the Vernon Township School District may result. Since the Cohort-Survival Ratio method, which is used to project enrollments, depends upon stability within the student population, the forthcoming enrollment projections may be more susceptible to inaccuracies if the district has high mobility rates. The mobility rates in the school district will be explored later in the report.

District Overview

The Vernon Township School District has six schools that serve grades pre-kindergarten through twelve. The locations of each of the schools are shown in Figure 2. Walnut Ridge Primary School contains grades PK-1 while Cedar Mountain and Rolling Hills Primary Schools contain grades 2-4. Lounsberry Hollow Middle School contains grades 5-6 and Glen Meadow Middle School contains grades 7-8. Finally, Vernon Township High School contains grades 9-12. According to the district's 2005 Long Range Facility Plan ("LRFP"), total educational capacity in the district is 4,778 students using District Practices methodology and 3,736 students using Facilities Efficiency Standards ("FES") methodology. The District Practices methodology provides a reasonable approximation of the capacity of a school building, since it is based on how the building is utilized by the school district and its targeted student-teacher ratios. This method does not take into account square footage allowances per student, which is the FES methodology. Capacity using FES methodology is often lower than when using District Practices methodology, but is used by the State for funding purposes. A breakdown of each school's capacity compared to projected enrollment is provided later in the report.

Figure 2
School Locations – Vernon Township School District



In this study, historical enrollments from the October 15th Fall Reports and the NJ SMART database were used to project enrollment for five years into the future. With the advent of NJ SMART, the Fall Report was eliminated by the New Jersey Department of Education (“NJDOE”) in the 2010-11 school year. In the past, the Fall Report was used by the NJDOE as a tool to uniformly compare school district enrollment data across the state. Unfortunately, the method of reporting special education students for NJ SMART is different, as these students are now referred to as “ungraded”. To maintain a level of consistency, “ungraded” student counts in the forthcoming tables were listed under the self-contained special education heading. Future enrollments were then projected using the Cohort-Survival Ratio method.

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 the NJDOE-approved methodology 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 one indicates stable enrollment, less than one indicates declining enrollment, while greater than one 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. In this study, survival ratios were calculated using historical data 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. Like our previous study, enrollment data from 2008-09 were not used in computing the survival ratios since the number of self-contained special education students in that year was much lower than that which occurred during the historical enrollment period under consideration. The lower counts in the self-contained special education population in 2008-09 resulted in more of these students being mainstreamed, which caused the general education population to gain students and the accompanying survival ratios to increase. If these ratios were used, they would erroneously reflect a gain in the student population. Therefore, the enrollment from 2008-09 was not used in computing the average survival ratios.

Historical Enrollment Trends

Historical enrollment data for the Vernon Township School District from 2006-07 through 2012-13 are shown in Figure 3 and Table 4. Enrollment in the district as of October 2012 was 3,640 students. Enrollment continues to decline, losing 1,340.5 students (-26.9%) since 2006-07. Since our last demographic study, enrollment has declined by 401 students in just the last two years. Table 4 also shows computed average survival ratios based on the last five and six years of historical data, which will be used to project future enrollment.

Figure 3
Historical Enrollment from 2006-07 to 2012-13

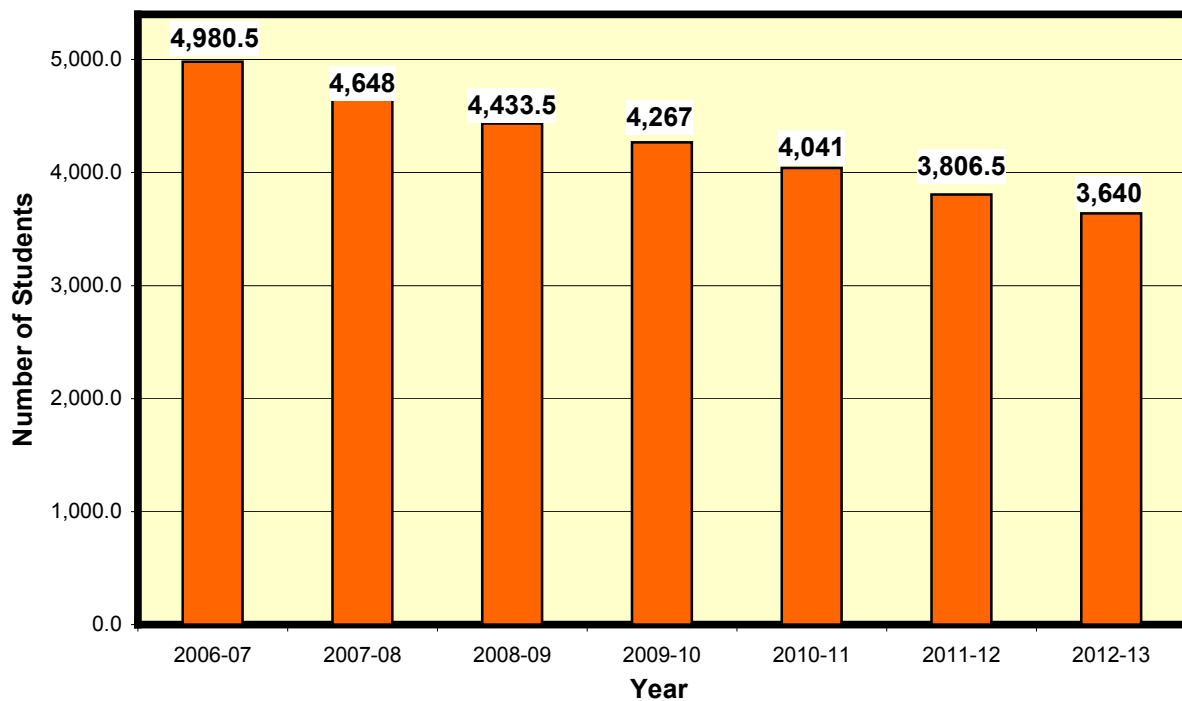


Table 4
Vernon Township School District Historical Enrollments
2006-07 to 2012-13

