



Needham Public Schools, MA Demographic Study

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Executive Summary

1. The resident total fertility rate for Needham Public Schools over the 15-year life of the forecasts is below replacement level. (1.84 vs. the theoretical replacement level of 2.1)
2. Most in-migration to the district continues to occur in the 0-to-9 and 30-to-44 year-old age groups.
3. The local 18-to-24 year-old population continues to leave the district, going to college or moving to other urbanized areas. This population group accounts for the largest segment of the district's out-migration flow. The second largest out flow is the 70+ age group, which are downsizing their homes and leaving the district
4. The primary factor causing the district's enrollment to rise and then slightly decline over the next 15 years is the number of empty nest households (home owners age 70+) "turning over" compared to the number of homes (homeowners age 50-to-59) that become empty nest each year.
5. Changes in year-to-year enrollment over the next five years will primarily be due to the size of the grade cohorts entering and moving through the school system in conjunction with the size of the cohorts leaving the system.
6. The elementary enrollment will begin a slight decline after the 2022-23 school year in both scenarios. This will be due primarily to the fact that the rising 5th grade cohorts will be greater the 450 in size while the incoming grade cohorts will decline slightly.
7. In the Best Scenario, the median age of the population will increase from 42.9 in 2010 to 43.6 in 2035. In the High Scenario, the median age of the population will decrease from 42.9 in 2010 to 42.8 in 2035.
8. Even if the district continues to have some of annual new home construction (even if that construction is rental units), the rate, magnitude, and price of existing home sales will become the increasingly dominant factors affecting the amount of population and enrollment change.
9. In the Best scenario, total district enrollment is forecasted to increase by 178 students, or 3.1%, between 2018-19 and 2023-24. Total enrollment is forecasted to grow by 29 students, or 0.5%, from 2023-24 to 2028-29. The total enrollment is forecasted to decline by 158 students, or -2.7%, from 2028-29 to 2033-34.
10. In the High scenario, total district enrollment is forecasted to increase by 178 students, or 3.1%, between 2018-19 and 2023-24. Total enrollment is forecasted to grow by 53 students, or 0.9%, from 2023-24 to 2028-29. The total enrollment is forecasted to decline by 109 students, or -1.8%, from 2028-29 to 2033-34.

INTRODUCTION

By demographic principle, distinctions are made between projections and forecasts. A projection extrapolates the past (and present) into the future with little or no attempt to take into account any factors that may impact the extrapolation (e.g., changes in fertility rates, housing patterns or migration patterns) while a forecast results when a projection is modified by reasoning to take into account the aforementioned factors.

To maximize the use of this study as a planning tool, the ultimate goal is not simply to project the past into the future, but rather to assess various factors' impact on the future. The future population and enrollment change of each school district is influenced by a variety of factors. Not all factors will influence the entire school district at the same level. Some may affect different attendance areas at dissimilar magnitudes and rates causing changes at varying points of time within the same district. The forecaster's judgment, based on a thorough and intimate study of the district, has been used to modify the demographic trends and factors to more accurately predict likely changes. Therefore, strictly speaking, this study is a forecast, not a projection; and the amount of modification of the demographic trends varies between different areas of the district as well as within the timeframe of the forecast.

To calculate population forecasts of any type, particularly for smaller populations such as a school district, realistic suppositions must be made as to what the future will bring in terms of age specific fertility rates, mortality rates, migration rates and residents' demographic behavior at certain points of the life course. The demographic history of the school district and its interplay with the social and economic history of the area is the starting point and basis of most of these suppositions particularly on key factors such as the age structure of the area. The unique nature of each district's and attendance area's demographic composition and rate of change over time must be assessed and understood to be factors throughout the life of the forecast series. For example, age structure, which is the variable with the greatest predictive value in regard to future population and enrollment change, is usually quite varied between different attendance areas. Moreover, no two populations, particularly at the school district, have exactly the same characteristics.

The manifest purpose of these forecasts is to ascertain the demographic factors that will ultimately influence the enrollment levels in the district's schools. There are of course, other non-demographic factors that affect enrollment levels over time. These factors include, but are not limited to: transfer policies within the district, student transfers to and from neighboring districts, placement of "special programs" within school facilities that may serve students from outside the attendance area, state or federal mandates that dictate the movement of students from one facility to another (No Child Left Behind was an excellent example of this factor), the development of charter schools in the district and general area,

the prevalence of home schooling in the area, and the dynamics of local private schools.

Unless the district specifically requests the calculation of forecasts that reflect the effects of changes in these non-demographic and non-economic factors, their influences are held constant for the life of the forecasts. Again, the main function of these forecasts is to determine what impact demographic changes will have on future enrollment. It is quite possible to calculate special "scenario" forecasts to measure the impact of school policy modifications as well as planned economic and financial changes. However, in this case the results of these population and enrollment forecast are meant to represent the most likely scenario for changes over the next 10 years in the district and its attendance areas given the assumptions used in these forecasts.

The first part of the report will examine the assumptions made in calculating the population forecasts for the Needham Public Schools. Since the results of the population forecasts drive the subsequent enrollment forecasts, the assumptions listed in this section are paramount to understanding the area's demographic dynamics. The remainder of the report is an explanation and analysis of the district's population forecasts and how they will shape the district's grade level enrollment forecasts.

DATA

The data used for the forecasts come from a variety of sources. The Needham Public Schools provided enrollments by grade and attendance center for the school years 2010-2011 to 2018-19. Birth and death data for the years 2000 through 2017 were obtained from the Massachusetts Department of Health. The net migration values were calculated using Internal Revenue Service migration reports for the years 2000 through 2016. The data used for the calculation of migration models came from the United States Bureau of the Census, 2005 to 2010, and the models were designed using demographic and economic factors. The base age-sex population counts used are from the results of the 2010 Census.

Recently the Census Bureau began releasing annual estimates of demographic variables at the block group and tract level from the American Community Survey (ACS). There has been wide scale reporting of these results in the national, state and local media. However, due to the methodological problems the Census Bureau is experiencing with their estimates derived from ACS data, particularly in areas with a population of less than 60,000, the results of the ACS are not used in these forecasts. For example, given the sampling framework used by the Census Bureau, each year only 330 of the over 11,000 current households in the district would have been included. For comparison 1,500 households in the district were included in the sample for the long form questionnaire in the 2000 Census. As a result of this small sample size, the ACS survey result from the last 5 years must be aggregated to produce the tract and block group estimates.

To develop the population forecast models, past net migration patterns, household structure, current age specific fertility patterns, the magnitude and dynamics of the gross migration, the age specific mortality trends, the distribution of the population by age and sex, the rate and type of existing housing unit sales, and future housing unit construction are considered to be primary variables. In addition, the change in household size relative to the age structure of the forecast area was addressed. While there was a slight drop in the average household size in the Needham Public Schools as well as most other areas of the state and the nation during the previous 20 years, the rate of this decline has been forecasted to slow somewhat over the next ten years.

ASSUMPTIONS

For these forecasts, the mortality probabilities are held constant at the levels calculated for the year 2010. While the number of deaths in an area are impacted by and will change given the proportion of the local population over age 65, in the absence of an extraordinary event such as a natural disaster or a breakthrough in the treatment of heart disease, death rates rarely move rapidly in any direction, particularly at the school district or attendance area level. Thus, significant changes are not foreseen in district's mortality rates between now and the year 2033. Any increases forecasted in the number of deaths will be due primarily to the general aging of the district's population and specifically to the increase in the number of residents aged 65 and older. Given that the median age of the district is currently over 40, this will become an increasing important demographic dynamic over the next 15 years.

Similarly, fertility rates are assumed to stay fairly constant for the life of the forecasts. Like mortality rates, age specific fertility rates rarely change quickly or dramatically, particularly in small areas. Even with the recently reported rise in the age 30-to-39 year-old fertility rates of the United States, overall total fertility rates have stayed within a 10% range for most of the last 40 years. In fact, the vast majority of year to year change in an area's number of births is due to changes in the number of women in child bearing ages (particularly ages 20-to-34) rather than any fluctuation in an area's fertility rate.

The resident total fertility rate (TFR), the average number of births a woman will have while living in the school district during her lifetime, is estimated to be 1.84 for the total district for the ten years of the population forecasts. A TFR of 2.1 births per woman is considered to be the theoretical "replacement level" of fertility necessary for a population to remain constant in the absence of in-migration. Therefore, in the absence of migration, fertility alone would be insufficient to maintain the current level of population and enrollment within the Needham Public Schools over the course of the forecast period. It is important to note that this is a resident birth rate. Births that occur to women who then move into the

district with their children are accounted for in the migration calculations.

A close examination of data for the Needham Public Schools has shown the age specific pattern of net migration will be nearly constant throughout the life of the forecasts. While the number of in and out migrants has changed in past years for the Needham Public Schools (and will change again over the next 15 years), the basic age pattern of the migrants has stayed nearly the same over the last 30 years. Based on the analysis of data it is safe to assume this age specific migration trend will remain unchanged into the future. This pattern of migration shows most of the local out-migration occurring in the 18-to-24 year-old age group as young adults leave the area to go to college or move to other urbanized areas. Hence, when a district has larger than normal 12th grade classes, they will experience a slight rise in gross out migration as these students now leave for college. The second largest group of out-migrants are those householders aged 70 and older who are downsizing their residences and then in most cases move out of the district. This is an important outflow since these downsizing seniors provide most of the homes that are in the existing housing market. The majority of the local in-migration occurs in the 0-to-9 and 30-to-44 age groups (the bulk of the which come from areas within 75 miles of the Needham Public Schools) primarily consisting of younger adults and their children.

As the Norfolk County area is not currently contemplating any major expansions or contractions, the forecasts also assume that the current economic, political, social, and environmental factors, as well as the transportation and public works infrastructure (with a few notable exceptions) of the Needham Public Schools and its attendance areas will remain the same through the year 2033. Below is a list of assumptions and issues that are specific to the Needham Public Schools. These issues have been used to modify the population forecast models to more accurately predict the impact of these factors on each area's population change. Specifically, the forecasts for the Needham Public School assume that throughout the study period:

- a. The national, state or regional economy does not go into deep recession at any time during the 10 years of the forecasts; (Deep recession is defined as four consecutive quarters where the GDP contracts greater than 1% per quarter)
- b. Interest rates have come off their historic lows and will not fluctuate more than one percentage point in the short term; the interest rate for a 30-year fixed home mortgage stays between 5.0% and 6.0% over the 15-year life of the forecasts;
- c. The rate of mortgage approval stays at 1999-2003 levels and lenders do not return to "sub-prime" mortgage practices;
- d. There are no additional restrictions placed on home mortgage lenders or additional bankruptcies of major credit providers;

- e. The rate of housing foreclosures does not exceed 125% of the 2005-2007 average of Norfolk County for any year in the forecasts;
- f. In the Best Scenario, all currently platted, and approved housing developments are built out and completed by 2032. All housing units constructed are occupied by 2033;
- g. In the High scenario, all currently platted, and approved housing developments are built out and completed by 2032. Additionally, the Overlay project will be built out by 2030. All housing units constructed are occupied by 2033;
- h. The unemployment rates for the Norfolk County and the Boston Metropolitan Area will remain below 4.5% for the 15 years of the forecasts;
- i. The rate of students transferring into and out of the Needham Public Schools will remain at the 2012-13 to 2018-19 average;
- j. The inflation rate for gasoline will stay below 5% per year for the 15 years of the forecasts;
- k. The state of Massachusetts will not change any of its current laws regarding inter-district transfers, charter schools or school vouchers;
- l. No charter school opens in the district or the immediate area any time over the next 15 years;
- m. The town of Needham will average approximately 250 existing housing unit sales annually until 2033;
- n. There will be no building moratorium within the district;
- o. Businesses within the district and the Needham Public Schools area will remain viable;
- p. The number of existing home sales in the district that are a result of "distress sales" (homes worth less than the current mortgage value) will not exceed 20% of total homes sales in the district for any given year;
- q. Housing turnover rates (sale of existing homes in the district) will remain at their current levels. The majority of existing home sales are made by home owners over the age of 60;
- r. The district will not experience any natural disasters over the next 15 years;
- s. Private school and home school attendance rates will remain constant;
- t. The rate of foreclosures for commercial property remains at the 2004-2008 average for Norfolk County;
- u. In the Best Scenario, it is assumed all of the 136 units of the Green Mews development are all on line by 2023. Additionally, all of the 390 units of the Needham Crossing development are on line by 2024;
- v. The High scenario assumes that aforementioned development and the Overlay development. Overlay is assumed to have 250 units total, with a 5 year build out plan. All units are occupied by 2030 and the full impact on the district's enrollment will be seen by 2033;

If a major employer in the district or in the Greater Boston Metropolitan Area closes, reduces or expands its operations, the population forecasts would need to be adjusted to reflect the changes brought about by the change in economic and employment conditions. The same holds true for any major change in the local infrastructure (e.g., highway construction, water and sewer expansion, changes in zoning regulations etc.), an economic downturn, any weakness in the housing market (particularly given the 30 year fixed interest rate is now above 5% for the first time in eight years) or any instance or situation that causes rapid and dramatic population changes that could not be foreseen at the time the forecasts were calculated.

