



Demographic Study

for the

Hanover Township Public Schools

March 2023

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Executive Summary

Statistical Forecasting LLC (“Statistical Forecasting”) completed a demographic study update for the Hanover Township Public Schools, projecting grade-by-grade enrollments from 2023-24 through 2027-28, a five-year period. The previous study was completed for the district in May 2020. In addition, the following tasks were completed:

- analyzed community population trends and age structure, demographic characteristics, births, and fertility rates,
- examined historical enrollment trends districtwide and by grade configuration (PK-5 and 6-8),
- researched new housing starts and the impact on the school district, and
- compared building capacities to current and projected enrollments.

Community Overview

In the 2020 Census, Hanover Township (“Hanover”) had 14,677 residents, which is a gain of 965 persons (+7.0%) from 2010. Forecasts prepared by the North Jersey Transportation Planning Authority project the population to be 15,792 in 2040, which would be a 7.6% increase from the 2020 Census and a gain of 1,115 persons.

While Whites are the largest race in Hanover, their population is declining. In the 2020 Census, Hanover was 74.1% White as compared to 82.4% in 2010, which is a loss of 8.3 percentage points. Asians were the second-largest race at 13.3% in 2020, which is a gain of 2.5 percentage points from 2010 (10.8%). Hispanics were the third-largest race consisting of 7.1% of the population in 2020.

With respect to nativity, 24.1% of Hanover residents are foreign-born, which is similar to that of New Jersey (22.9%). China and India are the two largest sources of the township’s foreign-born population.

Historical Enrollment Trends

Historical enrollments were analyzed from 2013-14 through 2022-23, a ten-year period. In general, enrollments have been declining over the last decade. In 2022-23, enrollment is 1,257, which is a decline of 228 students (-15.4%) from the 2013-14 enrollment of 1,485.

For grades PK-5, enrollments were fairly stable from 2013-14 to 2016-17 before declining. In 2022-23, enrollment is 792, which is a decline of 152 students from the 2013-14 enrollment of 944.

For grades 6-8 at Memorial Junior School, enrollments declined through 2020-21 before stabilizing. In 2022-23, enrollment is 465, which is a decline of 76 students from the 2013-14 enrollment of 541.

Kindergarten 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 8th graders and the number of entering kindergarten students. The district has experienced negative kindergarten replacement in each of the last nine years, ranging from 29-54 students per year. Negative kindergarten replacement occurs when the number of kindergarten students entering the district is less than the number of graduating eighth grade students from the prior year.

In six of the last nine instances when negative kindergarten replacement occurred, the district's losses due to negative kindergarten replacement were partially offset (or totally, resulting in a net enrollment gain) by a net inward migration of students in the other grades (K to 1, 1 to 2, 2 to 3, etc.).

Birth Counts

The number of births from 2008-2021 in Hanover was used to project kindergarten enrollments five years later. After declining through 2013, the annual number of births reversed trend and increased in 2014. However, since then, the annual number of births has been generally declining. In 2021, there were 112 births in the township, which are 20 fewer births than the 2008 birth count (132).

Population Age Structure

Age-sex diagrams from the 2010 Census and the 2017-2021 ACS were created for Hanover to show the percentage of males and females in each age class. In 2010, the largest number of individuals was aged 40-44 for males and 45-49 for females. In communities with little inward or outward migration and low mortality, the largest cohort in subsequent years is typically the next oldest cohort as people advance in age. However, in the 2017-2021 ACS, the largest cohort was the 55-59 age group for males and the 60-64 age group for females. As the largest groups in the 2017-2021 ACS were not the next oldest cohorts, migration is likely occurring in the township. Over this time period, the greatest declines occurred in the 35-39 age group for both males and females. The greatest gains occurred in the 55-59 age group for males and the 60-64 age group for females. If the male and female age groups are combined, there were gains in every age group from 50-54 and up, indicating a "graying" of the population.

Potential New Housing

Hanover municipal representatives provided information regarding current and future residential development in the community. In total, there is the potential for 1,113 non age-restricted housing units in five separate developments, all of which are multi-family units such as apartments or townhouses. Of this amount, 189 units (17%) will be set aside to meet affordable housing requirements.

An estimate was made of the number of public school children (K-8) that could potentially come from the approved and proposed housing developments. A total of 226 public

school children (K-5 = 166, 6-8 = 60) in grades K-8 are projected to be generated. Additional children are expected for grades 9-12 but they are not considered here as they would not impact the school district.

Home Sales

Home sales in Hanover were analyzed from 1995-2022. After peaking at 239 home sales in 2003, the number of sales declined to 123 in 2012 due to the housing market crash and banking crisis. During this period (2010-2012), the annual number of home sales was low, ranging from 123-134. Since then, home sales have rebounded. From 2013-2022, home sales have slowly increased. In 2022, there were 198 sales, which is slightly lower than the annual number of sales before the housing market crash and banking crisis.

Enrollment Projections

PK-8 enrollments were computed for a five-year period, 2023-24 through 2027-28, in two separate projections (baseline and adjusted for housing growth). In the baseline projections, which assume that the proposed housing developments do not come to fruition or are not occupied within the anticipated construction timeline, enrollments are projected to decline throughout the projection period. Enrollment is projected to be 1,110 in 2027-28, which would be a decline of 147 students from the 2022-23 enrollment of 1,257. In the adjusted projections, enrollments are projected to decline for the next three years before reversing trend. Enrollment is projected to be 1,291 in 2027-28, which would be a gain of 34 students from the 2022-23 enrollment.

For the elementary grades (PK-5), enrollments are projected to decline throughout the projection period in the baseline projections. Enrollment is projected to be 704 in 2027-28 in the baseline projections, which would be a decline of 88 students from the 2022-23 enrollment of 792. In the adjusted projections, enrollments are projected to decline through 2025-26 before reversing trend. Enrollment is projected to be 822 in 2027-28, which would be a gain of 30 students from the 2022-23 enrollment.

For the middle school grades (6-8) at Memorial Junior School, enrollments are projected to slowly decline for the next 2-3 years before reversing trend in both the baseline and adjusted projections. Enrollment is projected to be 406 in 2027-28 in the baseline projections, which would be a decline of 59 students from the 2022-23 enrollment of 465. In the adjusted projections, enrollment is projected to be 469 in 2027-28, which would be nearly unchanged (+4) from the 2022-23 enrollment.

Building Capacities

The capacities of the grade configurations in the district were compared to the current enrollments in 2022-23 and the enrollment projections in the 2027-28 school year, as the enrollment projections were not performed at the school level. Using the building capacities from the district's Long Range Facilities Plan, the differences between capacity and current/projected number of students were computed. Positive values indicate available extra

seating while negative values indicate inadequate seating (also known as “unhoused students”). It should be noted that the capacity values are not fixed and can change from year-to-year based on classroom usage. For instance, additional special education classes in a building would reduce the building’s capacity. On the other hand, districts with unhoused students can accommodate these children by increasing class sizes, which in turn increases the school’s capacity. As such, the capacity of a school is not a fixed value and can be changed depending on how the building is used.

At the elementary configuration, there is currently a surplus of seating (+432) in 2022-23. In Memorial Junior School, surplus seating also exists (+230). By 2027-28, it is anticipated that there will be a fewer number of surplus seats in the elementary configuration (+402) due to a projected increase in enrollment. In Memorial Junior School, the number of surplus seats (+226) is projected to be similar to the current number.

Final Thoughts

In the last decade, enrollments (PK-8) have been declining in the Hanover Township Public Schools. However, it appears a change in trend is on the horizon due to 1,113 new non age-restricted housing units in Hanover. If not for the impending new housing developments, enrollments would likely continue to decline. While there are a significant number of housing units planned in the township, the housing unit type and bedroom distribution is likely to lead to fewer public school students than may have been anticipated. The impact on the school district is also reduced as a number of children from the new housing developments will enroll in grades 9-12.

While enrollments are projected to increase slightly due to the new housing developments, the school district should continue to monitor the status of the proposed developments as the projected increase in enrollments would be less if these developments are not constructed in the next five years. Several developments have yet to begin construction, which may lead to occupation outside of the enrollment projection timeframe. If the proposed housing does not come online in the near term as anticipated, the declining enrollment trend in the district will likely continue to occur.

In closing, it is difficult to measure the impact of the coronavirus on the school district’s enrollments moving forward. In a New York Times article,¹ families with financial means are leaving large metropolitan areas to reside in their second homes in rural areas or are purchasing an existing home in these new locations. These individuals can typically work remotely and are seeking to escape the pandemic. It is not clear whether these households will permanently reside in these locations or return to suburban/urban centers. While available data are limited, we are continuing to monitor data as it becomes available to assess the pandemic’s future impact on enrollments both short- and long-term.

¹ (<https://www.nytimes.com/2020/09/26/us/coronavirus-vermont-transplants.html>)

Introduction

Statistical Forecasting LLC (“Statistical Forecasting”) completed a demographic study update for the Hanover Township Public Schools, projecting grade-by-grade enrollments from 2023-24 through 2027-28, a five-year period. The previous study was completed for the district in May 2020. In addition, the following tasks were completed:

- analyzed community population trends and age structure, demographic characteristics, births, and fertility rates,
- examined historical enrollment trends districtwide and by grade configuration (PK-5 and 6-8),
- researched new housing starts and the impact on the school district, and
- compared building capacities to current and projected enrollments.

Enrollment Projections from May 2020 Report

In our previous demographic study, enrollments were projected from 2020-21 through 2024-25, a five-year projection period. Table 1 compares the actual enrollments (PK-8) to the projected enrollments for the first three years of the projection period. The table also shows the numerical differences and percent errors by year. Since two projections were computed in the previous study (using four and five years of historical data, respectively), 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 (PK-8)
from May 2020 Report

Year	Actual	CSR 4-YR			CSR 5-YR		
		Projected	Difference	% Error	Projected	Difference	% Error
2020-21	1,287	1,328	+41	+3.2%	1,335	+48	+3.7%
2021-22	1,251	1,318	+67	+5.4%	1,335	+84	+6.7%
2022-23	1,257	1,303	+46	+3.7%	1,328	+71	+5.6%

In our previous study, enrollments were projected to decline throughout the projection period. Due to the uncertainty in the timeline of when the proposed residential developments in Hanover would get constructed and occupied, and what effects the coronavirus pandemic would have on the housing market, the baseline enrollment projections were not adjusted for the additional children anticipated from the new housing developments. In actuality, enrollments declined in 2020-21 and 2021-22 before stabilizing in 2022-23. The decline in enrollments was greater than anticipated, which was likely due to the coronavirus pandemic, as parents sought alternative educational experiences for their children, or may have had to relocate. In both

projections, enrollments were overestimated in each year of the projection period. In the first projection, error rates ranged from 3.2%-5.4%, which corresponds to a numerical difference range of 41-67 students. In the second projection, error rates ranged from 3.7%-6.7%. Expressed in numbers, the projections differed from actual enrollments by 48-84 students.

In a survey by Schellenberg and Stephens of educational planners who complete enrollment projections, two-thirds believe that an error rate of 1% per year for the total enrollment is acceptable.² For a five-year projection, this would mean that a 5% error rate in the fifth year would be acceptable. In both projections, the error rates were outside this parameter in each year of the projection period.

In Table 2, actual enrollments are compared to the projected enrollments for the first three years of the projection period for the elementary (PK-5) and middle (6-8) school grade configurations for each of the projections.

Table 2
Comparison of Projected to Actual Enrollments
by Grade Configuration from May 2020 Report

		CSR 4-YR				CSR 5-YR			
Year		Projected	Actual	Difference	% Error	Projected	Actual	Difference	% Error
2020-21	Elem. (PK-5)	863	821	+42	+5.1%	868	821	+47	+5.7%
2021-22		850	780	+70	+9.0%	862	780	+82	+10.5%
2022-23		835	792	+43	+5.4%	852	792	+60	+7.6%
		CSR 4-YR				CSR 5-YR			
Year		Projected	Actual	Difference	% Error	Projected	Actual	Difference	% Error
2020-21	Middle (6-8)	465	466	-1	-0.2%	467	466	+1	+0.2%
2021-22		468	471	-3	-0.6%	473	471	+2	+0.4%
2022-23		468	465	+3	+0.6%	476	465	+11	+2.4%

At the elementary level (PK-5), enrollments were overestimated in each year of the projection period in both projections. The overestimation is likely due to the coronavirus pandemic, as some parents were reluctant to send their child to school or may have sought private schools that had full in-person learning rather than hybrid or remote instruction, or may have homeschooled their child. In the first projection, error rates ranged from 5.1%-9.0%. Expressed in numbers, the projections differed from actual enrollments by 42-70 students. In the second projection, error rates ranged from 5.7%-10.5%. Expressed in numbers, the projections differed from actual enrollments by 47-82 students. Upon further inspection, most of the error was due to

² 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)

over-projecting kindergarten in each year, whose error was compounded in subsequent years as the students moved through the system.

In the middle school grades (6-8), enrollments were slightly underestimated in the first two years of the projection period in the first projection, and were slightly overestimated in the third year of the projection period. In the second projection, enrollments were slightly overestimated in each year of the projection period. In the first projection, error rates ranged from 0.2%-0.6%, which corresponds to a numerical difference range of 1-3 students. In the second projection, error rates ranged from 0.2%-2.4%. Expressed in numbers, the projections differed from actual enrollments by 1-11 students. Of the two grade configurations, the middle school grades had the lower percent errors in each year of the projection period.

At the school level, half of the survey respondents in the Schellenberg and Stephens survey believed an error rate of 3-5% in the first projection year was acceptable.³ The elementary school projections shown in Table 2 are not for an individual school, but are the aggregated enrollments of the three elementary schools and therefore are not compared to the acceptable error rate. However, the middle school error rate (Memorial Junior School) was below the range of what educational planners deem acceptable.

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, migration or withdrawal of students due to the coronavirus pandemic, numerous new housing starts (or planned housing starts that do not occur), 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 charter schools, private schools, or parochial schools, and school district policy changes.

³ *ibid.*

Population Trends in Hanover Township

Located in Morris County, Hanover Township (“Hanover”) contains a land area of 10.52 square miles, with an additional 0.20 square miles of water area. In the 2020 Census, Hanover had 14,677 residents, which is 1,395.2 persons per square mile. Historical and projected populations for Hanover from 1940-2040 are shown in Table 3 and Figure 1.

Table 3
Historical and Projected Populations for Hanover Township
1940-2040

Year	Population	Percent Change
Historical¹		
1940	2,812	N/A
1950	3,756	+33.6%
1960	9,329	+148.4%
1970	10,700	+14.7%
1980	11,846	+10.7%
1990	11,538	-2.6%
2000	12,898	+11.8%
2010	13,712	+6.3%
2020	14,677	+7.0%
Projected²		
2030	15,547	+5.9%
2040	15,792	+1.6%

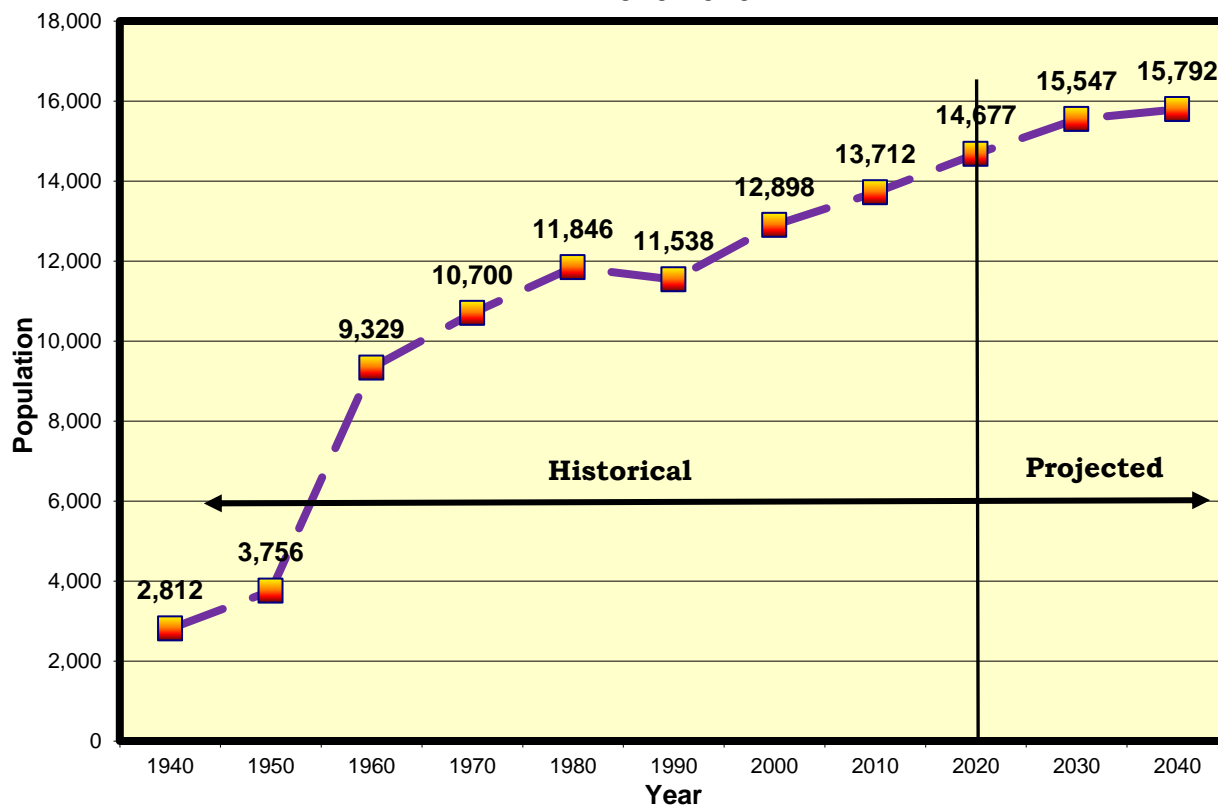
Sources: ¹ United States Census Bureau

² North Jersey Transportation Planning Authority, Inc. (2017)

From 1940-1980, Hanover’s population quadrupled, with its greatest gain occurring in the 1950s (+148.4%) when the population more than doubled. After declining in the 1980s, the population has steadily increased in the last three decades, gaining more than 3,100 persons over this time period. In the most recent decade, there was a gain of 965 persons.