Year ¹	PK RE ²	K	1	2	3	4	5	6	7	8	9	10	11	12	SE ³	PK-1 Total	2-4 Total	5-6 Total	7-8 Total	9-12 Total	PK-12 Total	
2006-07	11	308	281	314	296	321	332	387	366	438	434.5	461.5	407.5	452	171	663	960	763	823	1,771.5	4,980.5	
2007-08	18	262	311	271	307	285	320	324	372	362	394	426	448	386	162	660	890	678	755	1,665	4,648	
2008-09	23	257	267	309	282	312	306	330	330	379	350.5	390.5	429.5	425	43	580	904	639	711	1,599.5	4,433.5	
2009-10	31	231	274	256	299	278	304	299	330	324	357.5	354	389	420.5	120	588	861	622	661	1,535	4,267	
2010-11	19	221	247	266	254	295	269	303	291	317	305	349	352	394	159	562	853	586	622	1,418	4,041	
2011-12	59	220	226	251	269	254	291	264	291	283	292	291.5	334.5	348.5	132	537	816	576	588	1,289.5	3,806.5	
2012-13	35 ⁵	221	229	233	250	267	259	277	260	294	284	288	279.5	325.5	138	514	791	562	565	1,208	3,640	
Average																						
5-Year Ratios⁶		1.029 ⁴	1.0356	0.9956	0.9943	0.9855	0.9926	0.9764	0.9699	0.9831	0.9413	0.9746	0.9706	0.9808	0.0363 ⁷							
6-Year Ratios⁶		1.020 ⁴	1.0328	0.9927	0.9857	0.9865	0.9929	0.9796	0.9754	0.9705	0.9235	0.9790	0.9772	0.9855	0.0361 ⁷							

Notes: ¹Data as provided by the New Jersey Department of Education (<http://www.nj.gov/education/data/enr/>)

²Pre-kindergarten regular education enrollment

³Self-contained special education enrollment/Ungraded Students

⁴Birth-to-kindergarten ratio based on birth data five years prior

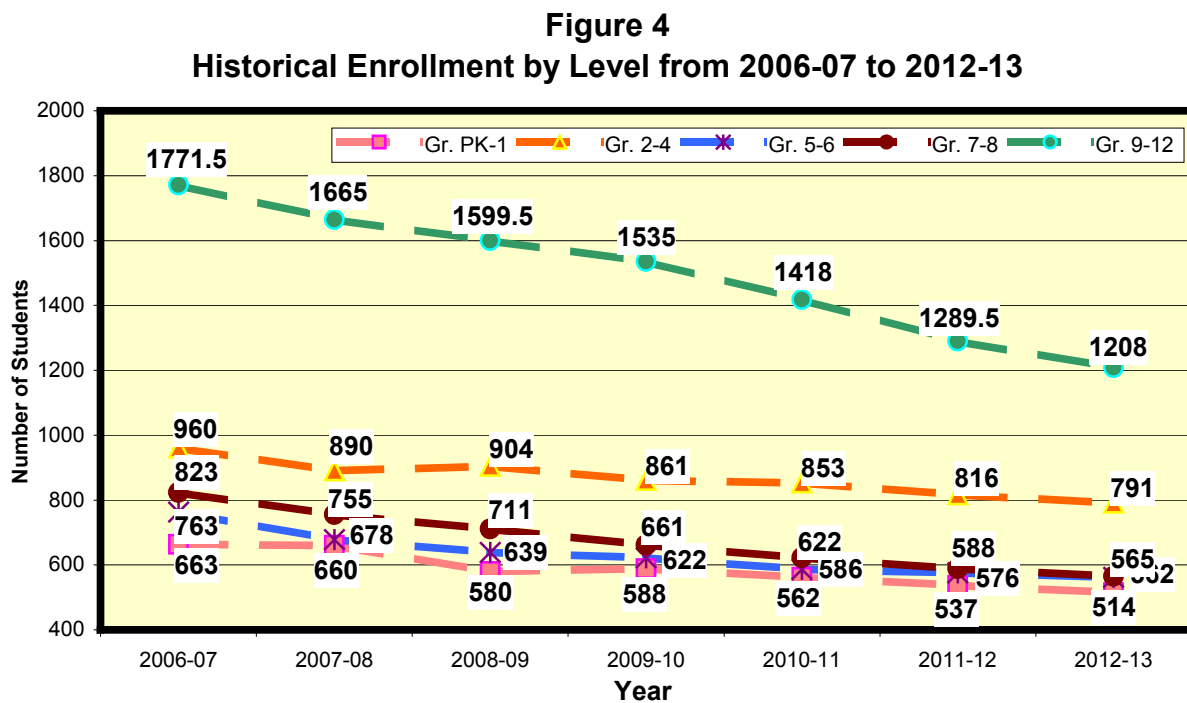
⁵As reported by district. Twenty-one students are shown in state register.

⁶Does not include enrollment from 2008-09 due to anomaly in the number of self-contained special education/Ungraded students

⁷Average proportion of self-contained special education students with respect to PK-12 subtotals

Historical enrollment is also shown in Table 4 and Figure 4 by level (PK-1, 2-4, 5-6, 7-8, and 9-12), which represents the current configuration of the school district. Self-contained special education students were incorporated into the totals by level as well as for the district-wide total.

At the PK-1 level, enrollment has been slowly declining, in general, since 2006-07. PK-1 enrollment in the district as of October 2012 was 514 students, which represents a loss of 149 students from the 2006-07 year.



