



Andover Public Schools, MA Demographic Study

October, 2017

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Executive Summary

1. The resident total fertility rate for Andover Public Schools over the life of the forecasts is below replacement level. (1.62 vs. the replacement level of 2.1)
2. Most non-college 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.
4. The primary factors causing the district's enrollment to decline over the next 20 years are a substantial increase in the number of empty nest households, a relative low number of households with homeowners aged 70+ "turning over", and a smaller in migration flow of young households.
5. Changes in year-to-year enrollment over the next 15 years will primarily be due to the small size of the grade cohorts entering and moving through the school system in conjunction with the large size of the grade cohorts leaving the system.
6. The district's high school enrollment will experience a slight decline until the 2026-27 school years. At that point the trend will reverse as larger grade cohorts begin to age into 9th grade and relatively smaller 12th grade cohorts graduate.
7. The elementary enrollment will begin a small but consistent decline after the 2027-28 school year.
8. The median age of the population will increase from 42.1 in 2010 to 44.6 in 2035.
9. While the district will continue to have some level of annual new home construction, the rate, magnitude, and price of existing home sales will become an increasingly dominant factor affecting the amount of population and enrollment change.
10. Total district enrollment is forecasted to decrease by 63 students, or -1.1%, between 2017-18 and 2022-23. Total enrollment is forecasted to decrease by 34 students, or -0.6%, from 2022-23 to 2027-28. Total enrollment is forecasted to decrease by 64 students, or -1.1%, from 2027-28 to 2032-33. Total enrollment is forecasted to decrease by 134 students, or -2.3%, from 2032-33 to 2037-38.

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. A variety of factors influence the future population and enrollment changes of each school district. Not all factors will influence the entire school district at the same level. Some may affect different 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 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. 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, 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 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 20 years in the district and its attendance areas.

The first part of the report will examine the assumptions made in calculating the population forecasts for the Andover 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 Andover Public Schools provided enrollments by grade and attendance center for the school years 2011-2012 to 2017-18. Birth and death data for the years 2000 through 2016 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 2015. 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 350 of the over 12,000 current households in the district would have been included. For comparison 1,800 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 migration patterns, 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 Andover Public Schools as well as most other areas of the state during the previous 20 years, the rate of this decline has been forecasted to slow 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 2037. 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.

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 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 20-34) 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 1.62 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 Andover Public Schools over the course of the forecast period.

A close examination of data for the Andover 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 Andover Public Schools (and will change again over the next 20 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. The second largest group of out-migrants are those householders aged 70 and older who are downsizing their residences. Most of the local non-college in-migration occurs in the 0-to-9 and 30-to-44 year-old age groups (the bulk of the which come from areas

within 75 miles of the Andover Public Schools) primarily consisting of younger adults and their children.

As the Essex 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 Andover Public Schools and its attendance areas will remain the same through the year 2037. Below is a list of assumptions and issues that are specific to the Andover 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 Andover Public School assume that throughout the study period:

- a. There will be no short term economic recovery in the next 18 months and the national, state or regional economy does not go into deep recession at any time during the 20 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 reached a historic low and will not fluctuate more than one percentage point in the short term; the interest rate for a 30 year fixed home mortgage stays below 5.0%;
- 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 Essex County for any year in the forecasts;
- f. All currently planned, platted, and approved housing developments are built out and completed by 2035. All housing units constructed are occupied by 2036; (the future housing projects include, but are not limited to, Avalon Andover, Hamilton Green, The Slade and The Lodge. The proposed project at Dascomb Road is not included. The district will continue to experience a modest level of new construction due to "remove and replace".)
- g. The district will add an average of 30-35 new single family housing units each year until 2020. After 2020, the district will add an average of 20-25 single family housing units each year;
- h. The district will add an average of 60-70 new multi-family housing units each year until 2020. After 2020, the district will add an average of 50-60 multi-family housing units each year;
- i. The unemployment rates for the Essex County and the Boston Metropolitan Area will remain below 4.5% for the 20 years of the forecasts;
- j. The rate of students transferring into and out of the Andover Public Schools will remain at the 2011-12 to

2017-18 average;

- k. The renovations to the high school care completed by 2020 and the high school facility is fully operational by the 2021-22 school year;
- l. The inflation rate for gasoline will stay below 5% per year for the 20 years of the forecasts;
- m. There will be no building moratorium within the district and there are water or sewer restriction implemented over the life of the forecasts;
- n. The area private schools experience an average of 8% annual increase in to tuition over the next 20 years;
- o. Businesses within the district and the Andover Public Schools area will remain viable;
- p. After the high school renovations are completed in 2020, the district will retain an additional 4% of the incoming 8th grade cohorts into the high school each year.
- q. 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;
- r. 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;
- s. Private and home school attendance rates for elementary and middle school students will remain constant;
- t. The rate of foreclosures for commercial property remains at the 2004-2008 average for Essex County;

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 type of natural disaster, major change in the local infrastructure (e.g., highway construction, water and sewer expansion, changes in zoning regulations etc.), a further economic downturn, any additional weakness in the housing market 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 Andover 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 age group, and was taken into account when calculating these forecasts. 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 if a 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:

- a. a base-year population (here, the 2010 Census population for Andover Public Schools);
- b. a set of age-specific fertility rates for the district and the attendance areas to be used over the forecast period;
- c. a set of age-specific survival (mortality) rates for the district and the attendance areas;
- d. a set of age-specific migration rates for the district and the attendance areas, and;
- e. 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 Andover Public Schools area 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 Andover 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 Andover 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 Andover Public Schools for the period 2011 to 2017. 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 2018 to 2022. The survivorship rates were adjusted again for the period 2023 to 2027 to reflect the predicted changes in the amount of age-specific migration in the district for the period. The process is then repeated for each subsequent five year forecast 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. This calculation is for each forecasts year and not a cumulative effect. For example, given that there is not major violation of the assumptions, we are 95% sure the district's total enrollment in 2037 is forecasted to 5,634 plus or minus 113 students. (The forecast range of error would then be between 5,747 and 5,521)

At the individual school level, the margin of error is plus or minus 3%. Thus for the high school in 2037 we are 95% sure the enrollment that year would be 1,820 plus or minus 55 if there is not a major violation of the assumptions. (The forecast range of error would then be between 1,875 and 1,765)

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The Methods and Materials of Demography: Second Edition. Academic Press: New York, New York, 2004.
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Appendix A: Supplemental Tables