The high proportion of high school graduates from the Needham Public Schools that attend college or move to urban areas outside of the district for employment is a significant demographic factor. Their departure is a major reason for the extremely high out-migration in the 18-to- 24 year-old age group, and was taken into account when calculating these forecasts (this is also a contributing factor on why the district resident fertility rate and subsequent number of births is so low). The out-migration of graduating high school seniors is expected to continue over the period of the forecasts and the rate of out-migration has been forecasted to remain the same over the life of the forecast series.

Finally, all demographic trends (i.e., births, deaths, and migration) are assumed to be linear in nature and annualized over the forecast period. For example, if 1,000 births are forecasted for a 5-year period, an equal number, or proportion of the births are assumed to occur every year, 200 per year. Actual year-to-year variations do and will occur, but overall year to year trends are expected to be constant.

METHODOLOGY

The population forecasts presented in this report are the result of using the Cohort-Component Method of population forecasting (Siegel, and Swanson, 2004: 561-601) (Smith et. al. 2004). As stated in the **INTRODUCTION**, the difference between a projection and a forecast is in the use of explicit judgment based upon the unique features of the area under study. Strictly speaking, a cohort projection refers to the future population that would result from mathematical extrapolation of historical trends. Conversely, a cohort-component forecast refers to the future population that is expected because of a studied and purposeful selection of the components of change (i.e., births, deaths, and migration) and forecast models are developed to measure the impact of these changes in each specific geographic area.

Five sets of data are required to generate population and enrollment forecasts. These five data sets are:

1. a base-year population (here, the 2010 Census population for Needham Public Schools);

2. a set of age-specific fertility rates for the district and the attendance areas to be used over the forecast period;
3. a set of age-specific survival (mortality) rates for the district and the attendance areas;
4. a set of age-specific migration rates for the district and the attendance areas, and;
5. the historical enrollment figures by grade.

The most significant and difficult aspect of producing enrollment forecasts is the generation of the population forecasts in which the school age population (and enrollment) is embedded. In turn, the most challenging aspect of generating the population forecasts is found in deriving the rates of change in fertility, mortality, and migration. From the standpoint of demographic analysis, the Needham Public Schools is classified as a “small area” population (as compared to the population of the state of Massachusetts or to that of the United States). Small area population forecasts are more complicated to calculate because local variations in fertility, mortality, and migration may be more irregular than those at the regional, state or national scale. Especially challenging is the forecast of the migration rates for local areas, because changes in the area's socioeconomic characteristics can quickly change from past and current patterns (Peters and Larkin, 2002.)

The population forecasts for Needham Public Schools were calculated using a cohort-component method with the populations divided into male and female groups by five-year age cohorts that range from 0-to-4 years of age to 85 years of age and older (85+). Age- and sex-specific fertility, mortality, and migration models were constructed to specifically reflect the unique demographic characteristics of each of the attendance areas in the Needham Public Schools.

The enrollment forecasts were calculated using a modified average survivorship method. Average survivor rates (i.e., the proportion of students who progress from one grade level to the next given the average amount of net migration for that grade level) over the previous five years of year-to-year enrollment data were calculated for grades two through twelve. This procedure is used to identify specific grades where there are large numbers of students changing facilities for non-demographic factors, such as private school transfers or enrollment in special programs.

The survivorship rates were modified or adjusted to reflect the average rate of forecasted in and out migration of 5-to-9, 10-to-14 and 15-to-17 year-old cohorts to each of the attendance centers in Needham Public Schools for the period 2010 to 2015. These survivorship rates then were adjusted to reflect the forecasted changes in age-specific migration the district should experience over the next five years. These modified survivorship rates were used to project the enrollment of grades 2 through 12 for the period 2015 to 2020. The survivorship rates were adjusted again for the period 2020 to 2025, 2025 to 2030 and 2030 to 2035 to reflect the predicted changes in the amount of age-specific migration in the district for those time period.

The forecasted enrollments for kindergarten and first grade are derived from the 5-to-9 year old population of the age-sex population forecast at the elementary attendance center district level. This procedure allows the changes in the incoming grade sizes to be factors of forecasted population change and not an extrapolation of previous class sizes. Given the potentially large amount of variation in kindergarten enrollment due to parental choice, changes in the state's minimum age requirement, and differing district policies on allowing children to start kindergarten early, first grade enrollment is deemed to be a more accurate and reliable starting point for the forecasts. (McKibben, 1996) The level of the accuracy for both the total population and total enrollment forecasts at the school district level is estimated to be $\pm 2.0\%$ for the life of the forecasts.

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Appendix A: Population Forecast, Scenario: Best

Needham Public Schools, Scenario: Best

Total	2010	2015	2020	2025	2030	2035
0-4	1,871	1,770	1,760	1,710	1,620	1,610
5-9	2,488	2,260	2,370	2,390	2,290	2,100
10-14	2,467	2,550	2,340	2,450	2,460	2,360
15-19	1,863	1,960	1,910	1,730	1,850	1,980
20-24	981	1,090	1,060	1,010	940	1,030
25-29	713	770	950	860	840	830
30-34	979	1,110	1,220	1,450	1,370	1,290
35-39	1,755	1,380	1,610	1,630	1,870	1,730
40-44	2,293	1,810	1,480	1,730	1,730	1,980
45-49	2,523	2,270	1,780	1,500	1,780	1,770
50-54	2,419	2,480	2,260	1,760	1,460	1,740
55-59	2,045	2,380	2,440	2,210	1,750	1,420
60-64	1,801	1,930	2,240	2,300	2,060	1,610
65-69	1,185	1,620	1,690	1,990	2,070	1,880
70-74	874	950	1,300	1,400	1,630	1,700
75-79	830	760	800	1,130	1,180	1,380
80-84	776	800	690	740	1,040	1,100
85+	1,041	1,070	1,060	1,050	1,020	1,200
Total	28,904	28,960	28,960	29,040	28,960	28,710
Median Age	42.9	44.4	44.3	43.7	43.6	43.6

	2010 to 2015	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035
Births	1,070	1,080	1,110	1,140	1,150
Deaths	1,410	1,490	1,510	1,580	1,720
Natural Increase	-340	-410	-400	-440	-570
Net Migration	390	430	420	390	340
Change	50	20	20	-50	-230

Differences between period Totals may not equal Change due to rounding.

Broadmeadow School, Scenario: Best

Total	2010	2015	2020	2025	2030	2035
0-4	391	350	400	370	340	310
5-9	562	500	480	510	490	440
10-14	545	580	520	490	520	500
15-19	340	410	420	380	360	420
20-24	138	130	170	140	140	160
25-29	97	80	60	70	50	60
30-34	127	160	160	200	190	150
35-39	378	260	320	300	320	290
40-44	465	390	280	340	310	330
45-49	512	460	380	280	340	310
50-54	441	500	460	380	270	330
55-59	394	430	500	450	380	270
60-64	329	380	420	480	430	360
65-69	207	280	330	360	430	390
70-74	172	150	210	270	290	340
75-79	155	150	100	190	230	240
80-84	142	150	140	90	170	210
85+	107	150	160	180	150	190
Total	5,498	5,510	5,510	5,480	5,410	5,300
Median Age	41.9	43.7	44.0	44.1	44.8	44.8

	2010 to 2015	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035
Births	170	160	160	160	160
Deaths	230	250	270	270	310
Natural Increase	-60	-90	-110	-110	-150
Net Migration	70	80	70	60	50
Change	10	-10	-40	-50	-100

Differences between period Totals may not equal Change due to rounding.

Eliot School, Scenario: Best

Total	2010	2015	2020	2025	2030	2035
0-4	281	290	280	310	310	350
5-9	370	350	360	390	410	380
10-14	350	380	370	380	420	430
15-19	245	300	320	280	280	330
20-24	142	170	170	160	160	130
25-29	157	160	210	210	200	210
30-34	225	230	260	340	360	340
35-39	279	280	300	300	410	420
40-44	385	270	280	300	330	450
45-49	369	380	270	280	300	320
50-54	384	360	380	270	270	290
55-59	306	380	360	370	270	270
60-64	245	260	320	300	300	210
65-69	160	200	210	270	240	250
70-74	137	120	150	190	210	180
75-79	165	110	110	130	130	160
80-84	141	160	90	100	120	130
85+	197	200	200	180	160	170
Total	4,537	4,600	4,640	4,760	4,880	5,020
Median Age	42.8	42.6	40.9	40.2	38.7	39.0

	2010 to 2015	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035
Births	200	210	220	240	240
Deaths	240	250	230	230	230
Natural Increase	-40	-40	-10	10	10
Net Migration	90	90	110	120	110
Change	50	50	100	130	120

Differences between period Totals may not equal Change due to rounding.

Hillside School, Scenario: Best

Total	2010	2015	2020	2025	2030	2035
0-4	341	350	350	330	300	300
5-9	410	410	460	460	430	380
10-14	373	420	410	470	470	440
15-19	445	300	220	270	350	370
20-24	353	300	230	180	220	270
25-29	191	240	230	160	120	170
30-34	230	280	320	300	220	170
35-39	337	350	420	440	410	320
40-44	416	370	350	420	440	410
45-49	475	410	360	350	420	430
50-54	463	470	410	360	340	410
55-59	388	460	460	400	360	330
60-64	362	370	440	440	380	340
65-69	238	330	340	390	400	360
70-74	179	200	290	270	300	330
75-79	165	160	180	230	230	270
80-84	217	160	140	170	210	210
85+	449	390	330	280	260	280
Total	6,030	5,970	5,940	5,920	5,860	5,790
Median Age	44.0	44.5	44.7	44.2	44.7	45.8

	2010 to 2015	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035
Births	280	270	250	240	240
Deaths	400	370	350	350	360
Natural Increase	-120	-100	-100	-110	-120
Net Migration	60	70	70	60	50
Change	-60	-30	-30	-50	-70

Differences between period Totals may not equal Change due to rounding.

Mitchell School, Scenario: Best

Total	2010	2015	2020	2025	2030	2035
0-4	344	270	260	250	240	240
5-9	461	420	440	420	380	360
10-14	417	470	440	460	430	400
15-19	270	350	410	380	400	380
20-24	120	140	170	190	160	200
25-29	85	70	80	70	90	90
30-34	148	170	160	160	170	170
35-39	294	190	220	210	240	230
40-44	400	310	210	270	230	260
45-49	407	400	310	230	290	260
50-54	383	400	390	300	230	290
55-59	351	380	390	390	300	210
60-64	299	340	360	370	370	280
65-69	174	270	280	340	360	350
70-74	116	130	210	250	300	310
75-79	86	100	100	190	220	250
80-84	79	80	100	90	170	200
85+	88	100	110	120	120	170
Total	4,521	4,590	4,640	4,690	4,700	4,650
Median Age	41.5	43.5	43.3	43.8	45.2	44.9

	2010 to 2015	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035
Births	160	150	170	180	190
Deaths	170	190	210	230	270
Natural Increase	-10	-40	-40	-50	-80
Net Migration	80	90	80	70	60
Change	70	50	40	20	-20

Differences between period Totals may not equal Change due to rounding.

Newman School, Scenario: Best

Total	2010	2015	2020	2025	2030	2035
0-4	514	510	470	450	430	410
5-9	685	580	630	610	580	540
10-14	783	700	600	650	620	590
15-19	563	600	540	420	460	480
20-24	230	350	320	340	260	270
25-29	183	220	370	350	380	300
30-34	249	270	320	450	430	460
35-39	467	300	350	380	490	470
40-44	628	470	360	400	420	530
45-49	761	620	460	360	430	450
50-54	749	750	620	450	350	420
55-59	607	730	730	600	440	340
60-64	566	580	700	710	580	420
65-69	406	540	530	630	640	530
70-74	271	350	440	420	530	540
75-79	259	240	310	390	370	460
80-84	197	250	220	290	370	350
85+	201	230	260	290	330	390
Total	8,319	8,290	8,230	8,190	8,110	7,950
Median Age	43.9	46.2	46.7	45.6	44.8	44.3

	2010 to 2015	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035
Births	260	290	310	320	320
Deaths	370	430	450	500	550
Natural Increase	-110	-140	-140	-180	-230
Net Migration	90	100	90	80	70
Change	-20	-40	-50	-100	-160

Differences between period Totals may not equal Change due to rounding.

Appendix B: Population Forecast, Scenario: High

Needham Public Schools, Scenario: High

Total	2010	2015	2020	2025	2030	2035
0-4	1,871	1,770	1,760	1,710	1,670	1,660
5-9	2,488	2,260	2,370	2,390	2,320	2,150
10-14	2,467	2,550	2,340	2,450	2,460	2,390
15-19	1,863	1,960	1,910	1,730	1,840	1,980
20-24	981	1,090	1,060	1,010	950	1,050
25-29	713	770	950	860	1,060	1,030
30-34	979	1,110	1,220	1,450	1,490	1,390
35-39	1,755	1,380	1,610	1,630	1,900	1,810
40-44	2,293	1,810	1,480	1,730	1,760	1,970
45-49	2,523	2,270	1,780	1,500	1,780	1,810
50-54	2,419	2,480	2,260	1,760	1,460	1,740
55-59	2,045	2,380	2,440	2,210	1,750	1,390
60-64	1,801	1,930	2,240	2,300	2,000	1,610
65-69	1,185	1,620	1,690	1,990	2,010	1,820
70-74	874	950	1,300	1,400	1,650	1,650
75-79	830	760	800	1,130	1,210	1,390
80-84	776	800	690	740	1,040	1,120
85+	1,041	1,070	1,060	1,050	1,020	1,200
Total	28,904	28,960	28,960	29,040	29,370	29,160
Median Age	42.9	44.4	44.3	43.7	42.8	42.8

	2010 to 2015	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035
Births	1,070	1,080	1,110	1,150	1,190
Deaths	1,410	1,490	1,510	1,580	1,720
Natural Increase	-340	-410	-400	-430	-530
Net Migration	390	430	420	800	350
Change	50	20	20	370	-180

Differences between period Totals may not equal Change due to rounding.