For grades 2-4, enrollment has also been declining, in general, since the 2006-07 school year. Grade 2-4 enrollment in the district as of October 2012 was 791 students, which represents a loss of 169 students from the 2006-07 year.

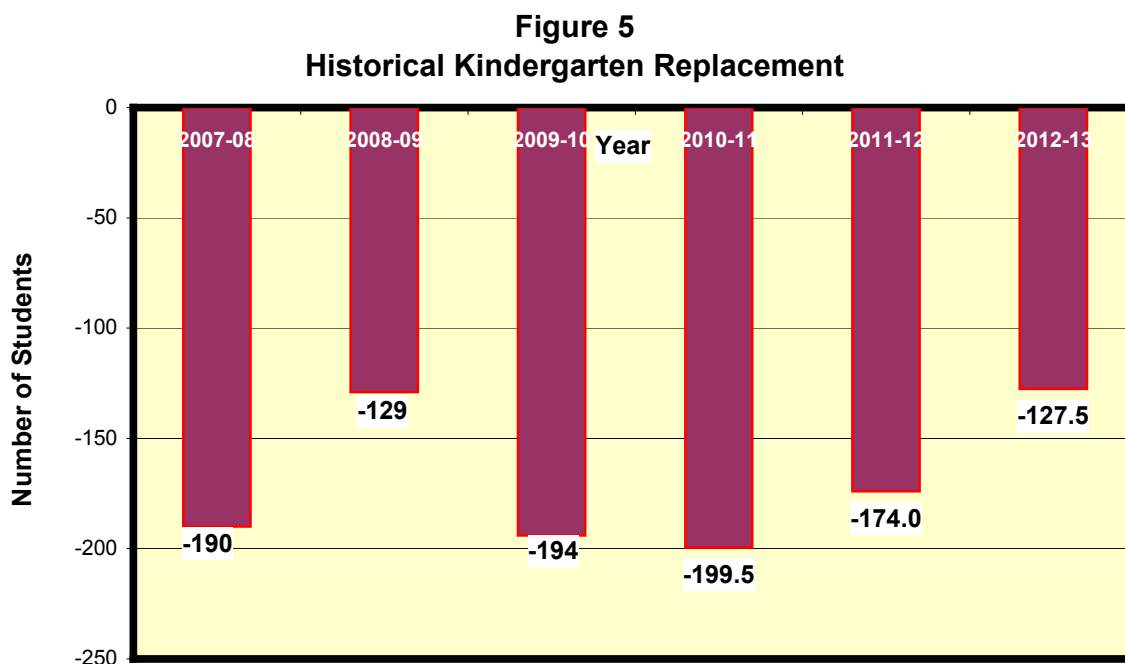
For grades 5-6, enrollment has steadily declined since the 2006-07 school year. Grade 5-6 enrollment in the district as of October 2012 was 562 students, which represents a loss of 201 students from the 2006-07 year.

For grades 7-8, enrollment has also declined since the 2006-07 school year. Grade 7-8 enrollment in the district as of October 2012 was 565 students, which represents a loss of 258 students from the 2006-07 year.

Finally, at the high school level, which contains grades 9-12, enrollment has decreased sharply and has had the greatest enrollment decline of the five grade configurations. High school enrollment in the district as of October 2012 was 1,208 students and represents a loss of 564 students since the 2006-07 year.

Kindergarten Replacement

The district continues to experience negative kindergarten replacement, which occurs when the number of graduating 12th grade students is larger than the number of kindergarten students replacing them in the next year. As shown in Figure 5, the loss of students due to this phenomenon was 127.5 students in 2012-13 as 348.5 twelfth graders graduated in 2011-12 and were replaced by 221 kindergarten students in 2012-13. In the last six years, negative kindergarten replacements have ranged between 127.5 to 199.5 students per year. Of the 1,340.5 students lost in the district since 2006-07, 1,014 (the sum of the values below) can be attributed to negative kindergarten replacement. This helps to explain approximately 76% of the decline, indicating that the district is also experiencing a net outward migration of students in the other grades as well.



Birth Data

Birth data were needed to compute kindergarten enrollment, which was calculated as follows. Birth data, lagged five years behind their respective kindergarten classes, were used to calculate the survival ratio for each birth-to-kindergarten cohort. For instance, in 2007, there were 222 births in Vernon. Five years later (the 2012-13 school year), 221 children enrolled in kindergarten, which is equal to a survival ratio of 0.995 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 community's boundaries and are attending kindergarten in the school district five years later, i.e. an inward migration of children into the district. 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 children to a private full-day kindergarten for the first year. Birth-to-kindergarten survival ratios have been quite varied in the Vernon Township School District in the last seven years, ranging from 0.853 to 1.232.

Table 5
Birth Rates and Historical Birth-to-Kindergarten Survival Ratios
in the Vernon Township School District

Birth Year¹	Number of Births-Vernon Township	Number of Kindergarten Students Five Years Later	Birth-to-Kindergarten Survival Ratio
2001	250	308	1.232
2002	236	262	1.110
2003	268	257	0.959
2004	224	231	1.031
2005	231	221	0.957
2006	258	220	0.853
2007	222	221	0.995
2008	206	N/A	N/A
2009	209	N/A	N/A
2010	212²	N/A	N/A
2011	212²	N/A	N/A
2012	212²	N/A	N/A

Notes: ¹Birth data were provided by the New Jersey Center for Health Statistics for 2001-2009.