Table 1: Forecasted District Population Change, 2010 to 2035

	2010	2015	2010-2015 Change	2020	2015-2020 Change	2025	2020-2025 Change	2030	2025-2030 Change	2035	2030-2035 Change	2010-2035 Change
Bancroft Elementary	9,201	9,220	0.2%	9,170	-0.5%	9,080	-1.0%	9,010	-0.8%	8,830	-2.0%	-4.0%
High Plain Elementary	5,682	5,810	2.2%	5,950	2.4%	6,100	2.5%	6,220	2.0%	6,210	-0.2%	9.3%
Sanborn Elementary	3,925	4,050	3.1%	4,210	4.0%	4,300	2.1%	4,390	2.1%	4,450	1.4%	13.4%
South Elementary	5,920	6,030	1.8%	6,130	1.7%	6,200	1.1%	6,170	-0.5%	6,130	-0.6%	3.5%
West Elementary	8,473	8,500	0.3%	8,500	0.0%	8,520	0.2%	8,440	-0.9%	8,260	-2.1%	-2.5%
District Total	33,201	33,610	1.2%	33,960	1.0%	34,200	0.7%	34,230	0.1%	33,880	-1.0%	2.0%

Table 2: Household Characteristics by Elementary Area, 2010 Census

	HH w/ Pop Under 18	% HH w/ Pop Under 18	Total Households	Household Population	Persons Per Household
Bancroft Elementary	1,126	37.0%	3,042	7,931	2.61
High Plain Elementary	890	45.5%	1,957	5,660	2.89
Sanborn Elementary	624	46.7%	1,336	3,925	2.94
South Elementary	841	41.0%	2,048	5,819	2.84
West Elementary	1,196	34.5%	3,468	8,464	2.44
District Total	4,677	39.5%	11,851	31,798	2.68

Table 3: Householder Characteristics by Elementary Area, 2010 Census

	Percentage of Householders aged 35-54	Percentage of Householders aged 65+	Percentage of Householders Who Own Homes
Bancroft Elementary	46.5%	23.5%	75.9%
High Plain Elementary	52.7%	14.3%	77.9%
Sanborn Elementary	53.0%	18.4%	81.1%
South Elementary	48.9%	20.2%	89.9%
West Elementary	45.1%	27.7%	77.6%
District Total	48.3%	22.1%	79.7%

Table 4: Percentage of Households that are Single Person Households and Single Person Households that are over age 65 by Elementary Area , 2010 Census

	Percentage of Single Person Households	Percentage of Single Person Households and are 65+
Bancroft Elementary	25.5%	9.6%
High Plain Elementary	16.1%	4.7%
Sanborn Elementary	11.8%	4.3%
South Elementary	16.4%	6.5%
West Elementary	30.6%	14.9%
District Total	22.3%	9.2%

Table 5: Elementary Enrollment, 2017, 2022, 2027, 2032, 2037

	2017	2022	2017-2022 Change	2027	2022-2027 Change	2032	2027-2032 Change	2037	2032-2037 Change	2017-2037 Change
Bancroft Elementary	578	597	3.3%	570	-4.5%	551	-3.3%	538	-2.4%	-6.9%
High Plain Elementary	498	499	0.2%	523	4.8%	491	-6.1%	456	-7.1%	-8.4%
Sanborn Elementary	388	384	-1.0%	368	-4.2%	348	-5.4%	334	-4.0%	-13.9%
South Elementary	491	507	3.3%	476	-6.1%	464	-2.5%	484	4.3%	-1.4%
West Elementary	610	599	-1.8%	594	-0.8%	581	-2.2%	565	-2.8%	-7.4%
District Total	2,565	2,586	0.8%	2,531	-2.1%	2,435	-3.8%	2,377	-2.4%	-7.3%

Table 6: Age Under One to Age Ten Population Counts, by Year of Age, by Elementary Area: 2010 Census

	Under 1 year	1 year	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years	10 years
Bancroft Elementary	78	60	93	94	131	132	109	127	138	124	119
High Plain Elementary	52	48	73	57	68	81	111	102	93	94	109
Sanborn Elementary	31	40	36	63	34	64	69	67	73	67	79
South Elementary	50	39	50	72	63	92	83	83	105	101	107
West Elementary	81	81	96	95	107	107	127	141	116	124	131
District Total	292	268	347	380	402	476	498	520	524	510	545

Table 7: Comparison of District Enrollment by Grade with 2010 Census Counts by Age, 2010-2017

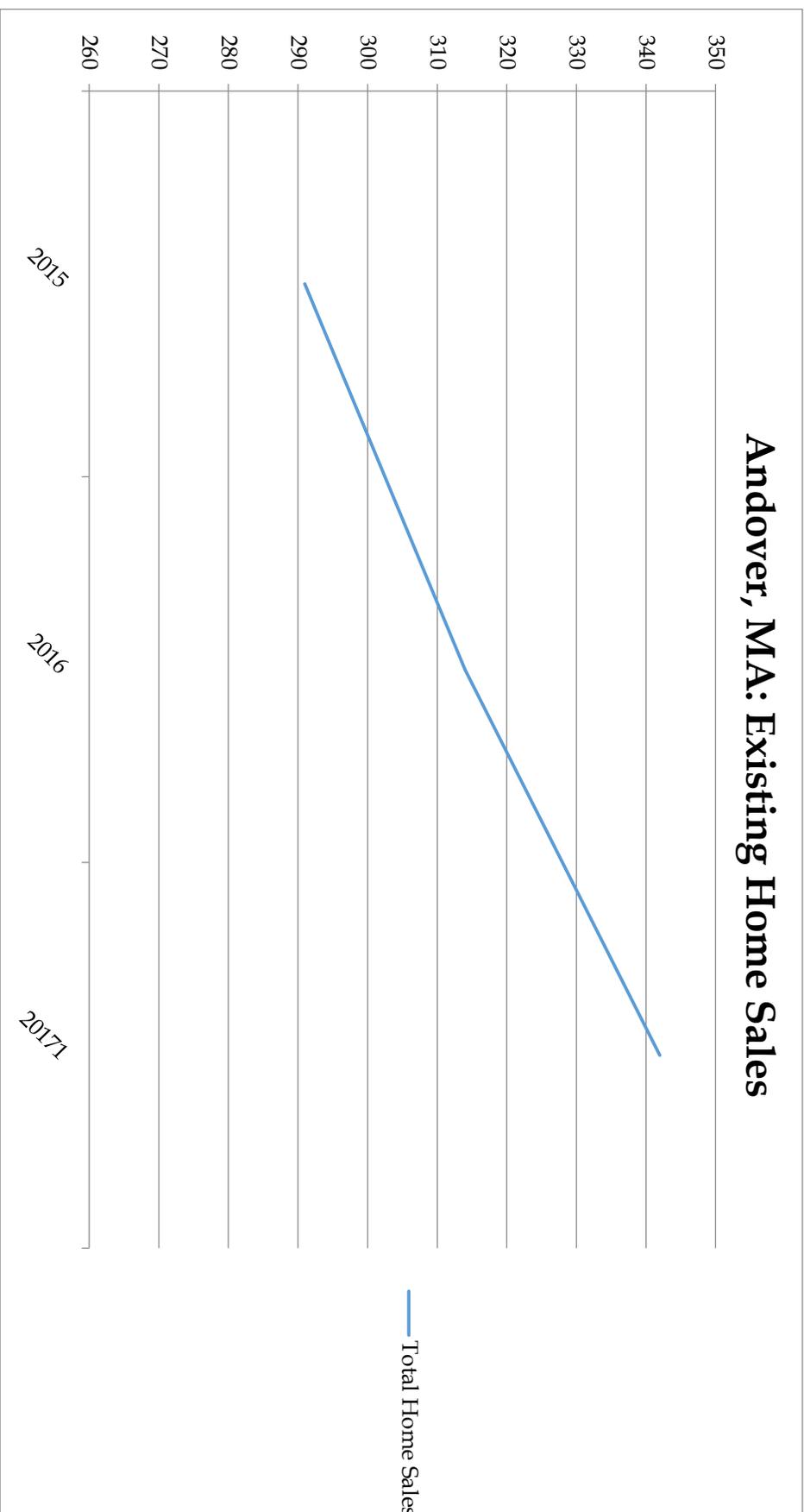
2010 Census	Under 1 year	1 year	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years	10 years	11 years	12 years	13 years
Andover Public Schools	292	268	347	380	402	476	498	520	524	510	545	565	542	548
2017 Enrollment	434	426	460	484	504	508	480	473	429	455	410			
	148.6%	159.0%	132.6%	127.4%	125.4%	106.7%	96.4%	91.0%	81.9%	89.2%	75.2%			
2016 Enrollment	425	412	449	472	505	506	483	523	446	459	421	462		
	145.5%	153.7%	129.4%	124.2%	125.6%	106.3%	97.0%	100.6%	85.1%	90.0%	77.2%	81.8%		
2015 Enrollment	380	406	428	461	497	526	477	532	503	471	413	469	429	
	130.1%	151.5%	123.3%	121.3%	123.6%	110.5%	95.8%	102.3%	96.0%	92.4%	75.8%	83.0%	79.2%	
2014 Enrollment		375	387	444	479	519	489	530	508	522	420	477	432	415
		139.9%	111.5%	116.8%	119.2%	109.0%	98.2%	101.9%	96.9%	102.4%	77.1%	84.4%	79.7%	75.7%
2013 Enrollment			355	410	452	515	477	528	509	522	478	488	444	430
			102.3%	107.9%	112.4%	108.2%	95.8%	101.5%	97.1%	102.4%	87.7%	86.4%	81.9%	78.5%
2012 Enrollment				370	441	503	469	528	512	514	479	537	466	433
				97.4%	109.7%	105.7%	94.2%	101.5%	97.7%	100.8%	87.9%	95.0%	86.0%	79.0%
2011 Enrollment					391	467	453	512	507	507	471	523	514	448
					97.3%	98.1%	91.0%	98.5%	96.8%	99.4%	86.4%	92.6%	94.8%	81.8%

