



Demographic Study

for the

Montgomery Township School District

December 2014

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Executive Summary

Statistical Forecasting performed a demographic study for the Montgomery Township School District. In addition to Montgomery Township, the school district educates children from Rocky Hill Borough. The purpose of the study is to project grade-by-grade enrollments from 2015-16 through 2019-20. Additional information was also collected related to community population trends and age structure, birth and fertility rates, historical enrollments, and new housing starts.

At the municipal level, Montgomery Township experienced its greatest growth in the 1990s when the population nearly doubled in size. Most recently, from 2000 to 2010, the population grew from 17,481 to 22,254, a gain of 4,773 persons. Forecasts project the population to be 26,058 in 2040, which would be a 17.1% increase from the 2010 population and a gain of more than 3,800 persons. Regarding Rocky Hill Borough, its population experienced its greatest growth in the 1960s. After declining by 200 persons from 1970 to 1980, the population has been fairly stable, ranging from 662 to 717 persons. Forecasts project the population to be 807 in 2040, which would be an 18.3% increase from the 2010 population and a gain of 125 persons.

Regarding race, Montgomery Township has become much more racially diverse since 2000. In 2010, the township was 67.7% White as compared to 84.6% in 2000. Asians were the second-largest race at 25.6% in 2010, which is a 14.1 percentage point increase from the 11.5% that existed in 2000. Approximately 23% of the population is foreign-born; India is the largest source, accounting for 34.5% of the foreign-born population. On the other hand, Rocky Hill Borough is predominantly White (91.6%). Only 8% of the population is foreign-born.

The number of births, which is used to project kindergarten enrollment, has been declining in Montgomery Township. Births have declined from a high of 269 in 2003 to a low of 149 in 2011. The decline does not appear to be related to low fertility, as fertility rates in Montgomery Township are similar to those in both Somerset County and the State of New Jersey. In Rocky Hill, the number of births from 2000 to 2011 has been quite small, ranging from 2 to 10 per year. Age-sex diagrams of Montgomery Township show that the percentage of females in the 30-34 and 35-39 age groups declined from 2000 to 2010, which corresponds to the ages when many females have their children. The low percentages of females in these age groups have likely led to the declining birth rate in the township.

Historical enrollments for the Montgomery Township School District were analyzed from 2005-06 through 2014-15, a 10-year period. Since peaking at 5,305.5 students in 2008-09, total enrollment has declined in the district for six consecutive years. The 2014-15 enrollment in the district was 4,752 students.

The decline in enrollment appears to be due in part to negative first grade replacement. Negative first grade replacement occurs when the number of graduating 12th grade students is larger than the number of first grade students replacing them in the next year. Since the district has a half-day kindergarten program, it is more appropriate to compare the 12th grade student population to the first grade student population, as the district gains a number of students from

kindergarten to first grade when parents elect to send their child to a full-day kindergarten program elsewhere before enrolling them in the public school district for the first grade. In the last five years, the district has lost an average of 143 students per year due to first grade replacement. Some of the negative first grade replacement is being offset by a net inward migration of students in the other grades.

Regarding new housing in Montgomery Township, there is the potential for 498 new housing units, yielding 511 public school children. The potential for new housing in Rocky Hill is limited as it is nearly built out.

To provide a range for future enrollment, two sets of baseline projections were computed based on five and six years of historical enrollment. The baseline projections were then adjusted to account for additional children anticipated from the proposed market-rate and affordable housing developments in Montgomery Township. Assuming that the proposed residential developments are completed by 2019, total enrollment is projected to be 4,430-4,497 students in 2019-20, which would represent a loss of 255-322 students from the 2014-15 enrollment of 4,752 students.

The adjusted enrollment projections were also broken down at the individual school level from 2015-16 through 2019-20. The following table compares the projected enrollments by school in 2019-20 to the actual enrollments in 2014-15. Enrollment is projected to decline at the Montgomery Upper Middle School and Montgomery High School, but is projected to remain fairly stable at the three remaining schools.

Summary of Projected Enrollment by School

School	Actual Enrollment 2014-15	Projected Enrollment 2019-20	Change
Orchard Hill Elementary School (PK-2)	824	837	+13
Village Elementary School (3-4)	647	627	-20
Montgomery Lower Middle School (5-6)	747	737	-10
Montgomery Upper Middle School (7-8)	820	704	-116
Montgomery High School (9-12)	1,714	1,631	-83

The capacities of the school buildings in the district were compared to the actual enrollments in 2014-15 and the projected enrollments in the 2019-20 school year. With the exception of Montgomery High School which currently has a small number of unhoused students, there are sizable surpluses of seating at the remaining schools, with the greatest being at Montgomery Lower Middle School. By 2019-20, a surplus of seating is projected at Montgomery High School due to declining enrollment. Surpluses are projected to range from a low of 62 seats at Montgomery High School to a high of 608 seats at Montgomery Lower Middle School.

Introduction

Statistical Forecasting performed a demographic study for the Montgomery Township School District. In addition to Montgomery Township, the school district educates children from Rocky Hill Borough. The purpose of the study is to project grade-by-grade enrollments from 2015-16 through 2019-20. Additional information was also collected related to community population trends and age structure, birth and fertility rates, historical enrollments, and new housing starts.

Population Trends

1. Montgomery Township

Located in Somerset County, Montgomery Township (“Montgomery”) contains a land area of approximately 32.62 square miles. In the 2010 Census, Montgomery had 22,254 residents, which is approximately 682.2 persons per square mile. Historical and projected populations for Montgomery from 1940 to 2040 are shown in Table 1 and Figure 1. As shown in the table, Montgomery had significant population growth both in the 1960s and 1990s. Most recently, from 2000 to 2010, the population grew from 17,481 to 22,254, a gain of 4,773 persons.

Table 1
Historical and Projected Populations for Montgomery Township
1940-2040

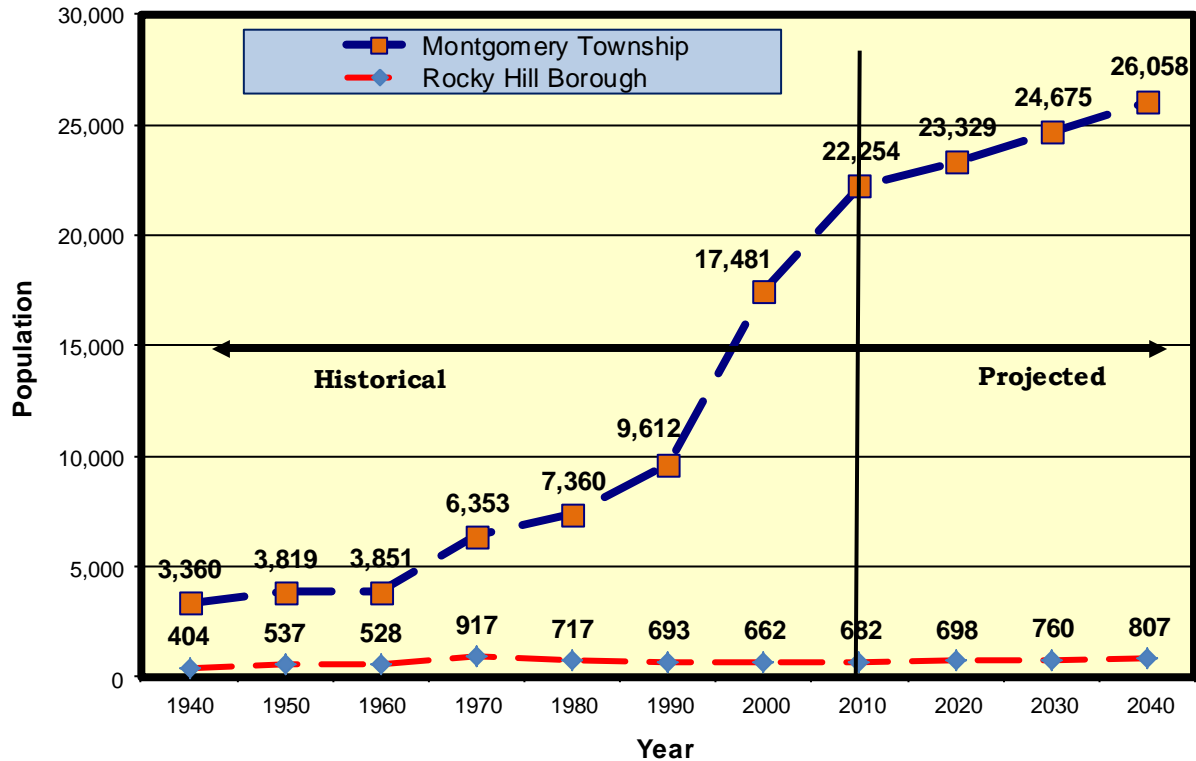
Year	Population	Percent Change
Historical¹		
1940	3,360	N/A
1950	3,819	+13.7%
1960	3,851	+0.8%
1970	6,353	+65.0%
1980	7,360	+15.9%
1990	9,612	+30.6%
2000	17,481	+81.9%
2010	22,254	+27.3%
Projected²		
2020	23,329	+4.8%
2030	24,675	+5.8%
2040	26,058	+5.6%

Notes: ¹Source: United States Census Bureau

²Source: North Jersey Transportation Planning Authority, Inc. (2013).

Population projections for 2020-2040, which were prepared by the North Jersey Transportation Planning Authority, Inc. (“NJTPA”), indicate that the population in Montgomery will continue to increase, albeit at a much slower rate. Forecasts project the population to be 26,058 in 2040, which would be a 17.1% increase from the 2010 population and a gain of more than 3,800 persons.

Figure 1
Historical and Projected Populations
for Montgomery Township and Rocky Hill Borough
1940-2040



2. Rocky Hill Borough

Rocky Hill Borough (“Rocky Hill”), which is also located in Somerset County, contains a land area of approximately 0.67 square miles. Historical and projected populations for Rocky Hill from 1940 to 2040 are shown in Table 2 and Figure 1. As of 2010, Rocky Hill had 682 residents, which is 1,017.9 persons per square mile. Rocky Hill’s population experienced its greatest growth in the 1960s, gaining 389 persons. After declining by 200 persons from 1970 to 1980, the population has been fairly stable, ranging from 662 to 717 persons.

Table 2
Historical and Projected Populations for Rocky Hill Borough
1940-2040

Year	Population	Percent Change
Historical¹		
1940	404	N/A
1950	537	+32.9%
1960	528	-1.7%
1970	917	+73.7%
1980	717	-21.8%
1990	693	-3.3%
2000	662	-4.5%
2010	682	+3.0%
Projected²		
2020	698	+2.3%
2030	760	+8.9%
2040	807	+6.2%

Notes: ¹Source: United States Census Bureau

²Source: North Jersey Transportation Planning Authority, Inc. (2013).

Population projections for 2020-2040 prepared by the NJTPA indicate that the population in Rocky Hill will slowly increase. Forecasts project the population to be 807 in 2040, which would be an 18.3% increase from the 2010 population and a gain of 125 persons.

Demographic Profile

In Table 3 following, selected demographic characteristics of Montgomery and Rocky Hill are compared from the 2000 Census, the 2008-2012 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, 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 small municipalities such as Montgomery and Rocky Hill, ACS data represent a sample collected over a five-year time period, where the estimates represent the average characteristics between January 2008 and December 2012. This information does not represent a single point in time like the long form of earlier Censuses.

1. Montgomery Township

Regarding race, Montgomery has become much more racially diverse since 2000. In 2010, the township was 67.7% White as compared to 84.6% in 2000. Asians made up the second-largest race at 25.6% in 2010, which is a 14.1 percentage point increase from the 11.5% that existed in 2000. The Census Bureau does not consider Hispanic as a separate race; rather it identifies the percent 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 was 4.6% in 2010, which is a small increase from the 2000 percentage (2.2%).