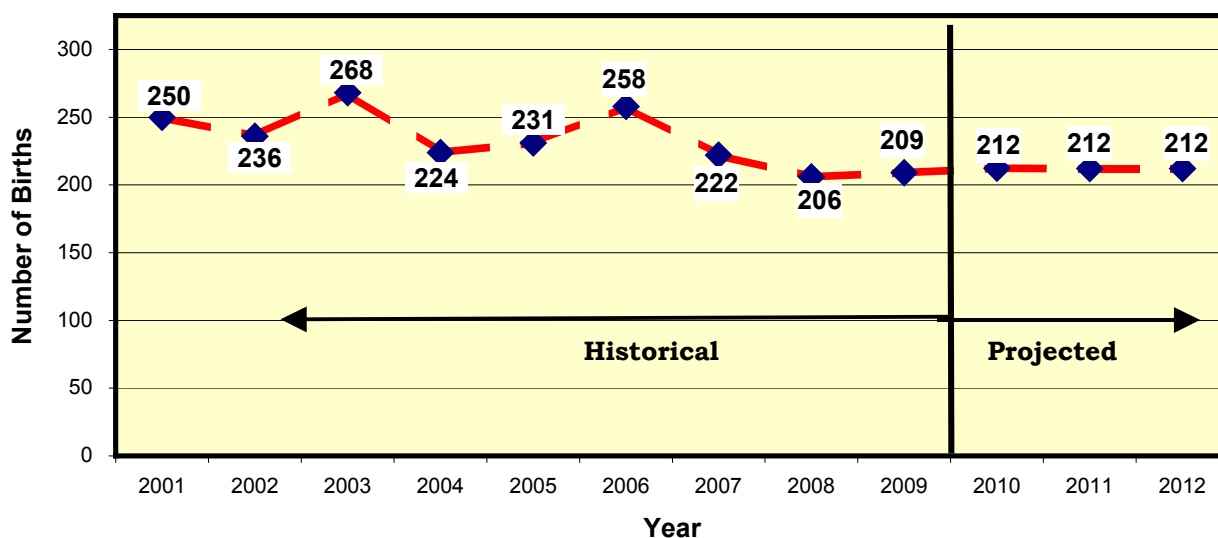
²Birth rates for 2010-2012 were estimated by computing the mean number of births from 2007-2009.

Birth data were geocoded by the New Jersey Center for Health Statistics (“NJCHS”) for 2001-2009 by assigning geographic coordinates to a birth mother based on her street address. Since the NJCHS did not have geocoded birth data for 2010-2012, estimates were used for those years by averaging the number of births from 2007 to 2009. Birth rates were needed for these years since these cohorts will become the kindergarten classes of 2015-2017. The average birth rate used for 2015-2017 was 212 births.

Figure 6 below shows the number of births in Vernon since 2001. From 2001 to 2006, there was not a clearly defined trend, either increasing or declining. However, in the last three

years, there appears to be a declining trend. While there were 250 births reported in 2001, 209 were reported in 2009. As discussed in the previous study, there were 400 births in Vernon in 1990, reflecting the long-term decline of births in the community.

Figure 6
Historical and Projected Birth Data from 2001-2012

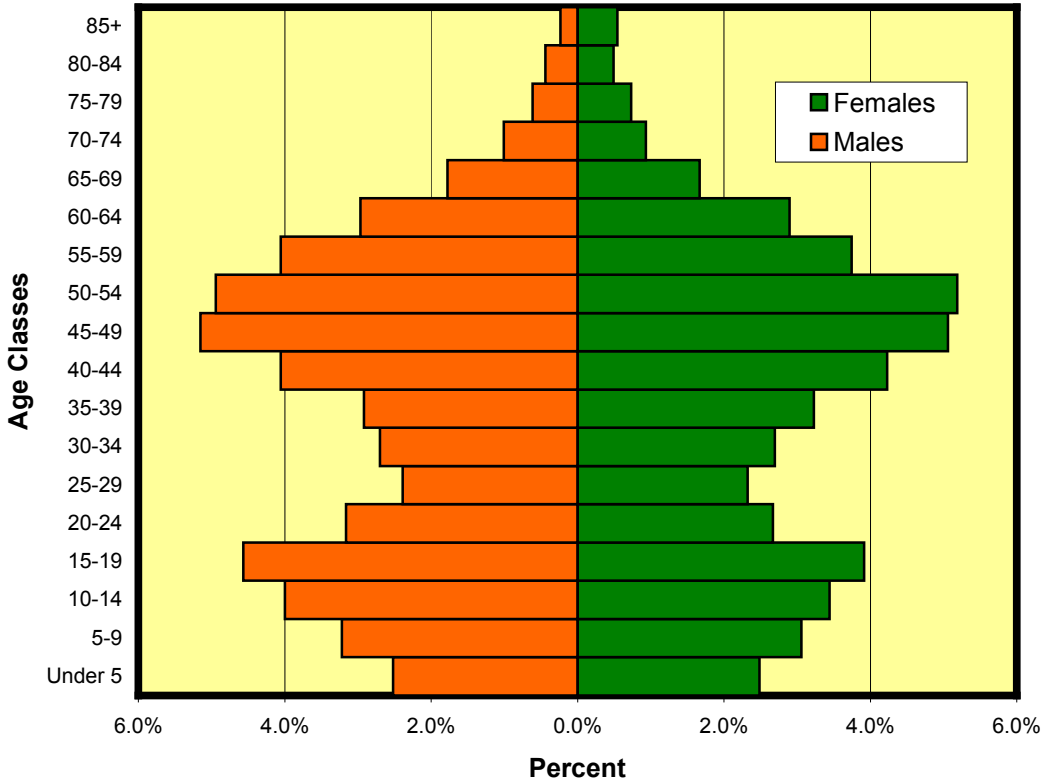


Why have birth rates declined in Vernon? One reason is that the fertility rate in Vernon is low compared to the fertility rates in both Sussex County and the State of New Jersey. According to the 2007-2011 ACS², the fertility rate of women aged 15 to 50 in Vernon was 39 births per 1,000 women. In comparison, as reported by the NJCHS, the 2009 fertility rate in Sussex County was 48.5 births per 1,000 women (ages 15-49) and was 64.3 births per 1,000 women in New Jersey. However, it should be noted that while all three values are based on a sample, the Vernon data has a margin of error that is much higher than the county and state data and may not reflect the “true” fertility rate in the borough.