Table 8: Existing Home Sales 2015-2017

	2015	2016	2017 ¹
Total Home Sales	291	314	342

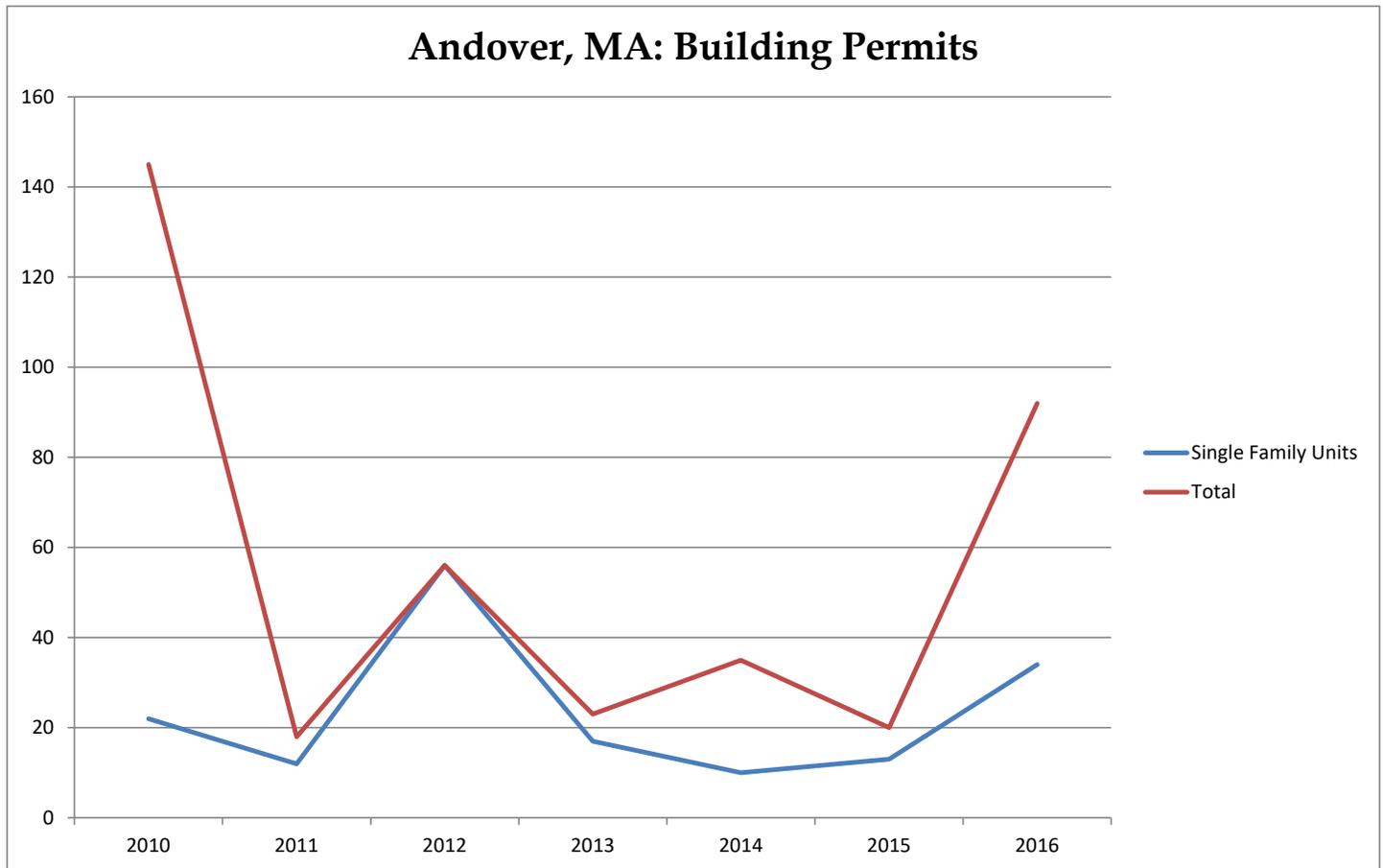
¹ 2017 data as of October 2017

Andover, MA: Existing Home Sales



Andover, MA Building Permits By Year

	2010	2011	2012	2013	2014	2015	2016
Single Family Building Permits	22	12	56	17	10	13	34
Total Units	145	18	56	23	35	20	92
Source: United States Census Bureau							