Regarding nativity, 22.7% of Montgomery residents were foreign-born in the 2008-2012 ACS as compared to 14.5% in 2000. As a point of comparison, New Jersey’s foreign-born resident percentage was 21.0% in the 2008-2012 ACS. 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 2000, accounting for 27.5% and 15.8% respectively of the foreign-born population. However, in the 2008-2012 ACS, India is now the largest source of the foreign-born population, representing 34.5% of the foreign-born population. China is now the second-largest source at 23.8%.

The median age in Montgomery increased from 36.8 years in 2000 to 40.8 years in 2010. During the same time period, the percentage of people under the age of 18 years decreased slightly from 32.9% to 30.8%.

Regarding educational attainment for adults aged 25 and over, 76.0% of the population had a bachelor’s degree or higher in the 2008-2012 ACS as compared to 70.2% in 2000, indicating a highly-educated population. Persons with graduate or professional degrees increased from 34.8% to 42.9% during this time period.

Median family income increased from \$129,150 in 2000 to \$165,313 in the 2008-2012 ACS, a gain of 28.0%. During this time period, the percentage of children under the age of 18 that are in poverty slightly increased from 1.2% to 2.1%.

Table 3
Selected Demographic Characteristics

Race Origin	Montgomery Township		Rocky Hill Borough	
	2000	2010	2000	2010
White alone	84.6%	67.7%	95.2%	91.6%
Black or African American alone	2.1%	2.8%	1.4%	1.5%
American Indian and Alaska Native alone	0.1%	0.1%	0.0%	0.0%
Asian alone	11.5%	25.6%	0.5%	2.3%
Native Hawaiian and Other Pacific Islander alone	0.0%	0.0%	0.6%	0.0%
Other Race alone	0.5%	1.3%	0.9%	1.5%
Two or more Races	1.3%	2.4%	1.5%	3.1%
Total	100.0%¹	100.0%¹	100.0%¹	100.0%¹
Hispanic Origin	2.2%	4.6%	3.9%	4.8%
Place of Birth				
Foreign-Born	14.5%	22.7%	11.1%	7.9%
Age				
Under 18	32.9%	30.8%	20.2%	23.2%
18-64	60.3%	59.3%	62.6%	58.3%
65 and over	6.8%	9.9%	17.2%	18.5%
Median age	36.8 years	40.8 years	43.8 years	45.9 years
Educational Attainment				
Bachelor's degree or higher	70.2%	76.0%	59.7%	65.9%
Graduate or professional degree	34.8%	42.9%	29.1%	37.9%
Income				
Median family income	\$129,150	\$165,313	\$100,314	\$115,000
% of Persons in Poverty under age 18	1.2%	2.1%	1.8%	0.0%
Housing Units				
Total number ²	6,130	7,902	295	292
Occupied units	5,803 (94.7%)	7,635 (96.6%)	284 (96.3%)	280 (95.9%)
Owner-occupied units	5,031 (86.7%)	6,124 (80.2%)	229 (80.6%)	223 (79.6%)
Renter-occupied units	772 (13.3%)	1,511 (19.8%)	55 (19.4%)	57 (20.4%)
Median value of an owner-occupied unit	\$348,500	\$591,100	\$271,400	\$443,300
Average household size	2.99	3.10	2.33	2.34
Housing Type				
Total number ²	6,126	7,590	299	251
1-unit, attached or detached	5,226 (85.3%)	6,708 (88.4%)	258 (86.3%)	212 (84.5%)
Two units	58 (0.9%)	8 (0.1%)	17 (5.7%)	23 (9.2%)
Three or four units	100 (1.6%)	76 (1.0%)	8 (2.7%)	10 (4.0%)
Five to nine units	152 (2.5%)	241 (3.2%)	14 (4.7%)	4 (1.6%)
10 to 19 units	264 (4.3%)	333 (4.4%)	2 (0.7%)	0 (0.0%)
20 or more units	312 (5.1%)	224 (3.0%)	0 (0.0%)	2 (0.8%)
Mobile home, RV, Boat, Van, etc.	14 (0.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

Sources: American Community Survey (2008-2012), United States Census (2000 and 2010)

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

²Total number differs as Housing Units are a 100% population count while Housing Type data is taken from a sample.

Regarding housing, there were approximately 7,902 housing units in Montgomery in 2010, which is a gain of 1,772 housing units (+28.9%) from 2000. From 2000 to 2010, the overall occupancy rate increased by nearly two percentage points. Renter-occupied units accounted for 19.8% of the occupied units in Montgomery in 2010, which is a gain of 6.5 percentage points from 2000. In the last decade, the average household size increased from 2.99 to 3.10 persons. Finally, the median home price of an owner-occupied unit in the 2008-2012 ACS was \$591,100, which is a 69.6% gain from the value reported in 2000 (\$348,500).

With respect to housing type, 88.4% of the homes are one-unit, either attached or detached, which is a 3.1 percentage point gain from the 2000 Census. While homes with 20 or more units were the second-largest type of housing in 2000, homes with 10 to 19 units were the second-largest home type in the 2008-2012 ACS. Both of these housing types mostly consist of renters.

2. Rocky Hill Borough

Regarding race, Rocky Hill is predominantly White. In the 2010 Census, Rocky Hill was 91.6% White as compared to 95.2% in 2000. Persons with Two or More Races made up the second-largest racial subgroup at 3.1% in 2010, which is an increase from the 1.5% that existed in 2000. The concentration of persons having Hispanic origin was 4.8% in 2010, which is a slight increase from the 3.9% that existed in 2000. The percentage of Hispanics in Rocky Hill is nearly identical to the percentage in Montgomery.

Approximately 7.9% of Rocky Hill residents were foreign-born in the 2008-2012 ACS, which is less than the 11.1% that existed in 2000. Unlike Montgomery, the foreign-born percentage in Rocky Hill is well below that of New Jersey (21.0%). While not shown in the table, place of birth, which serves as a proxy for country of origin, indicates that Germany was the largest source of immigrants in the 2008-2012 ACS, accounting for 41.9% of the foreign-born population. This differs from 2000 when the United Kingdom was the largest source of the foreign-born population (15.1%).

The median age in Rocky Hill has increased from 43.8 years in 2000 to 45.9 years in 2010, which is higher than the median age in Montgomery. During the same time period, the percentage of people under the age of 18 years has increased from 20.2% to 23.2%.

Regarding educational attainment for adults aged 25 and over, 65.9% of the population had a bachelor's degree or higher in the 2008-2012 ACS as compared to 59.7% in 2000. While the percentage of persons with higher education degrees in Rocky Hill is lower than that of Montgomery, it is still a very highly-educated population as compared to that of New Jersey (36.6%). The percentage of persons with graduate or professional degrees increased from 29.1% to 37.9% during this time period.

Median family income increased from \$100,314 in 2000 to \$115,000 in the 2008-2012 ACS, a gain of 14.6%. Median family income is approximately 44% higher in Montgomery as compared to Rocky Hill. During this time period, the percentage of children under the age of 18 that were in poverty declined from 1.8% to 0.0%. The child poverty rate is very low in both communities.

Regarding housing, there were approximately 292 housing units in Rocky Hill in 2010, which is nearly unchanged from 2000. As might be expected due to the relative size of the two communities, Montgomery has a significantly greater number of housing units than Rocky Hill. From 2000 to 2010, the occupancy rate in Rocky Hill was nearly unchanged. Renter-occupied units accounted for 20.4% of the occupied units in Rocky Hill in 2010, which is similar to the 19.4% that existed in 2000. The percentage of renter-occupied units in Rocky Hill is nearly identical to that of Montgomery. The median home price of an owner-occupied unit in the 2008-2012 ACS was \$443,300, which is a 63.3% gain from the value reported in 2000 (\$271,400). Median home prices in Montgomery are nearly \$150,000 more than in Rocky Hill.

With respect to housing type, 84.5% of the homes are one-unit, either attached or detached, which is a 1.8 percentage point decline from the 2000 Census. Homes consisting of two units account for 9.2% of the housing stock, which is the second-largest home type in the borough. The percentage of one-unit homes in Rocky Hill is approximately four percentage points less than that in Montgomery.

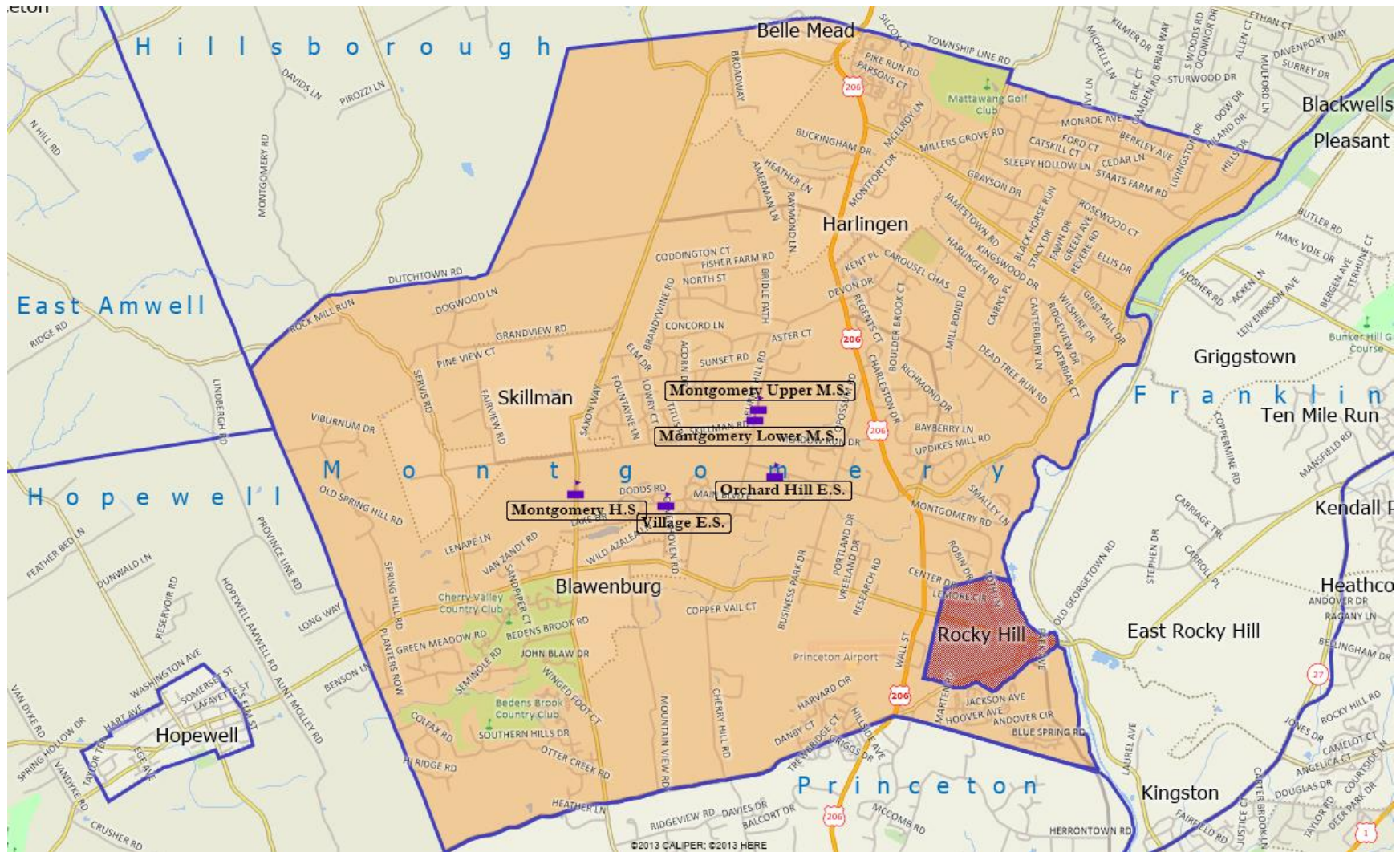
If the renter population in Montgomery and Rocky Hill contain school-age children, a more mobile student population within the Montgomery Township School District may result. Since the Cohort-Survival Ratio method, which is used to project enrollments, depends upon stability within the student population, the forthcoming enrollment projections may be more susceptible to inaccuracies if the district has high mobility rates.