Population projections for 2030 and 2040, which were prepared by the North Jersey Transportation Planning Authority (“NJTPA”), indicate that the population will continue to increase. However, as the projections were based off of the 2010 Census, the NJTPA needs to revise its projections now that the 2020 Census results are available. As it currently stands, the forecast projects the population to be 15,792 in 2040, which would be a 7.6% increase from the 2020 Census and a gain of 1,115 persons.

Figure 1
Historical and Projected Populations for Hanover Township
1940-2040



Hanover Township Demographic Profile

In Table 4, selected demographic characteristics of Hanover are compared from the 2010 and 2020 Censuses and the 2007-2011 and 2017-2021 American Community Surveys (“ACS”). At the time of this writing, a limited amount of demographic data was available from the 2020 Census, which was limited to total population counts and racial distributions from the Redistricting Data, which is used by states to redraw electoral district boundaries based on where populations have increased or decreased. 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 household income, educational attainment, poverty status, etc.). The ACS replaced the long form of the Census, last administered in 2000 to approximately 16% of the population in the United States. For communities with fewer than 65,000 persons such as Hanover, ACS data represent a sample collected over a five-year time period, where the estimates represent the average characteristics between January 2017 and December 2021, for example. This information does not represent a single point in time like the long form of earlier Censuses. The five-year ACS contains 1% annual samples from all households and persons from 2017 to 2021, resulting in a 5% sample of the population. Due to the small sample size, the sampling error is quite large, which increases the degree of uncertainty of the estimated values. Therefore, the forthcoming ACS data should be interpreted with caution.

While Whites are the largest race in Hanover, their population is declining. In the 2020 Census, Hanover was 74.1% White as compared to 82.4% in 2010, which is a loss of 8.3 percentage points. Asians were the second-largest race at 13.3% in 2020, which is a gain of 2.5 percentage points from 2010 (10.8%). Hispanics were the third-largest race consisting of 7.1% of the population in 2020, which is a gain of 2.5 percentage points from the 2010 percentage (4.6%). Figures 2-4 show the White, Asian, and Hispanic percentages by Census block group, which are the three largest races in Hanover. The White percentage is greatest primarily in the central and eastern sections of the township. The Asian percentage is greatest in the northwestern section of Hanover while the Hispanic percentage is greatest in the central and northern sections of Hanover.

Regarding nativity, 24.1% of Hanover residents were foreign-born in the 2017-2021 ACS, which is a 5.9 percentage-point gain from the 2007-2011 ACS percentage (18.2%). As a point of comparison, New Jersey’s foreign-born resident percentage was 22.9% in the 2017-2021 ACS, which is similar to that of Hanover. While not shown in the table, place of birth, which serves as a proxy for country of origin, indicates that China and India were the largest sources of immigrants in the 2007-2011 ACS, accounting for 20.0% and 19.3%, respectively, of the foreign-born population. While China continues to be the largest source according to the 2017-2021 ACS, it accounts for a larger share (24.9%) of the foreign-born population. India remains the second-largest source (21.2%). Figures 5 and 6 show the percentage of foreign-born persons and the percentage of persons speaking English less than “Very Well” in Hanover by Census block group, which may potentially correlate with English as a New Language (“ENL”) students in need of English language instruction. The foreign-born percentage is greatest in the northwestern section of the township. The percentage of persons speaking English less than “Very Well” is greatest primarily in the central and northwestern sections of Hanover.

Table 4
Selected Demographic Characteristics of Hanover Township

Race Origin ¹	2007-2011 ACS 2010 Census	2017-2021 ACS 2020 Census
White	11,297 (82.4%)	10,880 (74.1%)
Black or African American	134 (1.0%)	325 (2.2%)
Hispanic or Latino	630 (4.6%)	1,046 (7.1%)
American Indian and Alaska Native	5 (0.0%)	10 (0.1%)
Asian	1,480 (10.8%)	1,948 (13.3%)
Native Hawaiian and Other Pacific Islander	1 (0.0%)	5 (0.0%)
Other Race	20 (0.1%)	40 (0.3%)
Two or more Races	145 (1.1%)	423 (2.9%)
Place of Birth		
Foreign-Born	18.2%	24.1%
Age		
Under 18	22.2%	19.2%
18-64	59.7%	60.1%
65 and over	18.1%	20.7%
Median age	43.9 years	47.6 years
Educational Attainment		
Bachelor's degree or higher	48.5%	56.3%
Graduate or professional degree	20.2%	25.3%
Income		
Median household income	\$103,514	\$132,563
Percentage of Persons in Poverty ages 5-17	3.6%	1.5%
Housing Units		
Total number	5,526	6,209
Occupied units	5,308 (96.1%)	6,021 (97.0%)
Owner-occupied units	4,469 (84.2%)	4,832 (80.3%)
Renter-occupied units	839 (15.8%)	1,189 (19.7%)
Median value of an owner-occupied unit	\$492,200	\$538,000
Average household size	2.58	2.40
Housing Type¹		
Total number	5,282	6,209
1-unit, attached or detached	4,127 (78.1%)	4,854 (78.2%)
Two units	88 (1.7%)	190 (3.1%)
Three or four units	179 (3.4%)	115 (1.9%)
Five to nine units	303 (5.7%)	492 (7.9%)
10 to 19 units	261 (4.9%)	305 (4.9%)
20 or more units	324 (6.1%)	253 (4.1%)
Mobile home	0 (0.0%)	0 (0.0%)

Sources: American Community Survey (2007-2011 and 2017-2021), United States Census (2010 and 2020)

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

Cells shaded orange are from the decennial Census while cells shaded blue are from the American Community Survey.

The median age in Hanover increased from 43.9 years in 2010 to 47.6 years in the 2017-2021 ACS, which is much greater than the median age in New Jersey (40.0 years). During the same time period, the percentage of people under the age of 18 years, which corresponds predominantly to school-age children, declined from 22.2% to 19.2%. Figure 7 shows the percentage of school-age children (5-17) in Hanover by Census block group. The greatest percentages of school-age children are in the eastern section of the township.

Regarding educational attainment for adults aged 25 and over, 56.3% of the population had a bachelor's degree or higher in the 2017-2021 ACS as compared to 48.5% in the 2007-2011 ACS, which is a gain of 7.8 percentage points. Hanover's percentage of persons having a bachelor's degree or higher is greater than that of New Jersey (41.5%). Persons with graduate or professional degrees increased from 20.2% to 25.3% during this time period, a 5.1 percentage-point gain.

Median household income increased from \$103,514 in the 2007-2011 ACS to \$132,563 in the 2017-2021 ACS, a gain of 28.1%. By comparison, median household income in New Jersey is \$89,703, which is \$43,000 lower than that of Hanover. During this time period, the percentage of school-age children (5-17) that are in poverty declined from 3.6% to 1.5%. Figure 8 shows the percentage of persons living in poverty in Hanover by Census block group. While the percentages are very small, the percentage of persons living in poverty is greatest in the northern section of Hanover.

Regarding housing, there were 6,209 housing units in Hanover in the 2017-2021 ACS, which is a gain of 683 units (+12.4%) from 2010. Over this time period, the overall occupancy rate remained nearly unchanged (97.0% in the 2017-2021 ACS) while the average household size declined from 2.58 to 2.40 persons. Renter-occupied units accounted for 19.7% of the occupied units in the 2017-2021 ACS, which is a gain of 3.9 percentage points from the 2010 percentage (15.8%). As a point of comparison, the percentage of renter-occupied units in Hanover is lower than that of New Jersey (36.2%). Finally, the median home price of an owner-occupied unit in the 2017-2021 ACS was \$538,000, which is a 9.3% increase from the value reported in the 2007-2011 ACS (\$492,200).

With respect to housing type, 78.2% of homes in the 2017-2021 ACS were one-unit, either attached or detached, which is nearly unchanged from the 2007-2011 ACS percentage (78.1%). Housing with 5-9 units, which typically contain renters, was the second-largest type of housing in the 2017-2021 ACS and consisted of 7.9% of the housing stock. In general, there has been little change in the housing distribution since the 2007-2011 ACS.

