STATISTICAL FORECASTING LLC

Demographic Study

for the

New Providence School District

May 2019

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Table of Contents

Executive Summary

Statistical Forecasting LLC ("Statistical Forecasting") completed a demographic study for the New Providence School District, projecting grade-by-grade enrollments from 2019-20 through 2023-24, a five-year period. In addition, the following tasks were completed:

- examined the district's historical enrollment trends, both districtwide and by grade configuration (PK-6, 7-8, 9-12)
- analyzed community population trends and age structure, fertility rates, and birth counts
- computed student yields by housing type (e.g., detached single-family, townhouse/condominium, and apartment)
- tabulated new housing starts and the impact on the school district.

Community Overview

In 2017, the Borough of New Providence ("New Providence") was estimated to have 13,308 residents according to the U.S. Census Bureau. Historically, the population grew more than five-fold from 1940-2010, with its greatest gain occurring in the 1950s (+203.0%) when the population tripled. After declines in the 1970s and 1980s, small gains in the population occurred in the 1990s and 2000s. Forecasts prepared by the North Jersey Transportation Planning Authority project the population to be 15,406 in 2040, which would be a 15.8% increase from the 2017 population estimate and a gain of nearly 2,100 persons.

While Whites are the largest race in New Providence, their population declined slightly from 2000 to 2010. In 2010, New Providence was 86.0% White as compared to 89.8% in 2000, which is a loss of 3.8 percentage points. Asians were the second-largest race at 9.8% in 2010.

With respect to nativity, 15.9% of New Providence residents are foreign-born, which is less than that of New Jersey (22.1%). India is the largest source, accounting for 22.0% of the foreign-born population, while China is the second-largest source at 16.1%.

Historical Enrollment Trends

Historical enrollments were analyzed from 2009-10 through 2018-19, a 10-year period. Enrollment (PK-12) slowly increased through 2015-16, peaking at 2,386 students, before stabilizing in the last three years. In 2018-19, enrollment is 2,382, which is a gain of 180.5 students (+8.2%) from the 2009-10 enrollment of 2,201.5.

Kindergarten replacements were analyzed to determine whether there was any relationship between overall enrollment change and kindergarten replacement, which is the numerical difference between the number of graduating 12th graders and the number of entering kindergarten students. Since the district had a half-day kindergarten program prior to 2013-14, it is more appropriate to compare the twelfth grade student population to the first grade student population in those years, 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. The district has experienced

negative kindergarten/first grade replacement in five of the last nine years. Negative kindergarten replacement occurs when the number of graduating 12th grade students is larger than the number of kindergarten students replacing them in the next year. In the last five years, the district has lost an average of 27 students per year due to kindergarten replacement. However, during this timeframe, the district's losses due to negative kindergarten/first grade 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.) as eight of the thirteen average survival ratios in the five-year trend were above 1.000.

Birth Counts

The number of births in New Providence was used to project kindergarten enrollments. After peaking at 180 births in 2005, birth counts have been trending lower. In 2017, there were 127 births, which are 53 fewer births than the count in 2005. However, it appears that the birth count in New Providence may be stabilizing, as the annual number of births ranged from 124-127 in the last three years.

In comparing births from both 2004 and 2017 at the elementary attendance area level, the greatest number of births in 2004 occurred in the Salt Brook attendance area. However, in 2017, the greatest number of births occurred in the Roberts attendance area. In the last seven years, birth counts have been highest in the Roberts attendance area.

Regarding fertility rates, New Providence's rate is above the fertility rate in both Union County and the State of New Jersey.

The 2000 and 2010 age-sex diagrams for New Providence were created to show the percentage of males and females in each age class. The largest number of individuals in 2000 was aged 35-39 for females and 40-44 for males. As these individuals advance in age, the largest cohort in 2010 was aged 45-49 for females and 50-54 for males. From 2000 to 2010, the greatest declines, both in number and percentage points, occurred in the 30-34 age group for males and 35-39 age group for females. There was also a significant decline in the 30-34 age group for females, which corresponds to the ages (30-39) when many females have their children. The greatest gains, both in number and percentage points, occurred in the 50-54 age group for both genders. The declining number of females in the 30-34 and 35-39 age groups has likely led to the declining birth rate in New Providence.

Potential New Housing

New Providence municipal representatives provided information regarding current and future residential development in the community. In February 2019, the Borough Council approved a settlement agreement regarding its affordable housing obligation and potential residential developments to address the obligation. There is the potential for 814 non age-restricted housing units in New Providence (in total, there are 1,209 age-restricted and non age-restricted units that are proposed), all of which would be in the Roberts attendance area near the Murray Hill train station.

An estimate was made of the number of public school children that could potentially come from the proposed housing developments. **It should be clearly stated that this is a rough estimate, as specific details of the proposed developments, such as bedroom distribution and housing type, were unavailable, which are needed to compute the estimated number of public school children.**

A total of 222 public school children are projected to be generated from the new housing developments. Due to the unavailability of the bedroom distributions and housing type for each development, as well as the timeline of construction and occupation, the baseline enrollment projections were not adjusted for the additional children anticipated from these developments. The total number of new students has been provided to give the Board an estimate of the potential impact on the district.

However, it is possible that the number of students coming from these developments might be lower, as the proposed developments may be considered to be Transit-Oriented Developments ("TOD") due to their proximity to the Murray Hill train station. Using student yields for TODs, a total of 144 public school children would be generated, which is lower than the 222 children estimated previously.

Home Sales

Home sales in New Providence were analyzed from 2001-2018. After peaking at 246 sales in 2004, the number of home sales in New Providence slowly declined. Home sales hit a low in 2009 and 2010 (118 sales each year) due to the housing market crash and banking crisis. Since then, home sales have rebounded. From 2014-2018, the annual number of sales has been fairly stable, ranging from 188-198. Despite the increase in sales since 2010, the number of sales in 2018 (188) is still below the peak total that occurred in 2004.

Enrollment Projections

Enrollment projections were calculated at the school level and were computed for each grade from the 2019-20 school year through the 2023-24 school year. Total enrollment (PK-12) is projected to be fairly stable throughout the projection period, ranging from 2,383-2,400. In 2023-24, enrollment is projected to be 2,383, which would be nearly identical to the 2018-19 enrollment of 2,382.

At the elementary level containing grades PK-6, enrollment is projected to decline throughout the projection period. In 2023-24, enrollment is projected to be 1,284, which would represent a loss of 73 students from the 2018-19 enrollment of 1,357.

For grades 7-8 at New Providence Middle School, enrollment is projected to be fairly stable throughout the projection period, ranging from 409-418. In 2023-24, enrollment is projected to be 416, which would be slightly higher than the 2018-19 enrollment of 411.

Finally, for grades 9-12 at New Providence High School, enrollment is projected to increase for the first four years of the projection period before stabilizing. In 2023-24,

enrollment is projected to be 683, which would be a gain of 69 students from the 2018-19 enrollment of 614.

Building Capacities

The capacities of the school buildings in the district were compared to the current enrollments in 2018-19 and the enrollment projections in the 2023-24 school year. Using the building capacities, 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").

At the elementary level, Roberts is slightly above capacity (-18) currently while Salt Brook has a surplus of 39 seats. Due to a projected decline in enrollment in each school, Roberts is projected to be near capacity (+1) while Salt Brook is projected to have an increase in surplus seating (+93).

At New Providence Middle School and New Providence High School, which share the same building, there are currently 110 unhoused students. By 2023-24, the number of unhoused students in the building is projected to increase to 184 due to a projected gain in enrollment.

Final Thoughts

In the last four years, total enrollment (PK-12) has been fairly stable in the New Providence School District. While this trend is projected to continue for the next five years, different enrollment patterns are projected at the grade configuration level. In the elementary grades, due to a declining birth rate, fewer children are likely to enter kindergarten, which will lead to declining enrollment. However, the larger cohorts currently in the middle school grades will advance into high school leading to an enrollment increase in that configuration.

Regarding the potential new housing in New Providence, the district could gain 222 children, with the greatest impact occurring in the Roberts attendance area. However, most of the new housing is not likely to occur within the enrollment projection timeframe of the next five years. Therefore, it is recommended that the Board continue to monitor the status of all proposed developments to determine the future impact on the school district.

Introduction

Statistical Forecasting LLC ("Statistical Forecasting") completed a demographic study for the New Providence School District, projecting grade-by-grade enrollments from 2019-20 through 2023-24, a five-year period. In addition, the following tasks were completed:

- examined the district's historical enrollment trends, both districtwide and by grade configuration (PK-6, 7-8, 9-12)
- analyzed community population trends and age structure, fertility rates, and birth counts
- computed student yields by housing type (e.g., detached single-family, townhouse/condominium, and apartment)
- tabulated new housing starts and the impact on the school district.

Population Trends in the Borough of New Providence

Located in Union County, the Borough of New Providence ("New Providence") contains a land area of approximately 3.64 square miles, with an additional 0.02 square miles of water area. In the 2010 Census, New Providence had 12,171 residents, which is 3,343.7 persons per square mile. Historical and projected populations for New Providence from 1940-2040 are shown in Table 1 and Figure 1. From 1940-1970, the population grew more than five-fold, with its greatest gain occurring in the 1950s (+203.0%) when the population tripled. After declines in the 1970s and 1980s, small gains in the population occurred in the 1990s and 2000s.

Table 1
Historical and Projected Populations for New Providence
1940-2040

Year	Population	Percent Change
Historical[1]		
1940	2,374	N/A
1950	3,380	+42.4%
1960	10,243	+203.0%
1970	13,796	+34.7%
1980	12,426	-9.9%
1990	11,439	-7.9%
2000	11,907	+4.1%
2010	12,171	+2.2%
2017 (est.)	13,308	+9.3%
Projected[2]		
2020	12,831	-3.6%
2030	13,885	+8.2%
2040	15,406	+11.0%

Sources: [1]United States Census Bureau
[2]North Jersey Transportation Planning Authority, Inc. (2013)

In addition, a population estimate for 2017 is provided in Table 1. The estimated population in 2017 is 13,308, which is a gain of 1,137 persons from 2010. The Census Bureau publishes estimates every July 1st following the last decennial census and are computed using the decennial census base counts, number of births and deaths in a community, and migration data (both domestic and international).

Population projections from 2020-2040, which were prepared by the North Jersey Transportation Planning Authority ("NJTPA"), indicate that the population will continue to increase. However, as the 2020 population estimate has already been exceeded, NJTPA likely needs to revise its projections to reflect the current trend. As it stands now, the population in New Providence is projected to be 15,406 in 2040, which would be a 15.8% increase from the 2017 population estimate and a gain of nearly 2,100 persons.

Figure 1
Historical and Projected Populations for New Providence
1940-2040
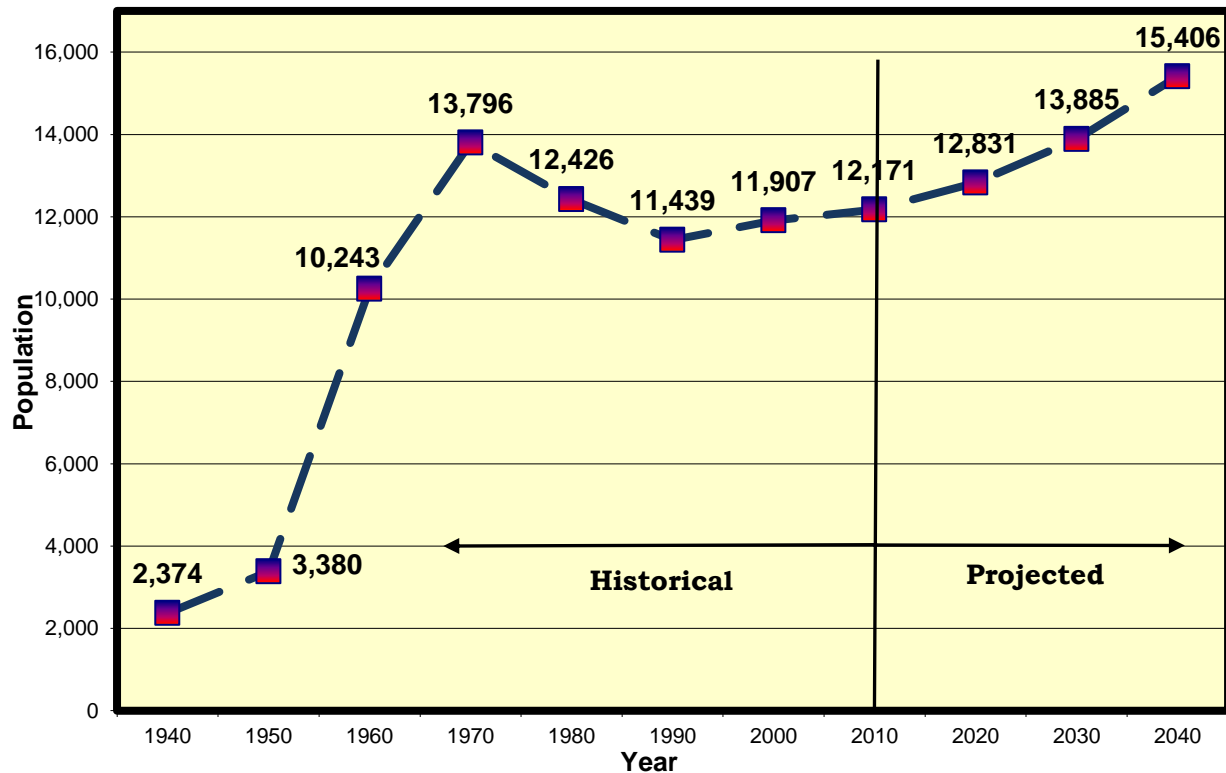
New Providence Demographic Profile

In Table 2 following, selected demographic characteristics of New Providence are compared from the 2000 and 2010 Censuses and the 2013-2017 American Community Survey ("ACS"). 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 communities with small populations such as New Providence, ACS data represent a sample collected over a five-year time period, where the estimates represent the <u>average</u> characteristics between January 2013 and December 2017. 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 2013 to 2017, 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 New Providence, their population declined slightly from 2000 to 2010. In 2010, New Providence was 86.0% White as compared to 89.8% in 2000, which is a loss of 3.8 percentage points. Asians were the second-largest race at 9.8% in 2010, which is a gain of 2.2 percentage points from the 2000 percentage (7.6%). 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 increased from 3.5% in 2000 to 6.4% in 2010.