District Overview

The Montgomery Township School District has five schools that serve grades pre-kindergarten through twelfth. The locations of each of the schools are shown in Figure 2. On July 1, 2010, the Rocky Hill School District, which was formerly a non-operating school district, merged with the Montgomery Township School District. According to the district's Long Range Facilities Plan ("LRFP"), total educational capacity is 6,092 using District Practices 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 Facilities Efficiency Standards ("FES") methodology. A comparison of each school's capacity (using District Practices methodology) to the current and projected enrollment is provided later in the report.

In this study, historical enrollments from the October 15th Fall Reports and the NJ SMART database were used to project enrollments 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.

Figure 2
School Locations – Montgomery Township School District



Explanation of the Cohort-Survival Ratio Method

In 1930, Dublin and Lodka provided an explicit age breakdown, which enabled analysts to follow each cohort through its life stages and apply appropriate birth and death rates for each generation. A descendant of this process is the Cohort-Survival Ratio (“CSR”) method, which is 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.

Historical Enrollment Trends

Historical enrollments for the Montgomery Township School District from 2005-06 through 2014-15, a ten-year period, are shown in Figure 3 and Table 4. Since peaking at 5,305.5 students in 2008-09, total enrollment has declined in the district for six consecutive years. The 2014-15 enrollment in the district was 4,752 students, which is a loss of 362 students (-7.1%) since 2005-06.

Table 5 following shows computed grade-by-grade survival ratios from 2005-06 to 2014-15. In addition, the average, minimum, and maximum survival ratios are shown for the past ten years along with the five-year and six-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 inward migration and values below 1.000 reflect outward migration. Nine of the thirteen average survival ratios in the five-year or six-year trends were above 1.000, indicating a general net inward migration of students into the district. All of the average survival ratios that were below 1.000 were in the high school grades.

Figure 3
Historical Enrollment
2005-06 to 2014-15

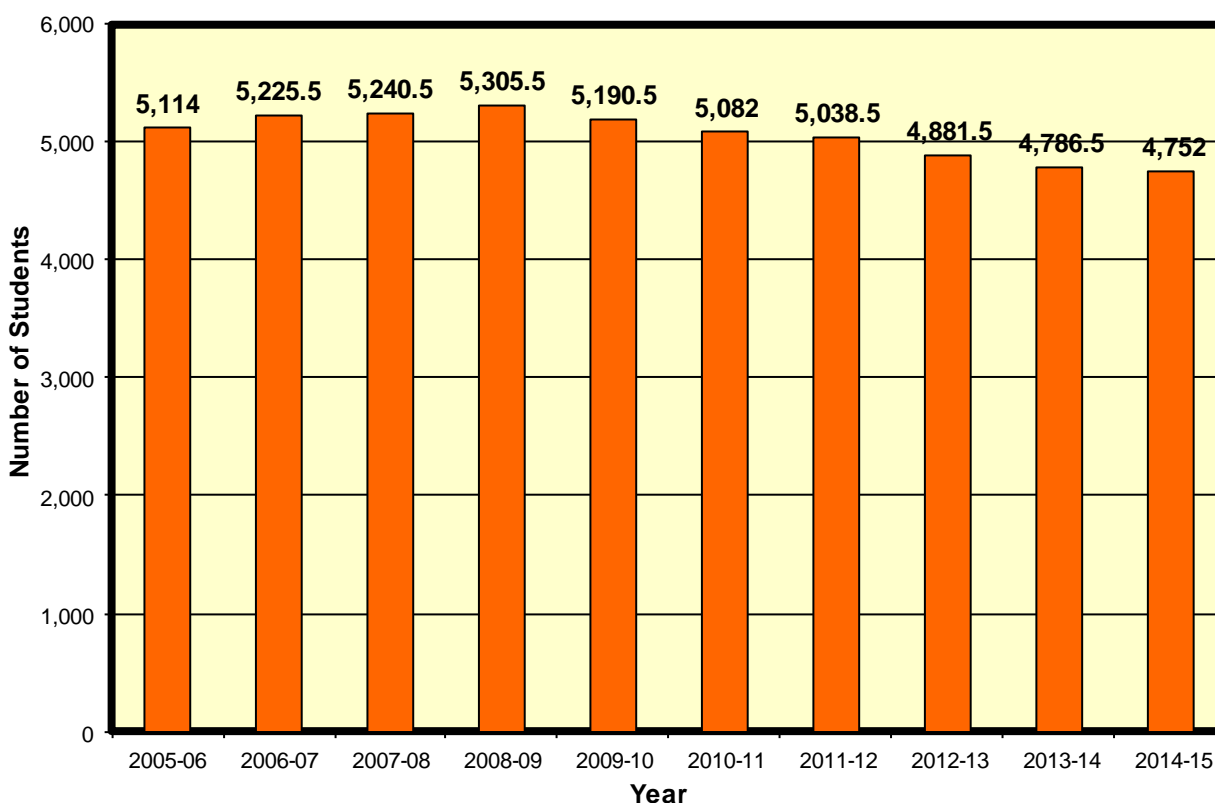


Table 4
Montgomery Township School District Historical Enrollments
2005-06 to 2014-15

Year ¹	PK RE ²	K	1	2	3	4	5	6	7	8	9	10	11	12	SE ³	PK-2 Total	3-4 Total	5-6 Total	7-8 Total	9-12 Total	PK-12 Total
2005-06	0	285	402	381	418	388	408	415	426	400	408	413	367	337	66	1,103	821	835	830	1,525	5,114
2006-07	0	302	343	394	405	439	410	411	423	421	421.5	416.5	416.5	366	57	1,074	850	830	851	1,620.5	5,225.5
2007-08	4	252	371	358	367	388	481	454	419	430	426	427	410.5	411	42	998	764	947	853	1,678.5	5,240.5
2008-09	0	293	314	390	363	415	441	455	429	436	432.5	420	426	411	80	1,042	791	909	870	1,693.5	5,305.5
2009-10	10	243	332	322	396	373	407	442	452	431	432	435	425	414.5	76	948	780	862	888	1,712.5	5,190.5
2010-11	9	237	298	345	347	410	384	412	440	448	418	419	415	418	82	932	757	810	895	1,688	5,082
2011-12	24	220	300	315	355	360	418	397	414	450	453	403	425	410.5	94	899	723	830	873	1,713.5	5,038.5
2012-13	46	202	249	313	311	362	372	412	399	412	438	443	404	427.5	91	844	682	794	822	1,739.5	4,881.5
2013-14	53	212	251	260	319	327	383	386	423	408	413.5	439.5	444	399.5	68	787	663	778	839	1,719.5	4,786.5
2014-15	23	246	258	268	284	350	352	389	393	418	409	412	430	437	83	824	647	747	820	1,714	4,752

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

²Pre-kindergarten regular education enrollment

³Self-contained special education enrollment/Ungraded Students

Table 5
Historical Survival Ratios
2005-06 to 2014-15

Progression Years	B-K	K-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
2005-06 to 2006-07	1.16154	1.20351	0.98010	1.06299	1.05024	1.05670	1.00735	1.01928	0.98826	1.05375	1.02083	1.00847	0.99728
2006-07 to 2007-08	0.93333	1.22848	1.04373	0.93147	0.95802	1.09567	1.10732	1.01946	1.01655	1.01188	1.01305	0.98559	0.98679
2007-08 to 2008-09	1.05776	1.24603	1.05121	1.01397	1.13079	1.13660	0.94595	0.94493	1.04057	1.00581	0.98592	0.99766	1.00122
2008-09 to 2009-10	0.95294	1.13311	1.02548	1.01538	1.02755	0.98072	1.00227	0.99341	1.00466	0.99083	1.00578	1.01190	0.97300
2009-10 to 2010-11	1.01717	1.22634	1.03916	1.07764	1.03535	1.02949	1.01229	0.99548	0.99115	0.96984	0.96991	0.95402	0.98353
2010-11 to 2011-12	1.02804	1.26582	1.05705	1.02899	1.03746	1.01951	1.03385	1.00485	1.02273	1.01116	0.96411	1.01432	0.98916
2011-12 to 2012-13	1.03061	1.13182	1.04333	0.98730	1.01972	1.03333	0.98565	1.00504	0.99517	0.97333	0.97792	1.00248	1.00588
2012-13 to 2013-14	1.09845	1.24257	1.04418	1.01917	1.05145	1.05801	1.03763	1.02670	1.02256	1.00364	1.00342	1.00226	0.98886
2013-14 to 2014-15	1.47305	1.21698	1.06773	1.09231	1.09718	1.07645	1.01567	1.01813	0.98818	1.00245	0.99637	0.97838	0.98423
Avg. 10-Year Ratios	1.083655	1.210517	1.039107	1.025469	1.045307	1.054055	1.016441	1.003031	1.007759	1.002521	0.993036	0.995011	0.989995
Maximum Ratio	1.473054	1.265823	1.067729	1.092308	1.130790	1.136598	1.107317	1.026699	1.040573	1.053750	1.020833	1.014320	1.005882
Minimum Ratio	0.933333	1.131818	0.980100	0.931472	0.958025	0.980723	0.945946	0.944934	0.988180	0.969838	0.964115	0.954023	0.973005
Avg. 5-Year Ratios	1.1294633	1.2142991	1.0530715	1.0319410	1.0514520	1.0468273	1.0182001	1.0136815	1.0071581	0.9976465	0.9854592	0.9993608	0.9920336
Avg. 6-Year Ratios	1.1000429	1.2167068	1.0502885	1.0410808	1.0482323	1.0433600	1.0170171	1.0100402	1.0039566	0.9920847	0.9823489	0.9902932	0.9903328

Historical enrollments are also shown in Table 4 by level (PK-2, 3-4, 5-6, 7-8, and 9-12), which represents the current configuration of the school district. Self-contained special education/ungraded students were incorporated into the totals by level, as well as for the district-wide total.

At Orchard Elementary School (“Orchard”), which contains grades PK-2, enrollment had been steadily declining before increasing in 2014-15. Enrollment was 824 in 2014-15, which represents a loss of 279 students from the 1,103 students in the 2005-06 year.

At Village Elementary School (“Village”), which contains grades 3-4, enrollment has been steadily declining after peaking with 850 students in 2006-07. Enrollment was 647 students in 2014-15, which represents a loss of 174 students from the enrollment of 821 in the 2005-06 year.

At Montgomery Lower Middle School (“Lower Middle”), which contains grades 5-6, enrollment has been declining, in general, since peaking with 947 students in 2007-08. Enrollment was 747 students in 2014-15, which represents a loss of 88 students from the enrollment of 835 in the 2005-06 year.

At Montgomery Upper Middle School (“Upper Middle”), which contains grades 7-8, enrollment increased through 2010-11 before reversing trend. Enrollment has declined in each of the last four years. The 2014-15 enrollment of 820 is ten students less than the enrollment in 2005-06.

Finally, at Montgomery High School, which contains grades 9-12, enrollment increased through 2012-13 before reversing trend. The school has experienced small declines in enrollment in the last two years. Despite the recent decline, high school enrollment in 2014-15 was 1,714 students, which is an increase of 189 students from the enrollment of 1,525 in 2005-06.

First Grade Replacement

The district has experienced negative first grade replacement for the last seven years, ranging from 79 to 176.5 students per year as shown in Figure 4. Negative first grade replacement occurs when the number of graduating twelfth grade students is larger than the number of first grade students replacing them in the next year. Positive first grade replacement occurs when the number of graduating twelfth grade students is less than the number of first grade students entering the district in the next year. Positive first grade replacement last occurred when the district was growing in the mid-2000s. Typically, the outgoing 12th grade student population is compared to the incoming kindergarten class. However, since the district has a half-day kindergarten program, it is more appropriate to compare the twelfth grade student population to the first grade student population, as the district gains a number of students from kindergarten to first grade when parents elect to send their child to a full-day kindergarten program elsewhere before enrolling them in the public school district for the first grade. In 2014-15, the loss of students due to first grade replacement was 141.5 students, as 399.5 twelfth graders graduated in 2013-14 and were replaced by 258 first grade students in 2014-15. In the last five years, the district has lost an average of 143 students per year due to first grade replacement.