Figure 2
Hanover Township White Percentage

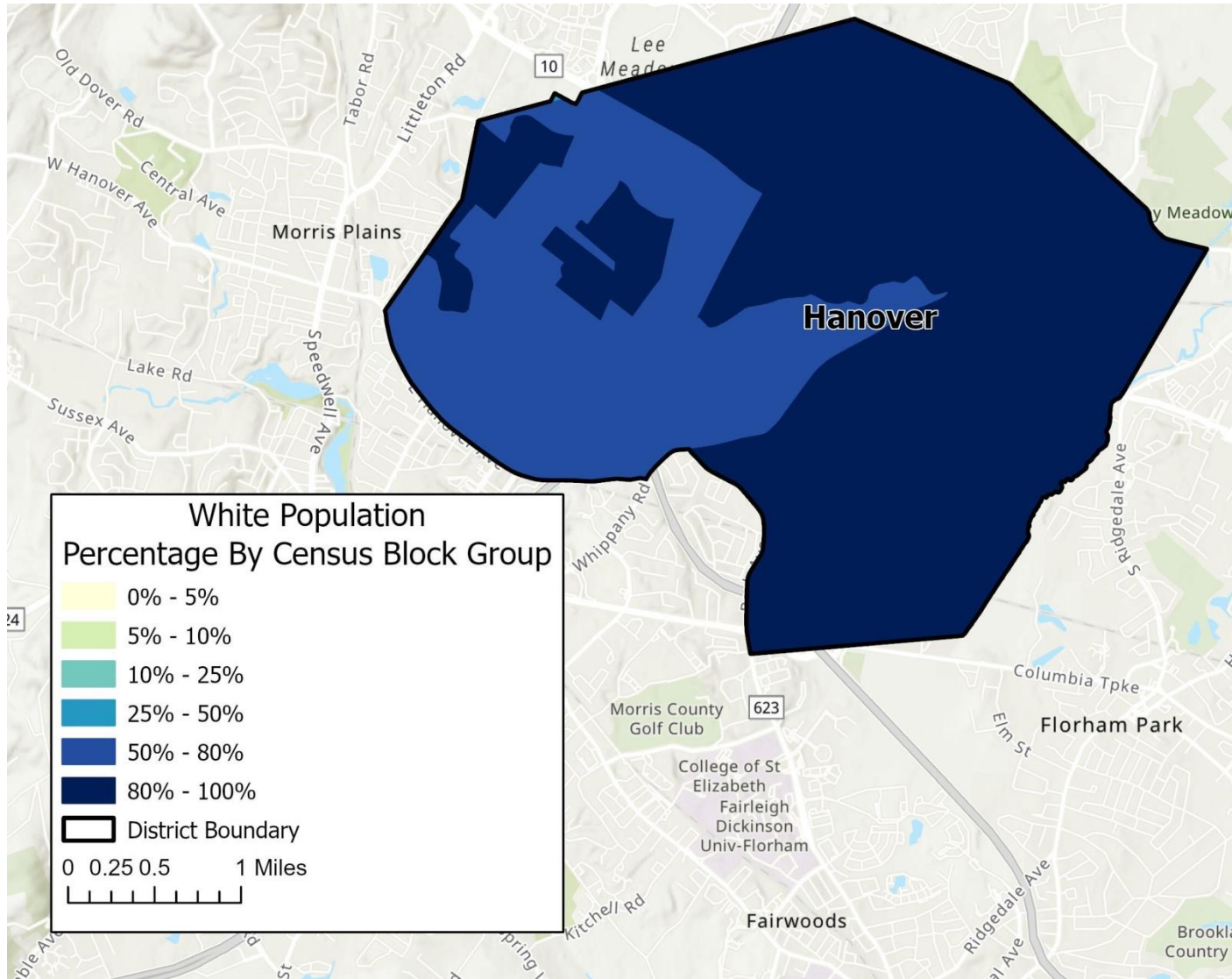


Figure 3
Hanover Township Asian Percentage

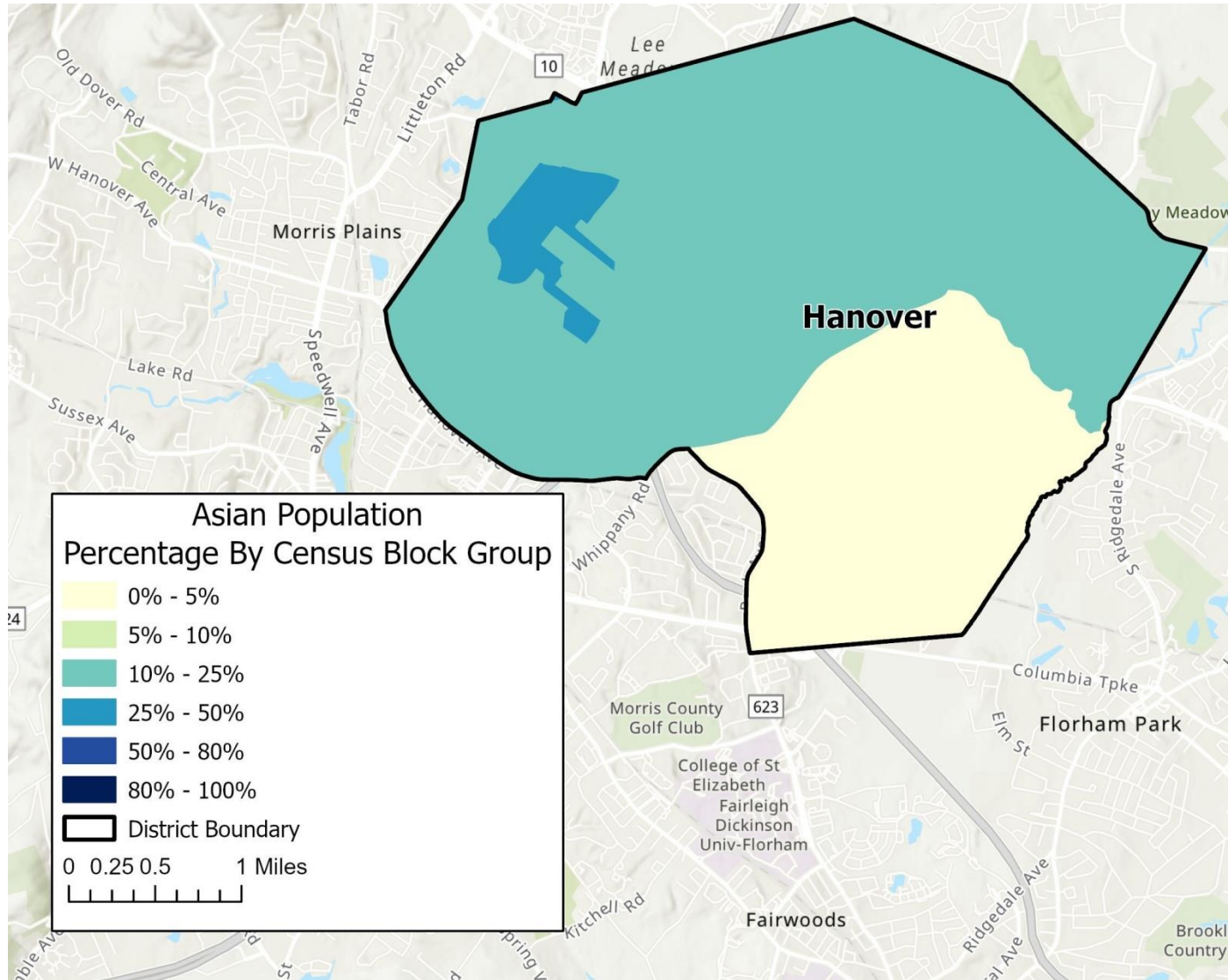


Figure 4
Hanover Township Hispanic Percentage

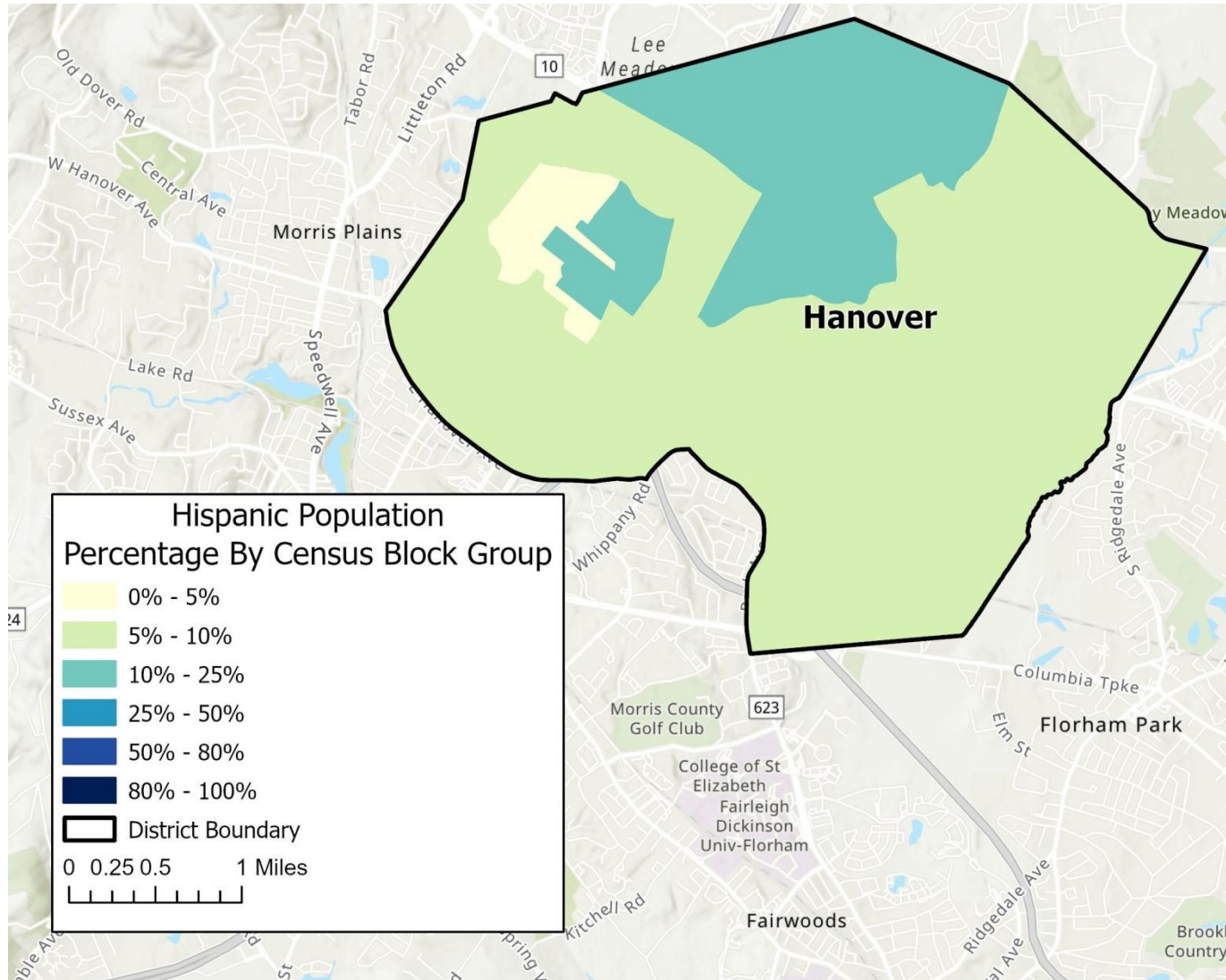


Figure 5
Hanover Township Foreign-Born Percentage

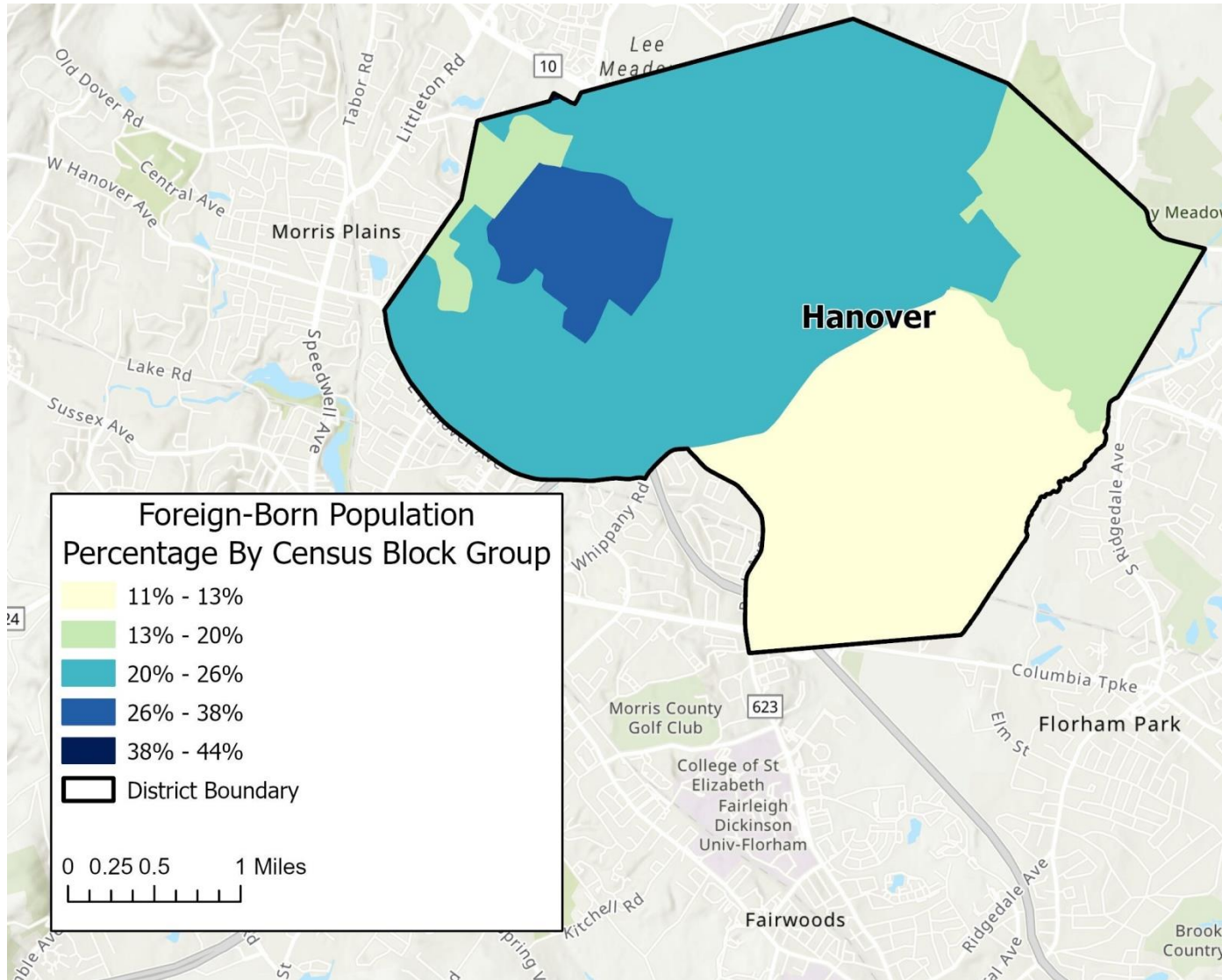


Figure 6
Hanover Township Percentage of Persons Speaking English Less than "Very Well"