Regarding nativity, 15.9% of New Providence's residents were foreign-born in the 2013-2017 ACS as compared to 17.9% in 2000, a loss of 2.0 percentage points. As a point of comparison, New Jersey's foreign-born resident percentage was 22.1% in the 2013-2017 ACS, which is higher than that of New Providence. 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 11.3% and 11.0%, respectively, of the foreign-born population. In the 2013-2017 ACS, India is now the largest source and accounts for a larger share (22.0%) of the foreign-born population while China is the second-largest source at 16.1%.

The median age in New Providence has increased from 39.0 years in 2000 to 41.0 years in 2010, which is higher than the median age in New Jersey (39.0 years). During the same time period, the percentage of people under the age of 18 years, which corresponds predominantly to school-age children, increased slightly from 26.3% to 27.3%.

Regarding educational attainment for adults aged 25 and over, 68.0% of the population had a bachelor's degree or higher in the 2013-2017 ACS as compared to 58.1% in 2000, which is a gain of 9.9 percentage points. New Providence is a highly-educated population, as its percentage of persons having a bachelor's degree or higher is much greater than the state of New Jersey (38.1%). Persons with graduate or professional degrees increased slightly from 27.6% to 28.6% during this time period.

Table 2
Selected Demographic Characteristics of New Providence

Race Origin	2000 Census	2010 Census 2013-2017 ACS
White	89.8%	86.0%
Black or African American	0.9%	1.3%
American Indian and Alaska Native	0.0%	0.1%
Asian	7.6%	9.8%
Native Hawaiian and Other Pacific Islander	0.0%	0.0%
Other Race	0.7%	1.2%
Two or more Races	1.0%	1.6%
Total	**100.0%[1]**	**100.0%[1]**
Hispanic Origin	3.5%	6.4%
Place of Birth		
Foreign-Born	17.9%	15.9%
Age		
Under 18	26.3%	27.3%
18-64	58.4%	58.8%
65 and over	15.3%	13.9%
Median age	39.0 years	41.0 years
Educational Attainment		
Bachelor's degree or higher	58.1%	68.0%
Graduate or professional degree	27.6%	28.6%
Income		
Median family income	$105,013	$165,938
% of Persons in Poverty aged 5-17	1.4%	1.0%
Housing Units		
Total number	4,485	4,537[2]
Occupied units	4,404 (98.2%)	4,408 (97.2%)
Owner-occupied units	3,356 (76.2%)	3,375 (76.6%)
Renter-occupied units	1,048 (23.8%)	1,033 (23.4%)
Median value of an owner-occupied unit	$317,100	$583,200
Average household size	2.67	2.73
Housing Type		
Total number	4,485	4,639[2]
1-unit, attached or detached	3,448 (76.9%)	3,523 (75.9%)
Two units	220 (4.9%)	246 (5.3%)
Three or four units	300 (6.7%)	280 (6.0%)
Five to nine units	157 (3.5%)	148 (3.2%)
10 to 19 units	178 (4.0%)	202 (4.4%)
20 or more units	182 (4.1%)	240 (5.2%)
Mobile home.	0 (0.0%)	0 (0.0%)

Sources: American Community Survey (2013-2017), United States Census (2000 and 2010)

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

[2]Total number differs as Housing Units are from the 2010 Census while Housing Type data are from the 2013-2017 ACS.

Median family income increased from $105,013 in 2000 to $165,938 in the 2013-2017 ACS, a gain of 58.0%. By comparison, median family income in New Jersey is $94,337, which is significantly lower than that of New Providence. During this time period, the percentage of school-age children (5-17) that are in poverty declined slightly from 1.4% to 1.0%.

Regarding housing, there were 4,537 housing units in New Providence in 2010, which is a gain of 52 housing units (+1.2%) from 2000. From 2000 to 2010, the overall occupancy rate decreased slightly from 98.2% to 97.2%. Renter-occupied units accounted for 23.4% of the occupied units in 2010, which is similar to the 2000 percentage (23.8%). In the last decade, the average household size increased slightly from 2.67 to 2.73 persons. Finally, the median home price of an owner-occupied unit in the 2013-2017 ACS was $583,200, which is a gain of 83.9% from the value reported in 2000 ($317,100).

With respect to housing type, 75.9% of homes are one-unit, either attached or detached, which is a 1.0 percentage-point decline from 2000. Homes with three to four units, which typically contain renters, were the second-largest type of housing in the 2013-2017 ACS, consisting of 6.0% of the housing stock. In general, there has been little change in the housing distribution since 2000.

District Overview

The New Providence School District has four (4) schools educating children in grades pre-kindergarten through twelve. Children attend one of two elementary schools for grades PK-6: Allen W. Roberts Elementary School ("Roberts") or Salt Brook Elementary School ("Salt Brook"). New Providence Middle School educates children in grades 7-8 while New Providence High School educates children in grades 9-12. In Figure 2, the location of each of the district's schools is shown with respect to the municipal boundaries. Figure 3 shows the attendance areas of the two elementary schools. According to the district's architect[1], total educational capacity in the district is 2,281 using District Practices methodology and 2,293 using Facilities Efficiency Standards ("FES") methodology. The District Practices methodology considers how the building is utilized by the school district and its targeted student-teacher ratios. This method does not take into account square footage allowances per student, which is the FES methodology. A comparison of each school's capacity to current and projected enrollments 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.

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[1] As computed by Settembrino Architects, dated April 1, 2016.

Figure 2
School Locations – New Providence School District

Figure 3
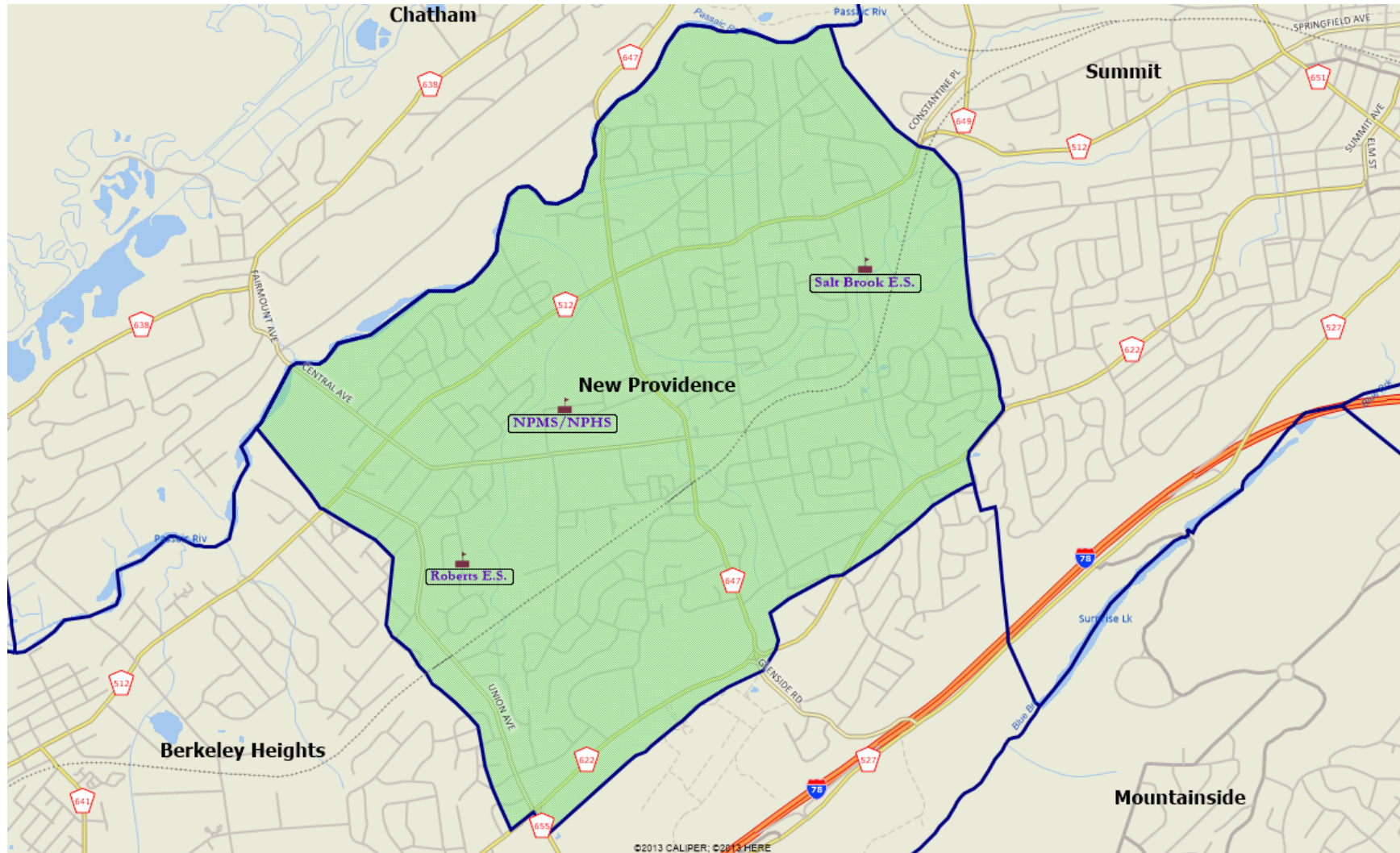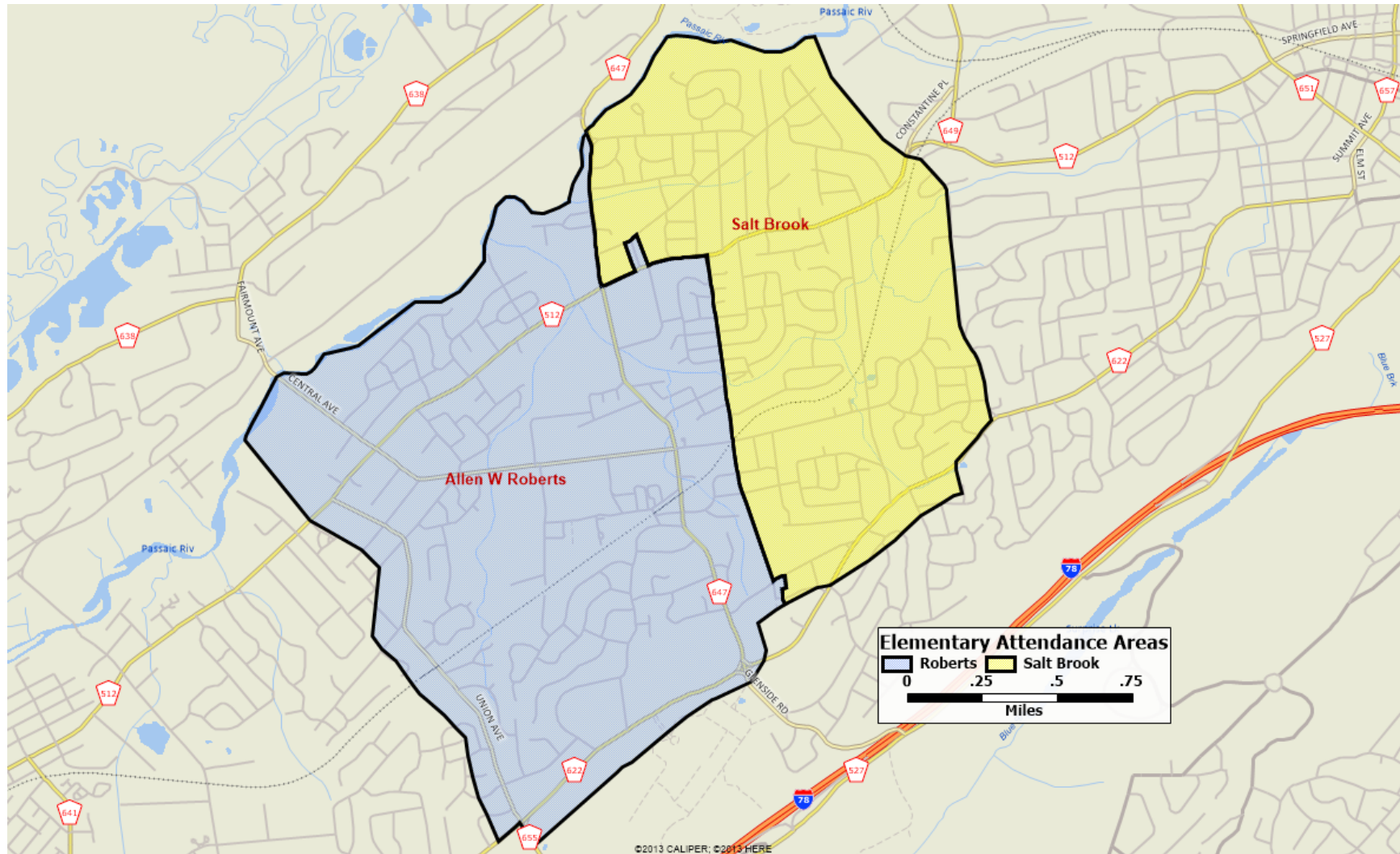**Elementary School Attendance Areas – New Providence School District**

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 1.00 indicates stable enrollment, less than 1.00 indicates declining enrollment, while greater than 1.00 indicates increasing enrollment. If, for example, a school district had 100 fourth graders and the next year only had 95 fifth graders, the survival ratio would be 0.95.

The CSR method assumes that what happened in the past will also happen in the future. In essence, this method provides a linear projection of the population. The CSR method is most applicable for districts that have relatively stable increasing or decreasing trends without any major unpredictable fluctuations from year to year. In school districts encountering rapid growth not experienced historically (a change in the historical trend), the CSR method must be modified and supplemented with additional information. 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 New Providence School District from 2009-10 through 2018-19, a ten-year period, are shown in Figure 4 and Table 3. Enrollment (PK-12) slowly increased through 2015-16, peaking at 2,386 students, before stabilizing in the last three years. In 2018-19, enrollment is 2,382, which is a gain of 180.5 students (+8.2%) from the 2009-10 enrollment of 2,201.5.