Figure 4
Historical First Grade Replacement

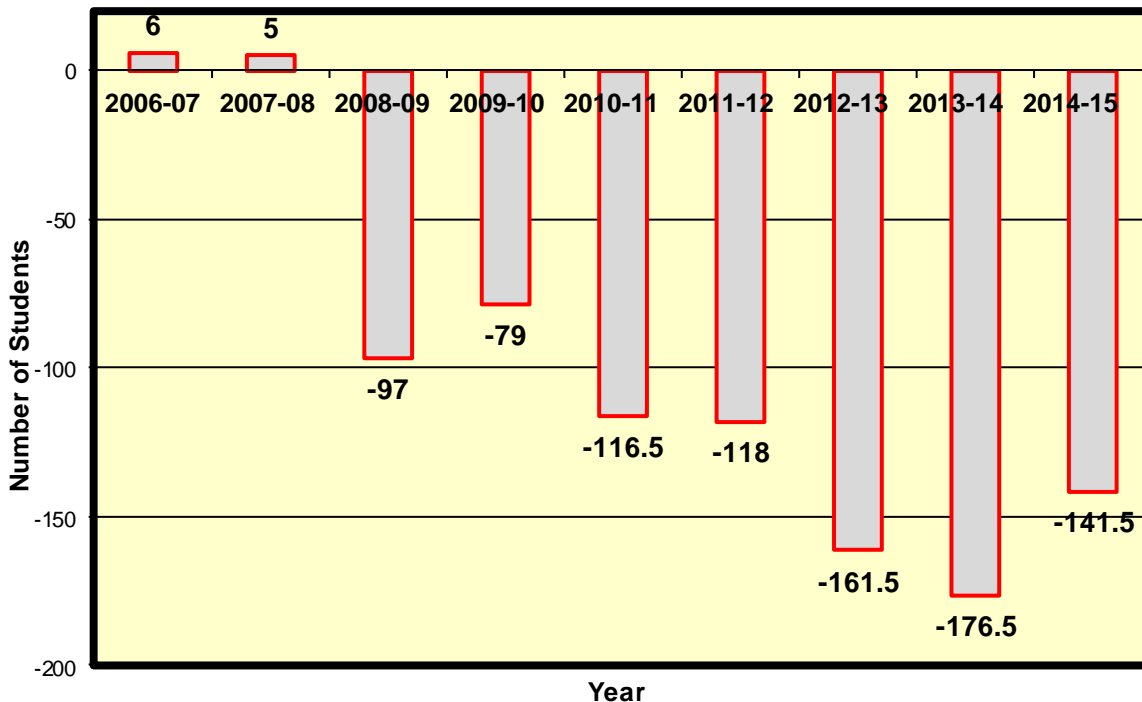
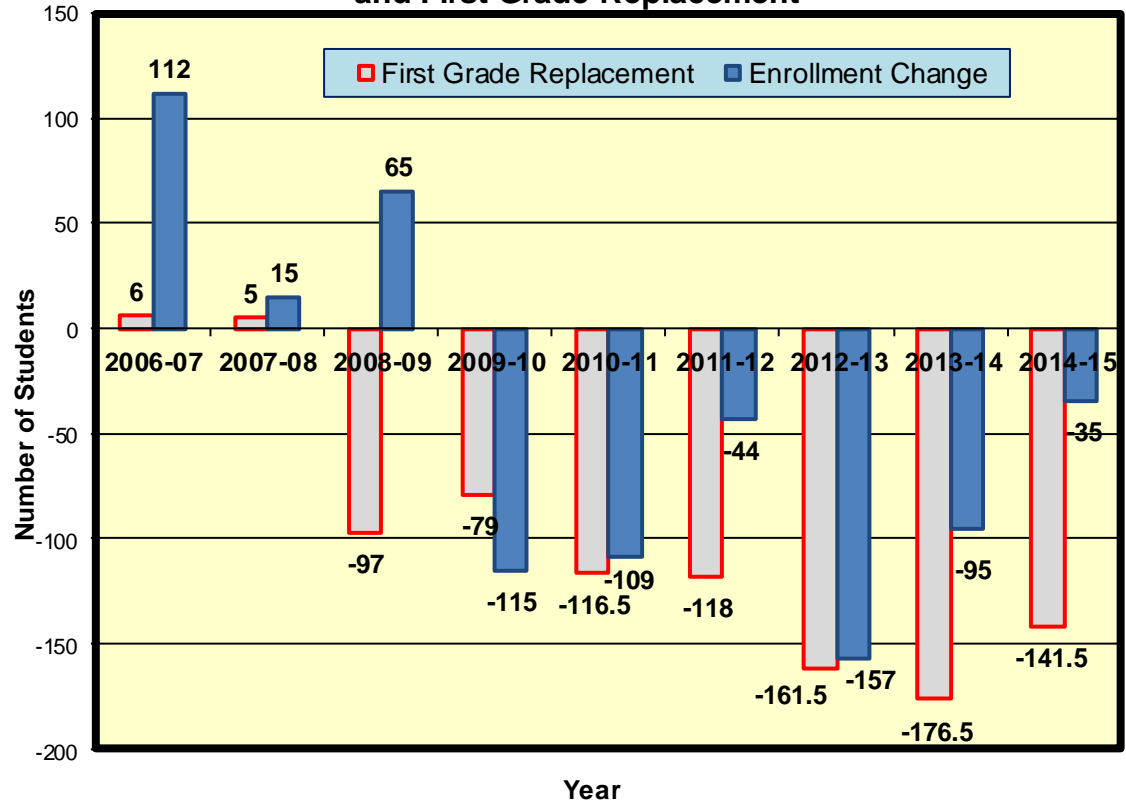


Figure 5 shows the annual change in total enrollment compared to first grade replacement. As the figure demonstrates, there appears to be a moderately strong relationship between the overall change in enrollment and first grade replacement. Although this data represents a small sample, the correlation coefficient between the two variables was 0.6996. 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 first grade replacement and total enrollment change. Negative correlation coefficients indicate that as one variable is increasing, the other variable is decreasing. 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 0 indicate a weak linear relationship between the variables.

In the last five years, the district had losses in total enrollment that were less than the negative first grade replacement. This would indicate that the losses due to negative first grade replacement are being offset by a net inward migration of students in the other grades (K to 1, 1 to 2, 2 to 3, etc.). This was confirmed previously as nine of the thirteen average survival ratios in the five-year or six-year trend were above 1.000.

Figure 5
Comparison of PK-12 Enrollment Change
and First Grade Replacement



Birth Data

Birth data were needed to compute kindergarten enrollment, which was 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 2009, there were a total of 167 births in Montgomery and Rocky Hill. Five years later (the 2014-15 school year), 246 children enrolled in kindergarten, which is equal to a survival ratio of 1.4731 from birth to kindergarten. Birth counts and birth-to-kindergarten survival ratios are displayed in Table 6. 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. Despite having a half-day kindergarten program, birth-to-kindergarten survival ratios have been above 1.000 in eight of the last ten years.

Table 6
Birth Rates and Historical Birth-to-Kindergarten Survival Ratios
in the Montgomery Township School District

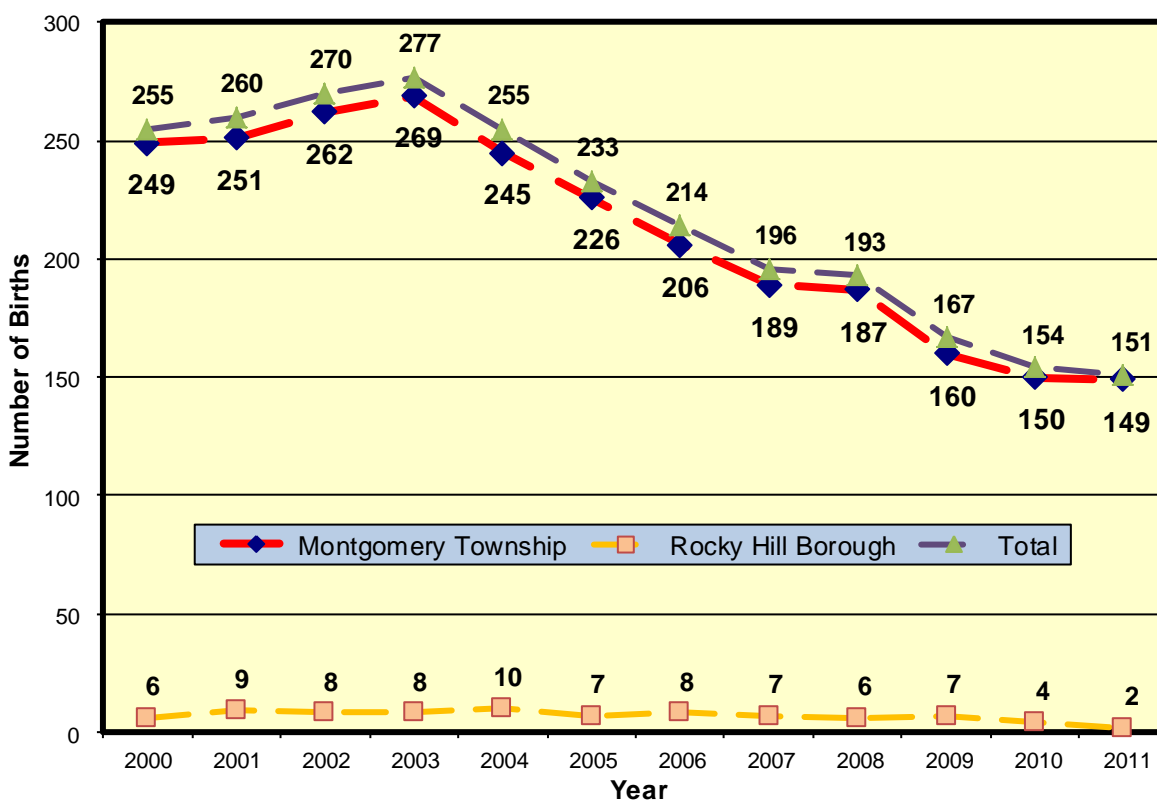
Birth Year¹	Births Montgomery Township	Births Rocky Hill Borough	Total Number of Births	Kindergarten Students Five Years Later	Birth-to- Kindergarten Survival Ratio
2000	249	6	255	285	1.1176
2001	251	9	260	302	1.1615
2002	262	8	270	252	0.9333
2003	269	8	277	293	1.0578
2004	245	10	255	243	0.9529
2005	226	7	233	237	1.0172
2006	206	8	214	220	1.0280
2007	189	7	196	202	1.0306
2008	187	6	193	212	1.0984
2009	160	7	167	246	1.4731
2010	150	4	154	N/A	N/A
2011	149	2	151	N/A	N/A

Notes: ¹Birth data were provided by the New Jersey Center for Health Statistics for 2000-2011.

Geocoded birth data were provided by the New Jersey Center for Health Statistics (“NJCHS”) for 2000-2011 by assigning geographic coordinates to a birth mother based on her street address. As shown in Figure 6, after peaking in 2003, birth rates in Montgomery have declined for eight consecutive years. In 2003, there were 269 births in the township, which is much greater than the 149 births that recently occurred in 2011. In Rocky Hill, the number of births has been quite small, ranging from 2 to 10 per year. Since Montgomery has a lot more births than Rocky Hill, the decline in the Montgomery birth rate has had a large effect on the combined birth rate, which has declined from 277 births in 2003 to 151 births in 2011.

Since the NJCHS did not have geocoded birth data for 2012-2014, estimates were used for those years by averaging the number of births from recent historical birth data. Birth rates were needed for these years since these cohorts will become the kindergarten classes of 2017-2019. The average birth rate used for 2012-2014 was 158 births.