Broadmeadow School, Scenario: High

Total	2010	2015	2020	2025	2030	2035
0-4	391	350	400	370	340	310
5-9	562	500	480	510	490	440
10-14	545	580	520	490	520	500
15-19	340	410	420	380	360	420
20-24	138	130	170	140	140	160
25-29	97	80	60	70	50	60
30-34	127	160	160	200	190	150
35-39	378	260	320	300	320	290
40-44	465	390	280	340	310	330
45-49	512	460	380	280	340	310
50-54	441	500	460	380	270	330
55-59	394	430	500	450	380	270
60-64	329	380	420	480	430	360
65-69	207	280	330	360	430	390
70-74	172	150	210	270	290	340
75-79	155	150	100	190	230	240
80-84	142	150	140	90	170	210
85+	107	150	160	180	150	190
Total	5,498	5,510	5,510	5,480	5,410	5,300
Median Age	41.9	43.7	44.0	44.1	44.8	44.8

	2010 to 2015	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035
Births	170	160	160	160	160
Deaths	230	250	270	270	310
Natural Increase	-60	-90	-110	-110	-150
Net Migration	70	80	70	60	50
Change	10	-10	-40	-50	-100

Differences between period Totals may not equal Change due to rounding.

Eliot School, Scenario: High

Total	2010	2015	2020	2025	2030	2035
0-4	281	290	280	310	360	400
5-9	370	350	360	390	440	430
10-14	350	380	370	380	420	460
15-19	245	300	320	280	270	330
20-24	142	170	170	160	170	150
25-29	157	160	210	210	420	410
30-34	225	230	260	340	480	440
35-39	279	280	300	300	440	500
40-44	385	270	280	300	360	440
45-49	369	380	270	280	300	360
50-54	384	360	380	270	270	290
55-59	306	380	360	370	270	240
60-64	245	260	320	300	240	210
65-69	160	200	210	270	180	190
70-74	137	120	150	190	230	130
75-79	165	110	110	130	160	170
80-84	141	160	90	100	120	150
85+	197	200	200	180	160	170
Total	4,537	4,600	4,640	4,760	5,290	5,470
Median Age	42.8	42.6	40.9	40.2	36.0	36.2

	2010 to 2015	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035
Births	200	210	220	250	280
Deaths	240	250	230	230	230
Natural Increase	-40	-40	-10	20	50
Net Migration	90	90	110	530	120
Change	50	50	100	550	170

Differences between period Totals may not equal Change due to rounding.

Hillside School, Scenario: High

Total	2010	2015	2020	2025	2030	2035
0-4	341	350	350	330	300	300
5-9	410	410	460	460	430	380
10-14	373	420	410	470	470	440
15-19	445	300	220	270	350	370
20-24	353	300	230	180	220	270
25-29	191	240	230	160	120	170
30-34	230	280	320	300	220	170
35-39	337	350	420	440	410	320
40-44	416	370	350	420	440	410
45-49	475	410	360	350	420	430
50-54	463	470	410	360	340	410
55-59	388	460	460	400	360	330
60-64	362	370	440	440	380	340
65-69	238	330	340	390	400	360
70-74	179	200	290	270	300	330
75-79	165	160	180	230	230	270
80-84	217	160	140	170	210	210
85+	449	390	330	280	260	280
Total	6,030	5,970	5,940	5,920	5,860	5,790
Median Age	44.0	44.5	44.7	44.2	44.7	45.8

	2010 to 2015	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035
Births	280	270	250	240	240
Deaths	400	370	350	350	360
Natural Increase	-120	-100	-100	-110	-120
Net Migration	60	70	70	60	50
Change	-60	-30	-30	-50	-70

Differences between period Totals may not equal Change due to rounding.

Mitchell School, Scenario: High

Total	2010	2015	2020	2025	2030	2035
0-4	344	270	260	250	240	240
5-9	461	420	440	420	380	360
10-14	417	470	440	460	430	400
15-19	270	350	410	380	400	380
20-24	120	140	170	190	160	200
25-29	85	70	80	70	90	90
30-34	148	170	160	160	170	170
35-39	294	190	220	210	240	230
40-44	400	310	210	270	230	260
45-49	407	400	310	230	290	260
50-54	383	400	390	300	230	290
55-59	351	380	390	390	300	210
60-64	299	340	360	370	370	280
65-69	174	270	280	340	360	350
70-74	116	130	210	250	300	310
75-79	86	100	100	190	220	250
80-84	79	80	100	90	170	200
85+	88	100	110	120	120	170
Total	4,521	4,590	4,640	4,690	4,700	4,650
Median Age	41.5	43.5	43.3	43.8	45.2	44.9

	2010 to 2015	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035
Births	160	150	170	180	190
Deaths	170	190	210	230	270
Natural Increase	-10	-40	-40	-50	-80
Net Migration	80	90	80	70	60
Change	70	50	40	20	-20

Differences between period Totals may not equal Change due to rounding.

Newman School, Scenario: High

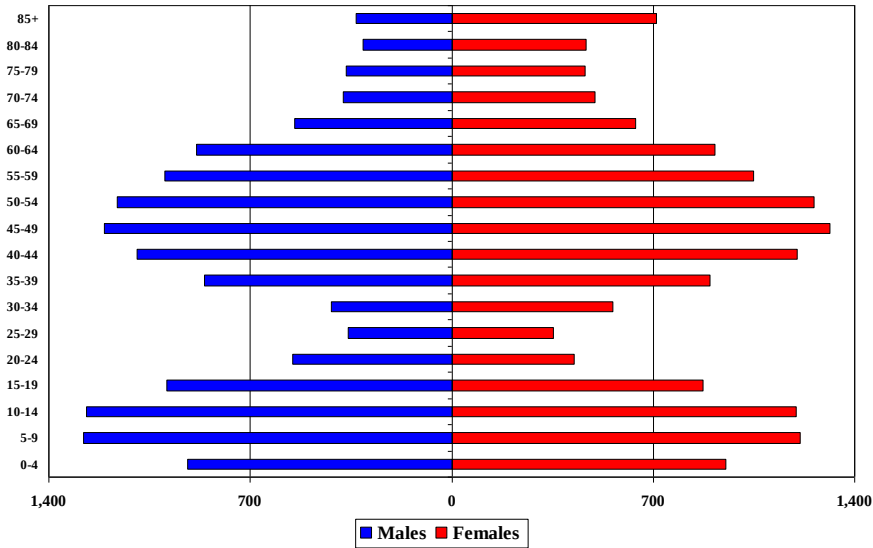
Total	2010	2015	2020	2025	2030	2035
0-4	514	510	470	450	430	410
5-9	685	580	630	610	580	540
10-14	783	700	600	650	620	590
15-19	563	600	540	420	460	480
20-24	230	350	320	340	260	270
25-29	183	220	370	350	380	300
30-34	249	270	320	450	430	460
35-39	467	300	350	380	490	470
40-44	628	470	360	400	420	530
45-49	761	620	460	360	430	450
50-54	749	750	620	450	350	420
55-59	607	730	730	600	440	340
60-64	566	580	700	710	580	420
65-69	406	540	530	630	640	530
70-74	271	350	440	420	530	540
75-79	259	240	310	390	370	460
80-84	197	250	220	290	370	350
85+	201	230	260	290	330	390
Total	8,319	8,290	8,230	8,190	8,110	7,950
Median Age	43.9	46.2	46.7	45.6	44.8	44.3

	2010 to 2015	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035
Births	260	290	310	320	320
Deaths	370	430	450	500	550
Natural Increase	-110	-140	-140	-180	-230
Net Migration	90	100	90	80	70
Change	-20	-40	-50	-100	-160

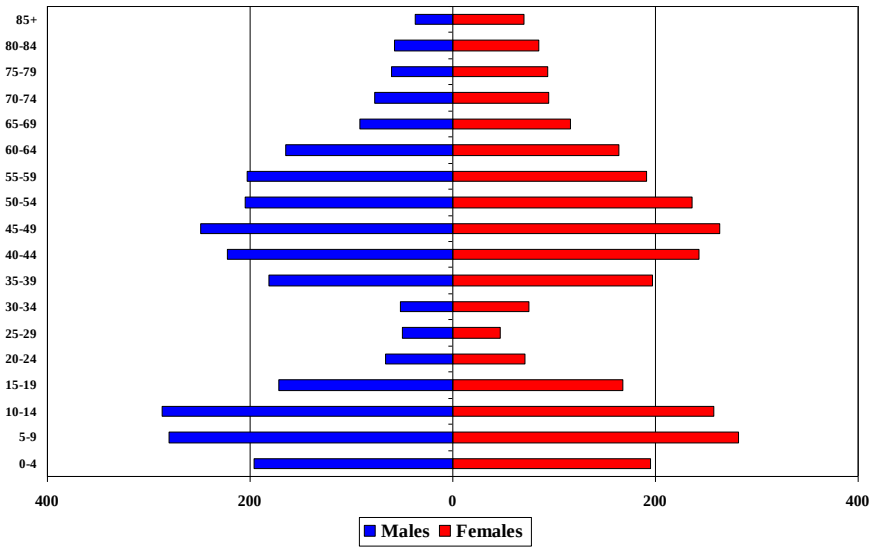
Differences between period Totals may not equal Change due to rounding.

Appendix C: Population Pyramids

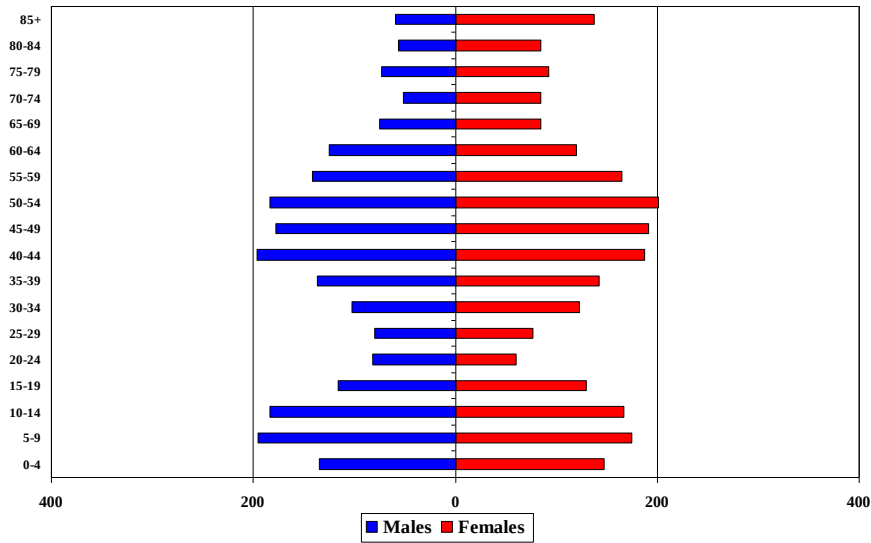
Needham Public Schools Total Population – 2010 Census



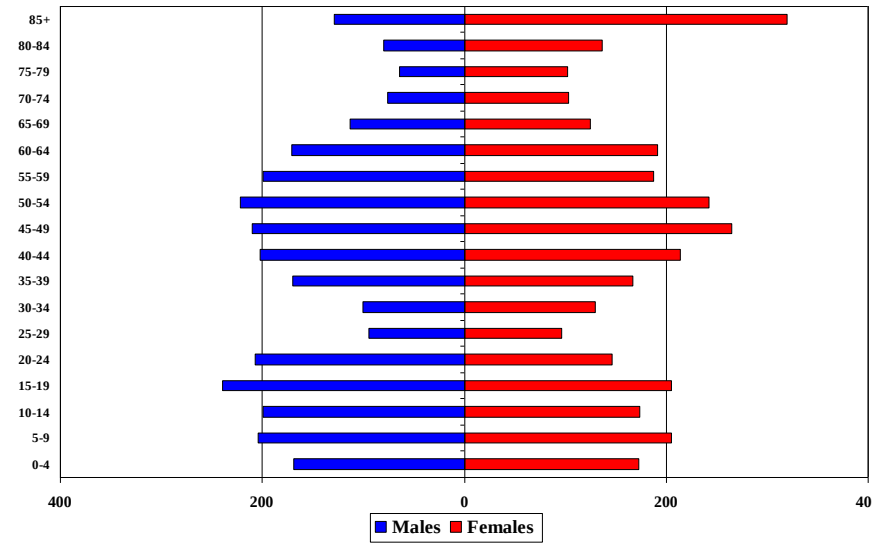
Broadmeadow School Total Population – 2010 Census