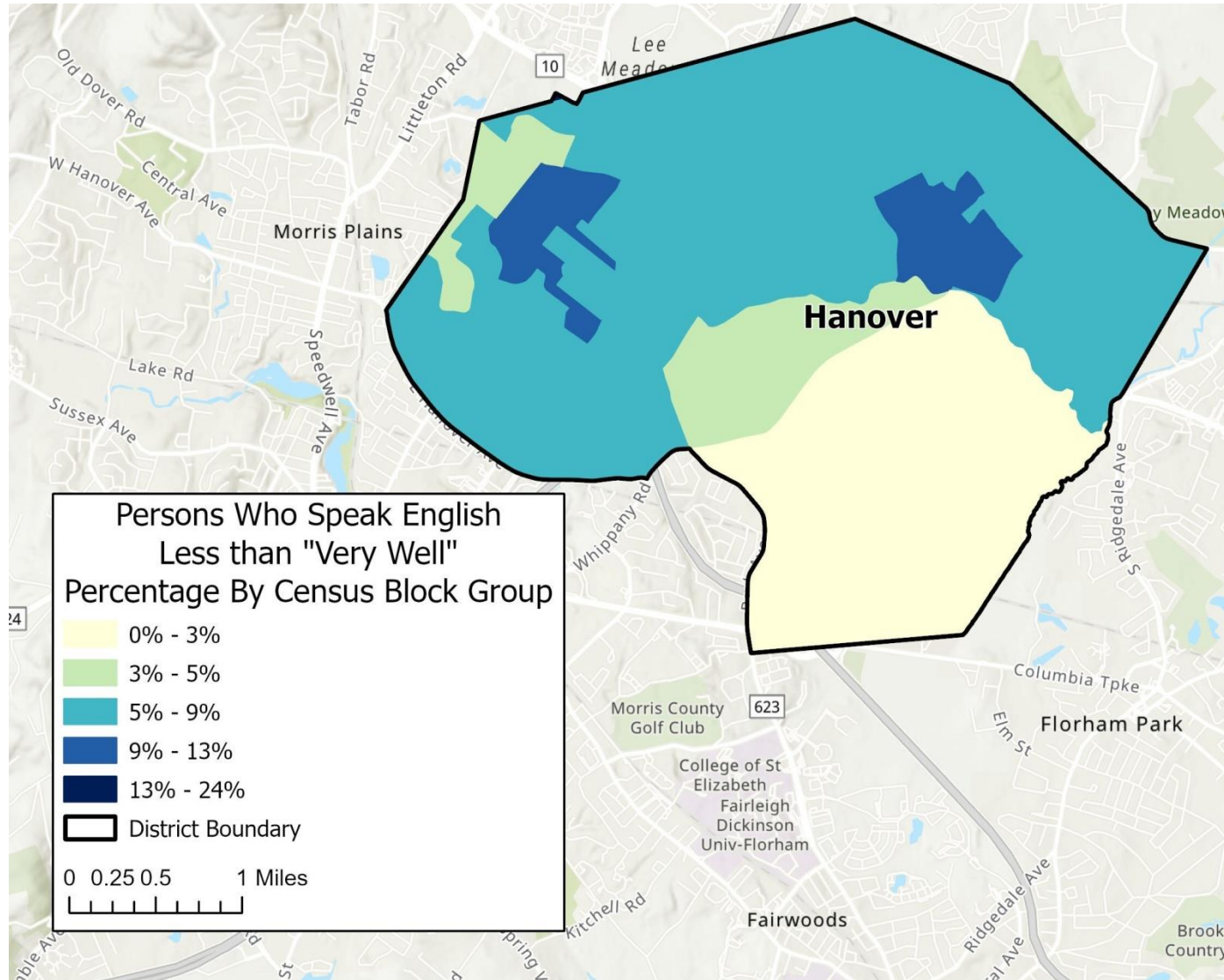


Figure 7
Hanover Township School-Age Population (5-17) Percentage

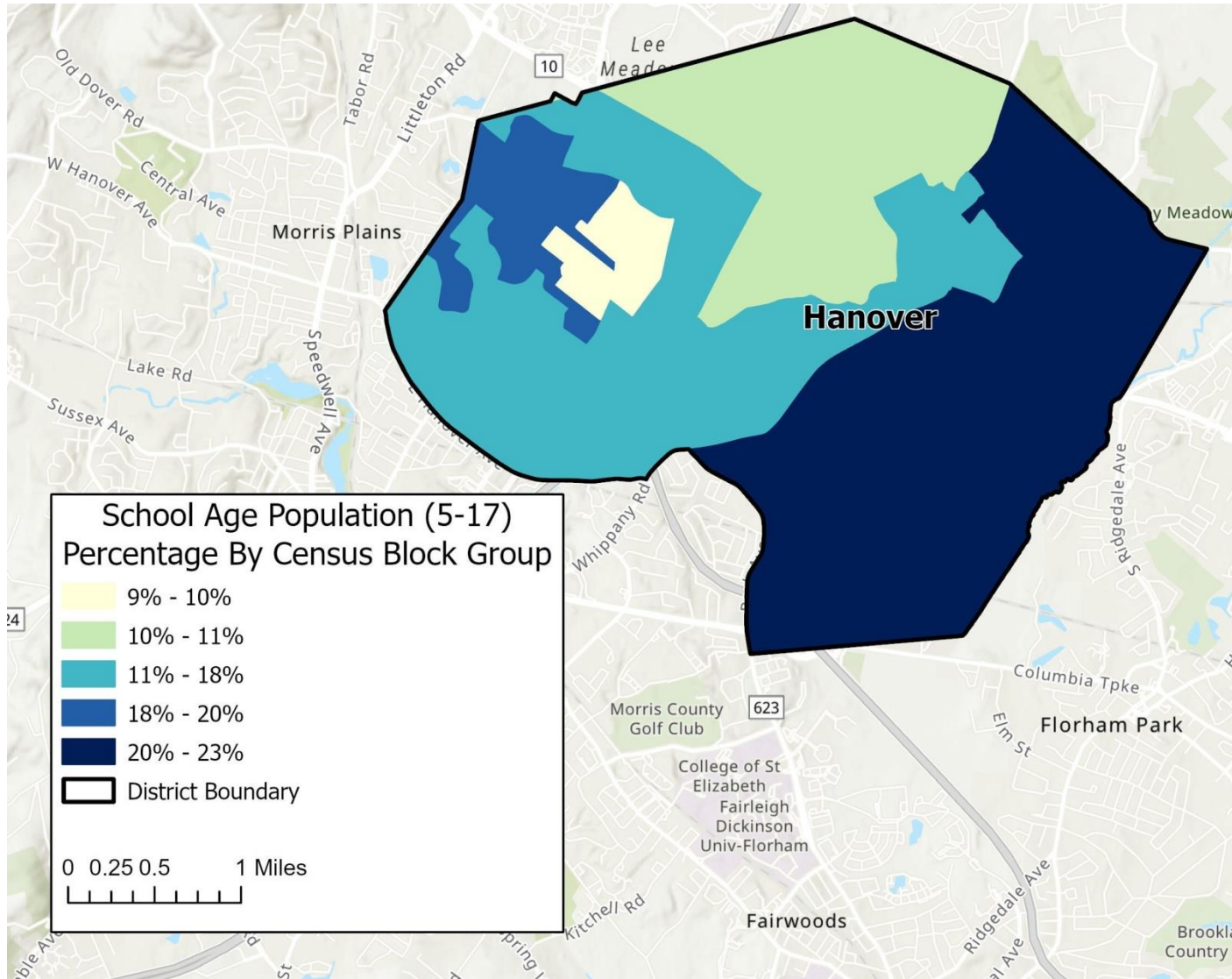
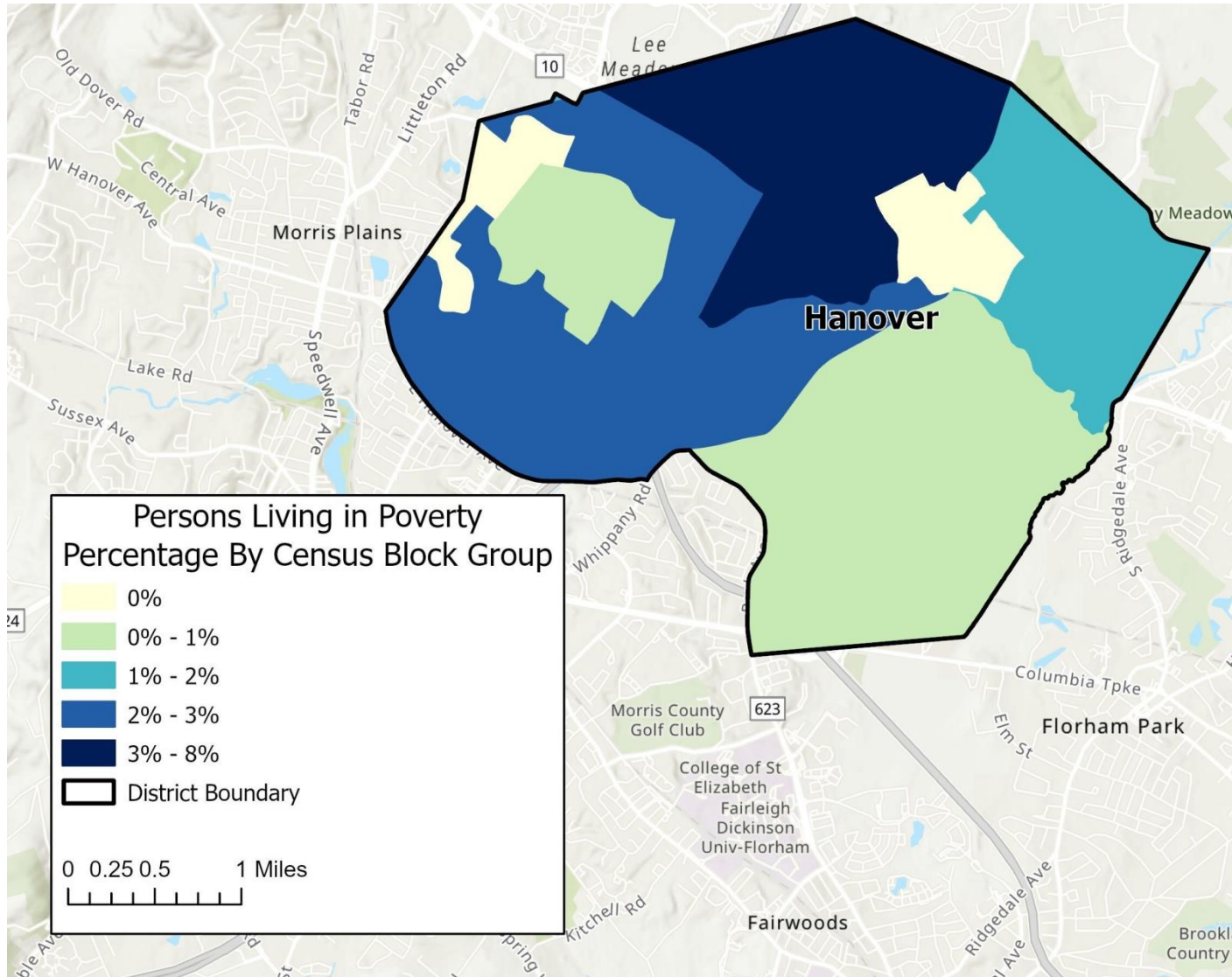


Figure 8
Hanover Township Percentage of Persons Living in Poverty



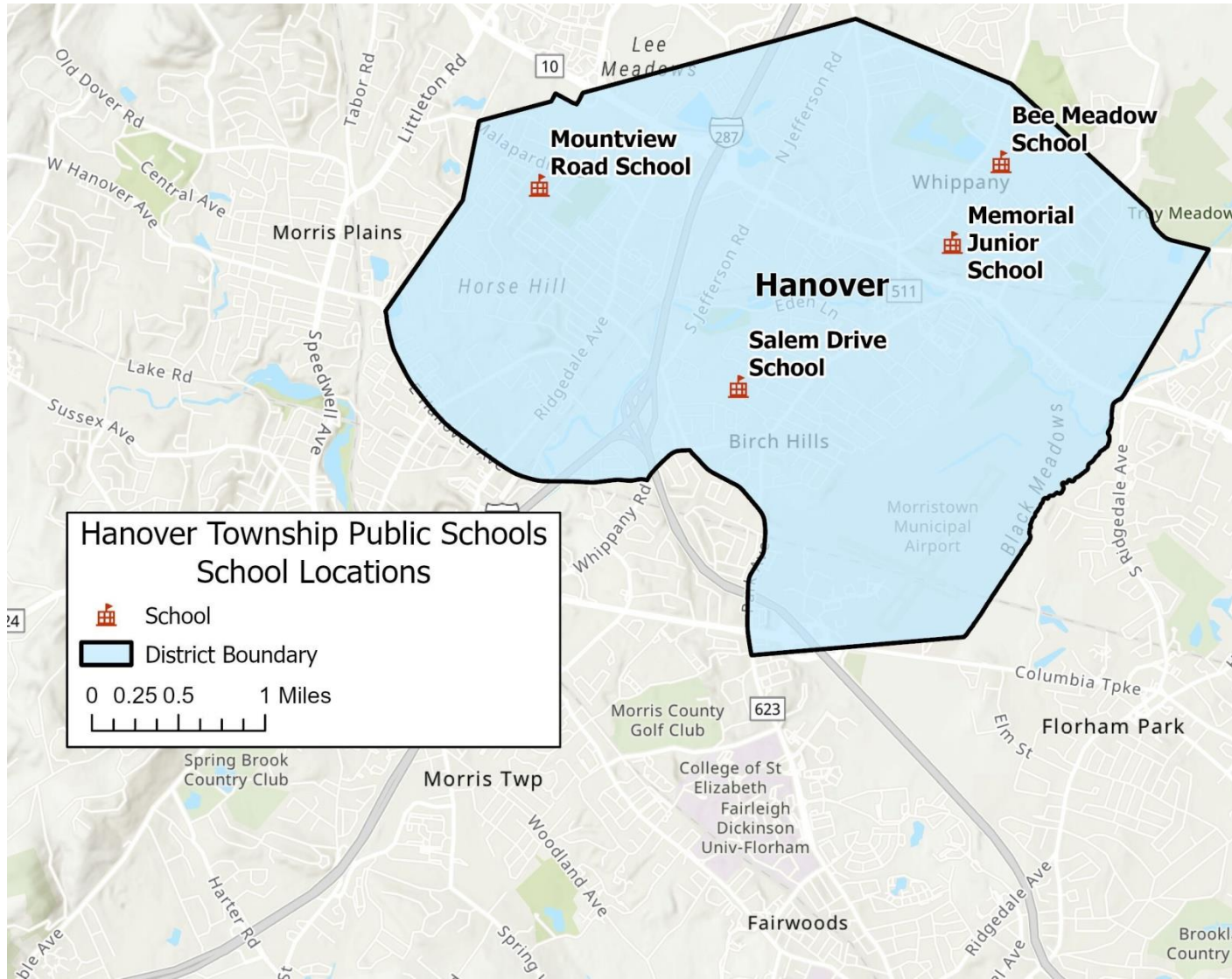
District Overview

The Hanover Township Public Schools has four (4) schools that educate children in grades pre-kindergarten through eighth. Children attend one of three (3) elementary schools for grades PK-5: Bee Meadow School (“Bee Meadow”), Mountview Road School (“Mountview Road”), or Salem Drive School (“Salem Drive”). Students then attend Memorial Junior School (“Memorial”) for grades 6-8. In Figure 9, the location of each of the district’s schools is shown with respect to the municipal boundaries.

According to the district’s Long Range Facility Plan (“LRFP”), total educational capacity in the district is 1,919 using District Practices methodology and 1,535 using Facilities Efficiency Standards (“FES”) methodology. The District Practices methodology considers how a building is utilized by the school district and its targeted student-teacher ratios, while the FES methodology utilizes FES-recommended class sizes. Capacity using FES methodology is often lower, particularly for middle and high schools, than when using District Practices methodology. Since buildings cannot be 100% utilized, due in part to scheduling conflicts, most districts employ either an 85% or 90% utilization factor to determine school capacity. As the projections are not being completed at the school level, a comparison of each grade configuration’s capacity to current and projected enrollments is provided later in the report.

In this study, historical enrollments from the New Jersey Department of Education (“NJDOE”) New Jersey Standards Measurement and Resource for Teaching (“NJ SMART”) database were used to project enrollments five years into the future using the Cohort-Survival Ratio method.

Figure 9
School Locations – Hanover Township Public Schools



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 1.00 indicates stable enrollment, less than 1.00 indicates declining enrollment and outward migration, while greater than 1.00 indicates increasing enrollment and inward migration. If, for example, a school district had 100 fourth graders and the next year 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 trends without any major unpredictable fluctuations from year to year. In school districts encountering rapid growth or decline 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-level enrollments five years into the future.

Historical Enrollment Trends

Historical enrollments (PK-8) for the Hanover Township Public Schools from 2013-14 through 2022-23, a ten-year period, are shown in Figure 10 and Table 5. In general, enrollments have been declining over the last decade. In 2022-23, enrollment is 1,257, which is a decline of 228 students (-15.4%) from the 2013-14 enrollment of 1,485.

Figure 10
Hanover Township Public Schools Historical Enrollments
2013-14 to 2022-23

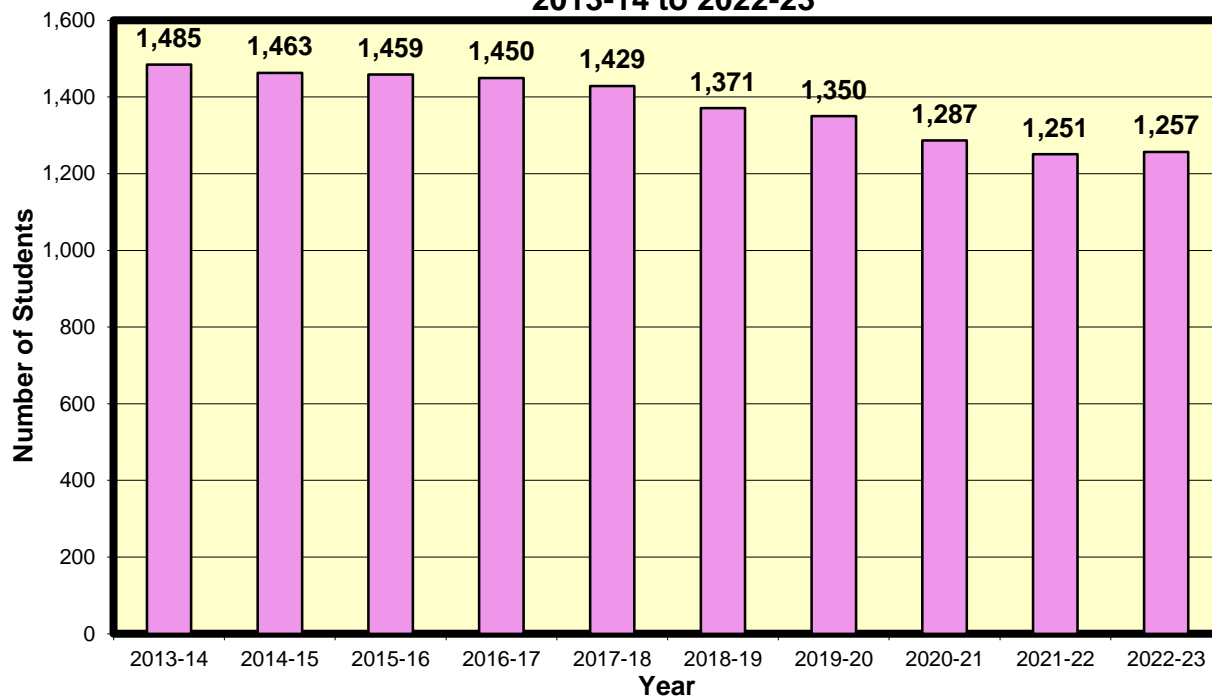


Table 6 shows computed grade-by-grade survival ratios from 2013-14 to 2022-23. In addition, the average, minimum, and maximum survival ratios are shown for the past ten years along with the five-year averages, which were used to project enrollments. The average survival ratios also indicate the net migration by grade, where values over 1.000 reflect net inward migration and values below 1.000 reflect net outward migration. Five of the nine (9) average survival ratios in the five-year trend were above 1.000, which does not show a clearly defined migration trend. In 2021-22, which represents the second year of the coronavirus pandemic, three survival ratios were the lowest value in the last decade (two of which were in the elementary grades) and are bolded in the table. The decline in the ratios is likely due to the pandemic, as parents sought alternative educational experiences for their children (private or parochial schools, homeschooling, etc.), or may have had to relocate. In comparing the five-year averages with the ten-year averages, the most notable difference was for birth to kindergarten, which has experienced a decline in its ratio in the near term. The remaining differences were very small, demonstrating the long-term stability of the survival ratios over the last decade, although seven of nine differences were negative, indicating a decline in the ratios in the short term.

Table 5
Hanover Township Public Schools Historical Enrollments
2013-14 to 2022-23

Year ¹	PK ²	K	1	2	3	4	5	SE ³	PK-5 Total	6	7	8	SE ⁴	6-8 Total	PK-8 Total
2013-14	4	143	145	152	160	172	144	24	944	176	173	188	4	541	1,485
2014-15	0	143	162	142	154	161	174	25	961	148	174	176	4	502	1,463
2015-16	0	135	152	163	142	161	165	27	945	181	152	177	4	514	1,459
2016-17	0	148	145	148	158	146	165	37	947	172	178	151	2	503	1,450
2017-18	0	114	163	148	150	158	148	33	914	161	171	178	5	515	1,429
2018-19	0	124	119	158	149	154	158	31	893	147	160	168	3	478	1,371
2019-20	0	129	131	117	158	154	153	31	873	160	150	164	3	477	1,350
2020-21	0	117	124	133	115	155	155	22	821	154	161	147	4	466	1,287
2021-22	0	118	122	128	123	116	151	22	780	154	157	157	3	471	1,251
2022-23	17	124	126	125	132	126	119	23	792	148	157	158	2	465	1,257

Notes: ¹ Data were provided by the New Jersey Department of Education (<http://www.nj.gov/education/data/enr/>) and the Hanover Township Public Schools.