Figure 6
Historical Birth Data
2000 to 2011



Why have birth rates declined in Montgomery? It is not likely due to the fertility rate, as Montgomery's is similar to the fertility rate in both Somerset County and the State of New Jersey. According to the 2008-2012 ACS, the fertility rate of women aged 15 to 50 in Montgomery was 59 births per 1,000 women. In comparison, as reported by the NJCHS, the 2011 fertility rate in Somerset County was 56.5 births per 1,000 women (ages 15-49) and was 61.0 births per 1,000 women in New Jersey. However, it should be noted that while all three values are based on a sample, the Montgomery 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 township.

Figures 7 and 8 show the age pyramids of males and females in Montgomery from both the 2000 and 2010 Censuses. Due to Rocky Hill's small population and birth rate, the age pyramids are not shown. The largest number of individuals in Montgomery in 2000 was aged 40-44. A decade later, as this cohort gets older, one might expect the largest cohort to be aged 50-54. While this cohort was among the largest, the 45-49 cohort was the largest in 2010. While the shape of the diagrams did not change appreciably over the ten-year period, the number and percentage of females declined in the 30-34 and 35-39 age groups, which correspond to the ages when many females have their children. This has likely led to the declining birth rate in the township.

Figure 7
Population Pyramid of Montgomery Township
2000 Census

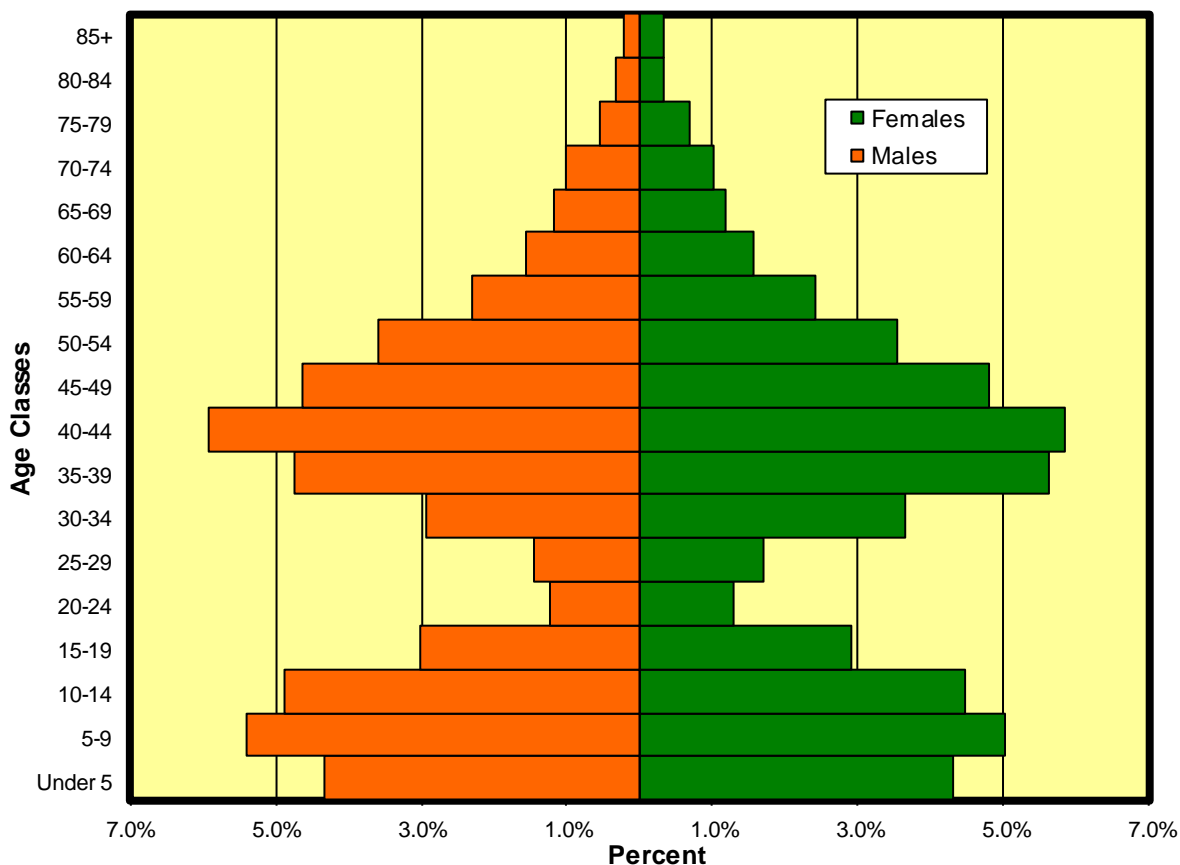
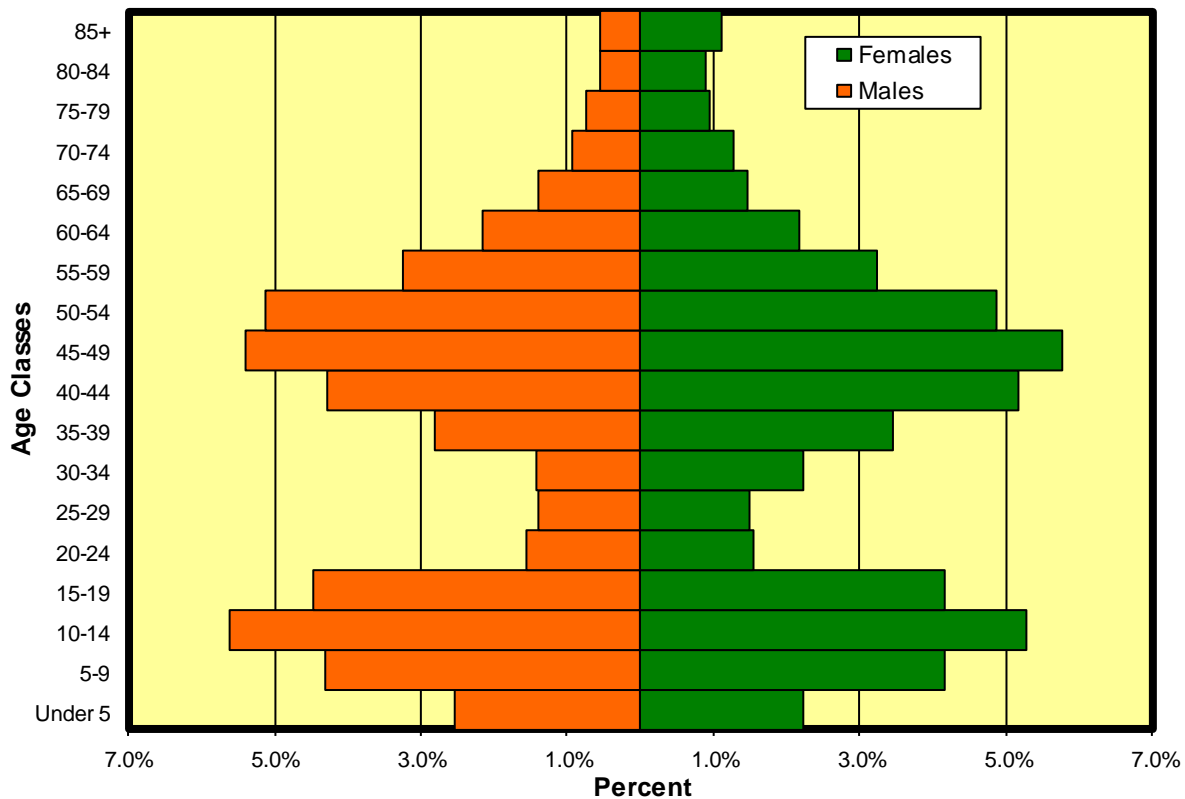


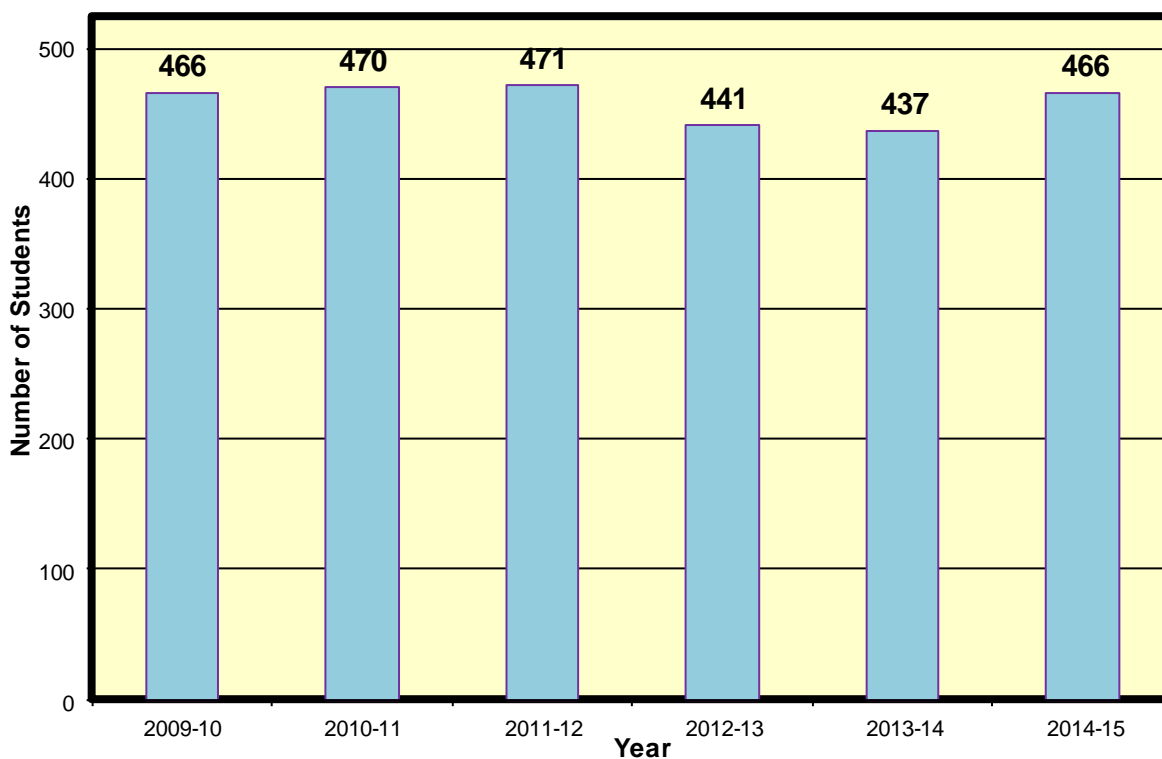
Figure 8
Population Pyramid of Montgomery Township
2010 Census



Private and Parochial School Enrollment

In Figure 9 below, the number of Montgomery resident students attending private or parochial schools from 2009-10 through 2014-15 is shown. Over the six-year period, the number of private and parochial students has ranged from 437 to 471 per year. While the number of students declined in 2012-13 and 2013-14, there was an increase in 2014-15. The number of private and parochial students in 2014-15, 466, is similar to the counts that occurred from 2009-10 to 2011-12. Since private and parochial enrollment has not been increasing, it does not appear that non-public enrollment is a factor in the district's declining enrollment.

Figure 9
Historical Private and Parochial Enrollment
2009-10 to 2014-15



Effects of Housing Growth

1. Montgomery Township

Ms. Lori Savron, PP/AICP, Montgomery Township Planning Director, provided information regarding current and future development in the community. In Table 7 following, a list of proposed housing developments is shown and the estimated number of public school children. Some of the developments have received approval and have not yet begun construction, while others are currently under construction. In total, there is the potential for 498 new housing units in Montgomery yielding 511 public school children.