Figure 4
New Providence School District Historical Enrollments
2009-10 to 2018-19
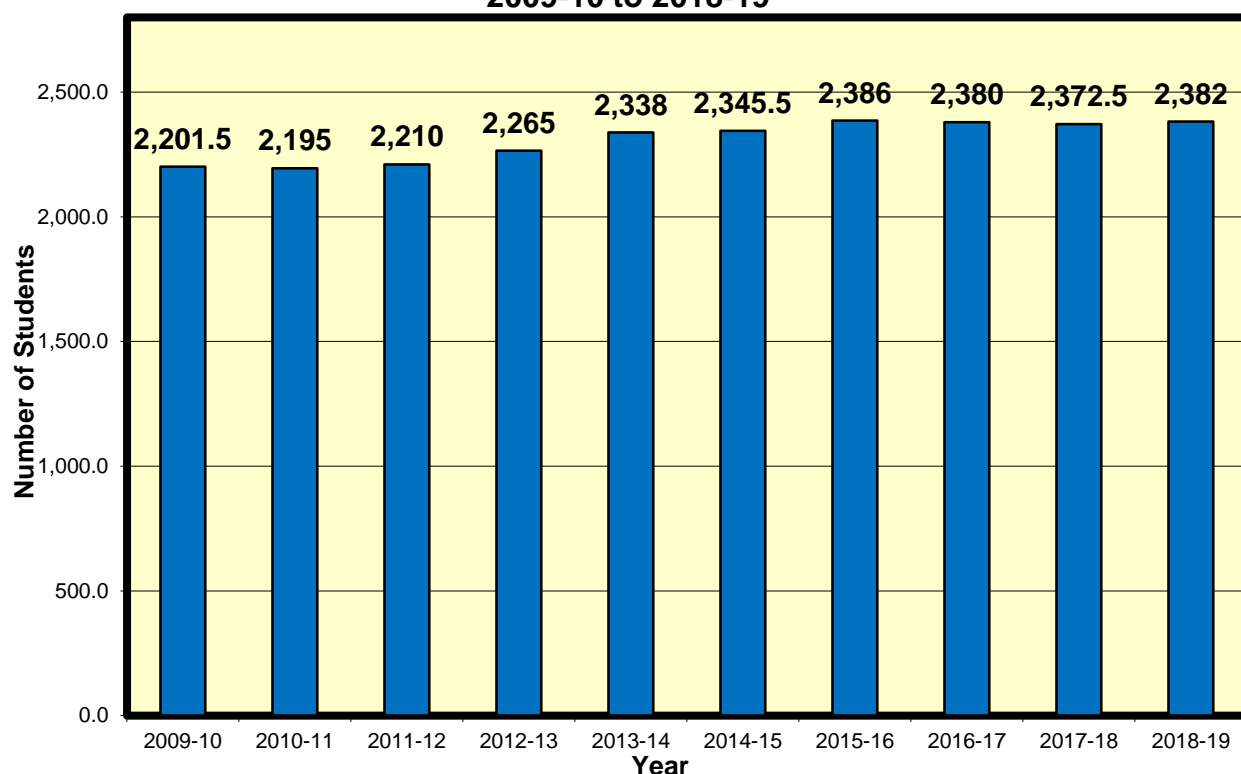
Table 4 following shows computed grade-by-grade survival ratios from 2009-10 to 2018-19. In addition, the average, minimum, and maximum survival ratios are shown for the past ten years along with the five-year averages, which were used to project enrollments. The average survival ratios also indicate the net migration by grade, where values over 1.000 reflect net inward migration and values below 1.000 reflect net outward migration. Eight of the thirteen average survival ratios (five-year average) were above 1.000, indicating a general inward migration of students, particularly in the elementary and middle school grades. Three of the five ratios that were below 1.000 were in the high school grades. In comparing the five-year averages with the ten-year averages, the most notable difference was for kindergarten-to-first grade, which experienced an increase in its ratios in the near term after the district's change to a full-day kindergarten program.

Table 3
New Providence School District Historical Enrollments
2009-10 to 2018-19

Year[1]	PK RE[2]	K	1	2	3	4	5	6	7	8	9	10	11	12	SE[3]	PK-6 Total	7-8 Total	9-12 Total	PK-12 Total
2008-09	35	130	171	165	183	167	190	180	156	173	148	150	174	150.5	29	1,247	332	622.5	2,201.5
2009-10	23	136	165	175	173	184	173	182	177	160	157	145	146	170	29	1,239	337	619	2,195
2010-11	48	162	167	170	175	171	195	173	175	179	143	158	144	143	7	1,261	354	595	2,210
2011-12	52	126	199	182	165	185	173	192	167	184	161	145	155	141	38	1,297	356	612	2,265
2012-13	58	151	171	201	183	169	187	180	195	172	173	164	145.5	157.5	31	1,318	374	646	2,338
2013-14	54	131	183	186	205	185	168	182	177	196	156	177	172.5	142	31	1,307	379	659.5	2,345.5
2014-15[4]	37	143	187	178	196	201	180	172	183	181	171	160	173	165.5	58.5	1,343	367	676	2,386
2015-16	33	116	199	187	186	194	204	193	174	182	149	173	156	171	63	1,362	361	657	2,380
2016-17	23	120	180	200	191	197	196	201	201	179	144	151	169	158	62.5	1,357	386	629.5	2,372.5
2017-18	25	151	179	179	204	188	198	196	201	204	155	142	149	164	47	1,357	411	614	2,382

Notes: [1]Data were provided by the New Jersey Department of Education (http://www.nj.gov/education/data/enr/) and the New Providence School District.
[2]Pre-kindergarten regular education enrollment
[3]Self-contained special education enrollment/Ungraded Students

Table 4
New Providence School District Historical Survival Ratios
2009-10 to 2018-19

Progression Years	B-K	K-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
2009-10 to 2010-11	0.7556	1.2692	1.0234	1.0485	1.0055	1.0359	0.9579	0.9833	1.0256	0.9075	0.9797	0.9733	0.9770
2010-11 to 2011-12	0.9939	1.2279	1.0303	1.0000	0.9884	1.0598	1.0000	0.9615	1.0113	0.8938	1.0064	0.9931	0.9795
2011-12 to 2012-13	0.8289	1.2284	1.0898	0.9706	1.0571	1.0117	0.9846	0.9653	1.0514	0.8994	1.0140	0.9810	0.9792
2012-13 to 2013-14	0.9805	1.3571	1.0101	1.0055	1.0242	1.0108	1.0405	1.0156	1.0299	0.9402	1.0186	1.0034	1.0161
2013-14 to 2014-15	0.8506	1.2119	1.0877	1.0199	1.0109	0.9941	0.9733	0.9833	1.0051	0.9070	1.0231	1.0518	0.9759
2014-15 to 2015-16	0.8720	1.4275	0.9727	1.0538	0.9805	0.9730	1.0238	1.0055	1.0226	0.8724	1.0256	0.9774	0.9594
2015-16 to 2016-17	0.9206	1.3916	1.0000	1.0449	0.9898	1.0149	1.0722	1.0116	0.9945	0.8232	1.0117	0.9750	0.9884
2016-17 to 2017-18	0.8633	1.5517	1.0050	1.0214	1.0591	1.0103	0.9853	1.0415	1.0287	0.7912	1.0134	0.9769	1.0128
2017-18 to 2018-19	0.9618	1.4917	0.9944	1.0200	0.9843	1.0051	1.0000	1.0000	1.0149	0.8659	0.9861	0.9868	0.9704
Maximum Ratio	0.9939	1.5517	1.0898	1.0538	1.0591	1.0598	1.0722	1.0415	1.0514	0.9402	1.0256	1.0518	1.0161
Minimum Ratio	0.7556	1.2119	0.9727	0.9706	0.9805	0.9730	0.9579	0.9615	0.9945	0.7912	0.9797	0.9733	0.9594
Avg. 5-Year Ratios	0.8937	1.4656	0.9930	1.0350	1.0034	1.0008	1.0203	1.0146	1.0152	0.8382	1.0092	0.9790	0.9828
Avg. 10-Year Ratios	0.8919	1.3508	1.0237	1.0205	1.0111	1.0128	1.0042	0.9964	1.0205	0.8779	1.0087	0.9910	0.9843
Diff. Between 5-Year and 10-Year Ratios	+0.0018	+0.1148	-0.0307	+0.0145	-0.0077	-0.0120	+0.0162	+0.0182	-0.0053	-0.0397	+0.0005	-0.0120	-0.0015

Notes: Blue shaded cells reflect birth-to-kindergarten survival ratios for a full-day kindergarten program
Green shaded cells reflect survival ratios from full-day kindergarten to first grade

Factors related to inward migration include families with school-age children purchasing an existing home or new housing unit. The reasons for families moving into a community vary. For instance, a family could move into New Providence for economic reasons and proximity to employment. 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, or to attend a different public school district. In the case of the New Providence School District, 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 3 and Figure 5 by the district's current grade configuration (PK-6, 7-8, and 9-12). Self-contained special education/ungraded students were incorporated into the totals by grade configuration. For grades PK-6, enrollments steadily increased through 2016-17, peaking at 1,362 students, before stabilizing. In 2018-19, enrollment is 1,357, which is a gain of 110 students from the 2009-10 enrollment of 1,247.

For grades 7-8 at New Providence Middle School, enrollments have been slowly increasing, in general, over the last decade. In 2018-19, enrollment is 411, which is a gain of 79 students from the 2009-10 enrollment of 332.

At New Providence High School (grades 9-12), enrollments have been fairly stable in the last ten years, ranging from 595-676. In 2018-19, enrollment is 614.

Figure 5
New Providence School District Historical Enrollments by Level
2009-10 to 2018-19
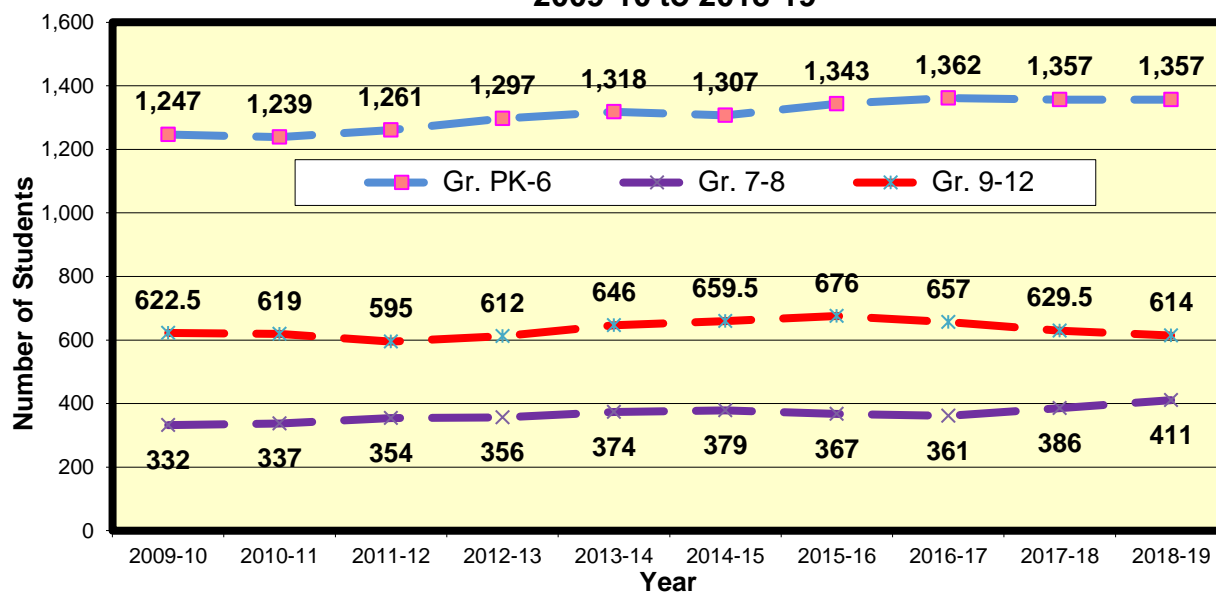
Kindergarten and First Grade Replacement

Kindergarten replacements were analyzed to determine whether there was any relationship between overall enrollment change and kindergarten replacement, which is the numerical difference between the number of graduating 12th graders and the number of entering kindergarten students. Since the district had a half-day kindergarten program prior to 2013-14, it is more appropriate to compare the twelfth grade student population to the first grade student population in those years, 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. The district has experienced negative kindergarten/first grade replacement in five of the last nine years. Negative kindergarten replacement occurs when the number of graduating 12th grade students is larger than the number of kindergarten students replacing them in the next year. Positive kindergarten replacement occurs when the number of graduating 12th grade students is less than the number of kindergarten students entering the district in the next year. As shown in Figure 6, negative kindergarten/first grade replacement has ranged from 3-51 students per year while positive kindergarten/first grade replacement has ranged from 1-56 students per year. In 2018-19, there was a loss of seven (7) students due to kindergarten replacement, as 158 twelfth graders graduated in 2017-18 and were replaced by 151 kindergarten students in 2018-19. In the last five years, the district has lost an average of 27 students per year due to kindergarten replacement.

Figure 6
New Providence School District
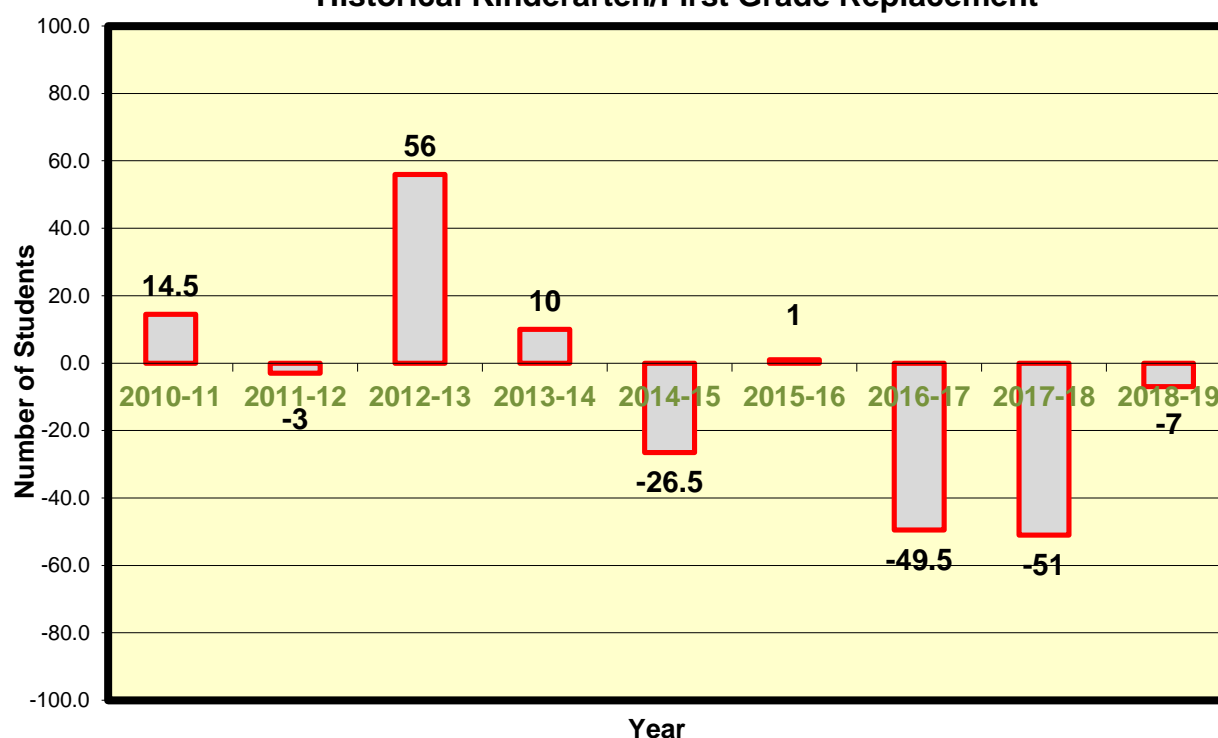**Historical Kinderarten/First Grade Replacement**

Figure 7 shows the annual change in total enrollment compared to kindergarten/first grade replacement. As the figure demonstrates, there appears to be a strong relationship, statistically speaking, between the overall change in enrollment and kindergarten/first grade replacement. Although this data represents a small sample, the correlation coefficient between the two variables was 0.67. Correlation coefficients measure the relationship or association between two variables; this does not imply that there is cause and effect between the two variables. Other variables, known as lurking variables, may have an effect on the true relationship between kindergarten/first grade replacement and total enrollment change. Negative correlation coefficients indicate that as one variable is increasing (decreasing), the other variable is decreasing (increasing). Positive correlation coefficients indicate that as one of the variables increases (decreases), the other variable increases (decreases) as well. The computed linear correlation coefficient is always between -1 and +1. Values near -1 or +1 indicate a strong linear relationship between the variables while values near zero indicate a weak linear relationship. Based on the correlation of 0.67, there appears to be a strong relationship between enrollment change and kindergarten/first grade replacement in the school district in the last nine years.