² Data were collected from the 2007-2011 American Community Survey and do not reflect a single point in time, but an average over a five-year period.

Further analysis of the age pyramid of males and females in Vernon (Figure 7) from the 2010 Census shows that there are low percentages of females in the 20-34 age group, which corresponds to the ages when most females have their children. In addition, the fertility rate of women aged 20 to 34 in Vernon is 82 births per 1,000 women, which is below the county (86.1 per 1,000) and state (100.4 per 1,000) averages. The combination of low fertility rates and a low percentage of females in this age group have likely led to the declining birth rate in the township.

Figure 7
Population Pyramid of Vernon Township
from 2010 Census



Effects of Housing Growth

Mr. Tom Pinand, Vernon Township Construction Code Official, provided updated information regarding future residential development in Vernon. There are currently no additional non age-restricted residential subdivisions before the planning board. In Table 6 following, a list of proposed housing developments is reproduced from the last study, including a status update on each project. Since the last study, only two developments have started construction. For the remaining developments in the table, there has been little or no activity since our last report. There is the potential for a new 37-unit age-restricted housing development that is currently before the land use board, but that should have no impact upon the district and therefore is not shown in the following table.

Table 6
Projected Housing Growth and Expected Number
of Children from New Housing Starts

Development	Number of Units	Housing Type	Status	Potential K-4 ¹	Potential 5-8 ¹	Potential 9-12 ¹
Glenwood Management (off Rte. 94)	132	Apartments/Condos	Has not started construction	26	20	14
Lake Walkill Road	9	Single-Family	Has not started construction	3	2	2
Maple Grange Road	3	Single-Family	Has not started construction	1	1	1
Tudor Hill	13	Single-Family	Started construction but not completed	5	3	2
Top of Vernon (off Jenny Lane)	5	Single-Family	Started construction but not completed	2	1	1
Cedar Black Creek (off Warren Drive)	5	Two-Family	Has not started construction	2	1	1
Total	167			39	28	21
Total Number of Students = 88						

Source: Vernon Township Construction Code Official

Notes: ¹Multpliers to compute the number of school-age children were provided by *Who Lives in New Jersey Housing?*.

In the process of determining how many children will come from the new housing units, *Who Lives in New Jersey Housing?*³, published by the Rutgers University Center for Urban Policy Research (“CUPR”), was utilized. The resource provides housing multipliers (student yields) based on housing type, number of bedrooms, housing value, housing tenure (ownership versus rental), and whether the housing units are market-rate or affordable. Multipliers are also provided for the geographic location of the housing units (northern New Jersey, central New Jersey, southern New Jersey, and the state as a whole). The multipliers used in this report were computed by using a sample of northern New Jersey households from the 2000 census. Student yield multipliers are greatest for detached single-family homes and smallest for apartments and attached single-family homes such as townhouses. A total of 88 children are projected from kindergarten to 12th grade as a result of the new residential construction in Vernon. To project the number of public school children per housing unit, several additional assumptions were made:

1. The student yield multipliers used from the Rutgers University Center for Urban Policy Research would be from a sample of northern New Jersey households and these multipliers would be representative of the families moving into Vernon Township.
2. All housing developments were assumed to be below the median value for comparable northern New Jersey housing units.
3. It was assumed that all developments listed in Table 6 would be completed and occupied by 2018, which is the end of the projection period.
4. All single-family homes were assumed to contain 4-5 bedrooms, apartments/condominiums were assumed to contain 2-3 bedrooms, and two-family homes were assumed to contain 2-3 bedrooms.
5. The following total student yield multiplier (grades K-12) was used for the detached single-family homes: 0.824.

³Listokin, David, et al. (2006). *Who Lives in New Jersey Housing?*, Rutgers University Center for Urban Policy Research.

6. The following total student yield multiplier (grades K-12) was used for the two-family homes: 0.739.
7. The following total student yield multiplier (grades K-12) was used for the apartment/condominium units: 0.458.

Regarding growth due to home resales, it was assumed that the future home resale market would be similar to what has occurred historically, thereby including the effect of migration due to home resales. None of the forthcoming enrollment projection calculations account for home resales as this was beyond the scope of our analysis.

Regarding historical new construction, the number of certificates of occupancy (“COs”) issued for new homes in Vernon has dropped significantly as shown in Table 7. Only 13 COs have been issued in the last four years, which coincides with the downturn in the housing market.

Table 7
Number of Residential Certificates of Occupancy by Year

Year	Vernon Township			
	1&2 Family	Multi-Family	Mixed Use	Total
2007	28	0	0	28
2008	11	0	0	11
2009	4	0	0	4
2010	2	0	0	2
2011	3	0	0	3
2012	4	0	0	4
Total	52	0	0	52

Source: New Jersey Department of Community Affairs

Regarding affordable housing, the Council on Affordable Housing (“COAH”) was eliminated by Governor Chris Christie in August 2011, when he transferred all functions,

powers, duties, and personnel of COAH to the Commissioner of the Department of Community Affairs. However, in March 2012, a New Jersey appeals court overturned the Governor's efforts to abolish the agency, making the future of COAH unclear. Prior to the elimination of COAH, each community's 3rd round, or projected growth share, needed to be satisfied by 2018. The projected growth share is an estimate based on projected housing growth and employment in a community. Vernon's projected growth share is 389 units. However, there recently has been a legal challenge to COAH's computation of the projected growth share due to the recession, which may lower the number of units communities are required to build.