Table 7
Potential Housing Developments in Montgomery Township

Development	Location	Number of Units	Bedroom Distribution	Housing Type	Estimated Public School Children (K-12)	Project Status/Notes
Montgomery Ridge	Orchard Road	112	3-BR	Townhouses	54	Under construction
Ingerman	Orchard Road	40	1-BR (8) 2-BR (24) 3-BR (8)	Affordable Apartments	15	Under construction
East Country Estates	Burnt Hill and Sunset	37	4- & 5-BR	Single-Family	56	Under construction 17 COs have been issued. 37 units remain to be built.
Handler Estates	Belle Mead-Griggstown	8	4- & 5-BR	Single-Family	16	Under construction
Hillside at Montgomery	Research Road	51	3-BR (67) 4-BR (22)	Single-Family	66	Under construction 38 COs have been issued. 51 units remain to be built.
Hillside at Montgomery	Research Road	23	1-BR (4) 2-BR (20) 3-BR (5)	Affordable Apartments	9	Under construction
Staats Farm Road	Staats Farm Road	7	4- & 5-BR	Single-Family	11	Under construction
Country Classics at Foxbrook	Extension of Monfort Drive	20	4-BR	Single-Family	30	Under construction
Lanwin	Cherry Hill Road	5	4-BR	Single-Family	0 ¹	Approved but not yet built
Belvedere	Harlingen Road	17	4-BR	Single-Family	26	Approved but not yet built
Belvedere	Extension of Devon	2	4-BR	Single-Family	3	Approved but not yet built
Country Club Meadows	Route 206	108	4- & 5-BR	Single-Family	162	Pending Approval
Country Club Meadows	Route 206	40	4-BR	Single-Family	52	Pending Approval
Atlantic Realty	Route 206	28	1-BR (5) 2-BR (17) 3-BR (6)	Affordable Apartments	11	Pending Approval
Total		498 Housing Units (295 Single-Family, 112 Townhouses, 91 Affordable Apartments)			511	

Source: Ms. Lori Savron, Montgomery Township Planning Director

Note: ¹Development is currently in litigation. Township is pursuing preservation and is unlikely to be built.

In the process of determining how many children will come from the new housing units, the Montgomery Township Planning Department computed student yields from comparable developments in Montgomery, or used actual student yields in developments that are partially completed (e.g., Hillside at Montgomery and East Country Estates) and applied those values to the proposed number of units. The student yields used for each development, along with the estimated occupancy timeline, are shown in the Appendix.

2. Rocky Hill Borough

Ms. Christine Witt, Rocky Hill Deputy Clerk, provided information regarding current and future development in the community. The potential for new housing in Rocky Hill is limited as it is nearly built out. At present, there is the potential for two single-family homes, which have been approved for construction.

With respect to historical new construction, the number of certificates of occupancy (“COs”) issued for new homes in Montgomery and Rocky Hill from 2009 to 2014 is shown in Table 8. A total of 118 COs were issued for single-family or two-family homes in Montgomery over this time period, with an additional ten COs issued for multi-family homes. With respect to historical new construction in Rocky Hill, only three COs were issued over this time period.

Table 8
Number of Residential Certificates of Occupancy by Year

Year	Montgomery Township			
	1&2 Family	Multi-Family	Mixed Use	Total
2009	12	0	0	12
2010	15	0	0	15
2011	16	0	0	16
2012	17	10	0	27
2013	21	0	0	21
2014 (thru June)	37	0	0	37
Total	118	10	0	128
Year	Rocky Hill Borough			
	1&2 Family	Multi-Family	Mixed Use	Total
2009	1	0	0	1
2010	0	0	0	0
2011	1	0	0	1
2012	0	0	0	0
2013	1	0	0	1
2014 (thru June)	0	0	0	0
Total	3	0	0	3

Source: New Jersey Department of Community Affairs

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 2009-2014, a total of 131 COs were issued for single-family, two-family, multi-family, or mixed-use housing units in the two communities. Since the number of future housing units (498) is significantly more than that which was built in the last five years, the baseline enrollment projections will be modified to account for additional children from the new housing.

Distribution of Homes by Year Built

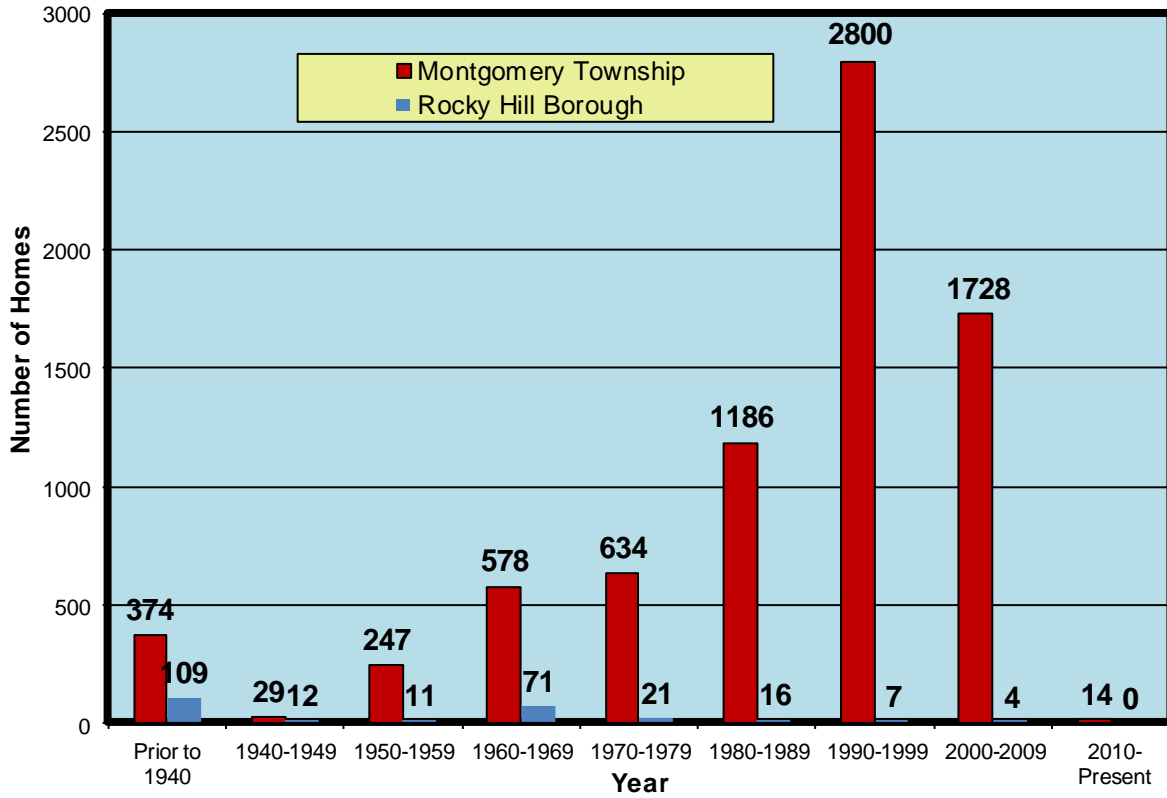
Table 9 and Figure 10 show the number of homes built by decade in Montgomery and Rocky Hill. As the table shows, Montgomery had a large number of homes built in the 1990s and 2000s. The growth in the new housing market is reflected in the population growth in the 1990s as shown previously in Table 1. Three-quarters of Montgomery's housing units were built after 1980, reflecting a newer housing stock. On the other hand, the housing stock in Rocky Hill is much older, as 81% of the homes were built prior to 1970 and 43% were built prior to 1940.

Table 9
Number of Homes Built by Decade

Decade Built	Montgomery Township	Rocky Hill Borough
Prior to 1940	374	109
1940-1949	29	12
1950-1959	247	11
1960-1969	578	71
1970-1979	634	21
1980-1989	1,186	16
1990-1999	2,800	7
2000-2009	1,728	4
2010-2012	14	0
Total	7,590	251

Source: United States Census Bureau

Figure 10
Number of Homes Built by Decade



Baseline 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 2015-16 school year through the 2019-20 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 then multiplying that value by the future general education PK-12 subtotals. The average proportions for the last five years (0.01732) and six years (0.01691) were used to estimate the future number of self-contained special education/ungraded students for each of the enrollment projection calculations.

With respect to grade-level pre-kindergarten students, enrollment was projected by computing an average based on historical data from the last four years and using this value throughout the five-year projection period. In the last four years, pre-kindergarten enrollment has ranged from 23 to 53 students. It was estimated that there would be 37 students in the program annually in the future.

It should be noted that the five-year (1.1295) and six-year (1.1000) birth-to-kindergarten survival ratios shown in Table 5 were not used in the forthcoming enrollment projections. In 2014-15, the birth-to-kindergarten survival ratio was 1.4731 after ranging from 0.9333 to 1.1615 in the eight years prior. The increase in the ratio is likely due to the new housing starts, where families with school-age children are moving into the community. If the five-year and six-year averages were used, the future kindergarten enrollment would likely be underestimated. Instead, the most recent birth-to-kindergarten survival ratio was averaged with birth-to-kindergarten survival ratios from the prior four years, yielding a ratio of 1.2583. In other words, the most recent survival ratio was given a 50% weight, and the average of the four prior ratios was also given a 50% weight. In the second projection, the most recent survival ratio was given a 75% weight and the average of the four prior ratios was given a 25% weight, yielding a birth-to-kindergarten ratio of 1.3657.

On September 10, 2010, New Jersey Governor Chris Christie signed into law the Interdistrict School Choice Program, which took effect in the 2011-12 school year. This enables students to choose to go to a school outside their district of residence if the selected school is participating in the choice program. The choice school sets the number of openings per grade level. The Montgomery Township School District 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 Group¹ (“DFG”) A, B, and CD with a concentration of at-risk pupils equal to or greater than 40 percent,

¹ 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 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, 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. 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 Montgomery Township School District is a “Targeted” district since its DFG is “J” with a concentration of at-risk pupils less than 40 percent (1.66%). In Table 10 following, the estimated 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 eleven pre-kindergarten students as a result of the SFRA, which would have little impact on the district.

Table 10
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
J	11	2	4	6	7	10

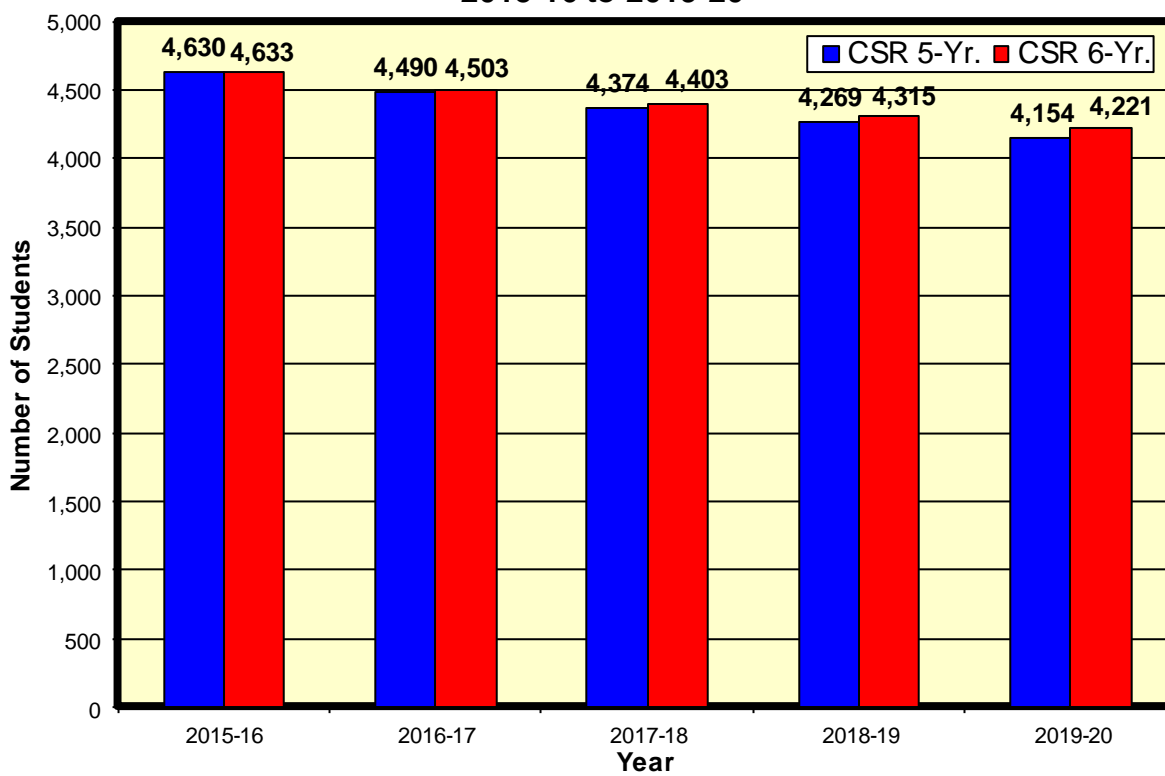
Source: New Jersey Department of Education, Division of Early Childhood Education

Projected PK-12 enrollments using cohort-survival ratios based on historical data from the last five years follows in Table 11 and Figure 11. Total enrollment is projected to decline and be 4,154 students in the 2019-20 school year, which would be a loss of 598 students from the 2014-15 enrollment of 4,752 students.