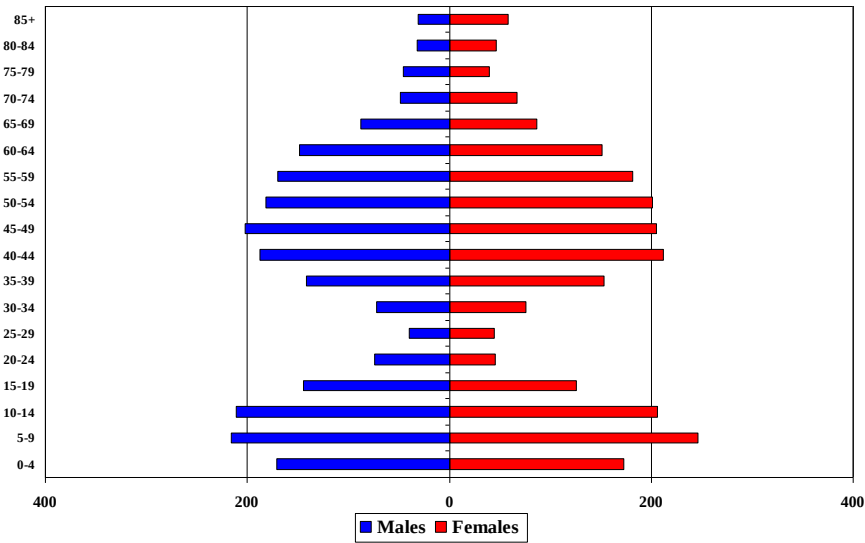
Eliot School Total Population – 2010 Census



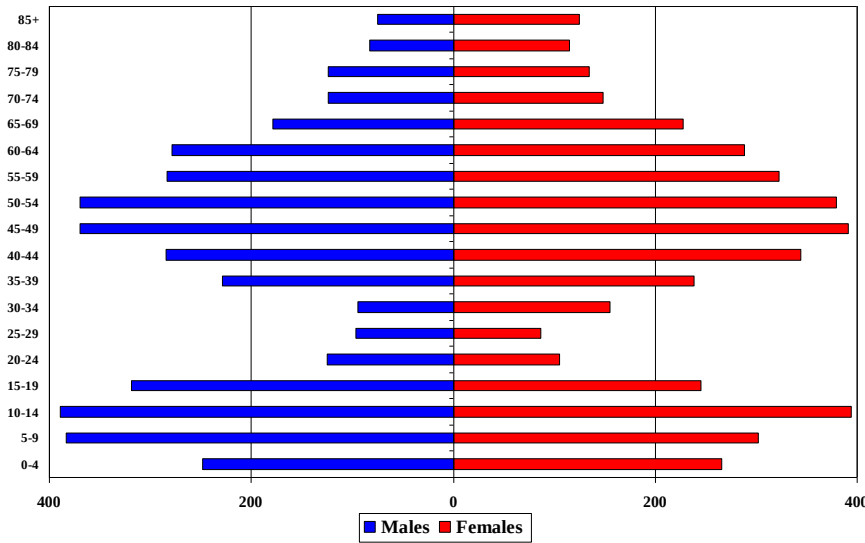
Hillside School Total Population – 2010 Census



Mitchell School Total Population – 2010 Census



Newman School Total Population – 2010 Census



Appendix D: Enrollment Forecasts, Scenario: Best

Needham Public Schools Total Enrollment, Scenario: Best

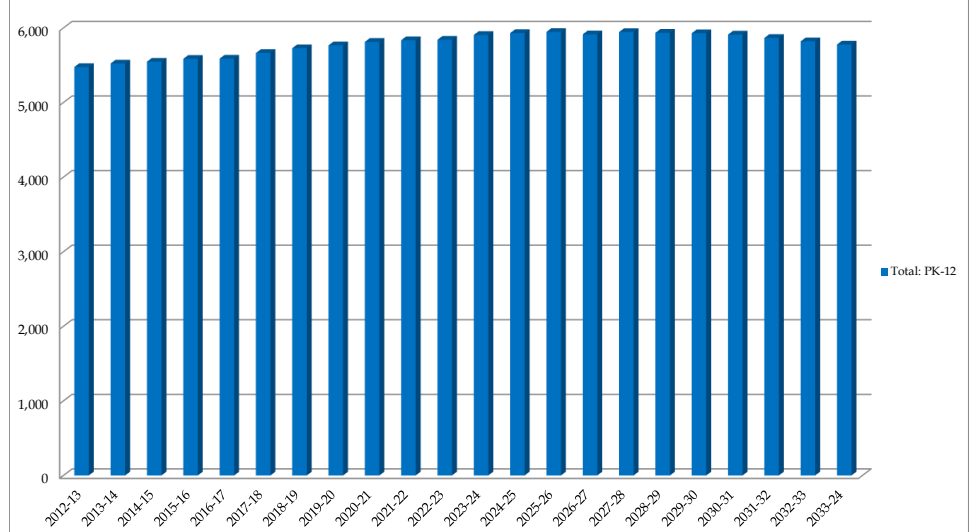
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-24
PK	82	84	82	82	80	82	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
K	414	406	365	404	369	404	412	426	422	417	414	411	411	408	408	405	407	400	393	387	381	384
1	419	441	449	387	433	411	430	446	439	435	429	426	422	422	419	419	417	415	408	401	395	389
2	390	419	444	471	397	448	434	442	459	451	447	439	436	432	433	430	431	429	428	421	414	407
3	450	413	416	450	473	396	460	440	446	463	459	456	448	445	443	444	441	442	440	439	432	424
4	419	444	409	415	455	481	413	463	443	449	466	461	458	450	449	446	449	447	448	446	445	438
5	427	436	439	415	425	453	492	416	466	446	452	470	465	462	454	453	451	454	452	453	451	450
Total: K-5	2,519	2,559	2,522	2,542	2,552	2,593	2,641	2,633	2,675	2,661	2,667	2,663	2,640	2,619	2,606	2,597	2,596	2,587	2,569	2,547	2,518	2,492
6	482	427	451	451	421	450	450	504	426	478	459	466	484	479	474	465	464	462	465	461	462	460
Total: 6	482	427	451	451	421	450	450	504	426	478	459	466	484	479	474	465	464	462	465	461	462	460
7	421	467	404	439	445	408	440	446	499	422	473	457	464	482	477	472	463	462	460	463	459	460
8	410	404	457	400	431	446	392	431	437	489	414	468	452	459	477	472	470	461	460	455	458	454
Total: 7-8	831	871	861	839	876	854	832	877	936	911	887	925	916	941	954	944	933	923	920	918	917	914
9	420	414	400	449	416	435	450	396	435	441	494	420	475	459	466	482	477	475	466	465	460	463
10	398	417	418	396	446	414	428	446	392	431	437	489	416	470	454	461	477	472	470	461	460	455
11	369	382	416	407	396	441	404	424	442	388	427	433	484	412	465	449	456	472	467	465	456	455
12	366	363	389	412	401	395	436	400	420	438	384	423	429	479	408	460	445	451	467	462	460	451
SP	9	6	8	8	-	-	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total: 9-12	1,562	1,582	1,631	1,672	1,659	1,685	1,722	1,670	1,693	1,702	1,746	1,769	1,808	1,824	1,797	1,856	1,859	1,874	1,874	1,857	1,840	1,828
Total: PK-12	5,476	5,523	5,547	5,586	5,588	5,664	5,728	5,767	5,813	5,835	5,842	5,906	5,931	5,946	5,914	5,945	5,935	5,929	5,911	5,866	5,820	5,777
Total: PK-12	5,476	5,523	5,547	5,586	5,588	5,664	5,728	5,767	5,813	5,835	5,842	5,906	5,931	5,946	5,914	5,945	5,935	5,929	5,911	5,866	5,820	5,777
Change		47	24	39	2	76	64	39	46	22	7	64	25	15	-32	31	-10	-6	-18	-45	-46	-43
%-Change		0.9%	0.4%	0.7%	0.0%	1.4%	1.1%	0.7%	0.8%	0.4%	0.1%	1.1%	0.4%	0.3%	-0.5%	0.5%	-0.2%	-0.1%	-0.3%	-0.8%	-0.8%	-0.7%
Total: K-5	2,519	2,559	2,522	2,542	2,552	2,593	2,641	2,633	2,675	2,661	2,667	2,663	2,640	2,619	2,606	2,597	2,596	2,587	2,569	2,547	2,518	2,492
Change		40	-37	20	10	41	48	-8	42	-14	6	-4	-23	-21	-13	-9	-1	-9	-18	-22	-29	-26
%-Change		1.6%	-1.4%	0.8%	0.4%	1.6%	1.9%	-0.3%	1.6%	-0.5%	0.2%	-0.1%	-0.9%	-0.8%	-0.5%	-0.3%	0.0%	-0.3%	-0.7%	-0.9%	-1.1%	-1.0%
Total: 6	482	427	451	451	421	450	450	504	426	478	459	466	484	479	474	465	464	462	465	461	462	460
Change		-55	24	0	-30	29	0	54	-78	52	-19	7	18	-5	-5	-9	-1	-2	3	-4	1	-2
%-Change		-11.4%	5.6%	0.0%	-6.7%	6.9%	0.0%	12.0%	-15.5%	12.2%	-4.0%	1.5%	3.9%	-1.0%	-1.0%	-1.9%	-0.2%	-0.4%	0.6%	-0.9%	0.2%	-0.4%
Total: 7-8	831	871	861	839	876	854	832	877	936	911	887	925	916	941	954	944	933	923	920	918	917	914
Change		40	-10	-22	37	-22	-22	45	59	-25	-24	38	-9	25	13	-10	-11	-10	-3	-2	-1	-3
%-Change		4.8%	-1.1%	-2.6%	4.4%	-2.5%	-2.6%	5.4%	6.7%	-2.7%	-2.6%	4.3%	-1.0%	2.7%	1.4%	-1.0%	-1.2%	-1.1%	-0.3%	-0.2%	-0.1%	-0.3%
Total: 9-12	1,562	1,582	1,631	1,672	1,659	1,685	1,722	1,670	1,693	1,702	1,746	1,769	1,808	1,824	1,797	1,856	1,859	1,874	1,874	1,857	1,840	1,828
Change		20	49	41	-13	26	37	-52	23	9	44	23	39	16	-27	59	3	15	0	-17	-17	-12
%-Change		1.3%	3.1%	2.5%	-0.8%	1.6%	2.2%	-3.0%	1.4%	0.5%	2.6%	1.3%	2.2%	0.9%	-1.5%	3.3%	0.2%	0.8%	0.0%	-0.9%	-0.9%	-0.7%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years

Needham Public Schools Total Enrollment, Scenario: Best



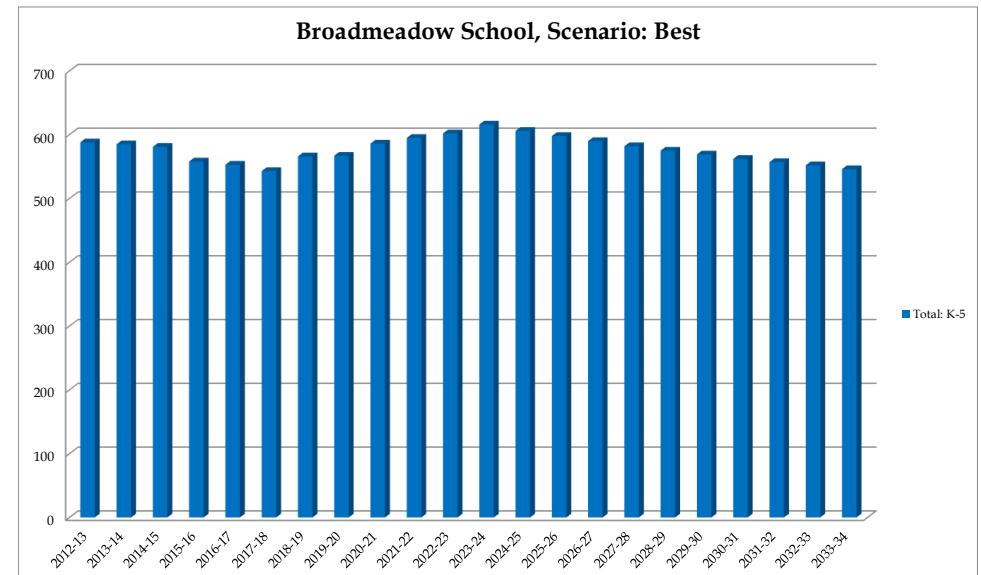
Broadmeadow School, Scenario: Best

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
K	100	84	76	81	71	71	97	99	98	97	95	94	93	91	90	89	88	87	85	84	83	82
1	89	108	104	83	89	85	83	106	102	101	100	98	97	96	94	93	92	91	90	88	87	86
2	88	92	106	107	84	90	95	85	109	105	104	103	101	100	99	97	96	95	94	94	92	90
3	119	94	93	104	110	85	96	97	87	111	108	107	106	104	103	102	100	99	98	98	98	96
4	87	120	89	91	107	106	86	95	96	86	110	106	105	104	102	101	100	99	98	97	97	97
5	105	87	113	92	92	106	109	85	94	95	85	108	104	103	102	100	99	98	97	96	95	95
Total: K-5	588	585	581	558	553	543	566	567	586	595	602	616	606	598	590	582	575	569	562	557	552	546
Total: K-5	588	585	581	558	553	543	566	567	586	595	602	616	606	598	590	582	575	569	562	557	552	546
Change		-3	-4	-23	-5	-10	23	1	19	9	7	14	-10	-8	-8	-8	-7	-6	-7	-5	-5	-6
% Change		-0.5%	-0.7%	-4.0%	-0.9%	-1.8%	4.2%	0.2%	3.4%	1.5%	1.2%	2.3%	-1.6%	-1.3%	-1.3%	-1.4%	-1.2%	-1.0%	-1.2%	-0.9%	-0.9%	-1.1%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years