Since the baseline enrollment projections utilize cohort survival ratios that do take into account prior new home construction growth, the baseline enrollment projections should only be adjusted if the projected housing growth is significantly greater than prior housing growth. From 2007-2012, a total of 52 COs were issued for single-family, two-family, multi-family, or mixed-use housing units in Vernon. While the number of future housing units (167) would be more than that which was built in the last six years, the baseline enrollment projections were not modified to account for additional children from new housing. Most of the new housing (132 units) will be market-rate apartments and condominiums (Glenwood Management - off Route 94). As discussed previously, housing units of this type have much smaller student yields than single-family homes. In addition, it is not clear when, and if, this development will be constructed. The remaining number of proposed housing units (35) will be single- or two-family homes, which is less than the 52 single- or two-family homes constructed in the last six years. For these reasons, the baseline enrollment projections were not adjusted to account for additional children from new housing.

Enrollment Projections

Baseline enrollment projections were calculated using cohort-survival ratios based on the last five and six years of historical enrollment data. Enrollments were computed for each grade from the 2013-14 school year through the 2017-18 school year.

Enrollments for the self-contained special education/ungraded classes were computed by calculating the historical proportion of self-contained special education/ungraded students with respect to the PK-12 subtotals and multiplying that value by the future general education PK-12 subtotals. Enrollment data from the 2008-09 school year were not used since the number of self-contained special education/ungraded students reported (43) was much smaller than the historical range (120-171). The five-year and six-year average proportions shown in Table 4 were used to estimate the future number of self-contained special education students.

With respect to grade-level pre-kindergarten students, enrollment was projected by computing an average based on historical data from the last five years and using this value throughout the five-year projection period. In the last five years, pre-kindergarten enrollment has been inconsistent, ranging between 19-59 students.

Regarding the pre-kindergarten program for children with special needs, these students were included in the self-contained special education/ungraded counts.

As part of the School Funding Reform Act of 2008 (“SFRA”), all school districts in New Jersey are to provide expanded Abbott-quality pre-school programs for at-risk 3- and 4-year olds as outlined in N.J.A.C. 6A:13A. The State of New Jersey intends to provide aid for the full-day program based on projected enrollment. School districts categorized as District Factor Group⁴ (“DFG”) A, B, and CD with a concentration of at-risk pupils equal to or greater than 40 percent,

⁴ Introduced by the New Jersey Department of Education in 1975, it provides a system of ranking school districts in the state by their socio-economic status.

must offer a pre-school program to all pre-school aged children regardless of income, known as “Universal” pre-school. For all other school districts, a pre-school program must be offered only to at-risk children, known as “Targeted” preschool. School districts are required to offer these programs to at least 90% of the eligible pre-school children by 2013-14. School districts may educate the pre-school children in district, by outside providers, or through Head Start programs.

Due to budgetary constraints, the NJDOE postponed the roll-out of the program, which was scheduled for the 2009-10 school year. According to a recent conversation with Ms. Karin Garver, Educational Program Development Specialist in the NJDOE Early Childhood Education, there are no plans in the imminent future by the State Legislature to fund the program, which would prevent school districts from implementing the program. Since it is unclear if and when the program will be funded and subsequently mandated, the forthcoming enrollment projections do not include additional pre-kindergarten students from the SFRA, which is a departure from the previous report. The pre-school program would have been rolled out over a five-year period according to the following schedule:

- At least 20% of the eligible pre-school universe in the 2009-10 school year
- At least 35% of the universe in 2010-11
- At least 50% of the universe in 2011-12
- At least 65% of the universe in 2012-13
- At least 90% of the universe in 2013-14

The universe of pre-school children in “Universal” districts is computed by multiplying the 1st grade enrollment in 2007-08 by two. The universe of pre-school children in “Targeted” districts is computed by multiplying the 1st grade enrollment in 2007-08 by two and then multiplying by the percentage of students (K-12) having free or reduced lunch in the district.

The Vernon Township School District is a “Targeted” district since its DFG is “FG” with a concentration of at-risk pupils less than 40 percent (8.78%). In Table 8 following, the estimated number of total eligible pre-school students is provided with the estimated rollout by year for 2010-11 through 2013-14. For the purpose of this study, it has been assumed that the district would educate its pre-school children in-house. As the table shows, there is the potential for 53 pre-kindergarten students as a result of the SFRA.

Table 8
Estimated Number of Eligible Pre-School Students
as Per School Funding Reform Act of 2008

DFG (2000)	Total eligible	2010-11	2011-12	2012-13	2013-14
FG	53	19	27	34	48

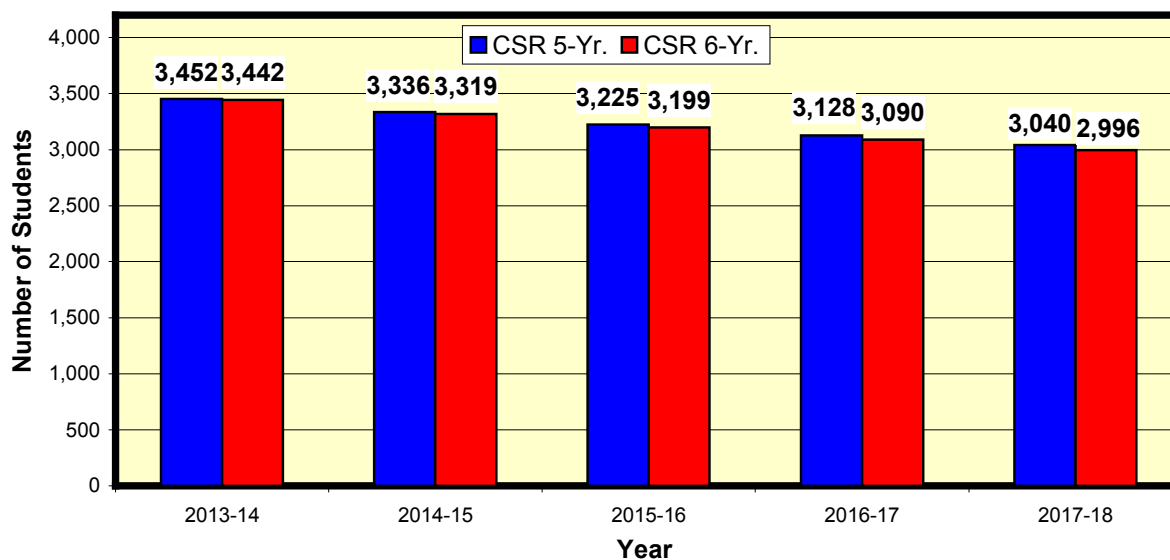
Source: New Jersey Department of Education, Division of Early Childhood Education