Table 11
Projected Grade PK-12 Enrollments for 2015-16 to 2019-20
Using Cohort-Survival Ratios and 5 Years of Historical Data

Year	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	SE	PK-12 Total
2015-16	37	194	299	272	277	299	366	358	394	396	417	403	412	427	79	4,630
2016-17	37	190	236	315	281	291	313	373	363	397	395	411	403	409	76	4,490
2017-18	37	199	231	249	325	295	305	319	378	366	396	389	411	400	74	4,374
2018-19	37	199	242	243	257	342	309	311	323	381	365	390	389	408	73	4,269
2019-20	37	199	242	255	251	270	358	315	315	325	380	360	390	386	71	4,154

Figure 11
Baseline Enrollment Projections
2015-16 to 2019-20



In the next projection, PK-12 enrollments were computed using cohort-survival ratios based on historical data from the last six years. As shown in Table 12 and Figure 11, total enrollment is also projected to decrease through 2019-20, albeit at a slower rate. The final projected enrollment of 4,221 students in the 2019-20 school year would be a loss of 531 students from the 2014-15 enrollment of 4,752 students.

Table 12
Projected Grade PK-12 Enrollments from 2015-16 to 2019-20
Using Cohort-Survival Ratios and 6 Years of Historical Data

Year	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	SE	PK-12 Total
2015-16	37	210	299	271	279	298	365	358	393	395	415	402	408	426	77	4,633
2016-17	37	206	256	314	282	292	311	371	362	395	392	408	398	404	75	4,503
2017-18	37	216	251	269	327	296	305	316	375	363	392	385	404	394	73	4,403
2018-19	37	216	263	264	280	343	309	310	319	376	360	385	381	400	72	4,315
2019-20	37	216	263	276	275	294	358	314	313	320	373	354	381	377	70	4,221

Adjusted Enrollment Projections

The baseline enrollment projections were adjusted for the proposed market-rate and affordable housing units in Montgomery. Since the baseline enrollment projections utilize cohort survival ratios that do not take into account prior new home construction growth, the total number of children from future housing should not be added to the baseline projections in order to avoid double-counting. Instead, the *difference* between the number of children from future units and the number of children from recent historical construction should be added to the baseline counts. From 2009-2014, a total of 131 COs were issued for single-family, two-family, multi-family, or mixed-use housing units in Montgomery and Rocky Hill. This included 121 one- or two-family homes and 10 multi-family homes. Using the student yields of 1.50 for one- or two-family homes and 0.48 for multi-family homes², it is estimated that 187 children entered the Montgomery Township School District due to new residential construction in the last five years, an average of 37 students per year. As previously shown in Table 7, a total of 511 children in grades K-12 are projected in the next five years from the new market-rate and affordable housing units. When considering the historical number of 187 new children, this yields a *difference* of 324 students in the next five years (511-187). This total, 324 students, was used to modify the baseline projections. A few assumptions were made in adjusting the baseline enrollment projections:

1. It was assumed that all developments listed in Table 7 would be completed and occupied by 2019, which is the end of the projection period.
2. Occupancy of the individual developments would take place from 2015 to 2019 according to the schedule provided by the Montgomery Township Planning Department, which has been provided in the Appendix.
3. The percentage of children by grade configuration from new housing would be as follows, based on student yields computed from a sample of central New Jersey households by the Rutgers University Center for Urban Policy Research:
PK-5 – 54.6%, 6-8 – 22.6%, 9-12 – 22.8%.
4. The grade level pre-kindergarten and special education counts in the baseline projections were not changed in the adjusted enrollment projections.

² Explanation of how estimated student yields were derived is provided in the Appendix.

In Table 13 and Figure 12, the adjusted enrollment projections are shown based on five years of historical data. These projections are a modification of the baseline enrollment projections shown in Table 11. Total enrollment is projected to decline and be 4,430 students in 2019-20, which would represent a loss of 322 students from the 2014-15 enrollment of 4,752 students.

Table 13
Adjusted Grade PK-12 Enrollments for 2015-16 to 2019-20
Using Cohort-Survival Ratios and 5 Years of Historical Data

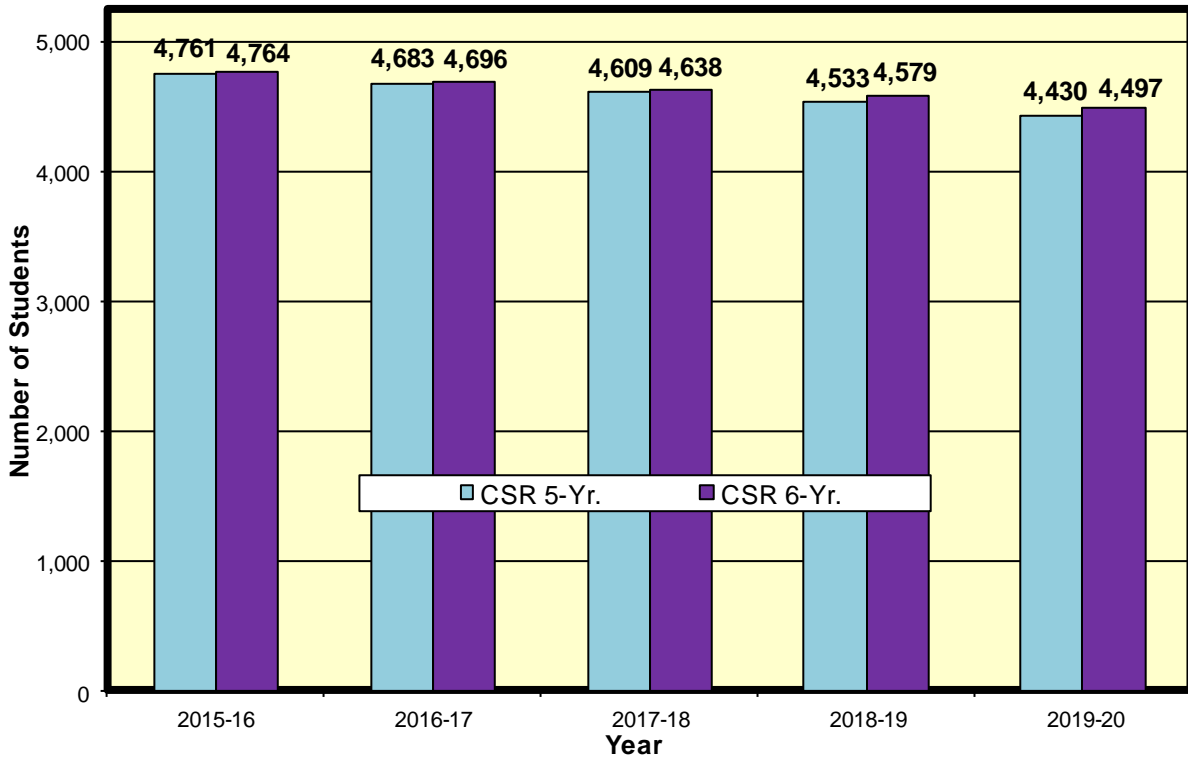
Year	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	SE	PK-12 Total
2015-16	37	206	310	284	289	311	378	368	404	406	425	410	420	434	79	4,761
2016-17	37	197	254	333	299	309	331	390	378	412	409	423	414	421	76	4,683
2017-18	37	204	243	272	348	318	328	341	399	385	414	406	426	414	74	4,609
2018-19	37	203	251	259	283	369	336	337	349	405	387	411	408	425	73	4,533
2019-20	37	202	249	266	270	298	388	344	343	353	406	384	412	407	71	4,430

In Table 14 and Figure 12, the adjusted enrollment projections are shown based on six years of historical data. These projections are a modification of the baseline enrollment projections shown in Table 12. Total enrollment is projected to decline and be 4,497 students in 2019-20, which would represent a loss of 255 students from the 2014-15 enrollment of 4,752 students.

Table 14
Adjusted Grade PK-12 Enrollments for 2015-16 to 2019-20
Using Cohort-Survival Ratios and 6 Years of Historical Data

Year	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	SE	PK-12 Total
2015-16	37	222	310	283	291	310	377	368	403	405	423	409	416	433	77	4,764
2016-17	37	213	274	332	300	310	329	388	377	410	406	420	409	416	75	4,696
2017-18	37	221	263	292	350	319	328	338	396	382	410	402	419	408	73	4,638
2018-19	37	220	272	280	306	370	336	336	345	400	382	406	400	417	72	4,579
2019-20	37	219	270	287	294	322	388	343	341	348	399	378	403	398	70	4,497

Figure 12
Adjusted Enrollment Projections
2015-16 to 2019-20



Adjusted Projected Enrollment by Grade Configuration

In Table 15 following, historical and adjusted projected enrollments are broken down by the current grade configurations in the Montgomery Township School District for each of the enrollment projection calculations.

For grades PK-2 at Orchard, enrollment is projected to increase for one or two years, depending on the projection, before reversing trend. Beginning in 2017-18, enrollment is projected to stabilize. The CSR method based on five and six years of historical data is projecting enrollment to be 779-837 students in 2019-20, which would represent a loss of 45 students in one projection and a gain of 13 students in the second projection from the 2014-15 enrollment of 824 students.

For grades 3-4 at Village, enrollment is projected to decrease in 2015-16 before reversing trend. After increasing for two to three years, depending on the projection, enrollment is again projected to decline near the end of the projection period. The CSR method based on five and six years of historical data is projecting enrollment to be 579-627 students in 2019-20, which would represent a loss of 20-68 students from the 2014-15 enrollment of 647 students.

For the Lower Middle School (grades 5-6), enrollment is projected to slowly decline, in general, through 2017-18 before reversing trend. Enrollment is then projected to increase for the last two years of the projection period. The CSR method based on five and six years of historical data is projecting enrollment to be 736-737 students in 2019-20, which would represent a loss of 10-11 students from the 2014-15 enrollment of 747 students.

For the Upper Middle School (grades 7-8), enrollment is projected to decline throughout the projection period. The CSR method based on five and six years of historical data is projecting enrollment to be 697-704 students in 2019-20, which would represent a loss of 116-123 students from the 2014-15 enrollment of 820 students.

Finally, for Montgomery High School (grades 9-12), enrollment is projected to slowly decline throughout the projection period. The CSR method based on five and six years of historical data is projecting enrollment to be 1,600-1,631 students in 2019-20, which would represent a loss of 83-114 students from the 2014-15 enrollment of 1,714 students.