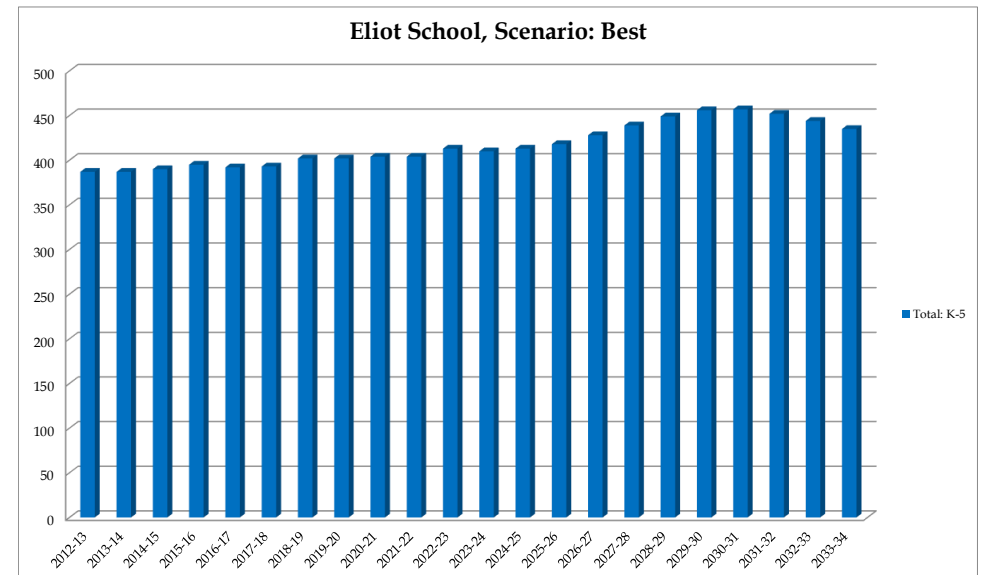
Eliot School, Scenario: Best

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
K	59	58	57	61	57	64	60	65	65	64	65	66	69	71	73	74	74	72	70	68	67	68
1	65	65	67	61	64	58	70	66	67	67	66	67	67	70	72	74	76	75	73	71	69	68
2	56	67	71	73	57	65	59	72	68	68	68	67	68	68	72	74	76	78	77	74	72	70
3	66	61	63	72	73	57	68	60	73	69	69	69	68	69	70	74	76	78	80	78	75	73
4	70	62	67	63	74	75	69	69	61	74	70	70	70	69	71	71	75	77	79	81	79	76
5	71	74	65	65	67	74	76	70	70	62	75	71	71	71	70	72	72	76	78	80	82	80
Total: K-5	387	387	390	395	392	393	402	402	404	404	413	410	413	418	428	439	449	456	457	452	444	435
Total: K-5	387	387	390	395	392	393	402	402	404	404	413	410	413	418	428	439	449	456	457	452	444	435
Change		0	3	5	-3	1	9	0	2	0	9	-3	3	5	10	11	10	7	1	-5	-8	-9
% Change		0.0%	0.8%	1.3%	-0.8%	0.3%	2.3%	0.0%	0.5%	0.0%	2.2%	-0.7%	0.7%	1.2%	2.4%	2.6%	2.3%	1.6%	0.2%	-1.1%	-1.8%	-2.0%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years



Hillside School, Scenario: Best

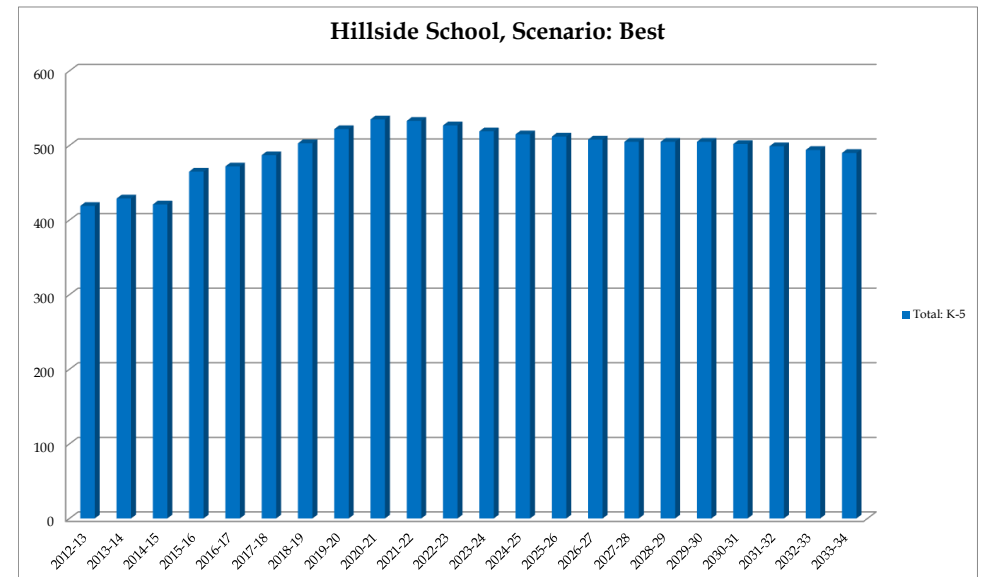
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
K	72	71	57	82	76	83	76	81	81	81	81	80	80	79	79	78	78	77	76	75	74	74
1	76	73	79	62	82	82	86	86	84	84	83	83	82	82	81	81	80	80	79	78	77	76
2	66	72	75	88	71	85	90	94	89	87	87	85	85	84	84	83	84	83	83	82	81	80
3	61	73	72	80	87	72	88	93	95	90	88	89	87	87	86	86	85	86	85	85	84	83
4	77	59	76	76	79	86	76	91	94	96	91	89	90	88	88	87	89	88	89	88	88	87
5	67	81	62	77	77	79	87	77	92	95	97	93	91	92	90	90	89	91	90	91	90	90
Total: K-5	419	429	421	465	472	487	503	522	535	533	527	519	515	512	508	505	505	505	502	499	494	490

Total: K-5	419	429	421	465	472	487	503	522	535	533	527	519	515	512	508	505	505	505	502	499	494	490
Change		10	-8	44	7	15	16	19	13	-2	-6	-8	-4	-3	-4	-3	0	0	-3	-3	-5	-4
% Change		2.4%	-1.9%	10.5%	1.5%	3.2%	3.3%	3.8%	2.5%	-0.4%	-1.1%	-1.5%	-0.8%	-0.6%	-0.8%	-0.6%	0.0%	0.0%	-0.6%	-0.6%	-1.0%	-0.8%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years



Mitchell School, Scenario: Best

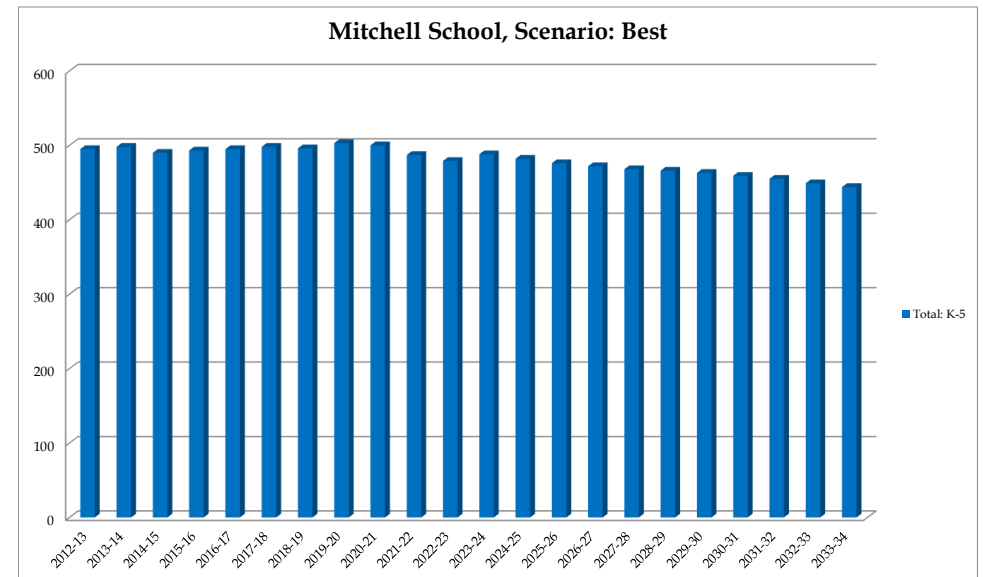
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
K	80	74	78	82	77	68	78	79	77	76	75	74	74	73	73	72	73	72	71	70	68	69
1	80	88	75	79	91	85	69	83	81	79	78	77	76	76	75	75	74	74	73	72	71	69
2	80	79	86	79	82	92	88	70	85	83	81	80	79	78	78	77	77	76	76	75	74	73
3	90	87	78	89	80	84	94	89	71	86	85	83	82	81	80	80	79	79	78	78	77	75
4	81	88	87	78	89	79	86	95	90	72	87	86	84	83	82	81	81	80	80	79	79	78
5	84	82	86	86	76	90	81	87	96	91	73	88	87	85	84	83	82	82	81	81	80	80
Total: K-5	495	498	490	493	495	498	496	503	500	487	479	488	482	476	472	468	466	463	459	455	449	444

Total: K-5	495	498	490	493	495	498	496	503	500	487	479	488	482	476	472	468	466	463	459	455	449	444
Change		3	-8	3	2	3	-2	7	-3	-13	-8	9	-6	-6	-4	-4	-2	-3	-4	-4	-6	-5
% Change		0.6%	-1.6%	0.6%	0.4%	0.6%	-0.4%	1.4%	-0.6%	-2.6%	-1.6%	1.9%	-1.2%	-1.2%	-0.8%	-0.8%	-0.4%	-0.6%	-0.9%	-0.9%	-1.3%	-1.1%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years



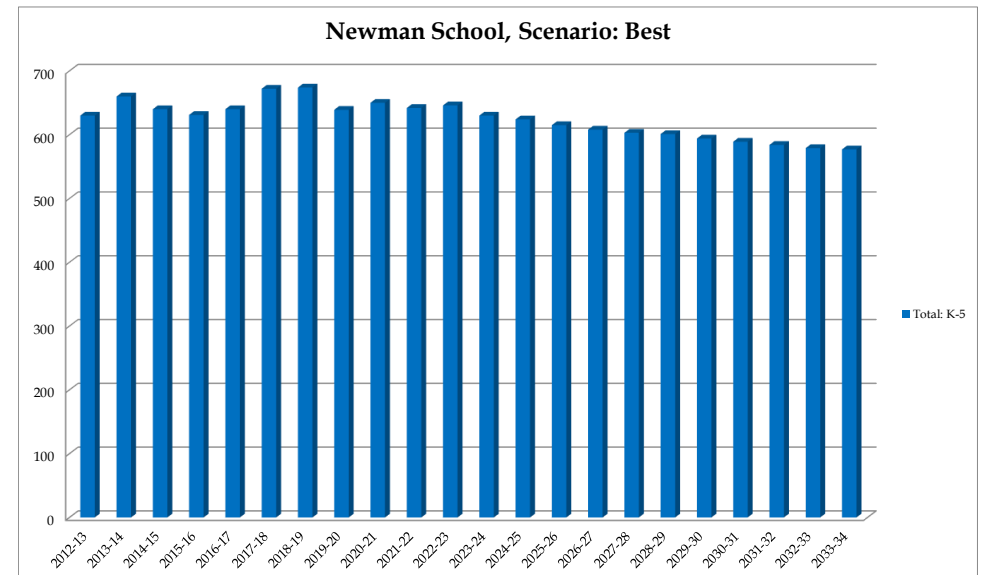
Newman School, Scenario: Best

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
K	103	119	97	98	88	118	101	102	101	99	98	97	95	94	93	92	94	92	91	90	89	91
1	109	107	124	102	107	101	122	105	105	104	102	101	100	98	97	96	95	95	93	92	91	90
2	100	109	106	124	103	116	102	121	108	108	107	104	103	102	100	99	98	97	98	96	95	94
3	114	98	110	105	123	98	114	101	120	107	109	108	105	104	104	102	101	100	99	100	98	97
4	104	115	90	107	106	135	96	113	102	121	108	110	109	106	106	106	104	103	102	101	102	100
5	100	112	113	95	113	104	139	97	114	103	122	110	112	111	108	108	109	107	106	105	104	105
Total: K-5	630	660	640	631	640	672	674	639	650	642	646	630	624	615	608	603	601	594	589	584	579	577
Total: K-5	630	660	640	631	640	672	674	639	650	642	646	630	624	615	608	603	601	594	589	584	579	577
Change		30	-20	-9	9	32	2	-35	11	-8	4	-16	-6	-9	-7	-5	-2	-7	-5	-5	-5	-2
% Change		4.8%	-3.0%	-1.4%	1.4%	5.0%	0.3%	-5.2%	1.7%	-1.2%	0.6%	-2.5%	-1.0%	-1.4%	-1.1%	-0.8%	-0.3%	-1.2%	-0.8%	-0.8%	-0.9%	-0.3%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years