In the last five years, the district's losses due to negative kindergarten/first grade 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.). This was confirmed previously as eight of the thirteen average survival ratios in the five-year trend were above 1.000.

Figure 7
Comparison of PK-12 Enrollment Change
and Kindergarten/First Grade Replacement
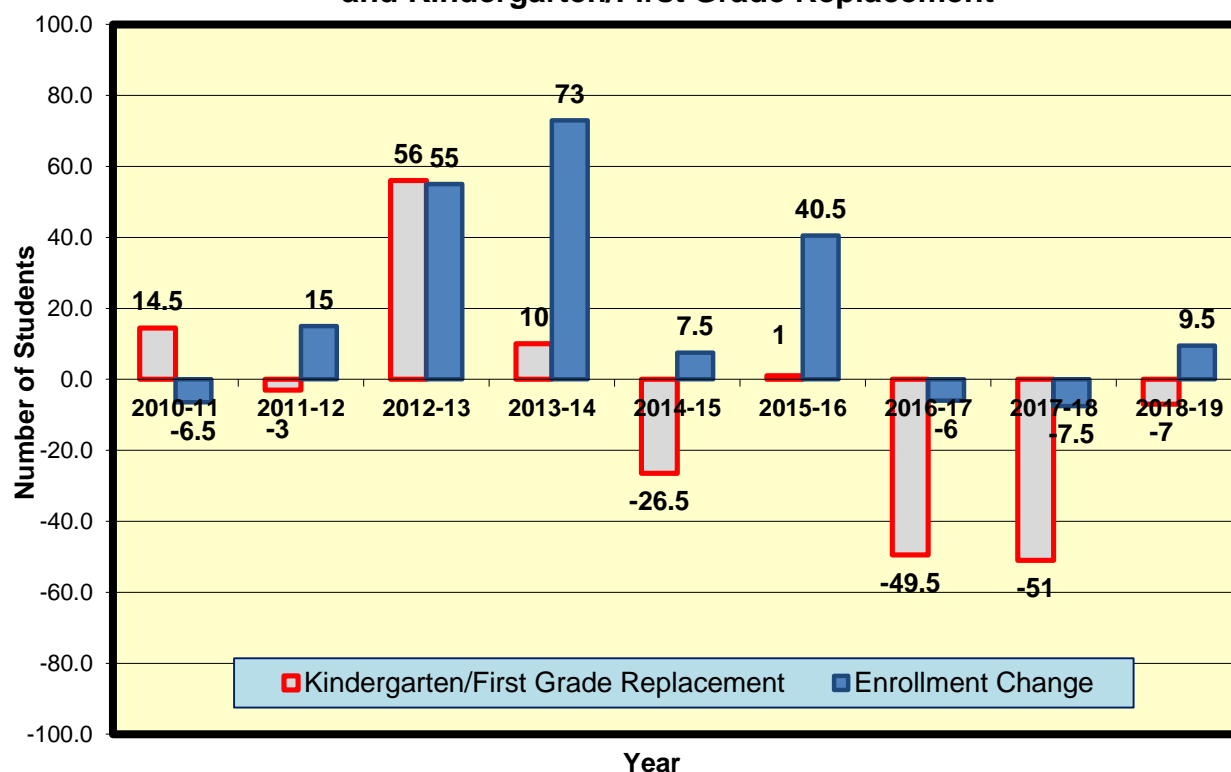
Birth Data

Birth data were needed to compute kindergarten enrollments, which were calculated as follows. Birth data, which are lagged five years behind their respective kindergarten classes, were used to calculate the survival ratio for each birth-to-kindergarten cohort. For instance, in 2013, there were 157 births in New Providence. Five years later (the 2018-19 school year), 151 children enrolled in kindergarten, which is equal to a survival ratio of 0.962 from birth to kindergarten. Birth counts and birth-to-kindergarten survival ratios are displayed in Table 5. Values greater than 1.000 indicate that some children are born outside of a community's boundaries and are attending kindergarten in the school district five years later, i.e., an inward migration of children. 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 5
Birth Counts and Historical Birth-to-Kindergarten Survival Ratios in the New Providence School District

Birth Year[1]	Number of Births New Providence	Kindergarten Students 5 Years Later	Birth-to-Kindergarten Survival Ratio
2004	151	130	0.861
2005	180	136	0.756
2006	163	162	0.994
2007	152	126	0.829
2008	154	151	0.981
2009	154	131	0.851
2010	164	143	0.872
2011	126	116	0.921
2012	139	120	0.863
2013	157	151	0.962
2014	109	N/A	N/A
2015	125	N/A	N/A
2016	124	N/A	N/A
2017	127	N/A	N/A

Note: [1]Birth data were provided by the New Jersey Center for Health Statistics from 2004-2017. Blue shaded areas reflect implementation of a full-day kindergarten program.

Birth-to-kindergarten survival ratios in the district have been below 1.000 in each of the last ten years. The effect on the district's birth-to-kindergarten survival ratios after changing from a half-day to a full-day kindergarten program in 2013-14 (shaded blue in Table 5) has been negligible. Birth-to-kindergarten survival ratios ranged from 0.756-0.994 (average = 0.860) with the half-day program and ranged from 0.851-0.981 (average = 0.908) after the implementation of the full-day program. While the average birth-to-kindergarten survival ratios have increased slightly, it is not as significant in comparison to many other school districts when this program change occurs. This is evident in the kindergarten-to-first grade ratios, which typically decline after implementation of a full-day kindergarten program, as more children are now attending kindergarten in the school district. However, as shown previously in Table 4, kindergarten-to-first grade ratios have actually *increased* since the program's implementation, indicating that many parents are electing not to send their child to the full-day kindergarten program.

Geocoded birth data were provided by the New Jersey Center for Health Statistics ("NJCHS") from 2004-2017 by assigning geographic coordinates to a birth mother based on her street address. Births for 2018 were not yet available. Since the NJCHS did not have geocoded birth data for 2018, an estimate was formulated by averaging historical births. Birth counts were needed for 2018 since this cohort will become the kindergarten class of 2023.

After peaking at 180 births in 2005, birth counts have been trending lower as shown in Figure 8. In 2017, there were 127 births, which are 53 fewer births than the count in 2005. However, it appears that the birth count in New Providence may be stabilizing, as the number of births ranged from 124-127 in the last three years.

Figure 8
New Providence Historical Birth Counts
2004-2017
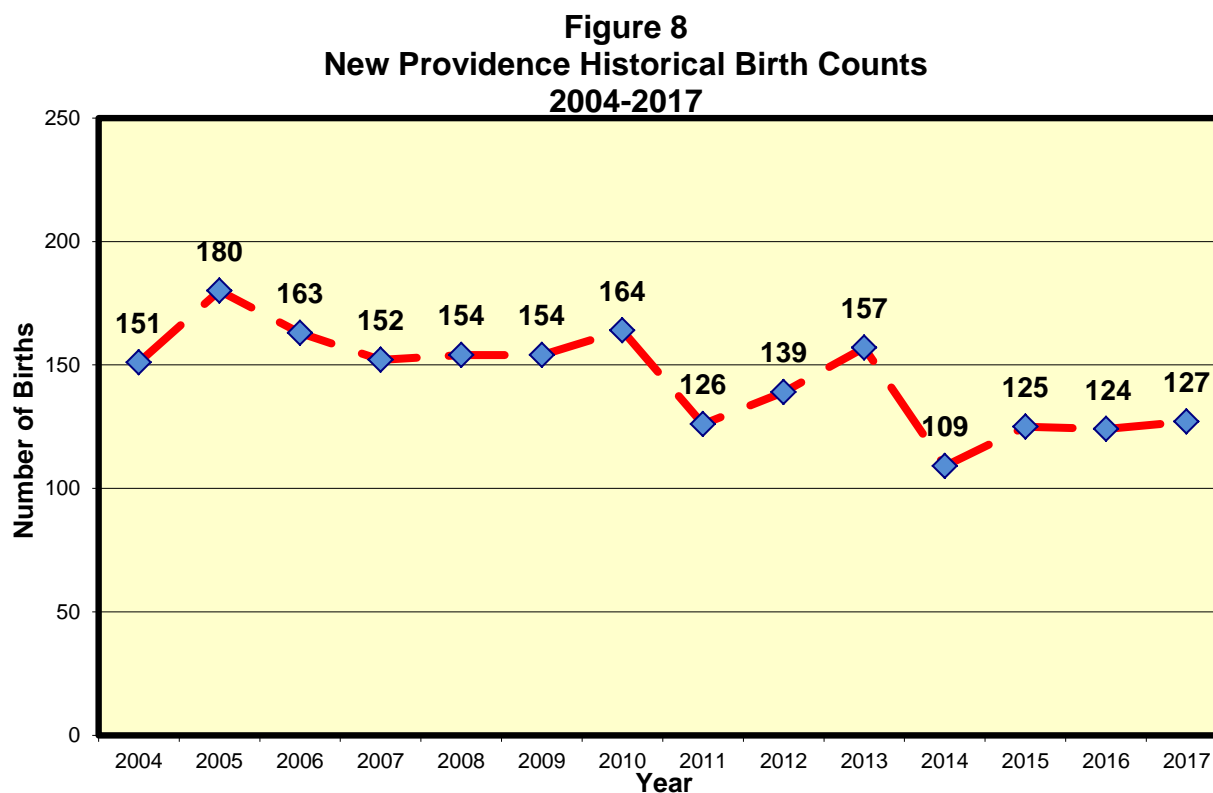
Using mapping software, elementary school attendance area boundaries, and NJCHS birth data by Census blocks, the number of births from 2004-2017 was determined for each elementary school attendance area and is displayed in Table 6. In some instances, the address of the mother within New Providence was unknown. For the purposes of projecting enrollments, the unknown births were redistributed into the two elementary attendance areas using proportional allocations of the births in each school attendance area with respect to the total number of births.

Table 6
Births by Elementary School Attendance Area
in the New Providence School District
2004-2017

Birth Year	Roberts	Salt Brook	Unknown
2004	70	81	0
2005	83	94	3
2006	86	74	3
2007	83	66	3
2008	72	79	3
2009	68	80	6
2010	78	78	8
2011	71	52	3
2012	69	63	7
2013	91	62	4
2014	61	43	5
2015	64	53	8
2016	73	45	6
2017	65	55	7
Total 2004-2017	**1,034**	**925**	
Difference 2004-2017	**-5**	**-26**	

In 2004, the greatest number of births occurred in the Salt Brook attendance area. However, in 2017, the greatest number of births occurred in the Roberts attendance area. In the last seven years, birth counts have been highest in the Roberts attendance area. From 2004-2017, the Roberts attendance area had the greatest number of births while the Salt Brook attendance area had the largest decline in the number of births when comparing births in 2017 to 2004.

Figures 9 and 10 show the specific location(s) where birth counts are changing, as births by census block were mapped for 2004 and 2017. Census blocks are the smallest geographic unit in which data are collected by the Census Bureau. Blocks are typically bound by streets, roads, or bodies of water. In 2004, the greatest number of births, which are shaded red, occurred in the northern section of New Providence, corresponding to the Salt Brook attendance area. However, in 2017, none of the blocks were shaded red (using the same scale) and few were shaded orange, signifying the decline in the birth rate in New Providence.