Appendix B: Population Forecasts

Andover Public Schools: Total Population

	2010	2015	2020	2025	2030	2035
Total	33,201	33,610	33,960	34,200	34,230	33,880
0-4	1,689	1,580	1,650	1,600	1,580	1,480
5-9	2,528	2,450	2,340	2,350	2,230	2,200
10-14	2,797	2,640	2,580	2,450	2,440	2,330
15-19	2,466	2,600	2,430	2,480	2,390	2,390
20-24	1,753	1,820	1,920	1,780	1,870	1,830
25-29	1,094	1,290	1,340	1,450	1,300	1,380
30-34	1,215	1,330	1,550	1,630	1,700	1,520
35-39	1,988	1,580	1,630	1,870	1,950	1,980
40-44	2,549	2,080	1,720	1,750	2,000	2,040
45-49	3,270	2,590	2,120	1,800	1,820	2,080
50-54	3,027	3,230	2,570	2,110	1,770	1,790
55-59	2,378	2,950	3,150	2,480	2,040	1,740
60-64	1,994	2,240	2,810	3,050	2,420	1,960
65-69	1,324	1,780	1,990	2,620	2,840	2,230
70-74	975	1,150	1,610	1,750	2,340	2,550
75-79	806	840	1,010	1,350	1,500	2,000
80-84	640	660	690	770	1,050	1,180
85+	708	800	850	910	990	1,200
Median Age	42.1	43.6	44.5	44.3	44.1	44.6

	2010 to 2015	2015 to 2020	2020 to 2025	2021 to 2025	2022 to 2025
Births	1,130	1,200	1,220	1,210	1,130
Deaths	1,270	1,400	1,560	1,710	1,930
Natural Increase	-140	-200	-340	-500	-800
Net Migration Change	570	560	540	500	470
	430	360	200	0	-330

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

Bancroft Elementary School

	2010	2015	2020	2025	2030	2035
Total	9,201	9,220	9,170	9,080	9,010	8,830
0-4	456	390	410	370	370	350
5-9	628	560	520	540	500	490
10-14	649	650	580	530	550	520
15-19	726	710	690	650	610	630
20-24	950	940	910	910	870	820
25-29	296	300	280	270	270	220
30-34	339	330	340	320	300	290
35-39	521	440	440	440	430	410
40-44	631	570	500	490	490	480
45-49	793	680	620	540	530	540
50-54	756	780	670	620	540	530
55-59	589	740	760	650	600	530
60-64	515	570	720	740	630	580
65-69	338	490	520	670	710	600
70-74	280	320	440	470	610	640
75-79	255	250	280	370	400	520
80-84	234	210	200	210	290	320
85+	247	290	290	290	310	360
Median Age	40.3	42.5	44.2	45.2	46.1	46.9

	2010 to 2015	2015 to 2020	2020 to 2025	2021 to 2025	2022 to 2025
Births	300	310	290	280	260
Deaths	390	420	450	480	530
Natural Increase	-90	-110	-160	-200	-270
Net Migration Change	90	90	90	90	90
	0	-20	-70	-110	-180

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

High Plain Elementary School

	2010	2015	2020	2025	2030	2035
Total	298	260	310	320	310	300
0-4	481	470	450	480	460	440
5-9	542	500	500	480	500	480
10-14	422	490	430	450	440	460
15-19	239	240	270	220	270	280
20-24	237	280	280	310	260	310
25-29	216	270	360	380	390	320
30-34	357	250	310	400	420	420
35-39	493	360	250	310	400	410
40-44	575	490	350	250	310	400
45-49	523	570	490	340	240	300
50-54	451	510	550	470	340	240
55-59	342	420	470	540	460	320
60-64	202	300	350	430	490	420
65-69	127	170	270	300	380	440
70-74	71	110	150	220	260	310
75-79	47	60	90	110	170	200
80-84	59	60	70	90	120	160
85+	5,682	5,810	5,950	6,100	6,220	6,210
Total	40.5	42.0	41.3	40.2	40.8	41.2
Median Age						

	2010 to 2015	2015 to 2020	2020 to 2025	2021 to 2025	2022 to 2025
Births	180	230	230	230	230
Deaths	150	180	220	260	300
Natural Increase	30	50	10	-30	-70
Net Migration	90	110	120	100	90
Change	120	160	130	70	20

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

Sanborn Elementary School

	2010	2015	2020	2025	2030	2035
Total	2010	2015	2020	2025	2030	2035
0-4	204	210	220	220	210	210
5-9	341	370	370	360	350	340
10-14	388	370	400	390	380	370
15-19	301	330	320	370	370	360
20-24	127	130	180	150	190	190
25-29	130	180	180	220	190	240
30-34	120	190	230	230	260	240
35-39	242	230	230	280	270	300
40-44	298	240	230	230	280	270
45-49	415	300	240	230	230	270
50-54	422	410	300	240	230	230
55-59	273	410	400	280	230	220
60-64	231	230	370	380	280	220
65-69	147	160	200	330	350	240
70-74	94	80	130	160	280	300
75-79	100	80	70	100	140	250
80-84	46	80	70	50	80	110
85+	48	50	70	80	70	90
Total	3,925	4,050	4,210	4,300	4,390	4,450
Median Age	41.9	40.3	39.5	38.8	39.5	39.6

	2010 to 2015	2015 to 2020	2020 to 2025	2021 to 2025	2022 to 2025
Births	130	140	150	140	140
Deaths	130	140	160	160	190
Natural Increase	0	0	-10	-20	-50
Net Migration	140	130	120	110	110
Change	140	130	110	90	60

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

South Elementary School

	2010	2015	2020	2025	2030	2035
Total	273	270	270	260	260	240
0-4	273	270	270	260	260	240
5-9	463	450	450	440	410	420
10-14	536	490	480	480	460	430
15-19	456	490	440	450	450	440
20-24	199	200	220	190	230	250
25-29	195	250	250	270	240	270
30-34	199	250	300	290	310	280
35-39	324	270	320	370	360	370
40-44	452	350	300	350	410	370
45-49	611	450	350	300	340	410
50-54	579	600	450	350	290	330
55-59	461	560	590	430	330	290
60-64	399	440	540	570	420	320
65-69	252	370	390	520	520	380
70-74	180	220	340	340	460	470
75-79	123	140	190	290	290	400
80-84	94	100	120	150	220	230
85+	125	130	130	150	170	230
Total	5,920	6,030	6,130	6,200	6,170	6,130
Median Age	43.5	44.9	45.5	45.0	44.5	44.9

	2010 to 2015	2015 to 2020	2020 to 2025	2021 to 2025	2022 to 2025
Births	210	220	210	220	200
Deaths	220	250	280	320	370
Natural Increase	-10	-30	-70	-100	-170
Net Migration	130	130	120	110	100
Change	120	100	50	10	-70