High Rock School, Scenario: Best

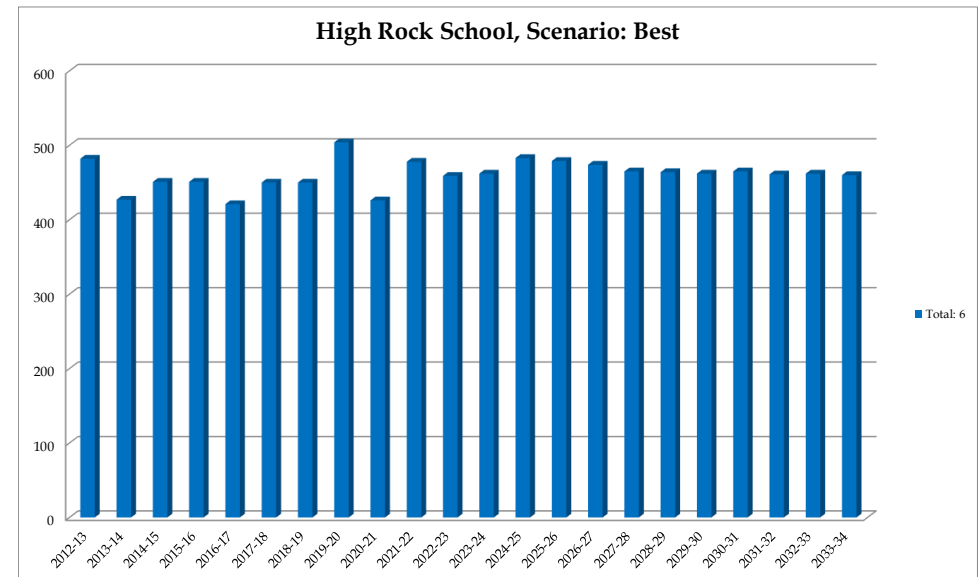
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
6	482	427	451	451	421	450	450	504	426	478	459	462	483	479	474	465	464	462	465	461	462	460
Total: 6	482	427	451	451	421	450	450	504	426	478	459	462	483	479	474	465	464	462	465	461	462	460

Total: 6	482	427	451	451	421	450	450	504	426	478	459	462	483	479	474	465	464	462	465	461	462	460
Change		-55	24	0	-30	29	0	54	-78	52	-19	3	21	-4	-5	-9	-1	-2	3	-4	1	-2
% Change		-11.4%	5.6%	0.0%	-6.7%	6.9%	0.0%	12.0%	-15.5%	12.2%	-4.0%	0.7%	4.5%	-0.8%	-1.0%	-1.9%	-0.2%	-0.4%	0.6%	-0.9%	0.2%	-0.4%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years



Pollard Middle School, Scenario: Best

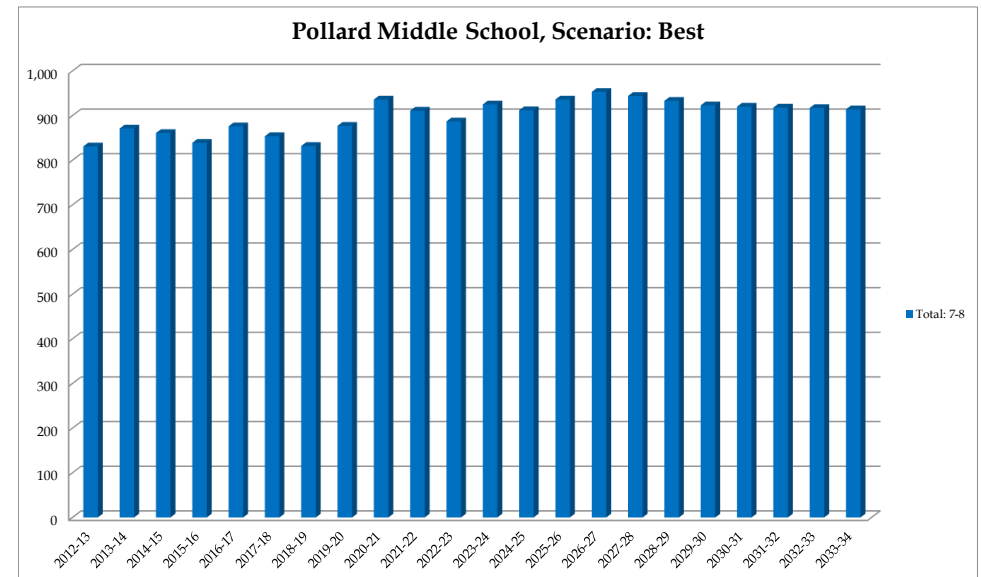
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
7	421	467	404	439	445	408	440	446	499	422	473	457	460	481	477	472	463	462	460	463	459	460
8	410	404	457	400	431	446	392	431	437	489	414	468	452	455	476	472	470	461	460	455	458	454
Total: 7-8	831	871	861	839	876	854	832	877	936	911	887	925	912	936	953	944	933	923	920	918	917	914

Total: 7-8	831	871	861	839	876	854	832	877	936	911	887	925	912	936	953	944	933	923	920	918	917	914
Change		40	-10	-22	37	-22	-22	45	59	-25	-24	38	-13	24	17	-9	-11	-10	-3	-2	-1	-3
% Change		4.8%	-1.1%	-2.6%	4.4%	-2.5%	-2.6%	5.4%	6.7%	-2.7%	-2.6%	4.3%	-1.4%	2.6%	1.8%	-0.9%	-1.2%	-1.1%	-0.3%	-0.2%	-0.1%	-0.3%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years



Needham High School, Scenario: Best

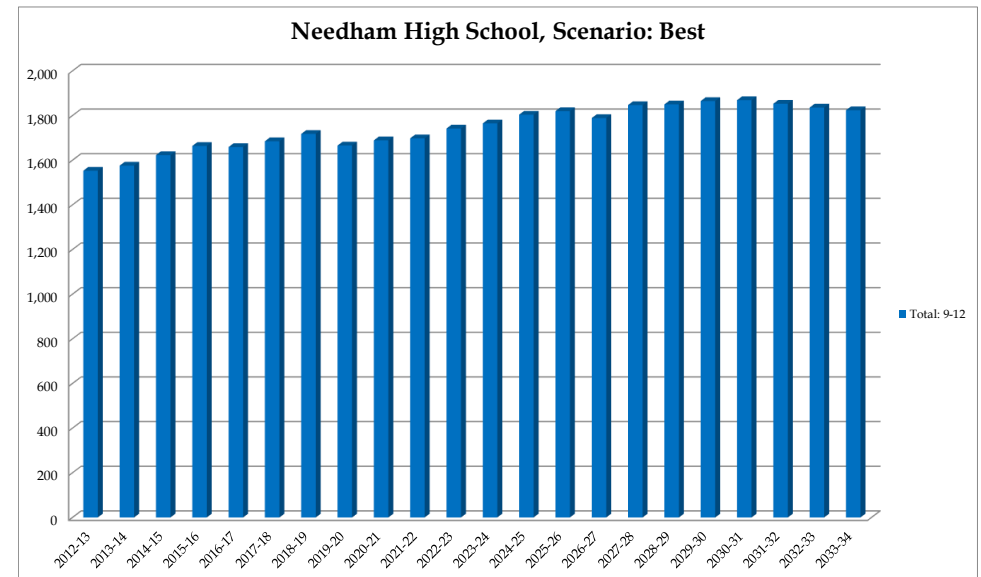
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
9	420	414	400	449	416	435	450	396	435	441	494	420	475	459	462	481	477	475	466	465	460	463
10	398	417	418	396	446	414	428	446	392	431	437	489	416	470	454	457	476	472	470	461	460	455
11	369	382	416	407	396	441	404	424	442	388	427	433	484	412	465	449	452	471	467	465	456	455
12	366	363	389	412	401	395	436	400	420	438	384	423	429	479	408	460	445	447	466	462	460	451
Total: 9-12	1,553	1,576	1,623	1,664	1,659	1,685	1,718	1,666	1,689	1,698	1,742	1,765	1,804	1,820	1,789	1,847	1,850	1,865	1,869	1,853	1,836	1,824

Total: 9-12	1,553	1,576	1,623	1,664	1,659	1,685	1,718	1,666	1,689	1,698	1,742	1,765	1,804	1,820	1,789	1,847	1,850	1,865	1,869	1,853	1,836	1,824
Change		23	47	41	-5	26	33	-52	23	9	44	23	39	16	-31	58	3	15	4	-16	-17	-12
% Change		1.5%	3.0%	2.5%	-0.3%	1.6%	2.0%	-3.0%	1.4%	0.5%	2.6%	1.3%	2.2%	0.9%	-1.7%	3.2%	0.2%	0.8%	0.2%	-0.9%	-0.9%	-0.7%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years



Appendix E: Enrollment Forecasts, Scenario: High

Needham Public Schools Total Enrollment, Scenario: High

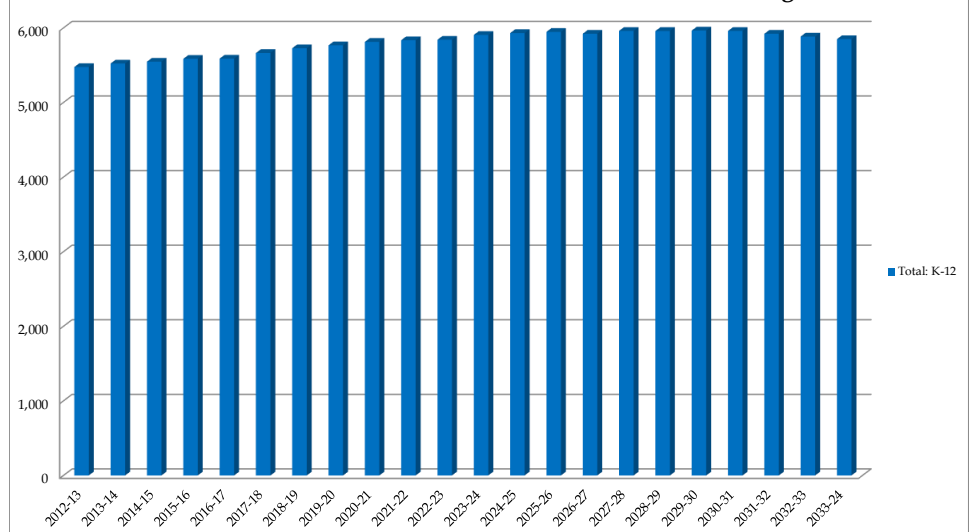
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-24
PK	82	84	82	82	80	82	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
K	414	406	365	404	369	404	412	426	422	417	414	411	411	409	411	410	413	409	404	399	394	398
1	419	441	449	387	433	411	430	446	439	435	429	426	422	422	420	420	419	418	412	407	402	397
2	390	419	444	471	397	448	434	442	459	451	447	439	436	432	434	432	433	432	432	425	420	414
3	450	413	416	450	473	396	460	440	446	463	459	456	448	445	444	446	444	445	444	443	436	430
4	419	444	409	415	455	481	413	463	443	449	466	461	458	450	448	453	452	453	450	449	449	442
5	427	436	439	415	425	453	492	416	466	446	452	470	465	462	455	455	455	460	459	458	455	454
Total: K-5	2,519	2,559	2,522	2,542	2,552	2,593	2,641	2,633	2,675	2,661	2,667	2,663	2,640	2,620	2,614	2,611	2,617	2,616	2,604	2,582	2,556	2,535
6	482	427	451	451	421	450	450	504	426	478	459	466	484	479	474	466	466	466	472	468	467	464
Total: 6	482	427	451	451	421	450	450	504	426	478	459	466	484	479	474	466	466	466	472	468	467	464
7	421	467	404	439	445	408	440	446	499	422	473	457	464	482	477	472	464	464	464	470	466	465
8	410	404	457	400	431	446	392	431	437	489	414	468	452	459	477	472	470	462	462	459	465	461
Total: 7-8	831	871	861	839	876	854	832	877	936	911	887	925	916	941	954	944	934	926	926	929	931	926
9	420	414	400	449	416	435	450	396	435	441	494	420	475	459	466	482	477	475	467	467	464	470
10	398	417	418	396	446	414	428	446	392	431	437	489	416	470	454	461	477	472	470	462	462	459
11	369	382	416	407	396	441	404	424	442	388	427	433	484	412	465	449	456	472	467	465	457	457
12	366	363	389	412	401	395	436	400	420	438	384	423	429	479	408	460	445	451	467	462	460	452
SP	9	6	8	8	-	-	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total: 9-12	1,562	1,582	1,631	1,672	1,659	1,685	1,722	1,670	1,693	1,702	1,746	1,769	1,808	1,824	1,797	1,856	1,859	1,874	1,875	1,860	1,847	1,842
Total: K-12	5,476	5,523	5,547	5,586	5,588	5,664	5,728	5,767	5,813	5,835	5,842	5,906	5,931	5,947	5,922	5,960	5,959	5,965	5,960	5,922	5,884	5,850
Change		47	24	39	2	76	64	39	46	22	7	64	25	16	-25	38	-1	6	-5	-38	-38	-34
%-Change		0.9%	0.4%	0.7%	0.0%	1.4%	1.1%	0.7%	0.8%	0.4%	0.1%	1.1%	0.4%	0.3%	-0.4%	0.6%	0.0%	0.1%	-0.1%	-0.6%	-0.6%	-0.6%
Total: K-5	2,519	2,559	2,522	2,542	2,552	2,593	2,641	2,633	2,675	2,661	2,667	2,663	2,640	2,620	2,614	2,611	2,617	2,616	2,604	2,582	2,556	2,535
Change		40	-37	20	10	41	48	-8	42	-14	6	-4	-23	-20	-6	-3	6	-1	-12	-22	-26	-21
%-Change		1.6%	-1.4%	0.8%	0.4%	1.6%	1.9%	-0.3%	1.6%	-0.5%	0.2%	-0.1%	-0.9%	-0.8%	-0.2%	-0.1%	0.2%	0.0%	-0.5%	-0.8%	-1.0%	-0.8%
Total: 6	482	427	451	451	421	450	450	504	426	478	459	466	484	479	474	466	466	466	472	468	467	464
Change		-55	24	0	-30	29	0	54	-78	52	-19	7	18	-5	-5	-8	0	0	6	-4	-1	-3
%-Change		-11.4%	5.6%	0.0%	-6.7%	6.9%	0.0%	12.0%	-15.5%	12.2%	-4.0%	1.5%	3.9%	-1.0%	-1.0%	-1.7%	0.0%	0.0%	1.3%	-0.8%	-0.2%	-0.6%
Total: 7-8	831	871	861	839	876	854	832	877	936	911	887	925	916	941	954	944	934	926	926	929	931	926
Change		40	-10	-22	37	-22	-22	45	59	-25	-24	38	-9	25	13	-10	-10	-8	0	3	2	-5
%-Change		4.8%	-1.1%	-2.6%	4.4%	-2.5%	-2.6%	5.4%	6.7%	-2.7%	-2.6%	4.3%	-1.0%	2.7%	1.4%	-1.0%	-1.1%	-0.9%	0.0%	0.3%	0.2%	-0.5%
Total: 9-12	1,562	1,582	1,631	1,672	1,659	1,685	1,722	1,670	1,693	1,702	1,746	1,769	1,808	1,824	1,797	1,856	1,859	1,874	1,875	1,860	1,847	1,842
Change		20	49	41	-13	26	37	-52	23	9	44	23	39	16	-27	59	3	15	1	-15	-13	-5
%-Change		1.3%	3.1%	2.5%	-0.8%	1.6%	2.2%	-3.0%	1.4%	0.5%	2.6%	1.3%	2.2%	0.9%	-1.5%	3.3%	0.2%	0.8%	0.1%	-0.8%	-0.7%	-0.3%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years