Projected PK-12 enrollment for the entire district using cohort-survival ratios based on historical data from the last five years follows in Table 9 and Figure 8. Using this method, total enrollment is projected to steadily decline through 2017-18, which appears to be partially due to negative kindergarten replacement. The final projected enrollment of 3,040 students in the 2017-18 school year would be a loss of 600 students from the October 2012 enrollment of 3,640 students.

Table 9
Projected Grade PK-12 Enrollments for 2013-14 to 2017-18
Using Cohort-Survival Ratios and 5 Years of Historical Data

Year	PK RE	K	1	2	3	4	5	6	7	8	9	10	11	12	SE	PK-12 Total
2013-14	33	212	229	228	232	246	265	253	269	256	277	277	280	274	121	3,452
2014-15	33	215	220	228	227	229	244	259	245	264	241	270	269	275	117	3,336
2015-16	33	219	223	219	227	224	227	238	251	241	249	235	262	264	113	3,225
2016-17	33	218	227	222	218	224	222	222	231	247	227	243	228	257	109	3,128
2017-18	33	218	226	226	221	215	222	217	215	227	233	221	236	224	106	3,040

Figure 8
Enrollment Projections for 2013-14 to 2017-18



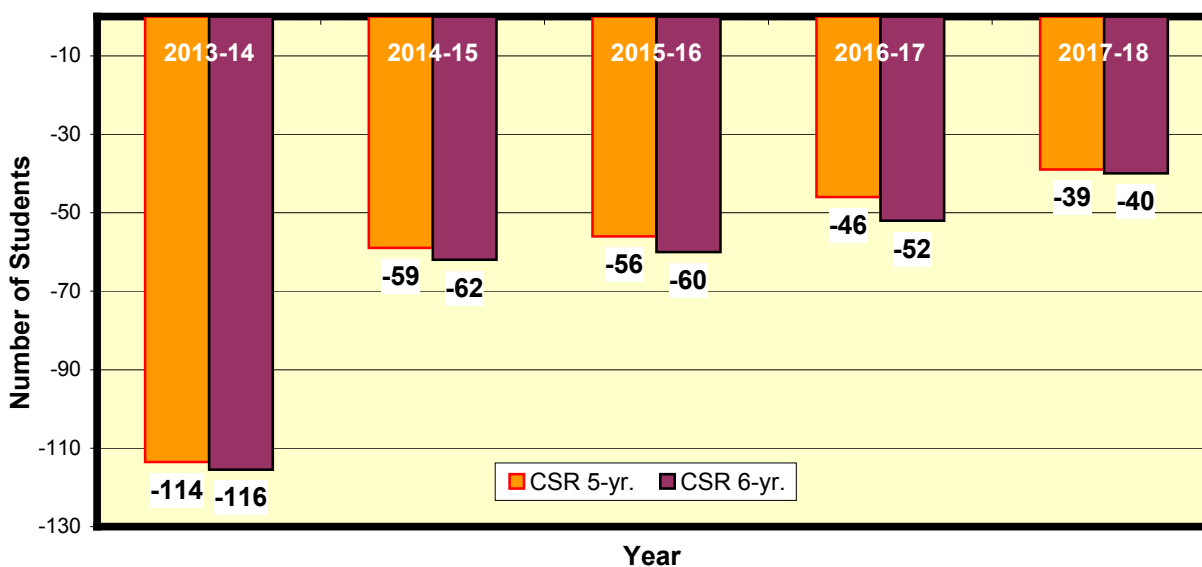
Projected PK-12 enrollment for the entire district using cohort-survival ratios based on historical data from the last six years follows in Table 10 and Figure 8. Using this method, total enrollment is also projected to decrease steadily through 2017-18, albeit at a slightly faster rate. The final projected enrollment of 2,996 students in the 2017-18 school year would be a loss of 644 students from the October 2012 enrollment of 3,640 students.

Table 10
Projected Grade PK-12 Enrollments for 2013-14 to 2017-18
Using Cohort-Survival Ratios and 6 Years of Historical Data

Year	PK RE	K	1	2	3	4	5	6	7	8	9	10	11	12	SE	PK-12 Total
2013-14	33	210	228	227	230	247	265	254	270	252	272	278	281	275	120	3,442
2014-15	33	213	217	226	224	227	245	260	248	262	233	266	272	277	116	3,319
2015-16	33	217	220	215	223	221	225	240	254	241	242	228	260	268	112	3,199
2016-17	33	216	224	218	212	220	219	220	234	247	223	237	223	256	108	3,090
2017-18	33	216	223	222	215	209	218	215	215	227	228	218	232	220	105	2,996

In each instance, the decline in enrollment appears to be partially due to negative kindergarten replacement. In the next five years, the projected loss of students due to this phenomenon ranges between 39-116 students per year as shown in Figure 9. However, the declines are projected to become much smaller throughout the projection period.