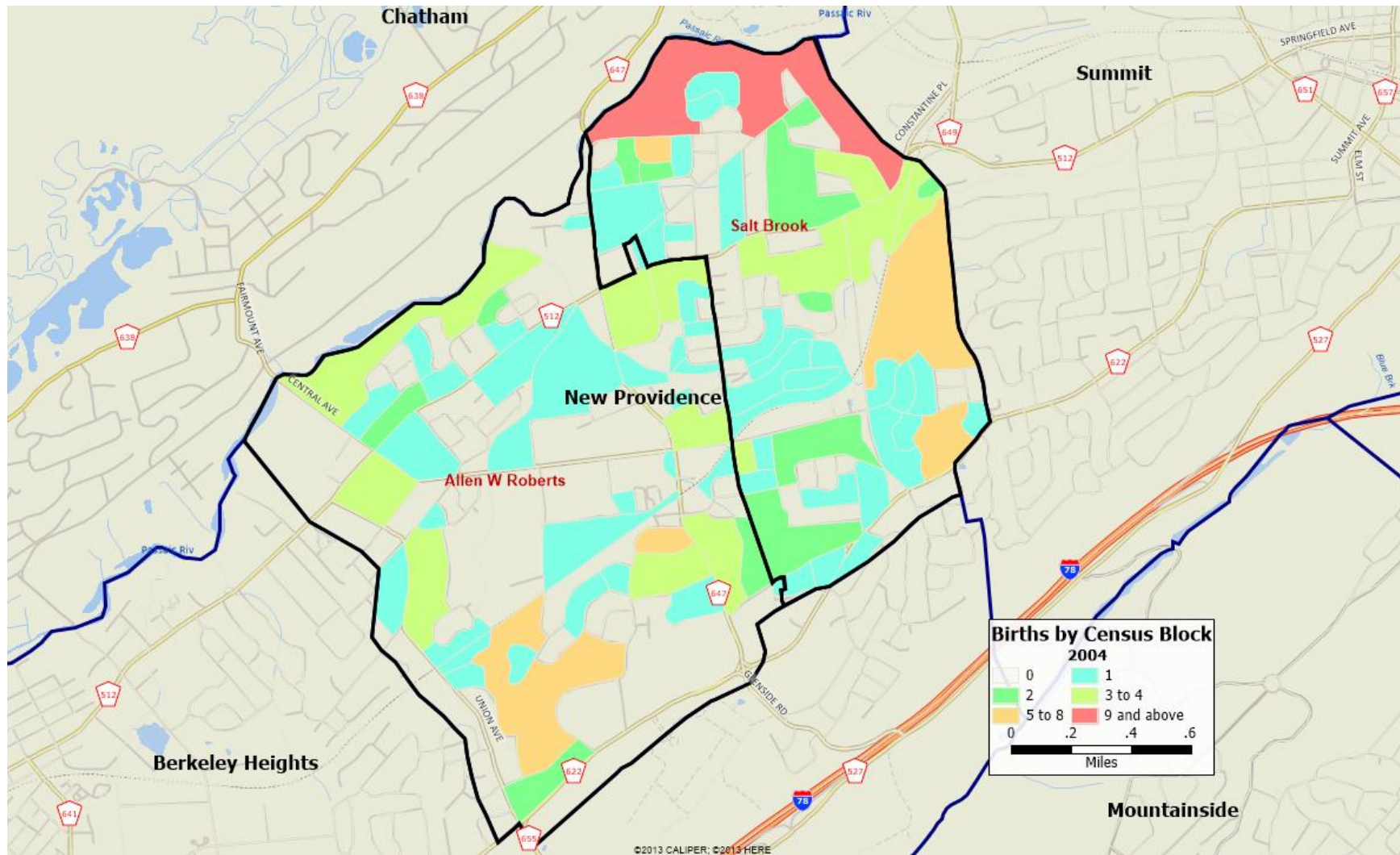**Figure 9**
New Providence Births by Census Block
2004

Figure 10
New Providence Births by Census Block
2017
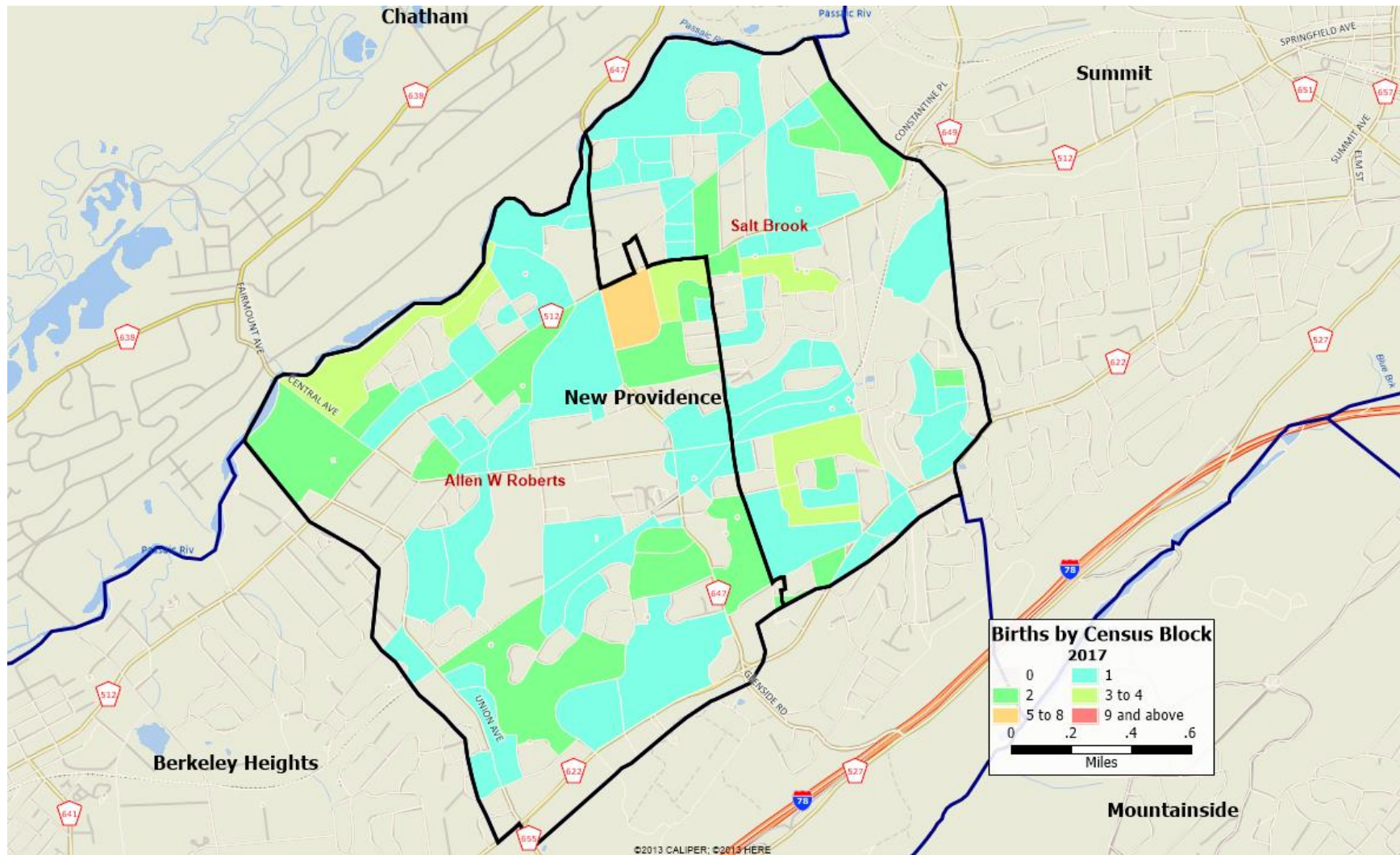
The fertility rate in New Providence is above the rate in both Union County and the State of New Jersey. According to the 2013-2017 ACS, the fertility rate of women aged 15 to 50 in New Providence was 84 births per 1,000 women. In comparison, as reported by the NJCHS, the 2017 fertility rate in Union County was 62.1 births per 1,000 women (ages 15-49) and was 59.0 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 municipal 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.

Figures 11 and 12 show the age pyramids of males and females in New Providence from both the 2000 and 2010 Censuses. The largest number of individuals in 2000 was aged 35-39 for females and 40-44 for males. As these individuals advance in age, the largest cohort in 2010 was aged 45-49 for females and 50-54 for males. As shown in Table 7, the greatest declines (shaded red), both in number and percentage points, occurred in the 30-34 age group for males and 35-39 age group for females. There was also a significant decline in the 30-34 age group for females, which corresponds to the ages (30-39) when many females have their children. The greatest gains (shaded blue), both in number and percentage points, occurred in the 50-54 age group for both genders. The declining number of females in the 30-34 and 35-39 age groups has likely led to the declining birth rate in New Providence.

Figure 11
Population Pyramid of New Providence
2000 Census
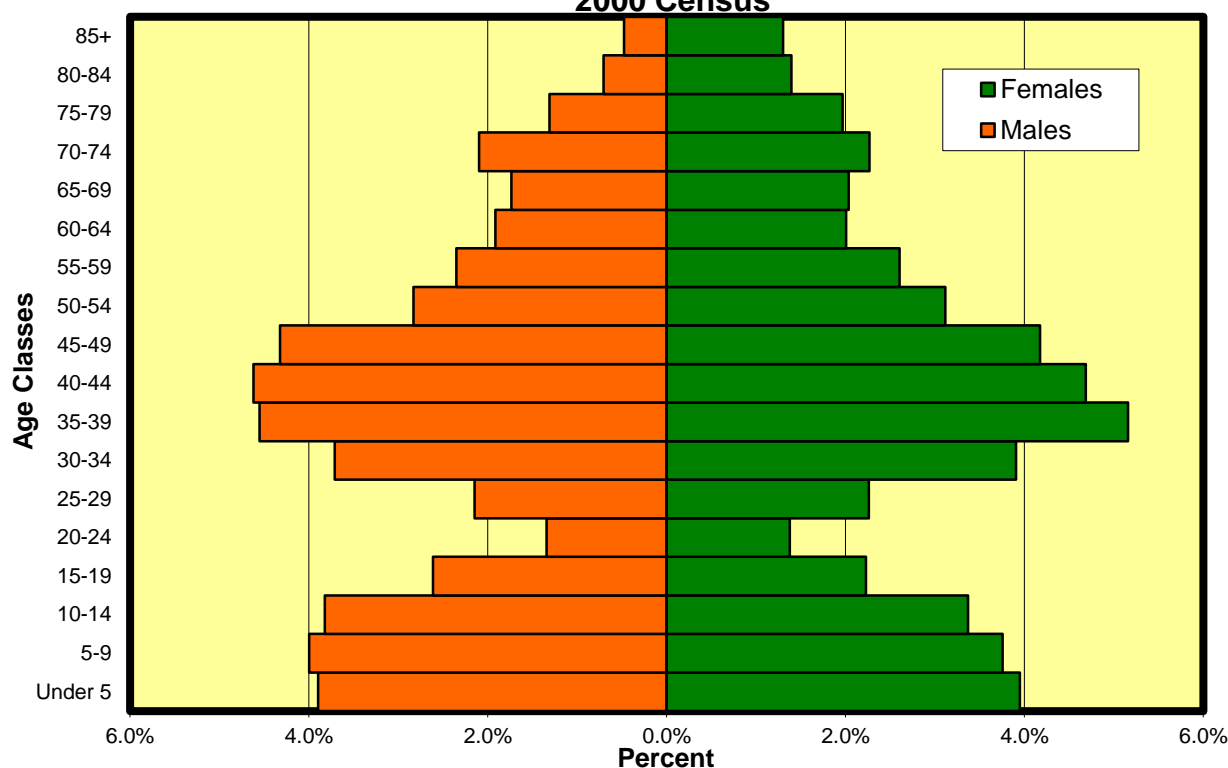
Figure 12
Population Pyramid of New Providence
2010 Census
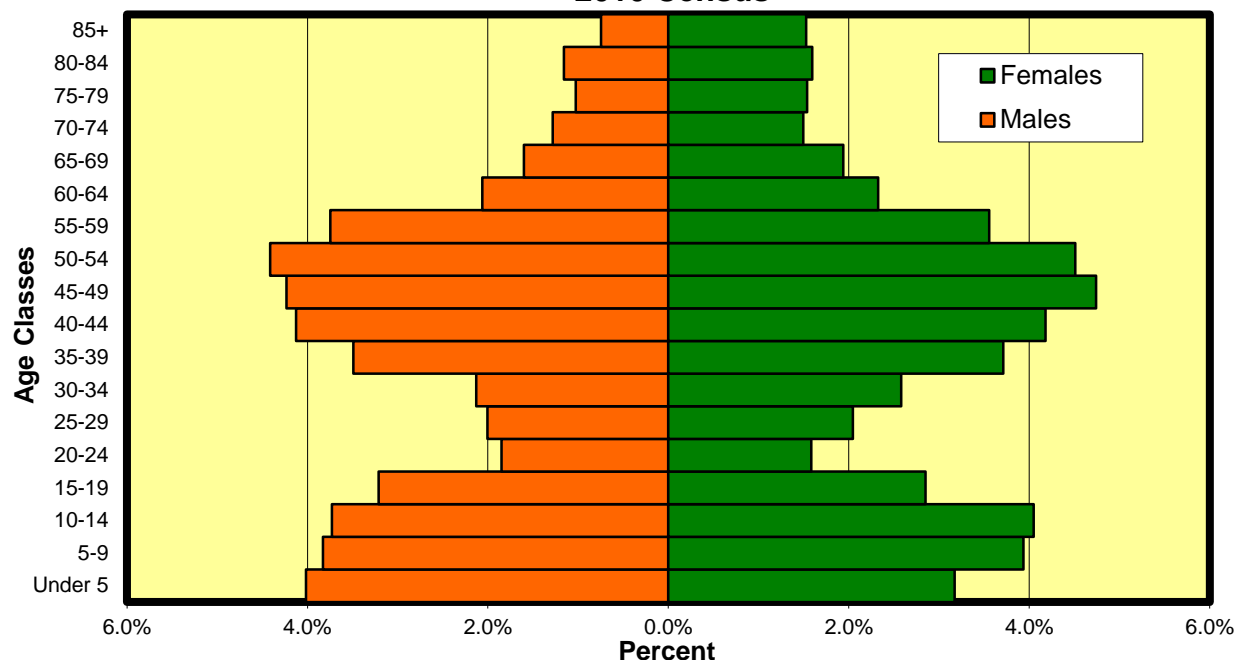
Table 7
Numerical and Percentage Point Changes of Males and Females
New Providence
2000 to 2010

Age Group	Males		Females	
	Numerical Change	**Percentage Point Change**	**Numerical Change**	**Percentage Point Change**
Under 5	+25	+0.1	-84	-0.8
5-9	-10	-0.2	+32	+0.2
10-14	-1	-0.1	+92	+0.7
15-19	+80	+0.6	+82	+0.6
20-24	+65	+0.5	+29	+0.2
25-29	-12	-0.1	-20	-0.2
30-34	-183	-1.6	-151	-1.3
35-39	-117	-1.1	-162	-1.4
40-44	-48	-0.5	-49	-0.5
45-49	0	-0.1	+80	+0.6
50-54	+200	+1.6	+178	+1.4
55-59	+176	+1.4	+123	+1.0
60-64	+23	+0.1	+44	+0.3
65-69	-12	-0.1	-6	-0.1
70-74	-94	-0.8	-88	-0.8
75-79	-31	-0.3	-47	-0.4
80-84	+57	+0.5	+28	+0.2
85+	+34	+0.3	+31	+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 New Providence