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

West Elementary School

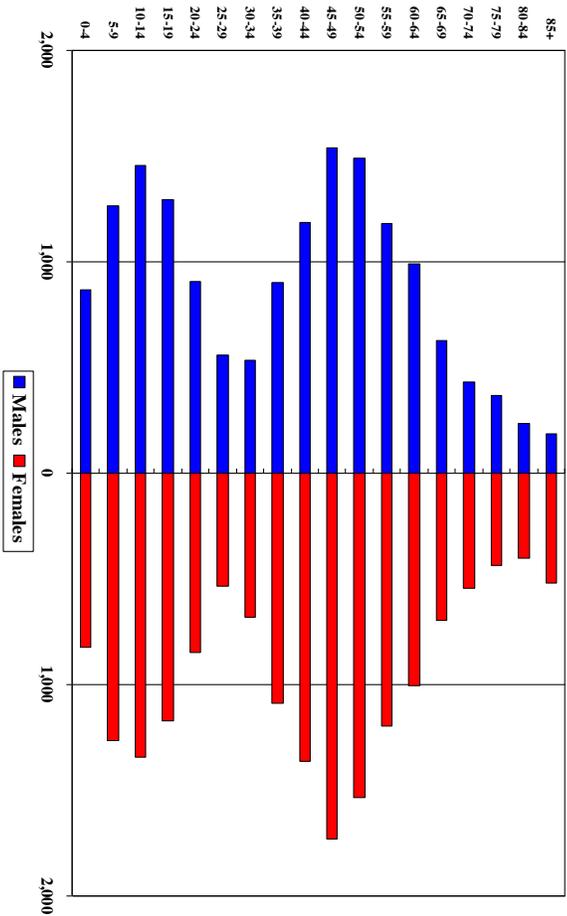
	2010	2015	2020	2025	2030	2035
Total	458	450	440	430	430	380
0-4	615	600	550	530	510	510
5-9	682	630	620	570	550	530
10-14	561	580	550	560	520	500
15-19	238	310	340	310	310	290
20-24	236	280	350	380	340	340
25-29	341	290	320	410	440	390
30-34	544	390	330	380	470	480
35-39	675	560	440	370	420	510
40-44	877	670	560	480	410	460
45-49	747	870	660	560	470	400
50-54	605	730	850	650	540	460
55-59	508	580	710	820	630	520
60-64	385	460	530	670	770	590
65-69	295	360	430	480	610	700
70-74	257	260	320	370	410	520
75-79	220	210	210	250	290	320
80-84	229	270	290	300	320	360
85+	8,473	8,500	8,500	8,520	8,440	8,260
Total	44.2	46.2	47.8	48.3	47.8	47.2
Median Age						

	2010 to 2015	2015 to 2020	2020 to 2025	2021 to 2025	2022 to 2025
Births	310	300	340	340	300
Deaths	380	410	450	490	540
Natural Increase	-70	-110	-110	-150	-240
Net Migration	120	100	90	90	80
Change	50	-10	-20	-60	-160

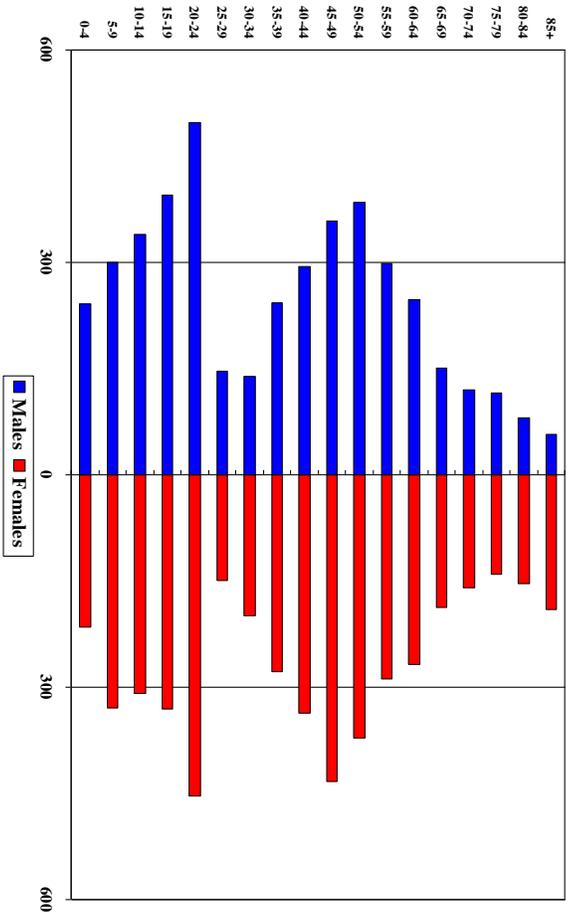
Differences between period Totals may not equal Change due to rounding.

Appendix C: Population Pyramids

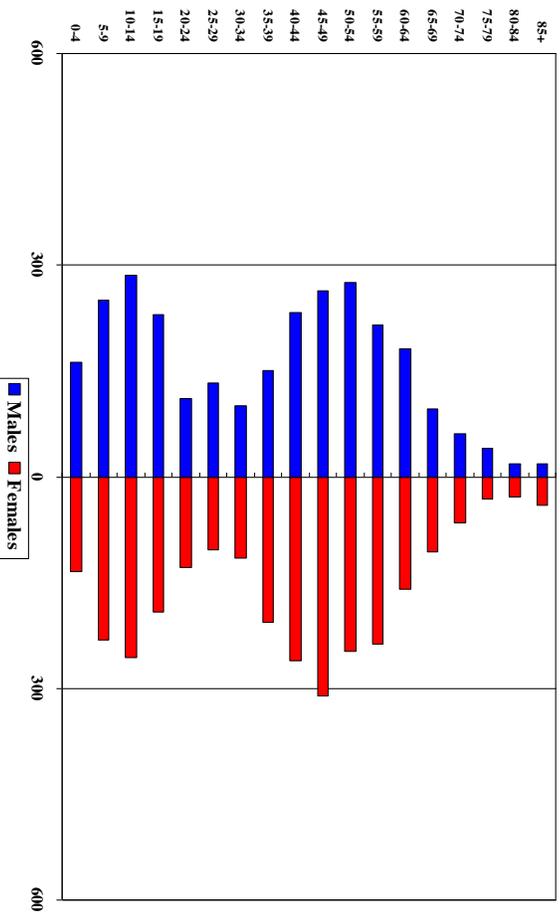
Andover Public Schools, MA Total Population - 2010 Census