² Pre-kindergarten regular education enrollment

³ Self-contained special education enrollment/ungraded students at the elementary school level

⁴ Self-contained special education enrollment/ungraded students at the middle school level

Table 6
Hanover Township Public Schools Historical Survival Ratios
2013-14 to 2022-23

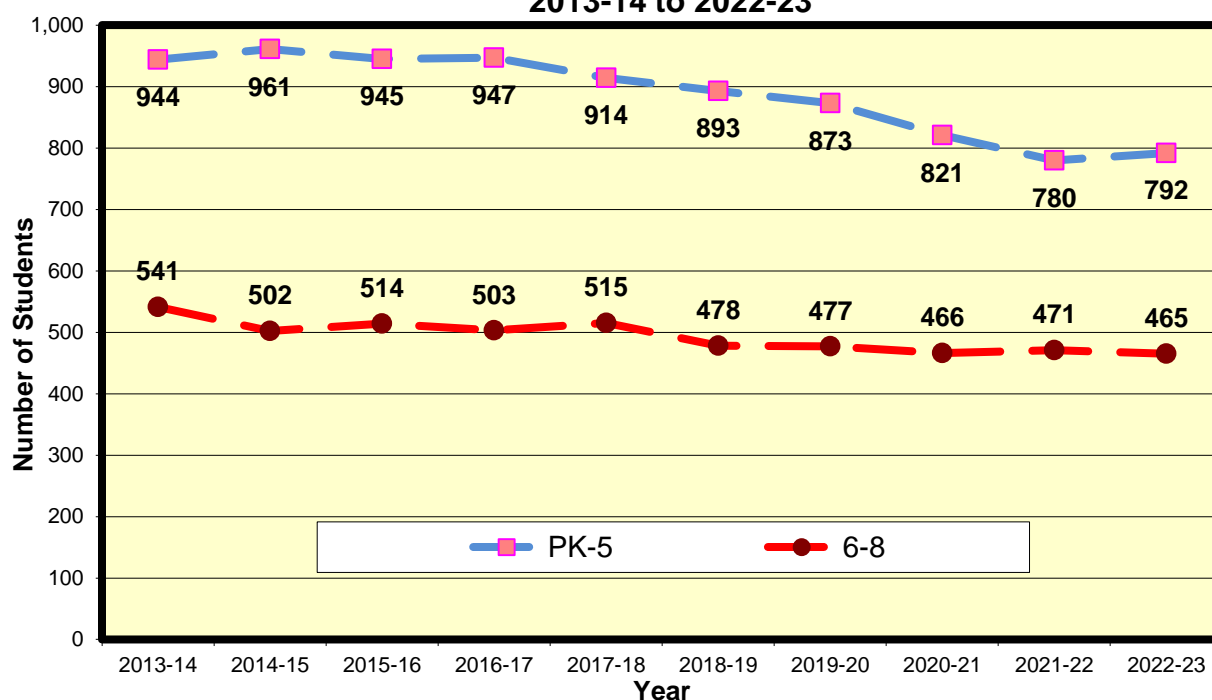
Progression Years	B-K	K-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8
2013-14 to 2014-15	1.0916	1.1329	0.9793	1.0132	1.0063	1.0116	1.0278	0.9886	1.0173
2014-15 to 2015-16	1.0976	1.0629	1.0062	1.0000	1.0455	1.0248	1.0402	1.0270	1.0172
2015-16 to 2016-17	1.2033	1.0741	0.9737	0.9693	1.0282	1.0248	1.0424	0.9834	0.9934
2016-17 to 2017-18	1.0000	1.1014	1.0207	1.0135	1.0000	1.0137	0.9758	0.9942	1.0000
2017-18 to 2018-19	1.1698	1.0439	0.9693	1.0068	1.0267	1.0000	0.9932	0.9938	0.9825
2018-19 to 2019-20	0.8716	1.0565	0.9832	1.0000	1.0336	0.9935	1.0127	1.0204	1.0250
2019-20 to 2020-21	0.9070	0.9612	1.0153	0.9829	0.9810	1.0065	1.0065	1.0063	0.9800
2020-21 to 2021-22	0.9219	1.0427	1.0323	0.9248	1.0087	0.9742	0.9935	1.0195	0.9752
2021-22 to 2022-23	0.9394	1.0678	1.0246	1.0313	1.0244	1.0259	0.9801	1.0195	1.0064
Maximum Ratio	1.2033	1.1329	1.0323	1.0313	1.0455	1.0259	1.0424	1.0270	1.0250
Minimum Ratio	0.8716	0.9612	0.9693	0.9248	0.9810	0.9742	0.9758	0.9834	0.9752
Avg. 5-Year Ratios	0.9619	1.0321	1.0138	0.9847	1.0119	1.0000	0.9982	1.0164	0.9966
Avg. 10-Year Ratios	1.0225	1.0604	1.0005	0.9935	1.0171	1.0083	1.0080	1.0059	0.9997
Diff. Between 5-Year and 10-Year Ratios	-0.0605	-0.0283	+0.0133	-0.0088	-0.0052	-0.0083	-0.0098	+0.0106	-0.0030

Note: Bolded values reflect survival ratios from 2020-21 to 2021-22, which represents the second year of the coronavirus pandemic.

Factors related to inward migration include families with school-age children purchasing an existing home or new housing unit, or renting an apartment. The reasons for families moving into a community vary. For instance, a family could move into Hanover to be close to work, the presence of affordable housing, or to be near family members. 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 the transfer 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, parochial, or charter schools, to be homeschooled, or to attend a different public school district. In the case of the Hanover Township Public Schools, the reasons for migration are not explicitly known (such as for economic reasons or the appeal of the school district), as exit and entrance interviews would need to be conducted for all children leaving or entering the district.

Historical enrollments are also shown in Table 5 and Figure 11 by grade configuration (PK-5 and 6-8). Self-contained special education/ungraded students were incorporated into the totals for each grade configuration. For grades PK-5, enrollments were fairly stable from 2013-14 to 2016-17 before declining. In 2022-23, enrollment is 792, which is a decline of 152 students from the 2013-14 enrollment of 944. For grades 6-8 at Memorial, enrollments declined through 2020-21 before stabilizing. In 2022-23, enrollment is 465, which is a decline of 76 students from the 2013-14 enrollment of 541.

Figure 11
Hanover Township Public Schools
Historical Enrollments by Grade Configuration
2013-14 to 2022-23



Kindergarten 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 8th graders and the number of entering kindergarten students. The district has experienced negative kindergarten replacement in each of the last nine years. Negative kindergarten replacement occurs when the number of kindergarten students entering the district is less than the number of graduating eighth grade students from the prior year. Conversely, positive kindergarten replacement occurs when the number of kindergarten students entering the district is greater than the number of graduating eighth grade students from the prior year. As shown in Figure 12, negative kindergarten replacement has ranged from 29-54 students per year. In 2022-23, there was a loss of 33 students due to kindergarten replacement, as 157 eighth graders graduated in 2021-22 and were replaced by 124 kindergarten students in 2022-23. In the last four years, the district has lost an average of 37 students per year due to kindergarten replacement.

Figure 12
Hanover Township Public Schools
Historical Kindergarten Replacement

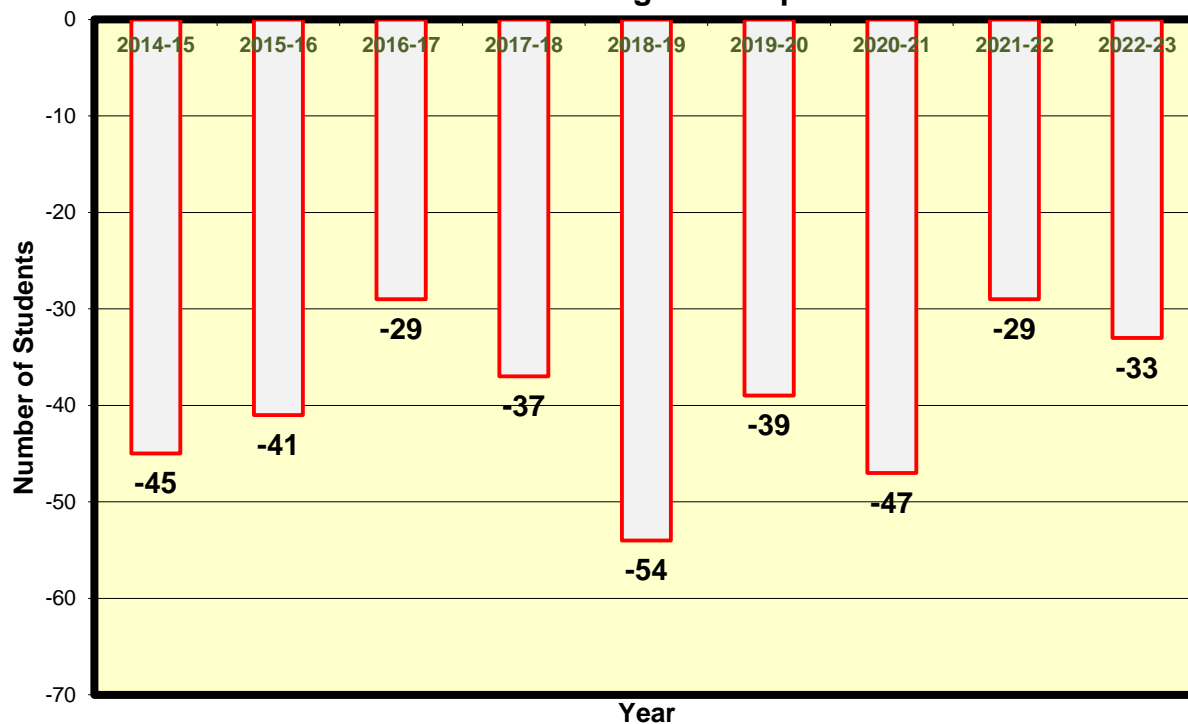
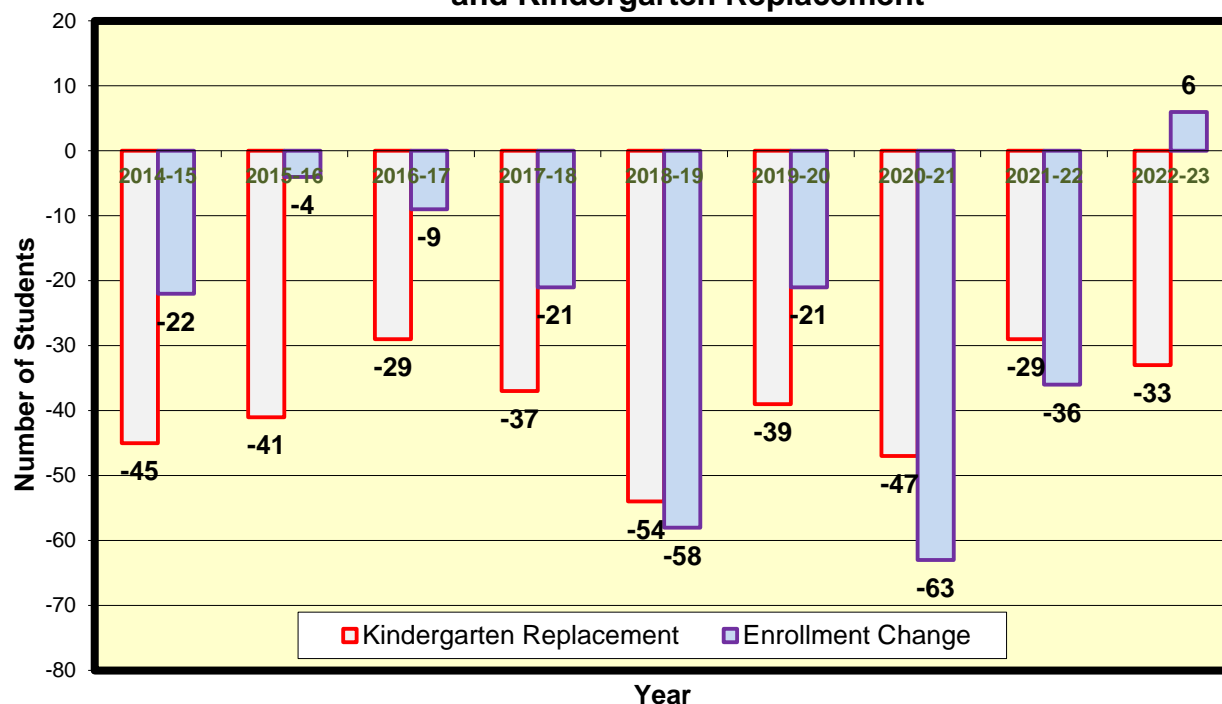


Figure 13 shows the annual change in total enrollment compared to kindergarten replacement. As the figure demonstrates, there appears to be a strong relationship, statistically speaking, between the overall change in enrollment and kindergarten replacement. Although this data represents a small sample, the correlation coefficient between the two variables was +0.625. 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 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 +0.625, there appears to be a strong relationship between enrollment change and kindergarten replacement in the school district in the last nine years.

In six of the last nine instances when negative kindergarten replacement occurred, the district's losses due to negative kindergarten replacement were partially offset (or totally, resulting in a net enrollment gain) by a net inward migration of students in the other grades (K to 1, 1 to 2, 2 to 3, etc.). In 2020-21 and 2021-22, the district's losses due to negative kindergarten replacement were compounded by a net outward migration of students in the other grades, which is likely related to the coronavirus pandemic as parents sought alternative educational experiences for their children, or may have had to relocate.

Figure 13
Comparison of PK-8 Enrollment Change
and Kindergarten 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 2017, there were 132 births in Hanover. Five years later (the 2022-23 school year), 124 children enrolled in kindergarten, which is equal to a survival ratio of 0.939 from birth to kindergarten. Birth counts and birth-to-kindergarten survival ratios are displayed in Table 7. 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. 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 (or home resales), 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, charter, 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 7
Birth Counts and Historical Birth-to-Kindergarten Survival Ratios
Hanover Township Public Schools

Birth Year	Number of Births Hanover Township ¹	Kindergarten Students Five Years Later	Birth-to-Kindergarten Survival Ratio
2008	132	143	1.083
2009	131	143	1.092
2010	123	135	1.098
2011	123	148	1.203
2012	114	114	1.000
2013	106	124	1.170
2014	148	129	0.872
2015	129	117	0.907
2016	128	118	0.922
2017	132	124	0.939
2018	128	N/A	N/A
2019	104	N/A	N/A
2020	94	N/A	N/A
2021	112	N/A	N/A

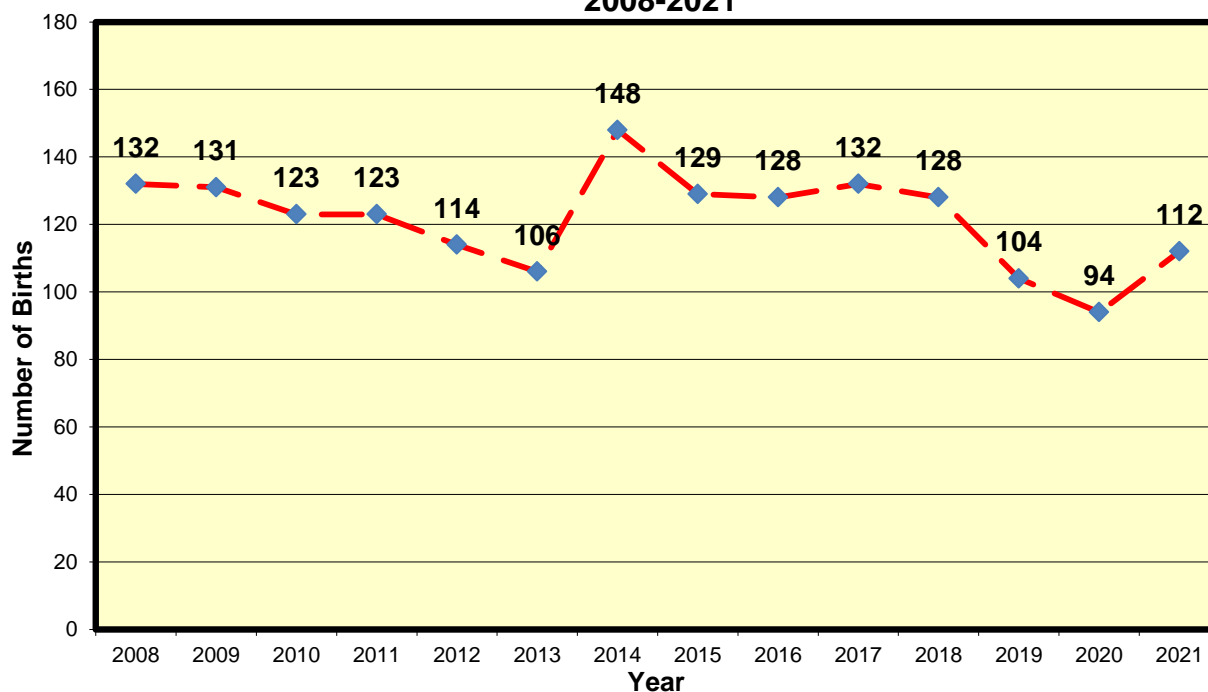
Note: ¹Birth data were provided by the New Jersey Center for Health Statistics.

Birth-to-kindergarten survival ratios have been below 1.000 in the last four years after being above 1.000 for the six years prior. Birth-to-kindergarten survival ratios have been fairly inconsistent, ranging from 0.872-1.203. In the last four years, birth-to-kindergarten survival ratios were lower, ranging from 0.872-0.939 (average = 0.910), as compared to the six years prior when they ranged from 1.000-1.203 (average = 1.108). This may reflect that a greater number of families with children under the age of five are moving out of the community or that fewer parents are choosing to enroll their child in public school rather than private or parochial school. In the years that the birth-to-kindergarten survival ratios were below 1.000, this indicates that some children who were born in the school district's attendance area are enrolling in other schools besides the Hanover Township Public Schools. In the years that the birth-to-kindergarten survival ratios were above 1.000, this indicates that children who were born in other towns are moving into the district's attendance area to enroll in kindergarten, reflecting inward migration.