Table 15
Adjusted Projected Enrollments for Grades PK-2, 3-4, 5-6, 7-8, and 9-12
for Each Projection Method

HISTORICAL	PK-2		3-4		5-6		7-8		9-12	
2014-15	824		647		747		820		1,714	
PROJECTED	CSR 5-YR	CSR 6-YR	CSR 5-YR	CSR 6-YR	CSR 5-YR	CSR 6-YR	CSR 5-YR	CSR 6-YR	CSR 5-YR	CSR 6-YR
2015-16	864	879	612	613	752	751	819	816	1,714	1,705
2016-17	848	883	620	622	726	722	798	795	1,691	1,674
2017-18	782	839	678	680	674	671	792	786	1,683	1,662
2018-19	776	834	663	687	678	677	762	753	1,654	1,628
2019-20	779	837	579	627	737	736	704	697	1,631	1,600

Capacity Analysis

Table 16 shows the educational capacities of the school buildings in the Montgomery Township School District in comparison to both the actual enrollments in 2014-15 and the enrollment projections in the 2019-20 school year. While there were two sets of projections, only the highest projection is shown. Using the capacities from the district's LRFP, the differences between capacity and actual/projected number of students were computed. Positive values indicate available extra seating while negative values indicate "unhoused students". With the exception of Montgomery High School which currently has a small number of unhoused students, there are sizable surpluses of seating at the remaining schools, with the greatest being at the Lower Middle School. By 2019-20, a surplus of seating is projected at Montgomery High School due to declining enrollment. Surpluses are projected to range from a low of 62 seats at Montgomery High School to a high of 608 seats at Lower Middle.

Table 16
Capacity Analysis

School	Capacity ¹	Actual Enrollment 2014-15	Difference	Projected Enrollment 2019-20 ²	Difference
Orchard Hill Elementary (PK-2)	1,199	824	+375	837	+362
Village Elementary (3-4)	855	647	+208	627	+228
Montgomery Lower Middle School (5-6)	1,345	747	+598	737	+608
Montgomery Upper Middle School (7-8)	1,000	820	+180	704	+296
Montgomery High School (9-12)	1,693	1,714	-21	1,631	+62

Notes: ¹Montgomery Township School District Long Range Facility Plan using District Practices Methodology

²Three projected enrollments were taken from the CSR 5-year projections while two projected enrollments were taken from the CSR 6-year projections. Because of this, the sum of the school projections does not match the total district-wide projections.

Appendix

Housing Unit Multipliers

Table A1 shows the estimated student yields for the proposed developments in Montgomery. Estimated student yields for affordable apartments or townhouses are smaller than single family homes, and ranged from 0.38 to 0.48. Projected student yields in single-family homes range from 1.3 to 2.0 children per home. Student yields were estimated by using actual student yields from comparable, recently-constructed housing (e.g., Pike Run for affordable apartments). In some instances, such as Hillside at Montgomery or East Country Estates which are partially completed and occupied, the actual student yields within those units were used as an estimate for the remainder of the development.

Table A1
Estimated Student Yields by Development

Development	Location	Housing Type	Estimated Student Yield
Montgomery Ridge	Orchard Road	Townhouses	0.48
Ingerman	Orchard Road	Affordable Apartments	0.38
East Country Estates	Burnt Hill and Sunset	Single-Family	1.5
Handler Estates	Belle Mead-Griggstown	Single-Family	2.0
Hillside at Montgomery	Research Road	Single-Family	1.3
Hillside at Montgomery	Research Road	Affordable Apartments	0.38
Staats Farm Road	Staats Farm Road	Single-Family	1.5
Country Classics at Foxbrook	Extension of Monfort Drive	Single-Family	1.5
Belvedere	Harlingen Road	Single-Family	1.5
Belvedere	Extension of Devon	Single-Family	1.5
Country Club Meadows	Route 206	Single-Family	1.5
Country Club Meadows	Route 206	Single-Family Patio Homes	1.3
Atlantic Realty	Route 206	Affordable Apartments	0.38

Source: Ms. Lori Savron, Montgomery Township Planning Director

Table A2 following shows the estimated occupancy timeline of the proposed developments with the estimated number of COs per year. Of the 493 anticipated COS (the five units from Lanwin were excluded), 309 (62.7%) are projected to occur in 2015 or 2016. The projected number of children that were included in the adjusted enrollment projections was phased in according to the estimated occupancy timeline shown in Table A2.

Table A2
Estimated Number of Certificates of Occupancy by Year

Development	2015	2016	2017	2018	2019
Montgomery Ridge	40	40	32	0	0
Ingerman	0	40	0	0	0
East Country Estates¹	24	13	0	0	0
Handler Estates	8	0	0	0	0
Hillside at Montgomery¹	51	0	0	0	0
Hillside at Montgomery¹	23	0	0	0	0
Staats Farm Road	4	3	0	0	0
Country Classics at Foxbrook	10	10	0	0	0
Belvedere	0	5	5	5	2
Belvedere	0	0	2	0	0
Country Club Meadows	0	5	30	35	38
Country Club Meadows	0	5	15	15	5
Atlantic Realty	0	28	0	0	0
Total	160	149	84	55	45

Source: Ms. Lori Savron, Montgomery Township Planning Director

Note: ¹Projected COs from 2014 were moved to 2015 since the calendar year is almost complete.

Full-Day Kindergarten Projections

The following section provides enrollment projections from 2015-16 through 2019-20 assuming implementation of a full-day kindergarten program in 2015-16. While the program would not likely be implemented until 2016-17, the projections show the potential impact of the program over the five-year period.

Historically, the district has experienced a 21% increase (Table 5, 5-year or 6-year average) in the number of students from half-day kindergarten to first grade. It was assumed that the projected number of half-day kindergarten students shown in Tables 11 and 12 would increase by 21% if a full-day program were implemented. Once this occurs, the district is no longer likely to see a large increase in the number of students from kindergarten to first grade. However, since the district is experiencing net inward migration in the elementary grades, the future kindergarten-to-first grade survival ratio was estimated to be 1.03. The other survival ratios (grade 1 to 2, 2 to 3, etc.) remained the same.

Like the half-day projections, two sets of enrollment projections were computed using five and six years of historical data. In Table A3 below, enrollments were computed using cohort-survival ratios based on historical data from the last five years. Total enrollment is projected to steadily decline and be 4,223 students in 2019-20, which would be a loss of 529 students from the 2014-15 enrollment of 4,752 students. In comparing the full-day kindergarten projections with the comparable half-day kindergarten projections (Table 11), an additional 69 students are projected to be in the district in 2019-20.

Table A3
Projected Grade PK-12 Enrollments with Full-Day Kindergarten for 2015-16 to 2019-20 Using Cohort-Survival Ratios and 5 Years of Historical Data

Year	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	SE	PK-12 Total
2015-16	37	235	299	272	277	299	366	358	394	396	417	403	412	427	80	4,672
2016-17	37	230	242	315	281	291	313	373	363	397	395	411	403	409	77	4,537
2017-18	37	241	237	255	325	295	305	319	378	366	396	389	411	400	75	4,429
2018-19	37	241	248	250	263	342	309	311	323	381	365	390	389	408	74	4,331
2019-20	37	241	248	261	258	277	358	315	315	325	380	360	390	386	72	4,223

In Table A4 below, enrollments were computed using cohort-survival ratios based on historical data from the last six years. Total enrollment is projected to steadily decline and be 4,292 students in 2019-20, which would be a loss of 460 students from the 2014-15 enrollment of 4,752 students. In comparing the full-day kindergarten projections with the comparable half-day kindergarten projections (Table 12), an additional 71 students are projected to be in the district in 2019-20.

Table A4
Projected Grade PK-12 Enrollments with Full-Day Kindergarten for 2015-16 to 2019-20 Using Cohort-Survival Ratios and 6 Years of Historical Data

Year	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	SE	PK-12 Total
2015-16	37	254	299	271	279	298	365	358	393	395	415	402	408	426	78	4,678
2016-17	37	249	262	314	282	292	311	371	362	395	392	408	398	404	76	4,553
2017-18	37	261	257	275	327	296	305	316	375	363	392	385	404	394	74	4,461
2018-19	37	261	269	270	286	343	309	310	319	376	360	385	381	400	73	4,379
2019-20	37	261	269	283	281	300	358	314	313	320	373	354	381	377	71	4,292

In Tables A5 and A6, the baseline enrollment projections were adjusted for the proposed market-rate and affordable housing units in Montgomery. In Table A5, the adjusted enrollment projections for full-day kindergarten are shown based on five years of historical data. These projections are a modification of the baseline enrollment projections shown in Table A3. Total enrollment is projected to decline and be 4,499 students in 2019-20, which would represent a loss of 253 students from the 2014-15 enrollment of 4,752 students.

Table A5
Adjusted Projected Grade PK-12 Enrollments with Full-Day Kindergarten for 2015-16 to 2019-20 Using Cohort-Survival Ratios and 5 Years of Historical Data

Year	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	SE	PK-12 Total
2015-16	37	247	310	284	289	311	378	368	404	406	425	410	420	434	80	4,803
2016-17	37	237	260	333	299	309	331	390	378	412	409	423	414	421	77	4,730
2017-18	37	246	249	278	348	318	328	341	399	385	414	406	426	414	75	4,664
2018-19	37	245	257	266	289	369	336	337	349	405	387	411	408	425	74	4,595
2019-20	37	244	255	272	277	305	388	344	343	353	406	384	412	407	72	4,499

In Table A6, the adjusted enrollment projections for full-day kindergarten are shown based on six years of historical data. These projections are a modification of the baseline enrollment projections shown in Table A4. Total enrollment is projected to decline and be 4,568 students in 2019-20, which would represent a loss of 184 students from the 2014-15 enrollment of 4,752 students.

Table A6
Adjusted Projected Grade PK-12 Enrollments with Full-Day Kindergarten for 2015-16 to 2019-20 Using Cohort-Survival Ratios and 6 Years of Historical Data

Year	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	SE	PK-12 Total
2015-16	37	266	310	283	291	310	377	368	403	405	423	409	416	433	78	4,809
2016-17	37	256	280	332	300	310	329	388	377	410	406	420	409	416	76	4,746
2017-18	37	266	269	298	350	319	328	338	396	382	410	402	419	408	74	4,696
2018-19	37	265	278	286	312	370	336	336	345	400	382	406	400	417	73	4,643
2019-20	37	264	276	294	300	328	388	343	341	348	399	378	403	398	71	4,568

Adjusted Projected Enrollment with Full-Day Kindergarten by Grade Configuration

In Table A7 following, historical and adjusted projected enrollments with full-day kindergarten are broken down by the current grade configurations in the Montgomery Township School District for each of the enrollment projection calculations.

For grades PK-2 at Orchard, enrollment is projected to increase for one or two years, depending on the projection, before reversing trend. Beginning in 2017-18, enrollment is projected to stabilize. The CSR method based on five and six years of historical data is projecting enrollment to be 833-896 students in 2019-20, which would represent a gain of 9-72 students from the 2014-15 enrollment of 824 students.

For grades 3-4 at Village, enrollment is projected to decrease in 2015-16 before reversing trend. After increasing for two to three years, depending on the projection, enrollment is again projected to decline near the end of the projection period. The CSR method based on five and six years of historical data is projecting enrollment to be 593-639 students in 2019-20, which would represent a loss of 8-54 students from the 2014-15 enrollment of 647 students.

For the Lower Middle School (grades 5-6), Upper Middle School (grades 7-8), and Montgomery High School (grades 9-12), full-day kindergarten will not have an impact on the enrollment in these schools, as the enrollments shown in Table A7 are identical to those shown earlier in Table 15.

Table A7
Adjusted Projected Enrollments with Full-Day Kindergarten
for Grades PK-2, 3-4, 5-6, 7-8, and 9-12
for Each Projection Method

HISTORICAL	PK-2		3-4		5-6		7-8		9-12	
2014-15	824		647		747		820		1,714	
PROJECTED	CSR 5-YR	CSR 6-YR	CSR 5-YR	CSR 6-YR	CSR 5-YR	CSR 6-YR	CSR 5-YR	CSR 6-YR	CSR 5-YR	CSR 6-YR
2015-16	905	924	613	613	752	751	819	816	1,714	1,705
2016-17	894	932	620	622	727	722	798	795	1,691	1,675
2017-18	836	896	678	681	675	671	792	786	1,683	1,662
2018-19	831	892	670	693	678	677	762	753	1,654	1,628
2019-20	833	896	593	639	737	736	704	697	1,632	1,600