Mr. Douglas Marvin, New Providence Borough Administrator, provided information regarding current and future residential development in the community. In February 2019, the Borough Council approved a settlement agreement regarding its affordable housing obligation and potential residential developments to address the obligation. As a result, a list of potential developments, number of new housing units, and affected attendance areas are shown in Table 8 and Figure 13. There is the potential for 814 non age-restricted housing units in New Providence (in total, there are 1,209 age-restricted and non age-restricted units that are proposed), all of which would be in the Roberts attendance area near the Murray Hill train station. While there is the potential for an additional 395 age-restricted housing units (100 Mountain Avenue/Linde Property and 630 Central Avenue), they were excluded from the table as the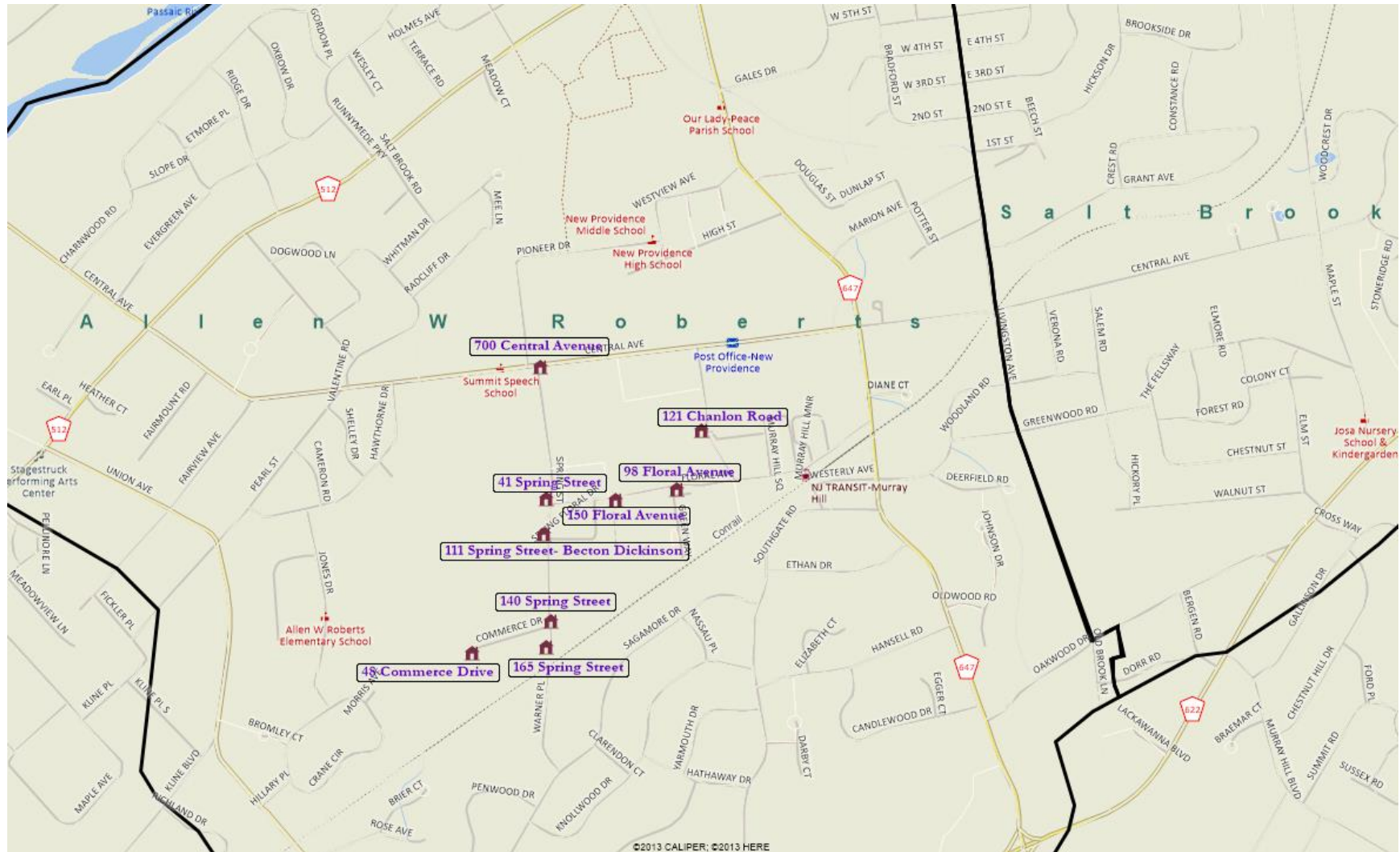y should have no impact on the school district's enrollment. Excluding the age-restricted development at 100 Mountain Avenue, which is likely to start construction soon, it may be several years before construction begins on any of the other developments. The Becton Dickinson property at 111 Spring Street may be the next development to be constructed in 3-4 years, with occupation occurring in five or more years.

Table 8
Potential Non-Age Restricted Residential Developments in New Providence

Property Location	Attendance Area	Number of Units	Housing Type	Notes
111 Spring Street (Becton Dickinson)	Roberts	192	Multi-Family Market-Rate and Affordable	Development will have 154 market-rate units and 38 affordable units (20% of units).
41 Spring Street	Roberts	143	Multi-Family Market-Rate and Affordable	Development will have 114 market-rate units and 29 affordable units (20% of units).
165 Spring Street	Roberts	22	Multi-Family Market-Rate and Affordable	Development will have 17 market-rate units and 5 affordable units (20% of units).
48 Commerce Drive	Roberts	38	Multi-Family Market-Rate and Affordable	Development will have 30 market-rate units and 8 affordable units (20% of units).
98 Floral Avenue	Roberts	32	Multi-Family Market-Rate and Affordable	Development will have 25 market-rate units and 7 affordable units (20% of units).
150 Floral Avenue	Roberts	85	Multi-Family Market-Rate and Affordable	Development will have 68 market-rate units and 17 affordable units (20% of units).
140 Spring Street	Roberts	48	Multi-Family Market-Rate and Affordable	Development will have 38 market-rate units and 10 affordable units (20% of units).
700 Central Avenue	Roberts	150	Multi-Family Market-Rate and Affordable	Development will have 120 market-rate units and 30 affordable units (20% of units).
121 Chanlon Road	Roberts	104	Multi-Family Market-Rate and Affordable	Development will have 83 market-rate units and 21 affordable units (20% of units).
Total		**814**	**649 Market-rate Units** **165 Affordable Units**	

Sources: New Providence Borough Administrator and New Providence Settlement Agreement (https://www.newprov.org/download/Affordable%20Housing/AFFORDABLE-HOUSING-SETTLEMENT-AGREEMENT-FINAL-04022019.pdf)

Figure 13
New Providence Projected New Housing

Student Yield Analysis of Detached Single-Family Homes

To determine the number of children per housing unit (student yield) of all detached single-family homes in New Providence, the borough's parcel-level MOD IV database was joined to the school district's 2018-19 student database. Age-restricted housing units, condominiums, townhouses, and apartments were removed from the database[2]. A total of 2,192 children[3] living in 3,467 homes were identified.

The simplest way to compute student yields is to divide the total number of students by the total number of homes. However, there are several drawbacks in computing yields in this fashion. First, the *type* of housing unit helps determine the magnitude of the student yield, as yields are typically greatest for detached single-family homes and smallest for multi-family homes such as apartments and townhouses/condominiums. A second drawback of this computation is that the student yield would include homes owned by all age segments of the population, such as empty-nesters and senior citizens, which would lower the overall student yield. Yields computed in this fashion are likely underestimating the future number of children in proposed developments or from home resales, where families with children are likely to be the buyers, particularly if the school district has an excellent reputation.

Instead, the length of ownership of the housing unit was considered, as student yields are typically highest from 0-10 years of ownership and are lowest at 20 or more years of ownership. As such, a unique student yield distribution by length of ownership was created for New Providence. It should be noted that the forthcoming student yield distribution is a snapshot in time. If the percentage of children in the population changes, or the demographics of the community change where ethnic groups of larger sizes enter, or if the school district's reputation changes and more or less children attend the district, student yields are likely to change as well.

To determine length of ownership, parcel-level records of all detached single-family homes in New Providence were downloaded from the Monmouth County Tax Board[4] MOD IV database. Besides the property address, other variables include block and lot, sale dates and prices, and in most instances, the year that the home was built. To compute student yields by length of ownership, it was necessary to know the year of the most recent sale, where reliable sales data in the database were available from 1977-2018, a 41-year period. Determining the most recent sale date was not always obvious. Some of the most recent sale dates had a sales price of $1 or $100. These "paper sales" were coded as a non-usable deed transaction. These transactions include sales between members of the immediate family, resulting in a change in title but often not a change of the occupant. In these instances, the data were excluded from the analysis and the next most recent sale date was used instead. If there were no secondary sale dates, the length of ownership exceeded 41 years but the exact number of years was unknown.

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[2] 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.

[3] A total of 28 students live in addresses that could not be matched in the parcel level-database. The majority of these students live in addresses listed as a commercial property (mixed-use).

[4] The Monmouth County database provides information for all municipalities in the state.

One of the limitations of the database was the lack of recorded sales prior to 1977. Since many of the homes (n = 700) have never been sold since 1977, the earliest sale date recorded, the length of ownership exceeded 41 years for these homes (using data through 2018) but the exact length of ownership was unknown. New Providence also had homes constructed after 1977 that had never been sold. However, in these instances, the length of ownership could be computed by simply subtracting the year that the home was built from 2018.

Student Yields by Length of Ownership for Detached Single-Family Homes

Student yields by length of ownership for detached single-family homes was determined by joining the parcel-level property database with 2018-19 student address data, which was provided by the school district. It is expected that longer-held homes will have fewer children, as they would have graduated from the district. Figure 14 shows that, in general, student yields slowly increase with length of ownership, peaking at 1.41 children per housing unit with eight (8) years of ownership. Student yields are then fairly stable through 12 years of ownership before declining as length of ownership increases. After 24 years of ownership, student yields are below 0.25 children per home. Table 9 following shows the student yields by length of ownership for the PK-12 student population (public school students only).

Figure 14
Student Yields by Length of Ownership in New Providence
Detached Single-Family Homes
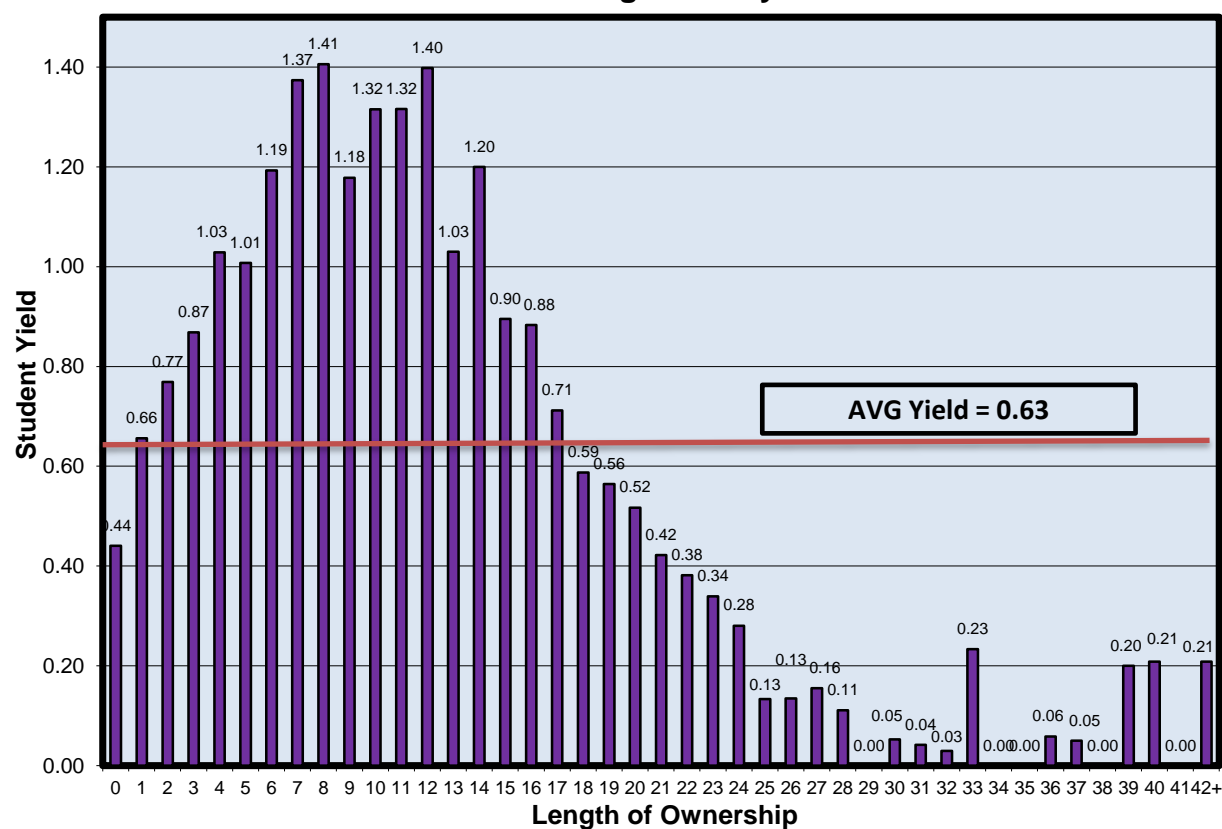
Table 9
Student Yields (PK-12) by Current Length of Ownership in New Providence Detached Single-Family Homes

Years of Ownership	Housing Units	Students 2018-19	Student Yield
0	168	74	0.44
1	157	103	0.66
2	156	120	0.77
3	144	125	0.87
4	104	107	1.03
5	131	132	1.01
6	83	99	1.19
7	91	125	1.37
8	74	104	1.41
9	73	86	1.18
10	73	96	1.32
11	76	100	1.32
12	88	123	1.40
13	101	104	1.03
14	110	132	1.20
15	67	60	0.90
16	77	68	0.88
17	66	47	0.71
18	80	47	0.59
19	62	35	0.56
20	58	30	0.52
21	64	27	0.42
22	55	21	0.38
23	53	18	0.34
24	57	16	0.28
25	60	8	0.13
26	52	7	0.13
27	45	7	0.16
28	36	4	0.11
29	22	0	0.00
30	38	2	0.05
31	24	1	0.04
32	34	1	0.03
33	30	7	0.23
34	27	0	0.00
35	32	0	0.00
36	17	1	0.06
37	20	1	0.05
38	9	0	0.00
39	15	3	0.20
40	24	5	0.21
41	14	0	0.00
42+	700	146	0.21
Total	**3,467**	**2,192**	**0.63**

Since the length of ownership is a distribution, how can one determine what is the likely student yield in a home resale or newly constructed unit? Since the distribution is a snapshot in time, what is a reasonable student yield to use? Computing the average over the entire length of ownership period underestimates the number of children, since there are so few children at longer lengths of ownership as children graduate from the school district. Unfortunately, there is no research-based metric to determine what part of the distribution should be used to estimate future schoolchildren. Instead, we propose computing an average using all of the years up to the <u>peak</u> student yield, which estimates the maximum impact before student yields begin to decline.

As discussed above, the average student yield (0.63) computed from the entire housing stock likely underestimates the actual student yield when a family either moves into a new (or resale) detached single-family home. If an average student yield is computed for the first eight years of ownership when the peak student yield occurs, the yield increases to 0.97. This is likely a better estimate of the student yield of detached single-family homes in New Providence.