Geocoded birth data were provided by the New Jersey Center for Health Statistics ("NJCHS") from 2008-2021 by assigning geographic coordinates to a birth mother based on her street address. Births for 2022 were not yet available. Since the NJCHS did not have birth data for 2022, an estimate was formulated by averaging historical births. Birth counts were needed for 2022 since this cohort will become the kindergarten class of 2027.

Figure 14 shows the annual number of births in Hanover from 2008-2021. After declining through 2013, the annual number of births reversed trend and increased in 2014. However, since then, the annual number of births has been generally declining. In 2021, there were 112 births in the township, which are 20 fewer births than the 2008 birth count (132).

Figure 14
Hanover Township Historical Birth Counts
2008-2021



Regarding fertility rates, the fertility rate in Hanover is significantly lower than those of both Morris County and the State of New Jersey. According to the 2017-2021 ACS, the fertility rate of women aged 15 to 50 in Hanover was 21 births per 1,000 women. In comparison, as reported by the NJCHS, the 2021 fertility rate in Morris County was 53.6 births per 1,000 women (ages 15-49) and was 57.9 births per 1,000 women in New Jersey. However, it should be noted that while the municipal, county, and state data are all based on a sample, the Hanover 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 community.

Population Age Structure

Figures 15 and 16 show the age pyramids of males and females in Hanover from both the 2010 Census and the 2017-2021 ACS. In 2010, the largest number of individuals was aged 40-44 for males and 45-49 for females. In communities with little inward or outward migration and low mortality, the largest cohort in subsequent years is typically the next oldest cohort as people advance in age. However, in the 2017-2021 ACS, the largest cohort was the 55-59 age group for males and the 60-64 age group for females. As the largest groups in the 2017-2021 ACS were not the next oldest cohorts, migration is likely occurring in the township. As shown in Table 8, the greatest declines (shaded red) over this time period, both in number and percentage points, occurred in the 35-39 age group for both males and females. The greatest gains (shaded blue), both in number and percentage points, occurred in the 55-59 age group for males and the 60-64 age group for females. If the male and female age groups are combined, there were gains in every age group from 50-54 and up, indicating a “graying” of the population.

Figure 15
Population Pyramid of Hanover Township
2010 Census

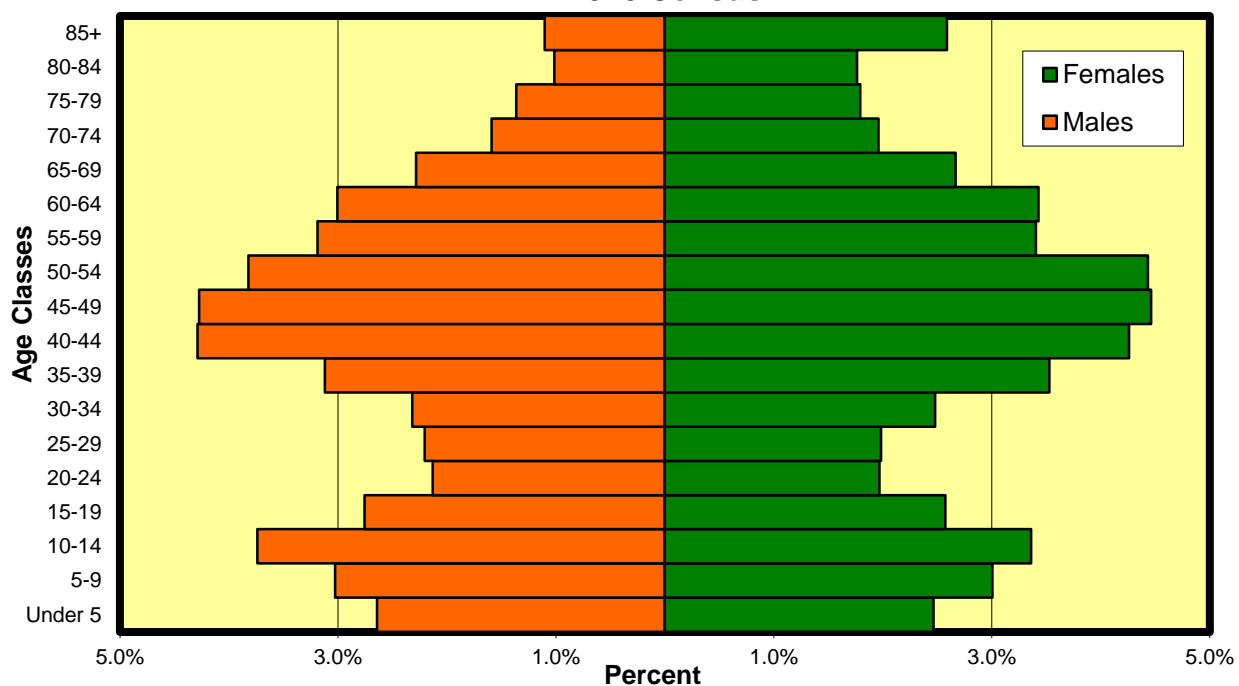


Figure 16
Population Pyramid of Hanover Township
2017-2021 ACS

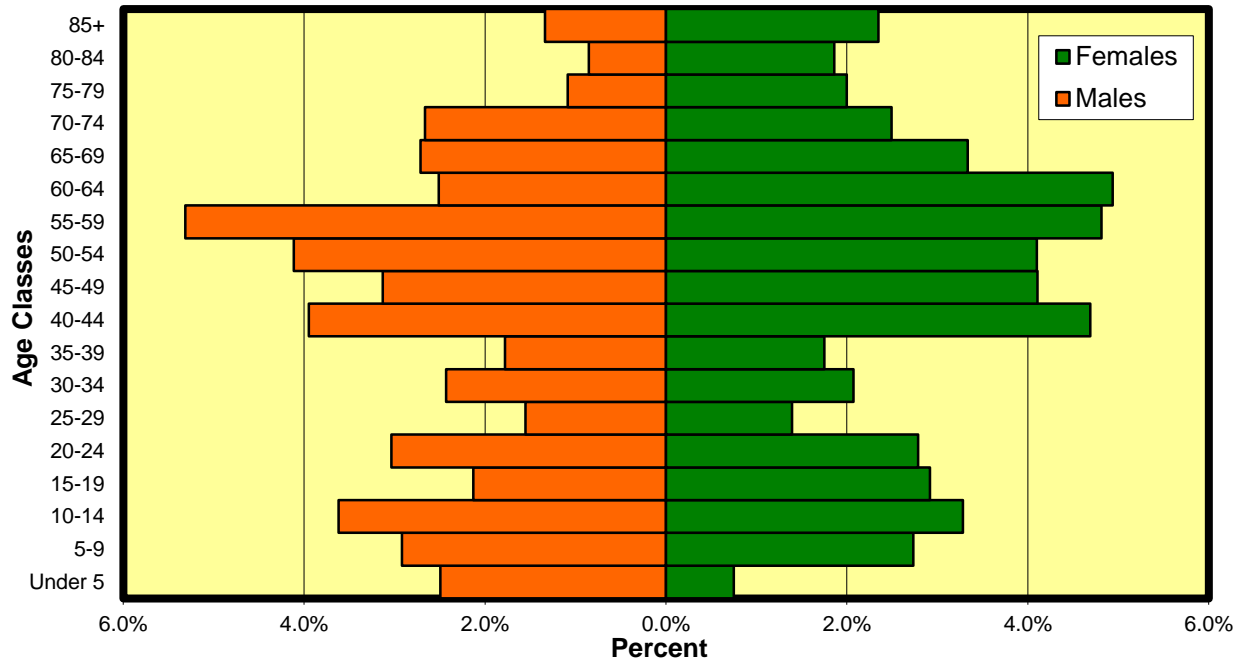


Table 8
Numerical and Percentage Point Changes of Males and Females
Hanover Township
2010 Census to 2017-2021 ACS

Age Group	Males		Females	
	Numerical Change	Percentage Point Change	Numerical Change	Percentage Point Change
Under 5	+1	-0.1	-229	-1.7
5-9	+10	-0.1	-14	-0.3
10-14	+14	-0.1	+17	-0.1
15-19	-68	-0.6	+72	+0.3
20-24	+150	+0.9	+136	+0.8
25-29	-76	-0.7	-69	-0.6
30-34	+36	+0.1	-38	-0.4
35-39	-169	-1.3	-229	-1.8
40-44	-13	-0.3	+99	+0.4
45-49	-130	-1.1	-14	-0.4
50-54	+75	+0.3	-11	-0.3
55-59	+337	+2.1	+234	+1.4
60-64	-46	-0.5	+249	+1.5
65-69	+82	+0.4	+120	+0.7
70-74	+170	+1.1	+94	+0.5
75-79	-29	-0.3	+45	+0.2
80-84	-15	-0.2	+29	+0.1
85+	+44	+0.2	-13	-0.2

Notes: Cells shaded blue reflect the greatest gains over the ten-year period.
 Cells shaded red reflect the greatest losses over the ten-year period.

New Housing in Hanover Township

Hanover municipal representatives provided information regarding current and future residential development in the community. A list of approved and proposed developments, location, number of units, bedroom distribution, housing type, and project status is shown in Table 9, which is an update to the table shown in the May 2020 report. Since the May 2020 demographic study, one development (Whippany Village) was completed and has been removed from the table. The table excludes new houses to be built on single in-fill lots, or the subdivision of existing lots, or homes that are built after the demolition of an existing older home. In the latter instance, there is no net gain in the number of housing units. The location of each development is shown in Figure 17.

In March 2019, Hanover approved a settlement agreement with the Fair Share Housing Center regarding its affordable housing obligation. The developments shown in the table will help to address the township's affordable housing obligation. In total, there is the potential for 1,113 non age-restricted housing units in five separate developments, all of which are multi-family units such as apartments or townhouses. Of this amount, 189 units (17%) will be set aside to meet affordable housing requirements.

The largest proposed project is the redevelopment of River Park, which was previously occupied by the Whippany Paper Board Company until 1980. The project is being developed in several phases. The first phase, which is under construction, will consist of 81 market-rate and affordable apartment units with primarily one and two bedrooms. Phase III, which is not yet under construction, will consist of 309 market-rate and affordable apartment units with a mix of 1-3 bedrooms. While not shown in the table, there is the potential for future phases with an additional 1,109 market-rate and affordable apartment units, whereby 32 affordable units would be set aside for persons with special needs. Since no site plans have been submitted for these phases, the bedroom distributions are unknown. These phases will likely take many years to complete and most likely will be constructed and occupied outside of the enrollment projection timeframe of five years and therefore are not considered further.

The Clarus development, which will be located on Park Avenue and is new to the table since the May 2020 demographic study, will consist of 210 market-rate and affordable apartment units with a mix of 0-2 bedrooms. Construction of the development has not begun.

The third proposed project is the redevelopment of the former Pine Plaza Shopping Center, which will consist of 60 three-bedroom townhouses. Construction of the development has not begun.

The fourth proposed project, known as Hanover Mills, is the redevelopment of Corporate Mailings on Parsippany Road. The development will consist of 129 townhouse and apartment units, whereby 20 units will be set aside to meet affordable housing requirements. Most of the units will primarily consist of 0-2 bedrooms. The development is currently under construction where three apartment buildings (84 units) are nearing completion.

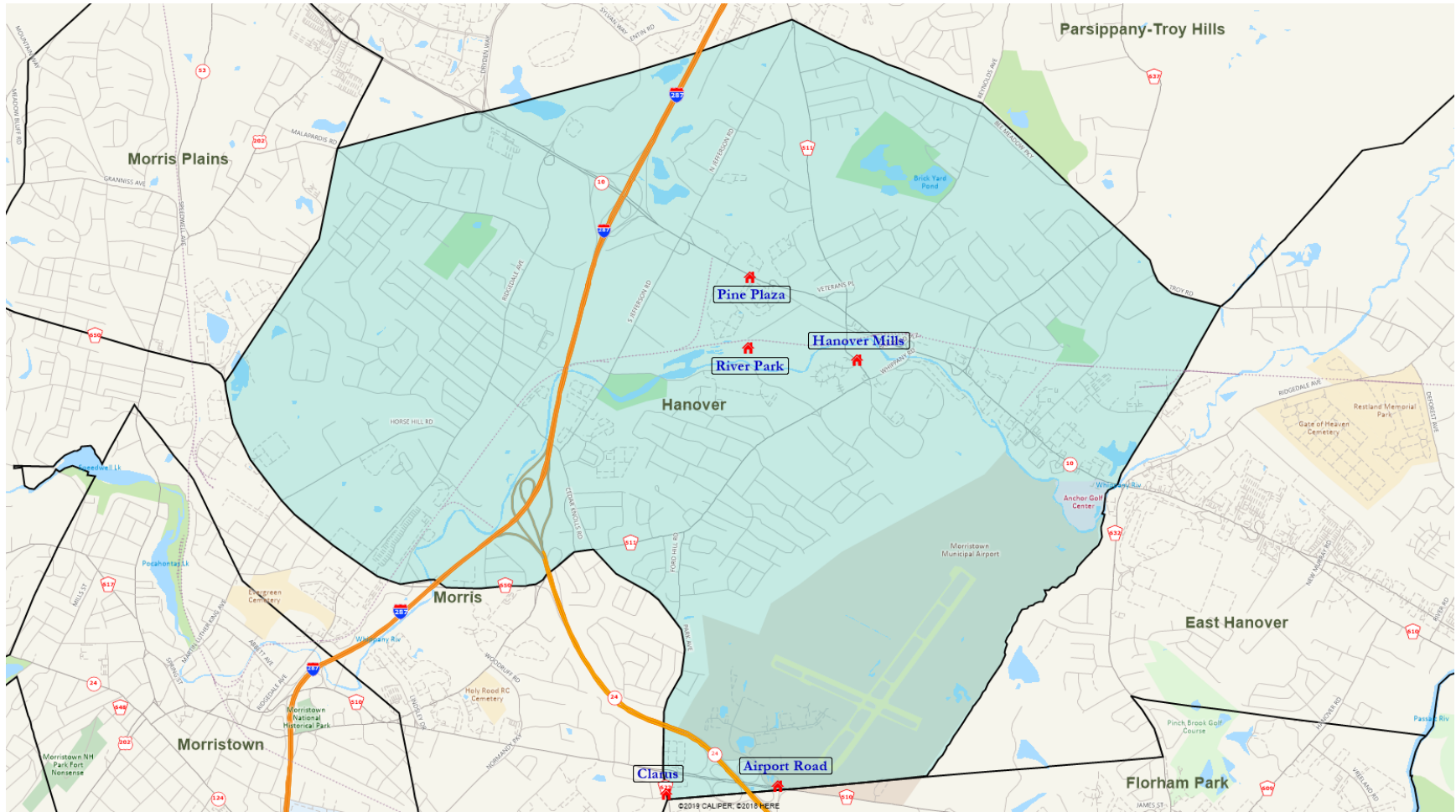
Finally, the last proposed project is the redevelopment of an office park on Airport Road, which will consist of 324 apartment units, whereby 49 units will be set aside to meet affordable housing requirements. The market-rate units (275) will consist of one and two bedrooms while the affordable units will be a mix of 0-3 bedrooms.