Needham Public Schools Total Enrollment, Scenario: High



Broadmeadow School, Scenario: High

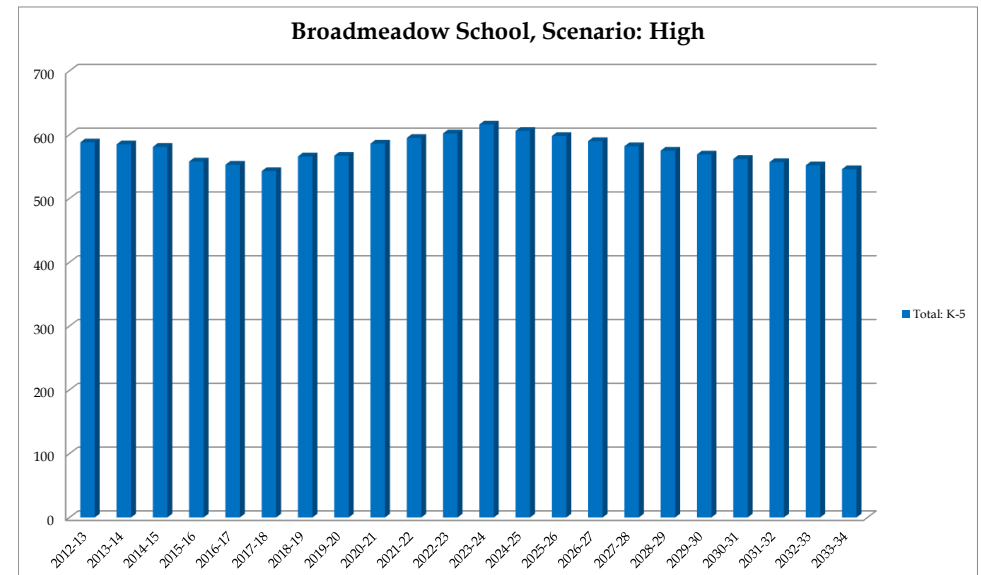
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
K	100	84	76	81	71	71	97	99	98	97	95	94	93	91	90	89	88	87	85	84	83	82
1	89	108	104	83	89	85	83	106	102	101	100	98	97	96	94	93	92	91	90	88	87	86
2	88	92	106	107	84	90	95	85	109	105	104	103	101	100	99	97	96	95	94	94	92	90
3	119	94	93	104	110	85	96	97	87	111	108	107	106	104	103	102	100	99	98	98	98	96
4	87	120	89	91	107	106	86	95	96	86	110	106	105	104	102	101	100	99	98	97	97	97
5	105	87	113	92	92	106	109	85	94	95	85	108	104	103	102	100	99	98	97	96	95	95
Total: K-5	588	585	581	558	553	543	566	567	586	595	602	616	606	598	590	582	575	569	562	557	552	546

Total: K-5	588	585	581	558	553	543	566	567	586	595	602	616	606	598	590	582	575	569	562	557	552	546
Change		-3	-4	-23	-5	-10	23	1	19	9	7	14	-10	-8	-8	-8	-7	-6	-7	-5	-5	-6
% Change		-0.5%	-0.7%	-4.0%	-0.9%	-1.8%	4.2%	0.2%	3.4%	1.5%	1.2%	2.3%	-1.6%	-1.3%	-1.3%	-1.4%	-1.2%	-1.0%	-1.2%	-0.9%	-0.9%	-1.1%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years



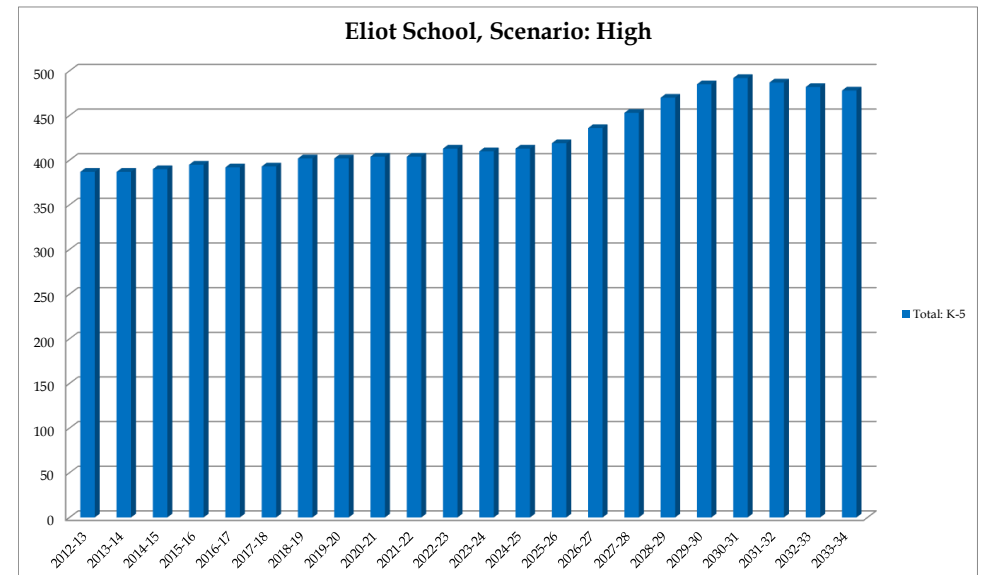
Eliot School, Scenario: High

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
K	59	58	57	61	57	64	60	65	65	64	65	66	69	72	76	79	80	81	81	80	80	82
1	65	65	67	61	64	58	70	66	67	67	66	67	67	70	73	75	78	78	77	77	76	76
2	56	67	71	73	57	65	59	72	68	68	68	67	68	68	73	76	78	81	81	78	78	77
3	66	61	63	72	73	57	68	60	73	69	69	69	68	69	71	76	79	81	84	82	79	79
4	70	62	67	63	74	75	69	69	61	74	70	70	70	69	72	73	79	82	84	85	83	80
5	71	74	65	65	67	74	76	70	70	62	75	71	71	71	71	74	76	82	85	85	86	84
Total: K-5	387	387	390	395	392	393	402	402	404	404	413	410	413	419	436	453	470	485	492	487	482	478
Total: K-5	387	387	390	395	392	393	402	402	404	404	413	410	413	419	436	453	470	485	492	487	482	478
Change		0	3	5	-3	1	9	0	2	0	9	-3	3	6	17	17	17	15	7	-5	-5	-4
% Change		0.0%	0.8%	1.3%	-0.8%	0.3%	2.3%	0.0%	0.5%	0.0%	2.2%	-0.7%	0.7%	1.5%	4.1%	3.9%	3.8%	3.2%	1.4%	-1.0%	-1.0%	-0.8%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years



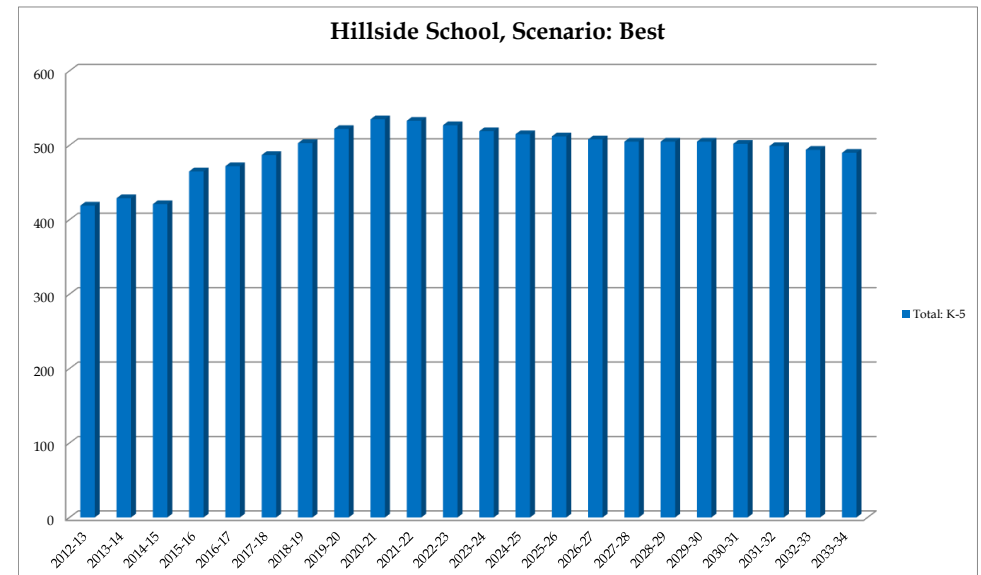
Hillside School, Scenario: High

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
K	72	71	57	82	76	83	76	81	81	81	81	80	80	79	79	78	78	77	76	75	74	74
1	76	73	79	62	82	82	86	86	84	84	83	83	82	82	81	81	80	80	79	78	77	76
2	66	72	75	88	71	85	90	94	89	87	87	85	85	84	84	83	84	83	83	82	81	80
3	61	73	72	80	87	72	88	93	95	90	88	89	87	87	86	86	85	86	85	85	84	83
4	77	59	76	76	79	86	76	91	94	96	91	89	90	88	88	87	89	88	89	88	88	87
5	67	81	62	77	77	79	87	77	92	95	97	93	91	92	90	90	89	91	90	91	90	90
Total: K-5	419	429	421	465	472	487	503	522	535	533	527	519	515	512	508	505	505	505	502	499	494	490
Total: K-5	419	429	421	465	472	487	503	522	535	533	527	519	515	512	508	505	505	505	502	499	494	490
Change		10	-8	44	7	15	16	19	13	-2	-6	-8	-4	-3	-4	-3	0	0	-3	-3	-5	-4
% Change		2.4%	-1.9%	10.5%	1.5%	3.2%	3.3%	3.8%	2.5%	-0.4%	-1.1%	-1.5%	-0.8%	-0.6%	-0.8%	-0.6%	0.0%	0.0%	-0.6%	-0.6%	-1.0%	-0.8%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years