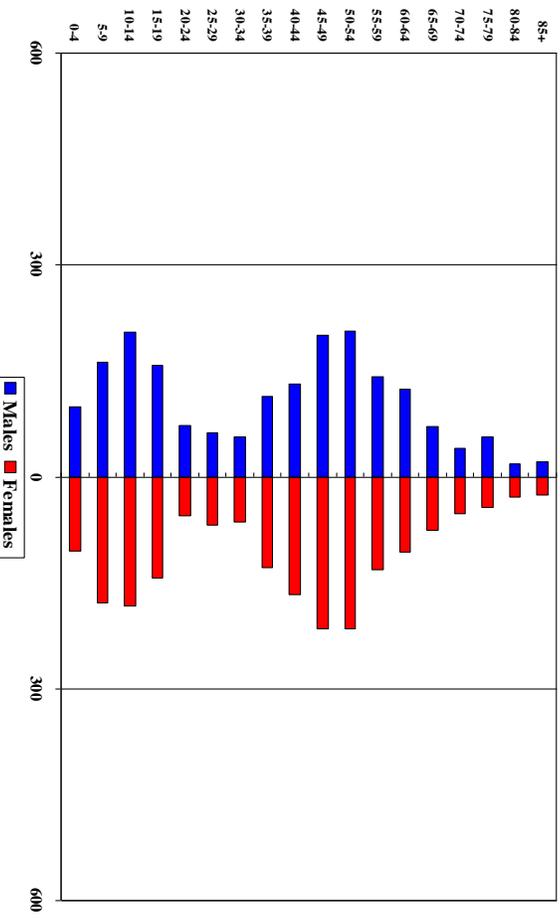
Bancroft Elementary School Total Population - 2010 Census



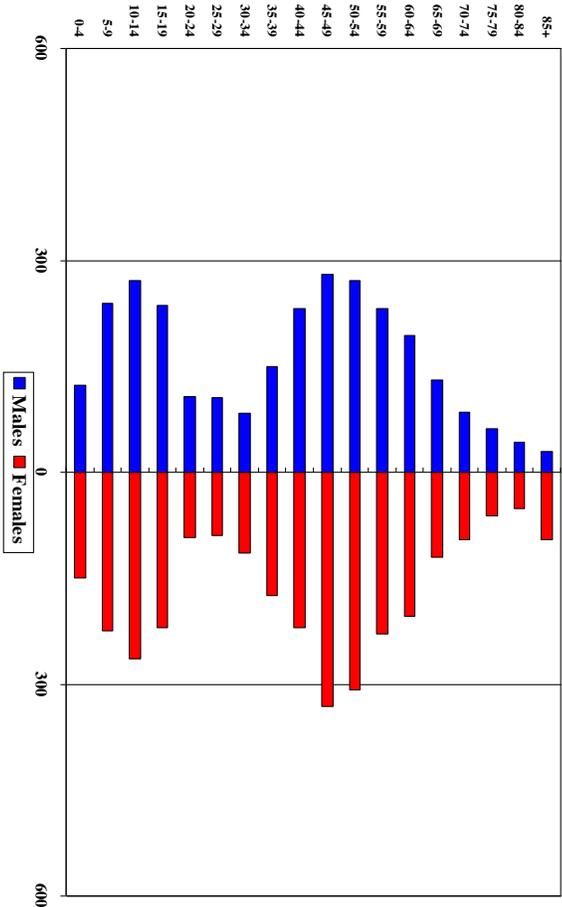
High Plain Elementary School Total Population - 2010 Census



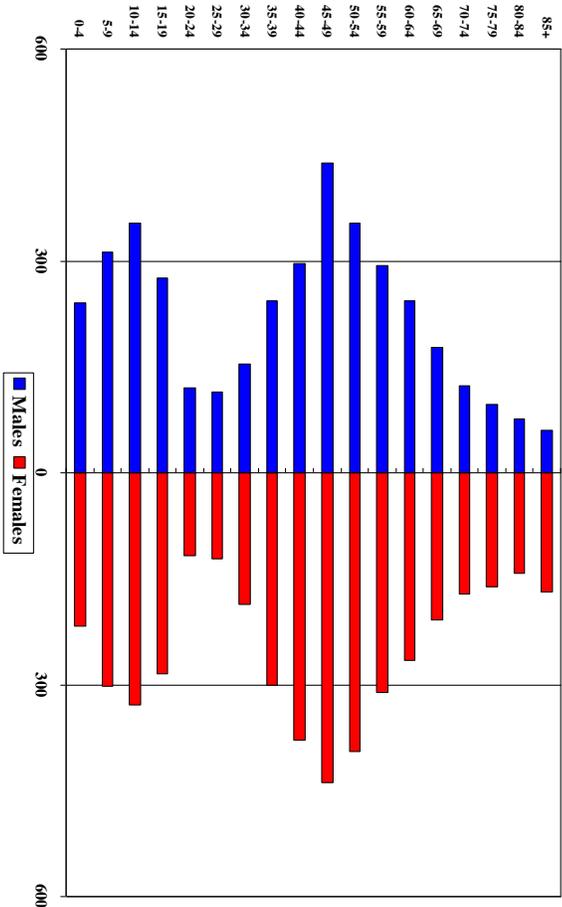
Sanborn Elementary School Total Population - 2010 Census