Student Yield Analysis for Townhouses and Condominiums

Student yields were also computed for townhouses and condominiums in New Providence by joining the parcel-level database with student addresses from the 2018-19 year. Lengths of ownership were not computed as there is a lot of variation of the student yields based on the development's bedroom distribution and whether it has child-friendly amenities, such as a playground or swimming pool. In Table 10, student yields are shown by name of development or the property address.

Table 10
New Providence Student Yields (PK-12) for Townhouses/Condominiums

Development/ Property Address	Unit Type	Bedrooms	Year Built	Number of Units[1]	PK-12 Students[2]	PK-12 Yield
1 Southgate Road	Townhouse	2-BR	1985	6	1	0.17
Arbors at Murray Hill (The)	Townhouse	2-BR	1998-2000	11	8	0.73
Foley Square	Townhouse	2-BR	2014-2015	22	6	0.27
Heritage Village	Townhouse	3-BR	1982	17	4	0.24
Murray Hill Manor	Townhouse	2-3 BR	1989, 1994	22	3	0.14
Murray Hill Square	Townhouse/ Condominium	2-BR	1983	56	6	0.11
Riverbend	Townhouse	2-3 BR	2016	13	1	0.08
Salt Brook Manor	Townhouse	3-BR	1986	12	0	0.00
South Gate at Murray Hill	Condominium	N/A	1995	10	0	0.00
Stonefields	Townhouse	3-BR	2012	9	2	0.22
Timothy Field	Condominium	N/A	1993-1994	13	2	0.15
Village at New Providence (The)	Condominium	2-BR	1975	15	13	0.87
Villas at Murray Hill (The)	Townhouse	3-BR	2008	26	3	0.12
Total				**232**	**49**	**0.21**

Note: [1]As derived from the New Providence property database
[2]Based on 2018-19 enrollment in the New Providence School District

Through internet research, we were able to identify the number of units, the year the development was built, and the bedroom distributions. A total of 49 children were identified living in 232 units in 13 separate developments. With the exception of The Arbors at Murray Hill and The Village at New Providence, student yields were quite small. The overall student yield for townhouses and condominiums in New Providence was 0.21.

Student Yield Analysis for Apartments

Student yields were also computed for apartment complexes in New Providence. In Table 11 following, student yields are shown by development and property address for apartment complexes in New Providence. The table is not an all-inclusive list of all apartment units, as it only includes large apartment complexes. Through internet research, we were able to identify the number of units, the year the development was built, and the bedroom distribution in the larger apartment complexes. A total of 156 children were identified living in 708 units in seven (7) separate developments. The largest student yield (0.58) occurred in The Villages. As shown in the table, the average student yield in the borough is 0.22 children per unit.

Table 11
New Providence Student Yields (PK-12) for Apartments

Development (Property Address)	Bedrooms	Year Built	Number of Units[1]	PK-12 Students[2]	PK-12 Yield
6 Southgate Road	N/A	N/A	6	2	0.33
Diane Court	3-BR	1974	20	10	0.50
Murray Hill Apartments (48 Southgate Road)	1-2 BR	1956	172	42	0.24
New Providence Gardens (43 Gales Drive)	1-2 BR	1951	232	34	0.15
Patriot Village (53 Division Avenue)	1-3 BR	2008	18	4	0.22
Spring Garden Apartments (851 Springfield Avenue)	2-BR	1941	210	35	0.17
The Villages (180 Floral Avenue)	2-BR	N/A	50	29	0.58
Total			708	156	0.22

Note: [1]As derived from internet research
[2]Based on 2018-19 enrollment in the New Providence School District

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 proposed housing developments. **It should be clearly stated that this is a <u>rough</u> estimate, as specific details of the proposed developments, such as bedroom distribution and housing type (apartment, townhouse, etc.), were unavailable, which are needed to compute the estimated number of public school children.** Due to the unavailability of the bedroom distributions and housing type for each development, as well as the timeline of construction and occupation, the baseline enrollment projections were <u>not</u> adjusted for the additional children anticipated from these developments. The total number of new students has been provided to give the Board an estimate of the potential impact on the district. It is recommended that the Board continue to monitor the status of these developments to determine the future impact on the school district.

Since there were no comparable affordable housing developments in New Providence, *Who Lives in New Jersey Housing?*[5], published by the Rutgers University Center for Urban Policy Research ("CUPR"), was utilized. 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.

Since the type of housing and bedroom distributions were unknown, it was assumed that that all multi-family units would be apartments (1-3 bedrooms) and have a student yield multiplier of 0.22, which was the borough's average student yield computed in Table 11. To project the number of public school children from the new affordable housing units, several assumptions were made:

1. All affordable apartment units were assumed to have the following distribution: 1-bedroom = 20%, 2-bedroom = 60%, 3-bedroom = 20%.

2. All affordable apartment units were assumed to have the following student yield multipliers: 1-bedroom = 0.088, 2-bedroom = 0.408, 3-bedroom = 1.087.

Based on these student yields, a total of 222 public school children in grades K-12 are projected according to the following distribution:

- 111 Spring Street (Becton Dickinson) – 52
- 41 Spring Street – 39
- 165 Spring Street – 6
- 48 Commerce Drive – 11
- 98 Floral Avenue – 9
- 150 Floral Avenue – 23
- 140 Spring Street – 13
- 700 Central Avenue – 41
- 121 Chanlon Road – 28

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[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.

However, it is possible that the number of students coming from these developments might be lower, as the proposed developments may be considered to be Transit-Oriented Developments ("TOD") due to their proximity to the Murray Hill train station. Historically, TODs have fewer students than housing developments not located near mass transit. In a study by CUPR[6], ten constructed TODs were analyzed to determine the number of public school children per housing unit. Nine of the ten developments had yields of 0.10 public school children or less for each housing unit. In the 2,183 units that were analyzed, there were a total of 47 public school children, a yield of 0.02 students per housing unit. If a yield of 0.10 is used instead for the proposed market-rate units (a greater estimate based on the CUPR average), a total of 144 public school children would be generated, which is less than the 222 children estimated using the borough's multiplier for market-rate apartment units. Based on the district's current elementary attendance boundaries, the impact would be greatest on Roberts, as all of the developments are located within its boundaries.

Historical Residential Construction

With respect to historical new construction, the number of certificates of occupancy ("COs") issued for new homes in New Providence from 2014-2018 is shown in Table 12. A total of 392 COs were issued over this time period, of which 32 were for single-family or two-family homes and 360 were for multi-family homes, which is an average of 78 new units per year. Some of the COs were likely issued for units in Foley Square and Riverbend. During the same time period, a total of 17 single- or two-family homes were demolished, which results in a net gain of 375 new housing units since 2014.

Table 12
Number of Residential Certificates of Occupancy by Year

Year	New Providence			
	1&2 Family	Multi-Family	Mixed Use	Total
2014	10	0	0	**10**
2015	0	0	0	**0**
2016	5	241	0	**246**
2017	7	60	0	**67**
2018	10	59	0	**69**
Total	**32**	**360**	**0**	**392**

Source: New Jersey Department of Community Affairs

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

Distribution of Homes by Decade Built

      Figure 15 shows the number of homes built by decade in New Providence as provided by the 2013-2017 ACS. As shown in the figure, New Providence has an older housing stock, with 80% of the homes being built prior to 1970. In general, the number of homes built per decade from 1970 to 2010 has been fairly uniform, ranging from 135-356. Of the decades shown, New Providence had the largest number of homes built in the 1950s, which corresponds to the sizable population gain in New Providence (+203.0%) shown previously in Table 1.

Figure 15
Number of Homes Built by Decade in New Providence
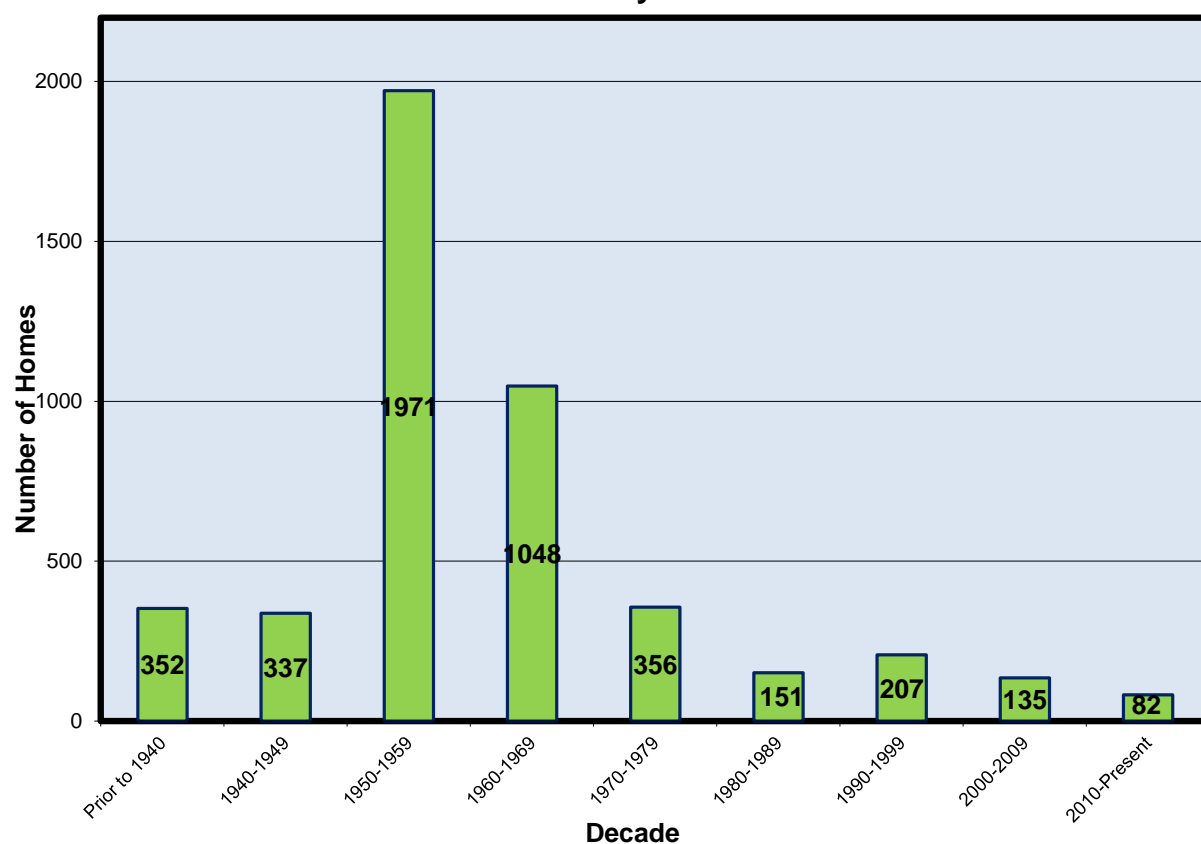
Home Sales

In Figure 16 below, the number of annual home sales in New Providence is shown from 2001-2018. The information was retrieved from the Monmouth County Tax Board database, which possesses tax records and home sales for <u>all</u> 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 below. After peaking at 246 sales in 2004, the number of home sales slowly declined. Home sales hit a low in 2009 and 2010 (118 sales each year) due to the housing market crash and banking crisis. Since then, home sales have rebounded. From 2014-2018, the annual number of sales has been fairly stable, ranging from 188-198. Despite the increase in sales since 2010, the number of sales in 2018 (188) is still below the peak total that occurred in 2004.

Figure 16
New Providence Home Sales
2001-2018
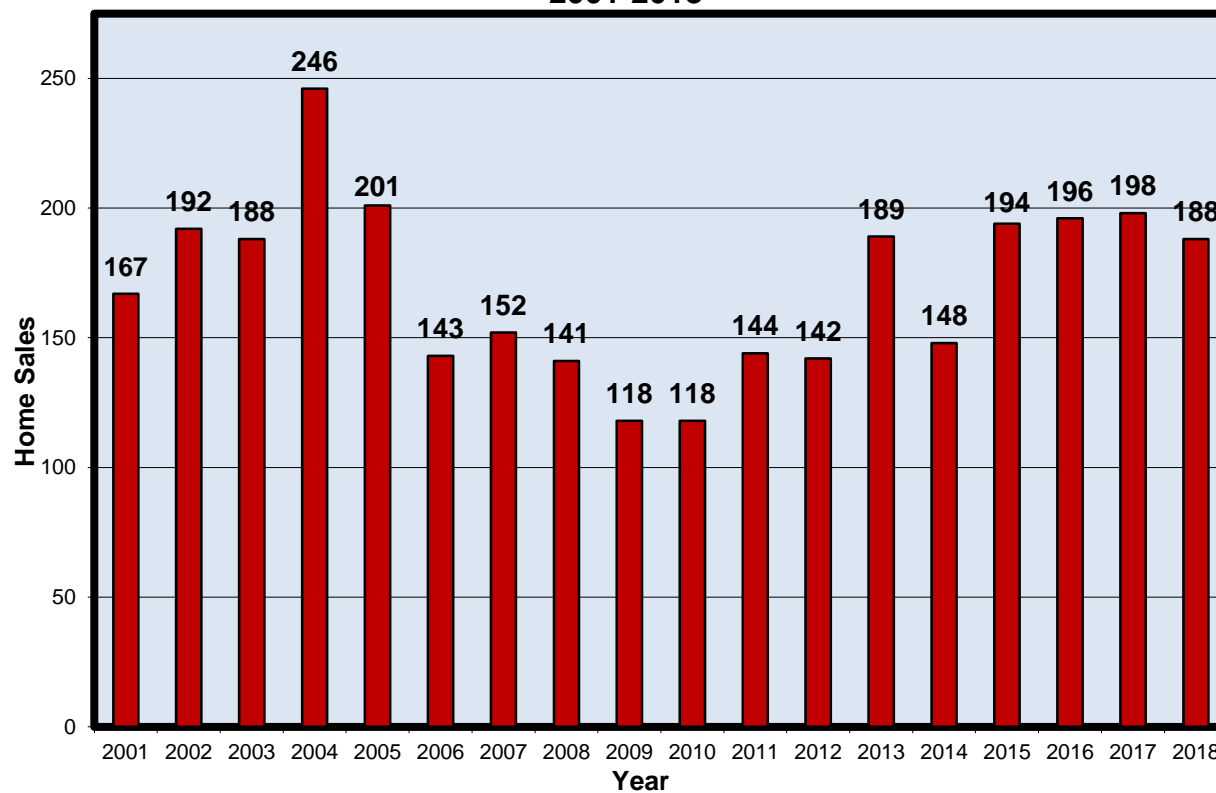
Enrollment Projections

Enrollment projections were calculated at the school level from the 2019-20 school year through the 2023-24 school year, a five-year period.

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 regular education subtotals at each school and multiplying that value by the future regular education subtotals. The proportions will be shown in the forthcoming tables.