Mitchell School, Scenario: High

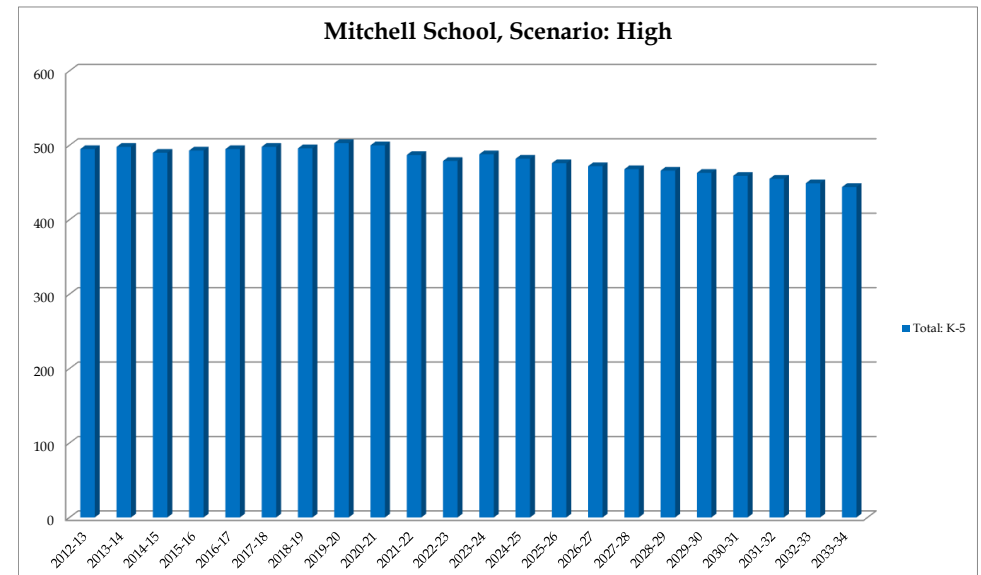
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
K	80	74	78	82	77	68	78	79	77	76	75	74	74	73	73	72	73	72	71	70	68	69
1	80	88	75	79	91	85	69	83	81	79	78	77	76	76	75	75	74	74	73	72	71	69
2	80	79	86	79	82	92	88	70	85	83	81	80	79	78	78	77	77	76	76	75	74	73
3	90	87	78	89	80	84	94	89	71	86	85	83	82	81	80	80	79	79	78	78	77	75
4	81	88	87	78	89	79	86	95	90	72	87	86	84	83	82	81	81	80	80	79	79	78
5	84	82	86	86	76	90	81	87	96	91	73	88	87	85	84	83	82	82	81	81	80	80
Total: K-5	495	498	490	493	495	498	496	503	500	487	479	488	482	476	472	468	466	463	459	455	449	444

Total: K-5	495	498	490	493	495	498	496	503	500	487	479	488	482	476	472	468	466	463	459	455	449	444
Change		3	-8	3	2	3	-2	7	-3	-13	-8	9	-6	-6	-4	-4	-2	-3	-4	-4	-6	-5
% Change		0.6%	-1.6%	0.6%	0.4%	0.6%	-0.4%	1.4%	-0.6%	-2.6%	-1.6%	1.9%	-1.2%	-1.2%	-0.8%	-0.8%	-0.4%	-0.6%	-0.9%	-0.9%	-1.3%	-1.1%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years



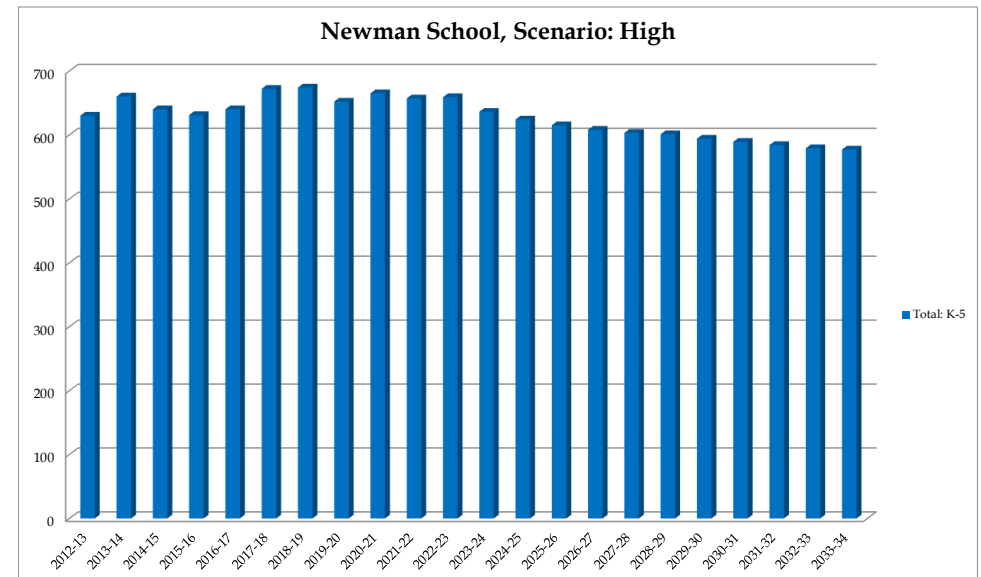
Newman School, Scenario: High

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
K	103	119	97	98	88	118	101	102	101	99	98	97	95	94	93	92	94	92	91	90	89	91
1	109	107	124	102	107	101	122	105	105	104	102	101	100	98	97	96	95	95	93	92	91	90
2	100	109	106	124	103	116	102	121	108	108	107	104	103	102	100	99	98	97	98	96	95	94
3	114	98	110	105	123	98	114	101	120	107	109	108	105	104	104	102	101	100	99	100	98	97
4	104	115	90	107	106	135	96	113	102	121	108	110	109	106	106	106	104	103	102	101	102	100
5	100	112	113	95	113	104	139	97	114	103	122	110	112	111	108	108	109	107	106	105	104	105
Total: K-5	630	660	640	631	640	672	674	639	650	642	646	630	624	615	608	603	601	594	589	584	579	577
Total: K-5	630	660	640	631	640	672	674	639	650	642	646	630	624	615	608	603	601	594	589	584	579	577
Change		30	-20	-9	9	32	2	-35	11	-8	4	-16	-6	-9	-7	-5	-2	-7	-5	-5	-5	-2
% Change		4.8%	-3.0%	-1.4%	1.4%	5.0%	0.3%	-5.2%	1.7%	-1.2%	0.6%	-2.5%	-1.0%	-1.4%	-1.1%	-0.8%	-0.3%	-1.2%	-0.8%	-0.8%	-0.9%	-0.3%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years



High Rock School, Scenario: High

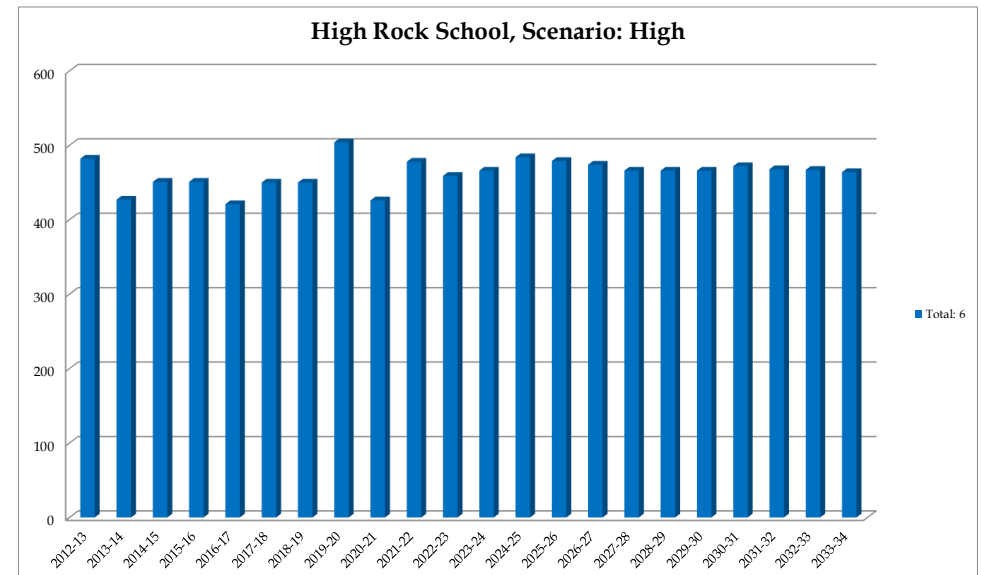
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
6	482	427	451	451	421	450	450	504	426	478	459	466	484	479	474	466	466	466	472	468	467	464
Total: 6	482	427	451	451	421	450	450	504	426	478	459	466	484	479	474	466	466	466	472	468	467	464

Total: 6	482	427	451	451	421	450	450	504	426	478	459	466	484	479	474	466	466	466	472	468	467	464
Change		-55	24	0	-30	29	0	54	-78	52	-19	7	18	-5	-5	-8	0	0	6	-4	-1	-3
% Change		-11.4%	5.6%	0.0%	-6.7%	6.9%	0.0%	12.0%	-15.5%	12.2%	-4.0%	1.5%	3.9%	-1.0%	-1.0%	-1.7%	0.0%	0.0%	1.3%	-0.8%	-0.2%	-0.6%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years



Pollard Middle School, Scenario: High

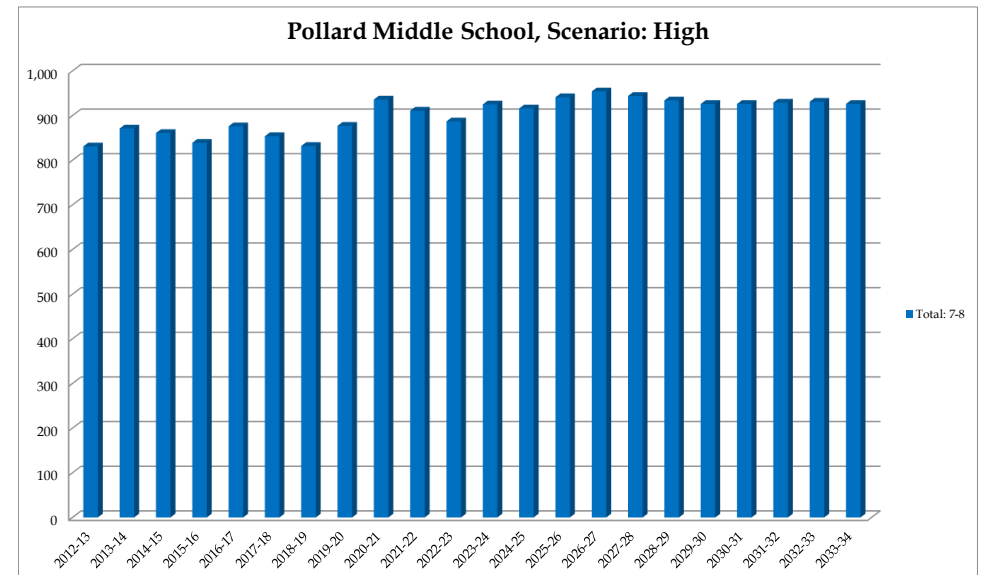
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
7	421	467	404	439	445	408	440	446	499	422	473	457	464	482	477	472	464	464	464	470	466	465
8	410	404	457	400	431	446	392	431	437	489	414	468	452	459	477	472	470	462	462	459	465	461
Total: 7-8	831	871	861	839	876	854	832	877	936	911	887	925	916	941	954	944	934	926	926	929	931	926

Total: 7-8	831	871	861	839	876	854	832	877	936	911	887	925	916	941	954	944	934	926	926	929	931	926
Change		40	-10	-22	37	-22	-22	45	59	-25	-24	38	-9	25	13	-10	-10	-8	0	3	2	-5
% Change		4.8%	-1.1%	-2.6%	4.4%	-2.5%	-2.6%	5.4%	6.7%	-2.7%	-2.6%	4.3%	-1.0%	2.7%	1.4%	-1.0%	-1.1%	-0.9%	0.0%	0.3%	0.2%	-0.5%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years



Needham High School, Scenario: High

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
9	420	414	400	449	416	435	450	396	435	441	494	420	475	459	466	482	477	475	467	467	464	470
10	398	417	418	396	446	414	428	446	392	431	437	489	416	470	454	461	477	472	470	462	462	459
11	369	382	416	407	396	441	404	424	442	388	427	433	484	412	465	449	456	472	467	465	457	457
12	366	363	389	412	401	395	436	400	420	438	384	423	429	479	408	460	445	451	467	462	460	452
Total: 9-12	1,553	1,576	1,623	1,664	1,659	1,685	1,718	1,666	1,689	1,698	1,742	1,765	1,804	1,820	1,793	1,852	1,855	1,870	1,871	1,856	1,843	1,838

Total: 9-12	1,553	1,576	1,623	1,664	1,659	1,685	1,718	1,666	1,689	1,698	1,742	1,765	1,804	1,820	1,793	1,852	1,855	1,870	1,871	1,856	1,843	1,838
Change		23	47	41	-5	26	33	-52	23	9	44	23	39	16	-27	59	3	15	1	-15	-13	-5
% Change		1.5%	3.0%	2.5%	-0.3%	1.6%	2.0%	-3.0%	1.4%	0.5%	2.6%	1.3%	2.2%	0.9%	-1.5%	3.3%	0.2%	0.8%	0.1%	-0.8%	-0.7%	-0.3%

Forecasts developed December 2018

Green Cells (2018-19 and earlier) are historical data

Blue Cells (2019-20 and later) are forecasted years