Table 9
Approved and Proposed Residential Developments in Hanover Township

Subdivision/ (Location)	Number of Units	Bedroom Distribution	Housing Type	Notes/Status
Airport Road (Airport Road)	324	Market-Rate (275) 103 1-BR 172 2-BR Affordable (49) 9 Studio/1-BR 28 2-BR 12 3-BR	Apartments (market-rate and affordable)	Site plan application filed and determined complete in March 2021. Project has not proceeded to public hearing. Substantial plan revisions appear to be required. Zoning permits up to 325 units.
Clarus (190 Park Avenue)	210	Market-Rate (150) 85 Studio/1-BR 65 2-BR Affordable (60) 60 Studio/1-BR	Apartments (market-rate and affordable)	Site plan application has been approved but construction has not started.
Hanover Mills (former Corporate Mailings) (26 Parsippány Road)	129	Market-Rate (TH & APT) 44 2-BR (TH) 1 3-BR (TH) 21 Studio/1-BR (APT) 43 2-BR (APT) Affordable (APT) 3 Studio/1-BR 13 2-BR 4 3-BR	Townhouses (market-rate) Apartments (market-rate and affordable)	Site plan approved. Three 28-unit (84 units total) apartment buildings under construction and nearing completion. Construction on the balance of the units is currently in progress.
Pine Plaza (831 Route 10)	60	3-BR	Townhouses (market-rate)	Site plan/subdivision application has been approved. Applicant is addressing conditions of approval. Green Acres diversion approved March 9, 2023.
River Park Phase I (off of Eden Lane)	81	Market-Rate (68) 42 1-BR 26 2-BR Affordable (13) 7 2-BR 6 3-BR	Apartments (market-rate and affordable)	Under Construction
River Park Phase III (off of Eden Lane)	309	Market-Rate (262) 157 1-BR 105 2-BR Affordable (47) 23 2-BR 24 3-BR	Apartments (market-rate and affordable)	Site plans have been approved. Conditions of approval have not yet been satisfied, including significant environmental permitting from NJDEP.
Total	1,113			

Source: Hanover Township municipal representatives

Figure 17
Hanover Township Approved and Proposed New Housing Developments



It should be noted that Table 9 does not include two potential age-restricted/assisted living developments, Cambrex/Halo Pharma, Inc. (60 units) and Monarch Development (160 units), which would have no impact on the school district. There is also the potential for a special needs group home by Our Lady of Mercy (4 units), which would also have no impact on the school district. While there should be no direct impact on the school district, there could be an indirect impact if current Hanover residents move into the new housing units and sell their existing homes to families with children. While the potential for new schoolchildren exists under this scenario, it is unknown whether current residents will purchase/rent these units and what the demographic characteristics of the buyers will be of the existing homes in Hanover.

Student Yield Analysis

In the May 2020 demographic study, student yields (children per housing unit) were computed for one- to four-family homes,⁴ townhouses/condominiums, and apartments in Hanover. To complete this task, the township's parcel-level MOD IV database was joined to the school district's 2019-20 student database. Age-restricted housing units were removed from the database while student yields for condominiums, townhouses, and apartments were computed separately. As student yields do not change significantly over a short period of time, the student yields computed in the previous study were used in this analysis to estimate the number of public school children from the new housing developments. Student yields by housing type from the May 2020 demographic study are reproduced in the Appendix in Tables A1-A3. Table 10 summarizes the student yields for each of the housing types.

Table 10
Student Yields by Housing Type in Hanover Township

Housing Type	K-8 Student Yield ¹
Detached Single-Family	0.527
Townhouse/Condominium	0.078
Apartment	0.164

Note: ¹Based on 2019-20 enrollments in the Hanover Township Public Schools

⁴ While most of the housing units analyzed were detached single-family homes, a small number of duplexes and/or other multi-family units may exist in the database.

Historical Residential Construction

With respect to historical new construction, the number of homes constructed in Hanover from 2017-2022 is shown in Table 11. A total of 100 homes were built over this time period. Of this number, 24 were townhouse units in Whippany Crossings (2018) and 46 were apartment units in Whippany Village (2021). Through internet research, it appears that most of the remaining homes constructed have been limited to building a new home after the demolition of an existing older home (“knockdown”) or constructing a house on a single in-fill lot. While not shown in the table, 24 single-family or two-family homes were demolished during this time period as reported by the New Jersey Department of Community Affairs, which results in a net gain of 76 housing units since 2017.

Table 11
Number of New Homes in Hanover Township
2017-2022

Year	Total¹
2017	3
2018	32
2019	6
2020	8
2021	49
2022	2
Total	100

Note: ¹As derived from the Hanover Township property tax database

Estimate of Public School Children from New Housing

An estimate was made of the number of public school children that could potentially come from the approved and proposed housing developments in Hanover. Since many of the township's existing affordable housing units are comingled with market-rate units (referred to as inclusionary units), it is difficult to determine the student yields specifically for these types of units. While the township does have a development consisting entirely of affordable units (The Willows at Cedar Knolls), it only has 78 units and may not be representative of future residents. In addition, the township has a very limited number of comparable market-rate apartment units. As a result, *Who Lives in New Jersey Housing?*,⁵ published by the Rutgers University Center for Urban Policy Research ("CUPR"), was utilized instead for estimating the student yields of market-rate and affordable housing units. The resource provides statewide 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.

To project the number of public school children from the new housing units, several assumptions were made:

1. The student yield multipliers used from CUPR are from a sample of New Jersey homes and these multipliers would be representative of the families moving into Hanover.
2. All affordable apartment units were assumed to have the following student yield multipliers: 1-bedroom = 0.054, 2-bedroom = 0.307, 3-bedroom = 0.766.
3. All market-rate apartment units were assumed to have the following student yield multipliers: Studio/1-bedroom = 0.078 and 2-bedroom = 0.255.
4. All market-rate townhouse units were assumed to have the following student yield multipliers: 2-bedroom = 0.163, 3-bedroom = 0.358.
5. The full build-out and occupation of Hanover Mills and River Park Phase I, which are under construction, would be completed over a two-year period (2023-24 and 2024-25).
6. The full build-out and occupation of Clarus, Pine Plaza, and River Park III would be completed over a two-year period (2025-26 and 2026-27).
7. The full build-out and occupation of Airport Road would be completed in the 2027-28 school year.

All of the multipliers utilized were for grades K-8. Additional children are expected for grades 9-12 but they are not considered here as they would not impact the school district. In

⁵ Listokin, David, and Voicu, Alexandru. (2018). *Who Lives in New Jersey Housing?* Updated New Jersey Demographic Multipliers. Rutgers University Center for Urban Policy Research.

total, 226 public school children (K-5 = 166, 6-8 = 60) in grades K-8 are projected according to the following distribution:

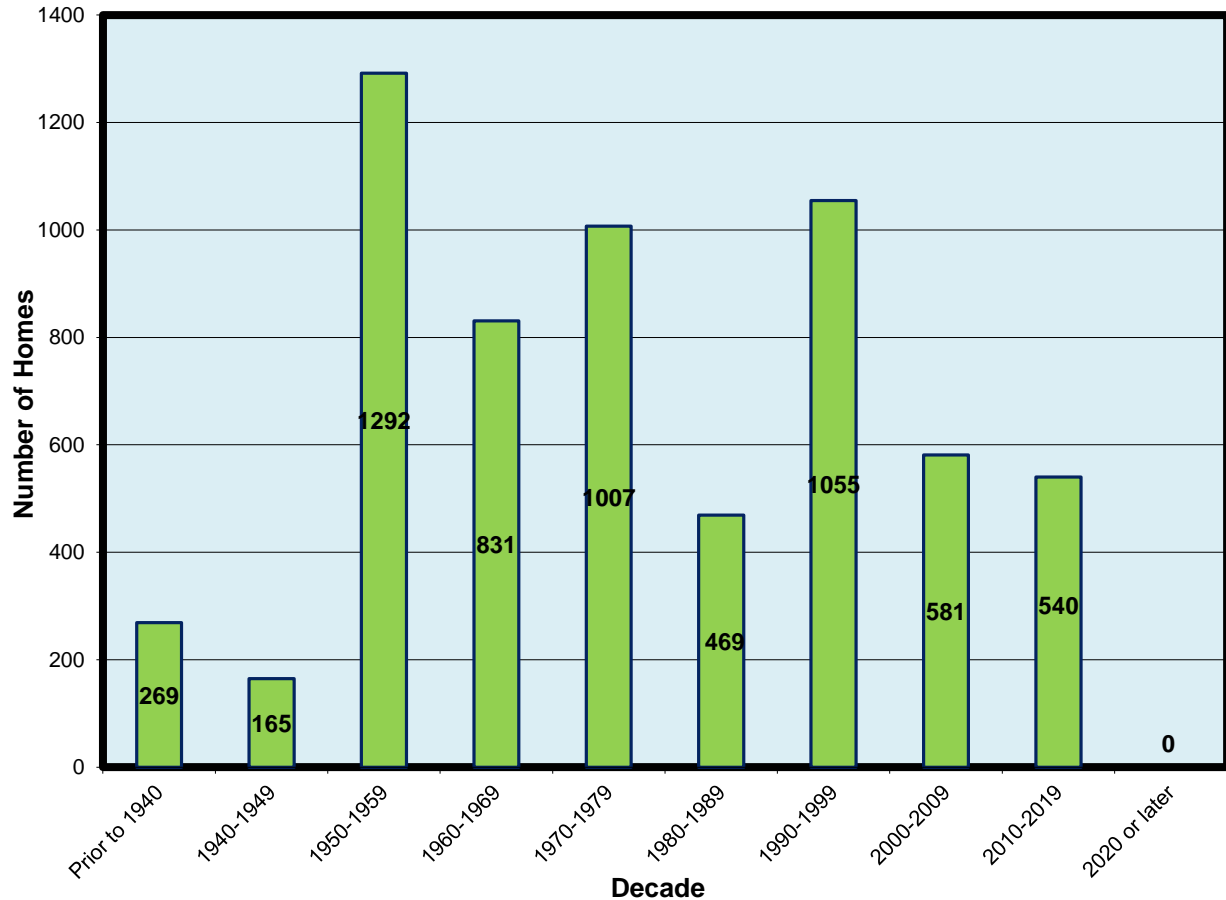
- Airport Road – 69 (K-5 = 52, 6-8 = 17)
- Clarus – 26 (K-5 = 20, 6-8 = 6)
- Hanover Mills – 27 (K-5 = 20, 6-8 = 7)
- Pine Plaza – 22 (K-5 = 15, 6-8 = 7)
- River Park (Phases I and III) – 81 (K-5 = 58, 6-8 = 23)

When determining the impact of future new housing, it should be clearly stated that enrollment projections utilize cohort survival ratios that do take into account prior new home construction growth. Children who move into new homes during the historical period are captured by the survival ratios, as these ratios will be used to project future enrollments. Therefore, it is not appropriate to add all of the new children generated from future housing units without considering the historical period, as double counting would occur, since the survival ratios have already increased due to the new children. The baseline enrollment projections should only be adjusted if the projected housing growth is significantly greater than prior housing growth. From 2017-2022, there was a net gain of 76 non age-restricted new housing units in Hanover. With respect to future construction, there is the potential for 1,113 non age-restricted housing units in Hanover, which would be significantly greater than that which occurred since 2017. Therefore, the baseline enrollment projections were subsequently modified to account for additional children from the new housing. **The modification to the enrollment projections assumes that the developments listed in Table 9 will be built and occupied in the next five years.**

Distribution of Homes by Decade Built

Figure 18 shows the number of homes built by decade in Hanover as provided by the 2017-2021 ACS. As shown in the figure, Hanover has a fairly even mix of newer and older housing, as 57% of the homes were built before 1980. Of the decades shown, Hanover had the largest number of homes built in the 1950s, which is 21% of the housing stock and corresponds to the significant population gain in Hanover (+148.4%) shown previously in Table 3.

Figure 18
Number of Homes Built by Decade in Hanover Township



Home Sales

In Figure 19, the number of annual home sales in Hanover is shown from 1995-2022. The information was retrieved from the Monmouth County Tax Board database, which possesses tax records and home sales for all municipalities in the state. “Paper sales,” which are sales between members of the immediate family for a low price (e.g., \$1 or \$100) and result in a change in title but often not a change of the occupant, were excluded from the totals. After peaking at 239 home sales in 2003, the number of sales declined to 123 in 2012 due to the housing market crash and banking crisis. During this period (2010-2012), the annual number of home sales was low, ranging from 123-134. Since then, home sales have rebounded. From 2013-2022, home sales have slowly increased. In 2022, there were 198 sales, which is slightly lower than the annual number of sales before the housing market crash and banking crisis.

Figure 19
Hanover Township Home Sales
1995-2022

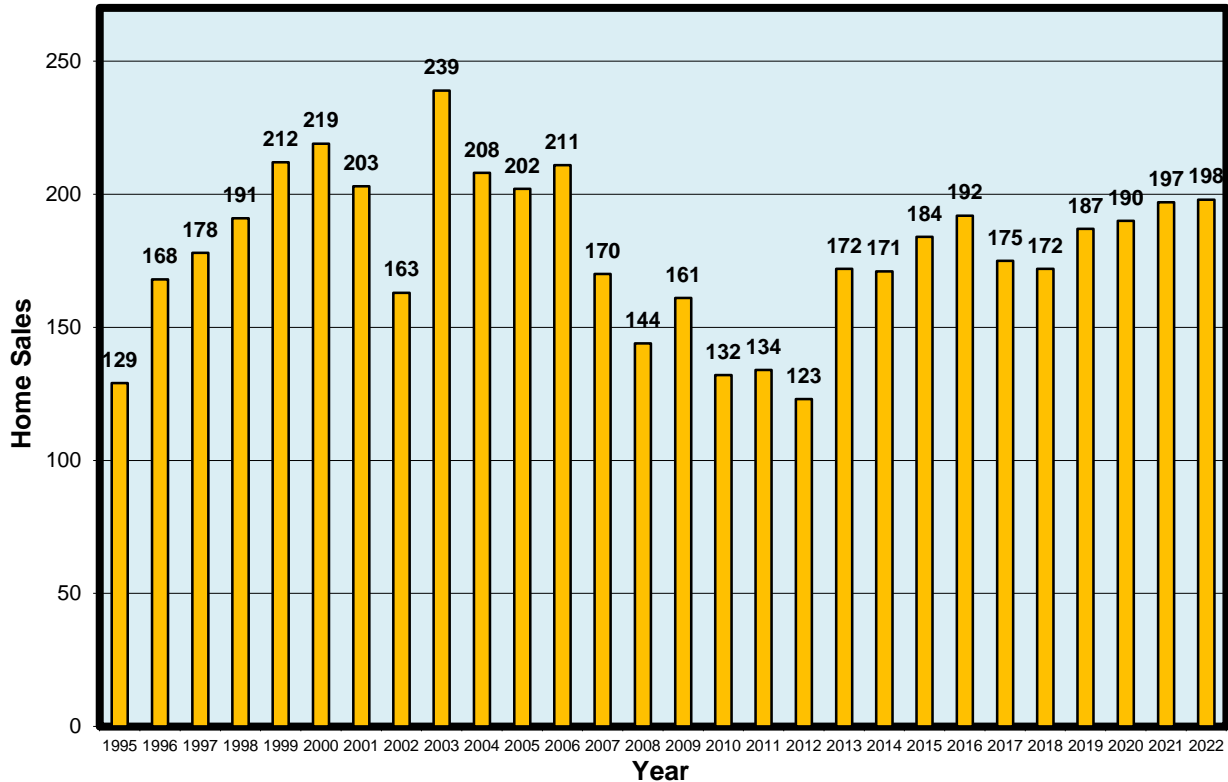
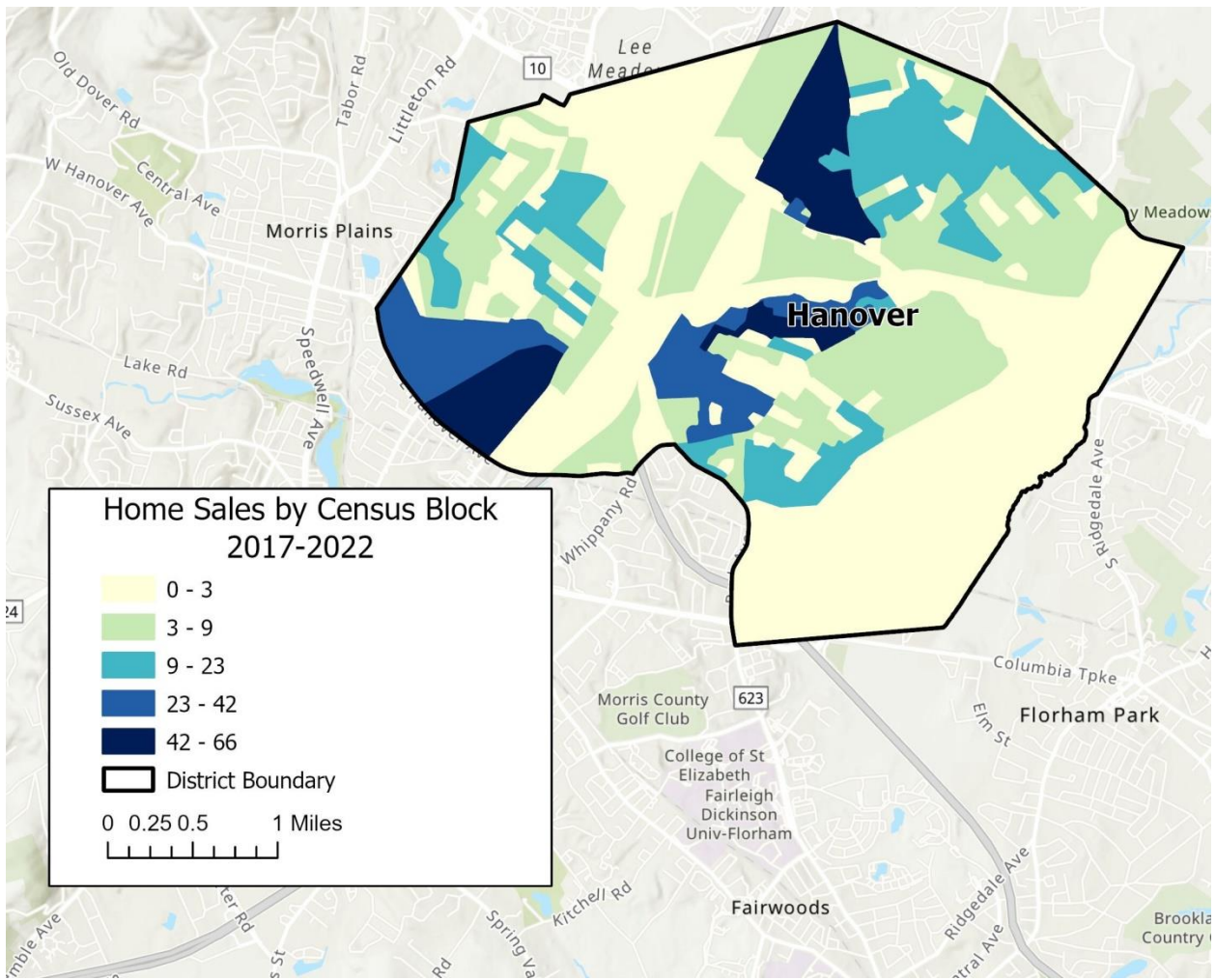