South Elementary School Total Population – 2010 Census



West Elementary School Total Population – 2010 Census

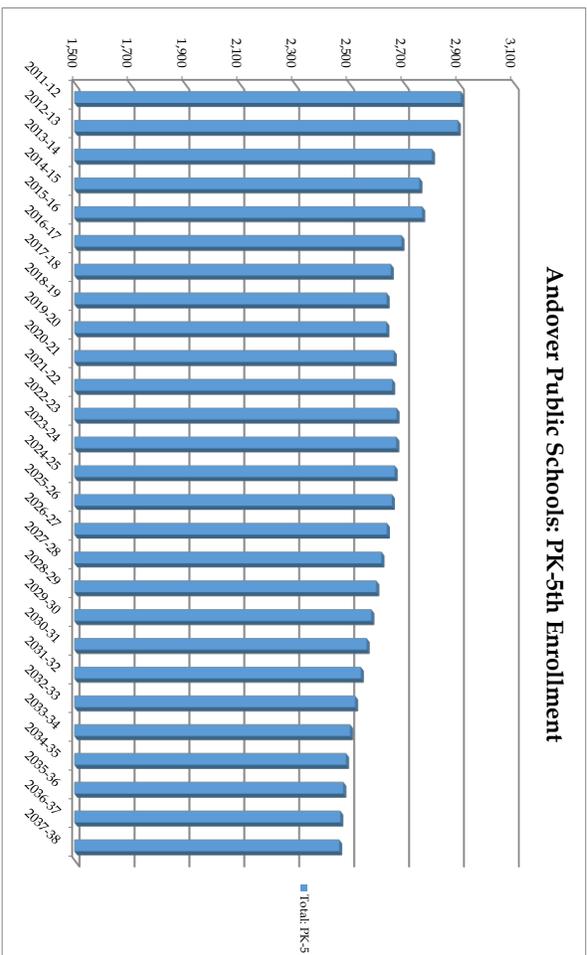


Appendix D: Enrollment Forecasts

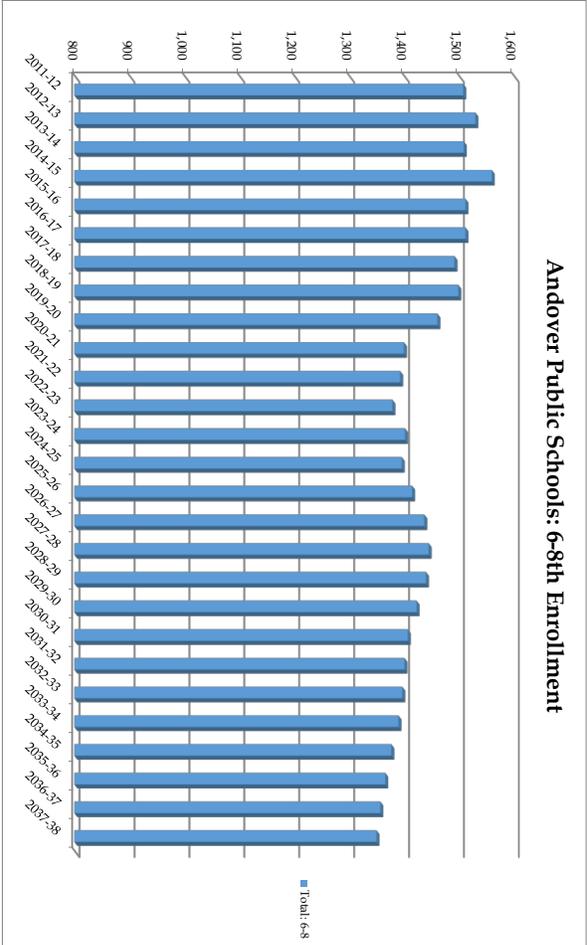
Andover Public Schools: Total Enrollment

	2011-12	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	2034-35	2035-36	2036-37	2037-38	
PK	70	73	65	63	68	73	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
K	391	370	355	375	380	355	363	369	370	373	372	373	373	374	374	377	376	375	371	370	368	366	364	362	366	366	366	370
1	467	441	410	387	406	425	398	411	415	417	416	414	412	409	407	404	402	398	396	392	390	387	385	383	381	381	381	381
2	453	503	452	444	428	412	434	413	425	430	432	431	429	427	424	421	418	416	412	409	405	403	400	398	395	393	393	393
3	512	469	515	479	461	449	426	451	429	443	446	447	446	443	441	436	433	430	428	424	419	415	413	410	407	404	402	402
4	507	528	477	519	497	472	460	438	464	442	455	458	459	459	456	451	445	442	439	437	432	427	423	421	418	415	412	412
5	507	512	528	489	489	526	484	468	446	471	449	463	466	467	467	462	457	451	448	445	442	437	432	427	428	425	422	419
Total: PK-5	2,907	2,896	2,802	2,756	2,691	2,691	2,652	2,637	2,636	2,663	2,657	2,673	2,672	2,666	2,656	2,638	2,618	2,599	2,581	2,564	2,543	2,522	2,504	2,489	2,479	2,468	2,464	
6	471	514	509	530	477	506	504	482	466	443	473	450	465	468	469	474	469	464	457	454	455	452	447	442	441	438	435	
7	523	479	522	508	532	483	508	508	486	470	449	479	457	471	474	482	487	482	477	470	468	469	466	461	456	455	452	
8	514	537	478	522	503	523	480	509	509	487	471	450	457	457	472	481	489	494	489	483	478	476	477	474	469	464	463	
Total: 6-8	1,508	1,530	1,509	1,560	1,512	1,512	1,492	1,499	1,461	1,400	1,393	1,379	1,402	1,396	1,415	1,437	1,445	1,440	1,423	1,407	1,401	1,397	1,390	1,377	1,366	1,357	1,350	
9	448	466	488	420	471	446	473	442	470	471	452	439	421	451	431	447	457	466	472	469	465	461	461	461	463	462	458	
10	450	433	444	477	413	459	429	464	433	461	462	443	430	413	442	422	438	448	457	463	460	456	452	452	454	453	449	
11	462	440	430	432	469	421	455	427	462	431	459	460	441	428	411	440	420	436	446	455	461	458	454	450	450	452	451	
12	424	453	429	415	429	462	410	450	423	457	427	454	455	437	424	407	436	416	432	442	450	456	453	449	446	446	447	
SP	-	7	8	16	15	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	
Total: 9-12	1,784	1,799	1,799	1,760	1,797	1,806	1,785	1,801	1,806	1,838	1,818	1,814	1,765	1,747	1,726	1,734	1,769	1,784	1,825	1,847	1,854	1,849	1,838	1,832	1,830	1,827	1,820	
Total: PK-12	6,199	6,225	6,110	6,076	6,009	6,009	5,929	5,937	5,903	5,901	5,868	5,866	5,839	5,809	5,797	5,809	5,832	5,829	5,818	5,798	5,798	5,768	5,732	5,698	5,675	5,652	5,634	
Total: PK-12	6,199	6,225	6,110	6,076	6,009	6,009	5,929	5,937	5,903	5,901	5,868	5,866	5,839	5,809	5,797	5,809	5,832	5,829	5,818	5,798	5,798	5,768	5,732	5,698	5,675	5,652	5,634	
Change	26	-115	-34	-1	-66	-80	8	-34	-2	-33	-2	-27	-30	-12	12	23	9	6	-11	-20	-30	-36	-34	-23	-23	-18		
Percent Change	0.4%	-1.8%	-0.6%	0.0%	-1.1%	-1.3%	0.1%	-0.6%	0.0%	-0.6%	0.0%	-0.5%	-0.5%	-0.2%	0.2%	0.4%	-0.2%	0.1%	-0.2%	-0.3%	-0.5%	-0.6%	-0.6%	-0.4%	-0.4%	-0.3%		
Total: PK-5	2,907	2,896	2,802	2,756	2,691	2,691	2,652	2,637	2,636	2,663	2,657	2,673	2,672	2,666	2,656	2,638	2,618	2,599	2,581	2,564	2,543	2,522	2,504	2,489	2,479	2,468	2,464	
Change	-11	-94	-46	10	-75	-39	-15	-1	-1	27	-6	16	-1	-6	-10	-18	-20	-19	-18	-17	-21	-21	-18	-15	-10	-11	-4	
Percent Change	-0.4%	-3.2%	-1.6%	0.4%	-2.7%	-1.4%	-0.6%	0.0%	0.0%	1.0%	-0.2%	0.6%	0.0%	-0.2%	-0.4%	-0.7%	-0.8%	-0.7%	-0.7%	-0.8%	-0.8%	-0.7%	-0.6%	-0.6%	-0.4%	-0.4%	-0.2%	
Total: 6-8	1,508	1,530	1,509	1,560	1,512	1,512	1,492	1,499	1,461	1,400	1,393	1,379	1,402	1,396	1,415	1,437	1,445	1,440	1,423	1,407	1,401	1,397	1,390	1,377	1,366	1,357	1,350	
Change	22	-21	51	-48	0	-20	7	-38	-61	-7	-14	-14	23	-6	19	22	8	-5	-17	-16	-6	-4	-7	-13	-11	-9	-7	
Percent Change	1.5%	-1.4%	3.4%	-3.1%	0.0%	-1.3%	0.5%	-2.5%	-4.2%	-0.5%	-1.0%	-1.0%	1.7%	-0.4%	1.4%	1.6%	0.6%	-0.3%	-1.2%	-1.1%	-0.4%	-0.3%	-0.5%	-0.9%	-0.8%	-0.7%	-0.5%	
Total: 9-12	1,784	1,799	1,799	1,760	1,797	1,806	1,785	1,801	1,806	1,838	1,818	1,814	1,765	1,747	1,726	1,734	1,769	1,784	1,825	1,847	1,854	1,849	1,838	1,832	1,830	1,827	1,820	
Change	15	0	-39	37	9	-21	16	5	32	32	-20	-4	-49	-18	-21	8	35	15	41	22	7	-5	-11	-6	-2	-3	-7	
Percent Change	0.8%	0.0%	-2.2%	2.1%	0.5%	-1.2%	0.9%	0.3%	1.8%	-1.1%	-0.2%	-2.7%	-1.0%	-1.2%	0.5%	2.0%	0.8%	2.3%	1.2%	0.4%	-0.3%	-0.6%	-0.3%	-0.1%	-0.2%	-0.4%		
Forecasts Developed October 2017																												
Green Cells (2017-18 and earlier) are historical data																												
Blue Cells (2018-19 and later) are forecasted years																												