Figure 9
Projected Kindergarten Replacement



Projected Enrollment by Grade Configuration

In Table 11 following, historical and projected enrollments are broken down by the current grade configurations in the Vernon Township School District for each of the enrollment projection calculations. Self-contained special education/ungraded students were reassigned into each of the school configurations based on historical percentages.

For grades PK-1, enrollment is projected to be essentially stable throughout the five-year projection period. The CSR method based on five and six years of historical data is projecting enrollment to be 494-499 students in 2017-18, which would represent a loss of 15-20 students from the 2012-13 enrollment of 514 students.

Table 11
Projected Enrollments for Grades PK-1, 2-4, 5-6, 7-8,
and 9-12 for Each Projection Method

HISTORICAL	PK-1		2-4		5-6		7-8		9-12	
2012-13	514		791		562		565		1,208	
PROJECTED	PK-1 CSR 5-YR	PK-1 CSR 6-YR	2-4 CSR 5-YR	2-4 CSR 6-YR	5-6 CSR 5-YR	5-6 CSR 6-YR	7-8 CSR 5-YR	7-8 CSR 6-YR	9-12 CSR 5-YR	9-12 CSR 6-YR
2013-14	499	496	742	739	541	542	535	532	1,135	1,133
2014-15	493	487	719	712	525	527	518	519	1,081	1,074
2015-16	499	494	704	692	486	486	501	504	1,035	1,023
2016-17	501	496	696	682	465	459	487	490	979	963
2017-18	499	494	693	677	459	453	451	450	938	922

For grades 2-4, enrollment is projected to decline, but have a slower rate of decline throughout the projection period. The CSR method based on five and six years of historical data is projecting enrollment to be 677-693 students in 2017-18, which would represent a loss of 98-114 students from the 2012-13 enrollment of 791 students.

For grades 5-6, enrollment is projected to steadily decline throughout the projection period, but have a slower rate of decline throughout the projection period. The CSR method based on five and six years of historical data is projecting enrollment to be 453-459 students in 2017-18, which would represent a loss of 103-109 students from the 2012-13 enrollment of 562 students.

For grades 7-8, enrollment is projected to steadily decline throughout the projection period. The CSR method based on five and six years of historical data is projecting enrollment to be 450-451 students in 2017-18, which would represent a loss of 114-115 students from the 2012-13 enrollment of 565 students.

Regarding grades 9-12, enrollment is projected to steadily decline throughout the projection period. The CSR method based on five and six years of historical data is projecting enrollment to be 922-938 students in 2017-18, which would represent a loss of 270-286 students from the 2012-13 enrollment of 1,208 students.

Capacity Analysis

Table 12 shows the educational capacities of the school buildings in the Vernon Township School District in comparison to both the actual enrollment in 2012-13 and the projected enrollment in the 2017-18 school year. Since enrollment is not being projected at the building level in this study, the projected enrollment is shown by the district's current configuration for ease in comparison. Using the educational capacities provided by the district,

the differences between capacity and projected number of students were computed. Since there were two sets of projections, only the highest projection for each grade configuration level is shown. Positive values indicate available extra seating while negative values indicate a shortage of seating. As the table shows, due to declining enrollment, there should be ample seating throughout the district.

Table 12
Capacity Analysis

School	Capacity ¹	Enrollment in 2012-13	Difference	Enrollment in 2017-18	Difference
Walnut Ridge Primary School (PK-1)	611	514	+97	499	+112
Cedar Mountain Primary School (2-4)	563	791	+387	693	+485
Rolling Hills Primary School (2-4)	615				
Lounsberry Hollow Middle School (5-6)	680	562	+118	459	+221
Glen Meadow Middle School (7-8)	877	565	+312	451	+426
Vernon Township High School (9-12)	1,432	1,208	+224	938	+494

Source: ¹Vernon Township Long Range Facility Plan using District Practices Methodology

Student Mobility Rates

It is postulated that a large renter population may translate into a more mobile cohort, resulting in families with children entering and withdrawing from the school district. In Vernon, 11.4% of the occupied housing units contain renters. To check the validity of this hypothesis, the district's mobility rates were compared to state averages. As shown in Table 13 following, Cedar Mountain, Rolling Hills, and Glen Meadow had historical student mobility rates that are below the state average in each of the three most recent years in which data were available. The remaining schools had mobility rates below the state average in two of three years. Since the

Cohort-Survival Ratio method depends upon stability and the district's mobility rates are generally lower than the state average, the enrollment projections performed may be less susceptible to inaccuracies.

Table 13
Student Mobility Rates by Year for Schools
in the Vernon Township School District

Vernon Township School District	2008-09	2009-10	2010-11
Walnut Ridge Primary School (PK-1)	7.4%	8.5%	10.6%
Cedar Mountain Primary School (2-4)	3.3%	3.7%	9.5%
Rolling Hills Primary School (2-4)	3.5%	4.1%	4.3%
Lounsberry Hollow Middle School (5-6)	3.3%	3.5%	16.1%
Glen Meadow Middle School (7-8)	3.7%	3.5%	5.1%
Vernon Township High School (9-12)	6.8%	5.2%	12.0%
State Avg. K-8			
	10.7%	10.5%	10.0%
State Avg. 9-12			
	9.6%	9.7%	8.8%

Source: New Jersey School Report Card

Note: Number is bolded if greater than the state average.

While the data in Table 13 show the percentage of students entering or leaving the district, it does not show whether there is a net inward or net outward migration. Net migration by grade can be determined by viewing the average cohort-survival ratios found in Table 4. Eleven of the thirteen average survival ratios for grades K-12 were less than 1.000, indicating that there is a general net outward migration of students.