Figure 20 shows the aggregated number of home sales by Census block in Hanover from 2017-2022. Over this time period, the greatest number of sales occurred in Census blocks in the central, western, and northern sections of the township.

Figure 20
Hanover Township Home Sales
2017-2022



Enrollment Projections

In two separate projections, enrollments were calculated from 2023-24 through 2027-28, a five-year period. The first set of projections (referred to as “baseline”) do not reflect the anticipated housing growth in Hanover. If the housing developments shown previously do not come to fruition or are not built within the anticipated construction timeline, the baseline enrollment projections would best reflect the future enrollments in the school district. The second set of projections (referred to as “adjusted”) reflects projected enrollments adjusted for housing growth, assuming the timeline of construction and occupancy discussed previously. In the latter projections, it was also assumed that the number of pre-kindergarten and special education students shown in the baseline projections would remain the same.

Enrollments for the self-contained special education/ungraded classes were computed by calculating the historical proportions of self-contained special education/ungraded students with respect to the regular education subtotals in each grade configuration (PK-5 and 6-8) and multiplying that value by the future regular education subtotals.

With respect to grade-level pre-kindergarten students, enrollments were projected by using the most recent pre-kindergarten enrollment from the 2022-23 school year (17) throughout the five-year projection period. Pre-kindergarten children with special needs were not included in these counts and were instead included with the special education projections.

On September 10, 2010, former New Jersey Governor Chris Christie signed into law the Interdistrict School Choice Program (“Choice”), which took effect in the 2011-12 school year. This enables students the choice in attending a school outside their district of residence if the selected school is participating in the Choice program. The Choice district sets the number of openings per grade level. The Hanover Township Public Schools does not participate in the program and therefore has no impact on the enrollment projections.

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 Group⁶ (“DFG”) A, B, and CD with a concentration of at-risk pupils equal to or greater than 40 percent, 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 may educate the pre-school children in district, by outside providers, or through Head Start programs. School districts were required to offer these programs to at least 90% of the eligible pre-school children by 2013-14.

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,

⁶ Introduced by the New Jersey Department of Education in 1975, DFG provides a system of ranking school districts in the state by their socio-economic status. While the system is no longer used, the number of pre-kindergarten students was determined by the former DFG rankings.

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. 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 Year 1
- At least 35% of the universe in Year 2
- At least 50% of the universe in Year 3
- At least 65% of the universe in Year 4
- At least 90% of the universe in Year 5

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 having free or reduced lunch in the district. The Hanover Township Public Schools is a “Targeted” district since its DFG is “I” with a concentration of at-risk pupils less than 40 percent (0.55%). In Table 12, the number of total eligible pre-school students is provided with the estimated five-year rollout. 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 only two (2) pre-kindergarten students as a result of the SFRA, which would have little impact on the district. 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.

Table 12
Estimated Number of Eligible Pre-School Students
as Per School Funding Reform Act of 2008

DFG (2000)	Total eligible	Year 1	Year 2	Year 3	Year 4	Year 5
I	2	0	1	1	1	2

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

In a different pre-school initiative, the administration of Governor Phil Murphy announced the availability of Preschool Education Expansion Aid (“PEEA”) in 2018. In September 2018, the first round of funding (\$20.6 million) was publicized, where 31 districts received aid to expand their pre-kindergarten programs. A second round of funding was announced in January 2019, providing 33 additional school districts with roughly \$27 million in funding. The second round targeted districts whose free and reduced lunch percentage was above 20% and who have not previously received State preschool aid. Some districts that were eligible to apply for PEEA would fall under the “Universal” category under SFRA while others would be considered “Targeted” districts. However, the main difference with this expansion aid is that districts under SFRA were restricted to serve low-income children where now districts can educate all pre-school age children through PEEA. It appears that the Murphy administration may be moving towards a pre-school program for all children, rather than just for those who are

low-income. The Hanover Township Public Schools did not receive a PEEA grant in either the first or second round of funding and therefore has no bearing on the outcome of this study.

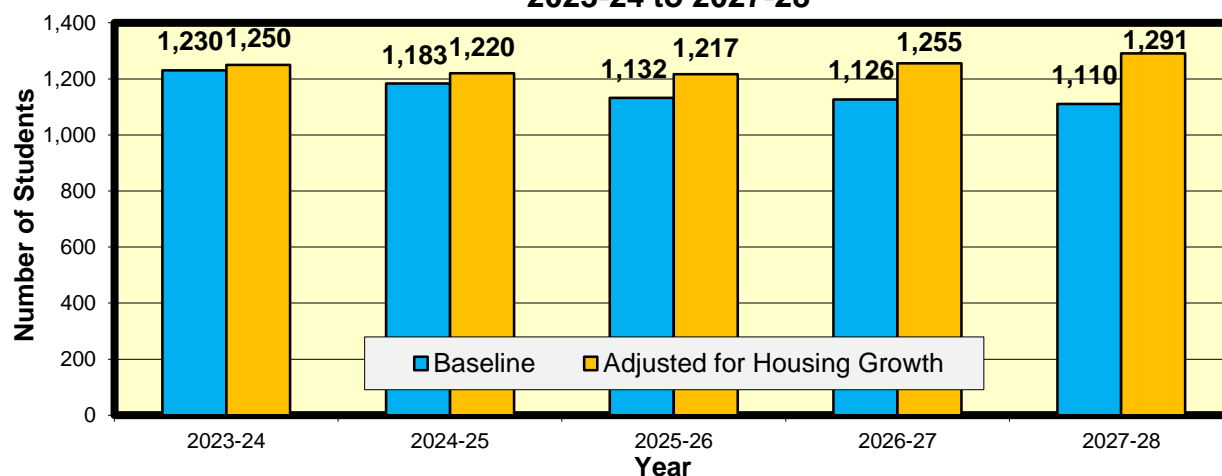
Projected PK-8 enrollments follow in Table 13 and Figure 21. In the baseline projections, enrollments are projected to decline throughout the projection period. Enrollment is projected to be 1,110 in 2027-28, which would be a decline of 147 students from the 2022-23 enrollment of 1,257. In the adjusted projections, enrollments are projected to decline for the next three years before reversing trend. Enrollment is projected to be 1,291 in 2027-28, which would be a gain of 34 students from the 2022-23 enrollment.

Table 13
Hanover Township Public Schools Projected Enrollments
2023-24 to 2027-28

Year	PK	K	1	2	3	4	5	6	7	8	SE ¹	Total
Baseline												
2023-24	17	116	131	128	126	135	127	119	150	156	25	1,230
2024-25	17	95	122	133	129	129	136	127	121	149	25	1,183
2025-26	17	86	100	124	134	132	130	136	129	121	23	1,132
2026-27	17	102	91	101	125	137	133	130	138	129	23	1,126
2027-28	17	100	107	92	102	128	138	133	132	138	23	1,110
Adjusted for Housing Growth												
2023-24	17	118	133	131	128	138	129	121	152	158	25	1,250
2024-25	17	98	126	137	134	134	141	131	124	153	25	1,220
2025-26	17	93	109	134	145	143	141	146	137	129	23	1,217
2026-27	17	108	105	116	141	155	150	145	153	142	23	1,255
2027-28	17	108	121	114	126	152	164	156	152	158	23	1,291

Note: ¹Self-contained special education enrollment/ungraded students

Figure 21
Hanover Township Public Schools Enrollment Projections
2023-24 to 2027-28



Projected Enrollments by Grade Configuration

In Table 14, projected enrollments are shown by grade configuration (PK-5 and 6-8). Ungraded special education students were reassigned into each of the grade configurations.

For the elementary grades (PK-5), enrollments are projected to decline throughout the projection period in the baseline projections. Enrollment is projected to be 704 in 2027-28 in the baseline projections, which would be a decline of 88 students from the 2022-23 enrollment of 792. In the adjusted projections, enrollments are projected to decline through 2025-26 before reversing trend. Enrollment is projected to be 822 in 2027-28, which would be a gain of 30 students from the 2022-23 enrollment.

For the middle school grades (6-8) at Memorial, enrollments are projected to slowly decline for the next 2-3 years before reversing trend in both the baseline and adjusted projections. Enrollment is projected to be 406 in 2027-28 in the baseline projections, which would be a decline of 59 students from the 2022-23 enrollment of 465. In the adjusted projections, enrollment is projected to be 469 in 2027-28, which would be nearly unchanged (+4) from the 2022-23 enrollment.

Table 14
Projected Enrollments for Grades PK-5 and 6-8
for Each Projection Method

Historical	PK-5		6-8	
2022-23	792		465	
Projected	PK-5 Baseline	PK-5 Adjusted	6-8 Baseline	6-8 Adjusted
2023-24	802	816	428	434
2024-25	783	809	400	411
2025-26	744	803	388	414
2026-27	726	812	400	443
2027-28	704	822	406	469
5-year Change	-88	+30	-59	+4

Capacity Analysis

Table 15 shows the educational capacities of the grade configurations in the Hanover Township Public Schools in comparison to both the current enrollments in 2022-23 and the enrollment projections in the 2027-28 school year. Capacity is shown by grade configuration since the enrollment projections were not performed at the school level. Since there were two sets of projections (baseline and adjusted for housing growth), only the adjusted projections are shown, as this reflects the full impact on the school district if all of the proposed housing is constructed and occupied. Using the building capacities from the district's LRFP, the differences between capacity and current/projected number of students were computed. Positive values indicate available extra seating while negative values indicate inadequate seating (also known as "unhoused students"). It should be noted that the capacity values are not fixed and can change from year-to-year based on classroom usage. For instance, additional special education classes in a building would reduce the building's capacity. On the other hand, districts with unhoused students can accommodate these children by increasing class sizes, which in turn increases the school's capacity. As such, the capacity of a school is not a fixed value and can be changed depending on how the building is used.

At the elementary configuration, there is currently a surplus of seating (+432) in 2022-23. In Memorial, surplus seating also exists (+230). By 2027-28, it is anticipated that there will be a fewer number of surplus seats in the elementary configuration (+402) due to a projected increase in enrollment. In Memorial, the number of surplus seats (+226) is projected to be similar to the current number.

Table 15
Capacity Analysis
Hanover Township Public Schools

Grade Configuration/ School	Capacity^{1,2}	Current Enrollment 2022-23	Difference	Projected Enrollment 2027-28	Difference
Elementary (K-5)	1,224	792	+432	822	+402
Memorial Junior School (6-8)	695	465	+230	469	+226

Notes: ¹ District Practices capacity from the Hanover Township Public Schools Long Range Facility Plan (2005)

² As the capacities were last calculated in 2005, the actual capacities of the buildings in 2022-23 may have changed if the buildings' instructional spaces are being used differently than when the capacities were computed.

Appendix

Table A1
Student Yields (PK-8) by Current Length of Ownership in Hanover Township
One- to Four-Family Homes

Years of Ownership	Housing Units	Students 2019-20	2019-20 Student Yield
0	154	53	0.34
1	120	42	0.35
2	116	56	0.48
3	131	74	0.56
4	100	57	0.57
5	106	67	0.63
6	136	88	0.65
7	72	56	0.78
8	77	48	0.62
9	85	63	0.74
10	88	63	0.72
11	70	50	0.71
12	86	45	0.52
13	105	54	0.51
14	89	43	0.48
15	77	25	0.32
16	122	47	0.39
17	68	22	0.32
18	91	24	0.26
19	123	20	0.16
20	130	13	0.10
21	102	9	0.09
22	92	6	0.07
23	100	12	0.12
24	62	8	0.13
25	77	7	0.09
26+	1366	84	0.06
Total	3,945	1,136	0.29

Note: If the average student yield is computed for the first seven years of ownership when the peak student yield occurs, the yield increases to 0.527.

Table A2
Hanover Township Student Yields (K-8) for Condominiums and Townhouses

Development	Approx. Price (\$) ¹	Year Built	Bedrooms	Number of Units ²	K-5 Students	6-8 Students	K-8 Students ³	2019-20 Student Yield
Eden Lane⁴	400,000	1993	1-3 BR	297	12	12	24	0.081
Grande at Hanover (The)	350,000	2007-2011	1-2 BR	160	2	1	3	0.019
Hanover Hills⁴	300,000	1994	2-BR	165	7	6	13	0.079
Hanover Ridge	785,000	2016	4-BR	16	4	2	6	0.375
Oak Ridge⁴	425,000	1996	2-3 BR	210	11	7	18	0.086
Sunrise at Hanover⁴	335,000	1993	1-3 BR	155	13	2	15	0.097
Waterview	425,000	2013	2-3 BR	60	4	1	5	0.083
Whippany Crossings	750,000	2018	3-BR	24	1	0	1	0.042
Total				1,087	54	31	85	0.078

Notes: ¹ Sale price information was obtained from www.njcondos.net or public sale records.

² As derived from the Hanover Township property database

³ Based on 2019-20 enrollments in the Hanover Township Public Schools

⁴ Contains a mix of market-rate and affordable units where Eden Lane has 66 affordable units, Hanover Hills has 39 affordable units, Oak Ridge has 50 affordable units, and Sunrise at Hanover has 32 affordable units.

Table A3
Hanover Township Student Yields (K-8) for Apartments

Development (Property Address)	Rent (\$)¹	Year Built	Bedrooms	Number of Units¹	K-5 Students	6-8 Students	K-8 Students²	2019-20 Student Yield
Sterling Parc³ (2101 Glen Drive)	2,077-2,839	2004	1-3 BR	260⁴	23	9	32	0.123
The Willows at Cedar Knolls⁵ (700 Justin Court)	N/A	2013	1-3 BR	78	21	8	29	0.372
Woodmont Knolls³ (200 Woodmont Drive)	2,730-4,160	2014	1-2 BR	126	11	4	15	0.119
Total				464	55	21	76	0.164

Notes: ¹ As derived from internet research

² Based on 2019-20 enrollments in the Hanover Township Public Schools

³ Contains a mix of market-rate and affordable units where Sterling Parc has eight (8) affordable units and Woodmont Knolls has 14 affordable units.

⁴ 56 age-restricted units were removed from the unit count.

⁵ Consists entirely of affordable housing