With respect to grade-level pre-kindergarten students at Roberts, enrollment was projected by computing an average based on historical data from the last three years and using this value throughout the five-year projection period. In the last three years, pre-kindergarten enrollment has ranged from 23-33 students per year. It was estimated that there would be 27 students in the program annually in the future. Pre-kindergarten children with special needs were not included in these counts and were instead included with the special education projections.

Since full-day kindergarten was instituted for the first time in September 2013, there are six historical birth-to-kindergarten survival ratios that reflect the program change, which is adequate to compute an average. In addition, there are five historical kindergarten-to-first grade ratios that reflect the implementation of the full-day kindergarten program, which is also adequate to compute an average.

On September 10, 2010, former New Jersey Governor Chris Christie signed into law the Choice Program, 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 school sets the number of openings per grade level. The New Providence 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 Group[7] ("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.

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[7]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.

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. 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 New Providence School District is a "Targeted" district since its DFG is "I" with a concentration of at-risk pupils less than 40 percent (1.66%). In Table 13 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 only six (6) 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 13
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	6	1	2	3	4	5

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 is 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 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 New Providence School District 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-12 enrollments follow in Table 14 and Figure 17. Total enrollment is projected to be fairly stable throughout the projection period, ranging from 2,383-2,400. In 2023-24, enrollment is projected to be 2,383, which would be nearly identical to the 2018-19 enrollment of 2,382.

Table 14
New Providence School District Projected Enrollments
2019-20 to 2023-24

Year	PK RE	K	1	2	3	4	5	6	7	8	9	10	11	12	SE	PK-12 Total
2019-20	27	103	222	178	185	206	188	202	199	204	171	156	139	146	60	**2,386**
2020-21	27	118	150	220	184	186	207	192	205	202	171	173	153	137	60	**2,385**
2021-22	27	117	174	149	228	185	186	211	195	208	169	173	169	150	59	**2,400**
2022-23	27	120	170	173	154	229	185	190	214	198	174	171	169	166	58	**2,398**
2023-24	27	114	177	169	179	155	230	189	193	217	166	176	167	166	58	**2,383**

Figure 17
New Providence School District Enrollment Projections
2019-20 to 2023-24
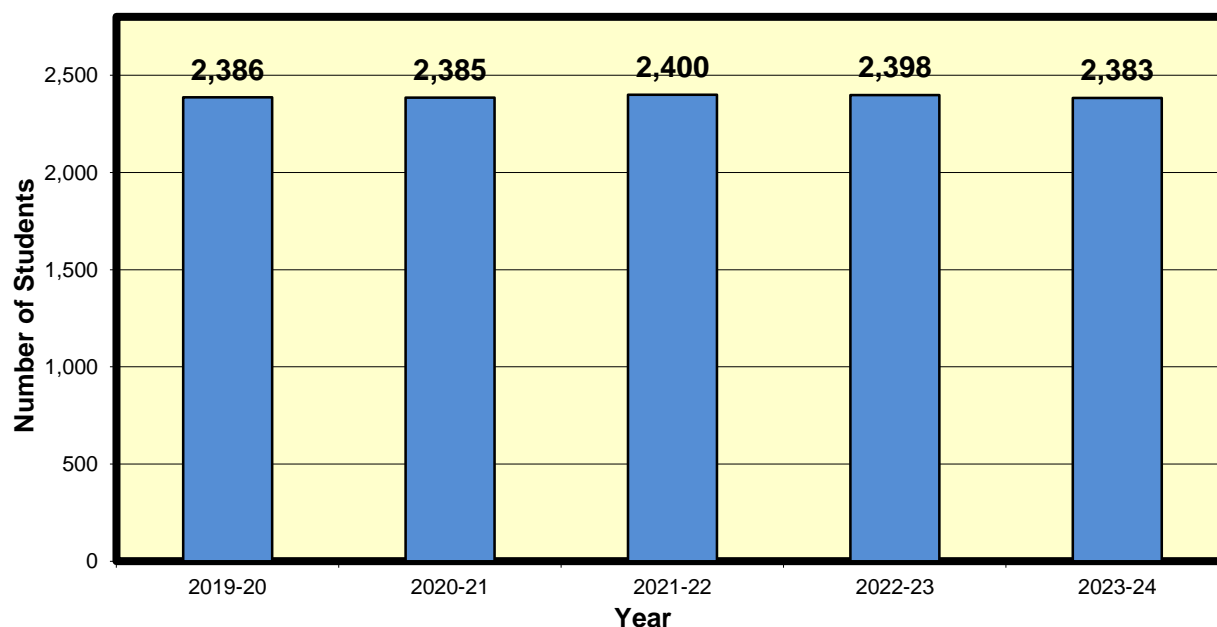
Projections by School

Allen W. Roberts Elementary School

Historical enrollments for Roberts from 2009-10 to 2018-19, and projected enrollments from 2019-20 to 2023-24, are shown below in Table 15. In general, enrollment has been slowly increasing in the school. In 2018-19, enrollment is 707, which is a gain of 88 students from the 2009-10 enrollment of 619. Enrollments are projected to be fairly stable for the first three years of the projection period before slowly declining. In 2023-24, enrollment is projected to be 688, which would be a loss of 19 students from the 2018-19 enrollment.

Table 15
Historical and Projected Enrollments of Allen W. Roberts Elementary School

Year	PK	K	1	2	3	4	5	6	SE[2]	PK-6 Total
Historical[1]										
2009-10	13	65	79	83	104	87	87	94	7	**619**
2010-11	23	57	85	83	82	107	86	84	20	**627**
2011-12	48	69	69	86	77	78	108	86	0	**621**
2012-13	52	66	86	83	85	83	79	106	2	**642**
2013-14	58	72	92	87	84	87	82	85	1	**648**
2014-15	54	71	86	98	89	88	88	83	0	**657**
2015-16	37	83	97	81	97	89	87	89	26	**686**
2016-17	33	67	103	93	86	99	94	91	27	**693**
2017-18	23	65	99	107	95	97	100	93	28	**707**
2018-19	25	80	90	99	109	94	97	102	11	**707**
CSR 5-Yr. Ratios		0.9361[3]	1.3673	0.9849	1.0229	1.0345	1.0137	1.0167	0.0342[4]	
Projected										
2019-20	27	60	109	89	101	113	95	99	24	**717**
2020-21	27	64	82	107	91	104	115	97	24	**711**
2021-22	27	72	88	81	109	94	105	117	24	**717**
2022-23	27	65	98	87	83	113	95	107	23	**698**
2023-24	27	65	89	97	89	86	115	97	23	**688**

Notes: [1]Data as provided by the New Jersey Department of Education (http://www.nj.gov/education/data/enr/) and the New Providence School District
[2]Self-contained special education enrollment/Ungraded Students
[3]Birth-to-kindergarten survival ratio based on birth data five years prior
[4]Average proportion of self-contained special education/Ungraded students with respect to PK-6 subtotals based on the last four years of historical data

Salt Brook Elementary School

Historical enrollments for Salt Brook from 2009-10 to 2018-19, and projected enrollments from 2019-20 to 2023-24, are shown below in Table 16. In general, enrollment has been fairly stable over the last decade, varying from 612-670, which is a range of 58 students. In 2018-19, enrollment is 650. In general, enrollments are projected to decrease throughout the projection period, which is due to the lower number of births in the attendance area. In 2023-24, enrollment is projected to be 596, which would be a loss of 54 students from the 2018-19 enrollment.

Table 16
Historical and Projected Enrollments of Salt Brook Elementary School

Year	PK	K	1	2	3	4	5	6	SE[2]	PK-6 Total
Historical[1]										
2009-10	22	65	92	82	79	80	103	86	19	628
2010-11	0	79	80	92	91	77	87	98	8	612
2011-12	0	93	98	84	98	93	87	87	0	640
2012-13	0	60	113	99	80	102	94	86	21	655
2013-14	0	79	79	114	99	82	105	95	17	670
2014-15	0	60	97	88	116	97	80	99	13	650
2015-16	0	60	90	97	99	112	93	83	23	657
2016-17	0	49	96	94	100	95	110	102	23	669
2017-18	0	55	81	93	96	100	96	108	21	650
2018-19	0	71	89	80	95	94	101	94	26	650
CSR 5-Yr. Ratios		0.9557[3]	1.5928	1.0002	1.0497	0.9761	0.9904	1.0238	0.0367[4]	
Projected										
2019-20	0	43	113	89	84	93	93	103	23	641
2020-21	0	54	68	113	93	82	92	95	22	619
2021-22	0	45	86	68	119	91	81	94	21	605
2022-23	0	55	72	86	71	116	90	83	21	594
2023-24	0	49	88	72	90	69	115	92	21	596

Notes: [1]Data as provided by the New Jersey Department of Education (http://www.nj.gov/education/data/enr/) and the New Providence School District
[2]Self-contained special education enrollment/Ungraded Students
[3]Birth-to-kindergarten survival ratio based on birth data five years prior using three years of historical data
[4]Average proportion of self-contained special education/Ungraded students with respect to PK-6 subtotals based on the last four years of historical data

New Providence Middle School

Historical enrollments for New Providence Middle School from 2009-10 to 2018-19, and projected enrollments from 2019-20 to 2023-24, are shown below in Table 17. Enrollments have been slowly increasing in the school. In 2018-19, there are 411 students, which is a gain of 79 students from the 2009-10 enrollment of 332. Enrollment is projected to be fairly stable throughout the projection period, ranging from 409-418. In 2023-24, enrollment is projected to be 416, which would be slightly higher than the 2018-19 enrollment.

Table 17
Historical and Projected Enrollments of New Providence Middle School

Year	7	8	SE[2]	Total
Historical[1]				
2009-10	156	173	3	**332**
2010-11	177	160	0	**337**
2011-12	175	179	0	**354**
2012-13	167	184	5	**356**
2013-14	195	172	7	**374**
2014-15	177	196	6	**379**
2015-16	183	181	3	**367**
2016-17	174	182	5	**361**
2017-18	201	179	6	**386**
2018-19	201	204	6	**411**
CSR 5-Yr. Ratios	1.0146[3]	1.0152	0.0138[4]	
Projected				
2019-20	199	204	6	**409**
2020-21	205	202	6	**413**
2021-22	195	208	6	**409**
2022-23	214	198	6	**418**
2023-24	193	217	6	**416**

Notes: [1]Data as provided by the New Jersey Department of Education (http://www.nj.gov/education/data/enr/) and the New Providence School District
[2]Self-contained special education enrollment/Ungraded Students
[3]Grade 6-7 ratio is based on aggregated 6th grade enrollments from elementary schools.
[4]Average proportion of self-contained special education/Ungraded students with respect to 7-8 subtotals

New Providence High School

Historical enrollments for New Providence High School from 2009-10 to 2018-19, and projected enrollments from 2019-20 to 2023-24, are shown below in Table 18. Enrollments have been fairly stable in the last ten years, ranging from 595-676. In 2018-19, enrollment is 614. Enrollment is projected to increase for the first four years of the projection period before stabilizing. In 2023-24, enrollment is projected to be 683, which would be a gain of 69 students from the 2018-19 enrollment.

Table 18
Historical and Projected Enrollments of New Providence High School

Year	9	10	11	12	SE[2]	9-12 Total
Historical[1]						
2009-10	148	150	174	150.5	0	**622.5**
2010-11	157	145	146	170	1	**619**
2011-12	143	158	144	143	7	**595**
2012-13	161	145	155	141	10	**612**
2013-14	173	164	145.5	157.5	6	**646**
2014-15	156	177	172.5	142	12	**659.5**
2015-16	171	160	173	165.5	6.5	**676**
2016-17	149	173	156	171	8	**657**
2017-18	144	151	169	158	7.5	**629.5**
2018-19	155	142	149	164	4	**614**
CSR 5-Yr. Ratios	0.8382[3]	1.0092	0.9790	0.9828	0.0118[4]	
Projected						
2019-20	171	156	139	146	7	**619**
2020-21	171	173	153	137	8	**642**
2021-22	169	173	169	150	8	**669**
2022-23	174	171	169	166	8	**688**
2023-24	166	176	167	166	8	**683**

Notes: [1]Data as provided by the New Jersey Department of Education
http://www.nj.gov/education/data/enr/) and the New Providence School District
[2]Self-contained special education enrollment/Ungraded Students
[3]Grade 8-9 ratio is based on 8th grade enrollments of middle school
[4]Average proportion of self-contained special education/Ungraded students with respect to 9-12 subtotals

Projected Enrollments by Grade Configuration

In Table 19 following, projected enrollments are shown by grade configuration (PK-6, 7-8, and 9-12). Ungraded special education students were reassigned into each of the grade configurations.

At the elementary level containing grades PK-6, enrollment is projected to decline throughout the projection period. In 2023-24, enrollment is projected to be 1,284, which would represent a loss of 73 students from the 2018-19 enrollment of 1,357.

For New Providence Middle School (grades 7-8) and New Providence High School (grades 9-12), the projected enrollments were discussed previously.

Table 19
Projected Enrollments for Grades PK-6, 7-8, and 9-12

Historical	PK-6	7-8	9-12
2018-19	1,357	411	614
Projected	PK-6	7-8	9-12
2019-20	1,358	409	619
2020-21	1,330	413	642
2021-22	1,322	409	669
2022-23	1,292	418	688
2023-24	1,284	416	683
5-year Change	-73	+5	+69

Capacity Analysis

Table 20 shows the educational capacities of the school buildings in the New Providence School District in comparison to both the current 2018-19 enrollments and the enrollment projections in the 2023-24 school year. Using the building capacities as provided by the district's architect, 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 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 level, Roberts is slightly above capacity (-18) while Salt Brook has a surplus of 39 seats. Due to a projected decline in enrollment in each school, Roberts is projected to be near capacity (+1) while Salt Brook is projected to have an increase in surplus seating (+93).

At New Providence Middle School and New Providence High School, which share the same building, there are currently 110 unhoused students. By 2023-24, the number of unhoused students in the building is projected to increase to 184 due to a projected gain in enrollment.

Table 20
Capacity Analysis

School	Capacity[1,2]	Actual Enrollment 2018-19	Difference	Projected Enrollment 2023-24	Difference
Allen W. Roberts E.S. (PK-6)	689	707	**-18**	688	**+1**
Salt Brook E.S. (PK-6)	689	650	**+39**	596	**+93**
New Providence M.S. (7-8)	915	411	**-110**	416	**-184**
New Providence H.S. (9-12)		614		683	

Notes: [1]FES Capacity from Settembrino Architects, dated April 1, 2016
[2]As the capacities were last calculated in 2016, the actual capacities of the buildings in 2019 may have changed if the buildings' instructional spaces are being used differently than in 2016.