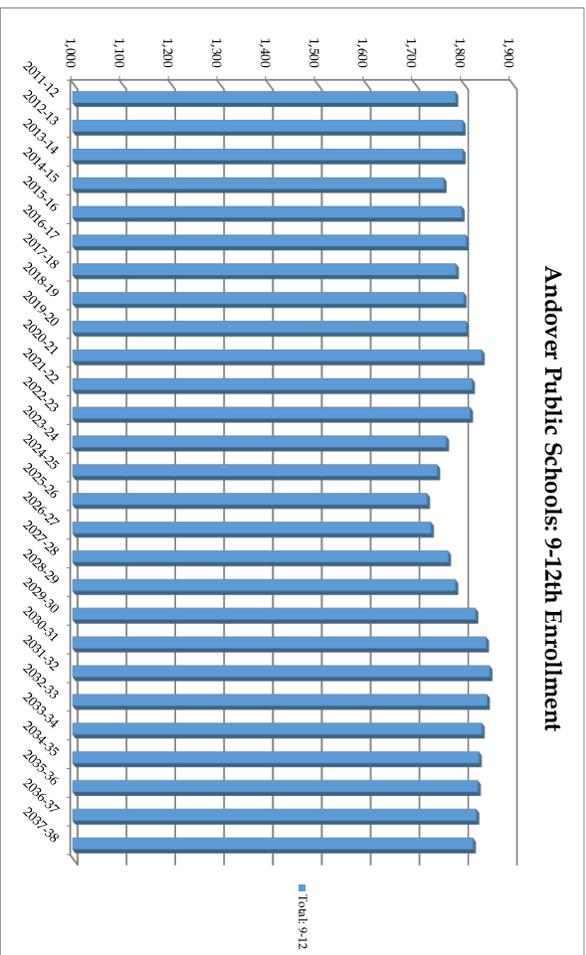
Andover Public Schools: PK-5th Enrollment



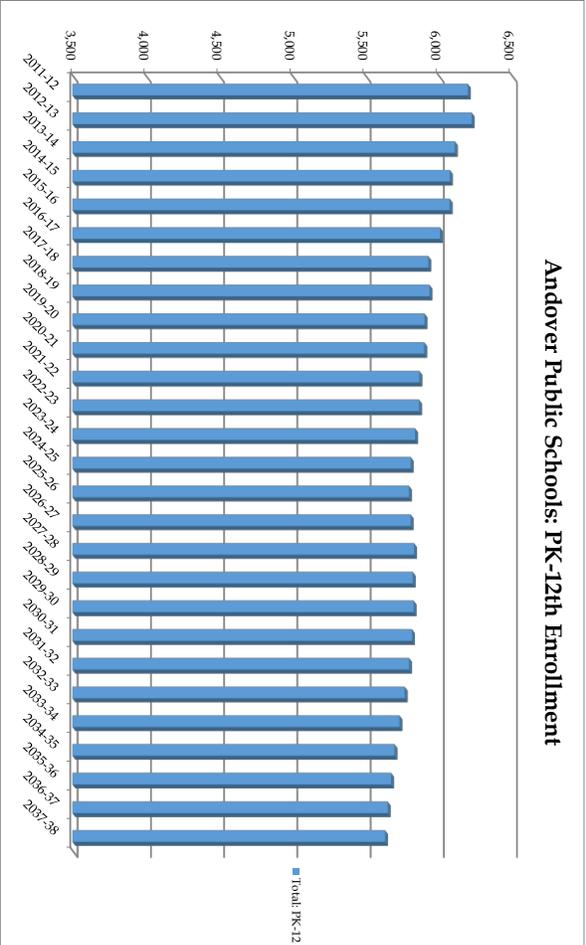
Andover Public Schools: 6-8th Enrollment



Andover Public Schools: 9-12th Enrollment

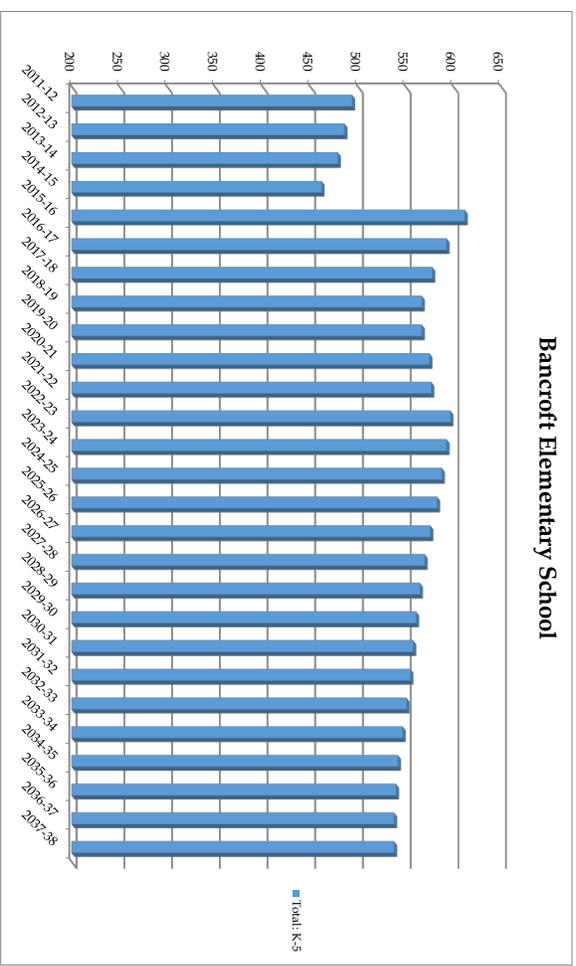


Andover Public Schools: PK-12th Enrollment



Bancroft Elementary School

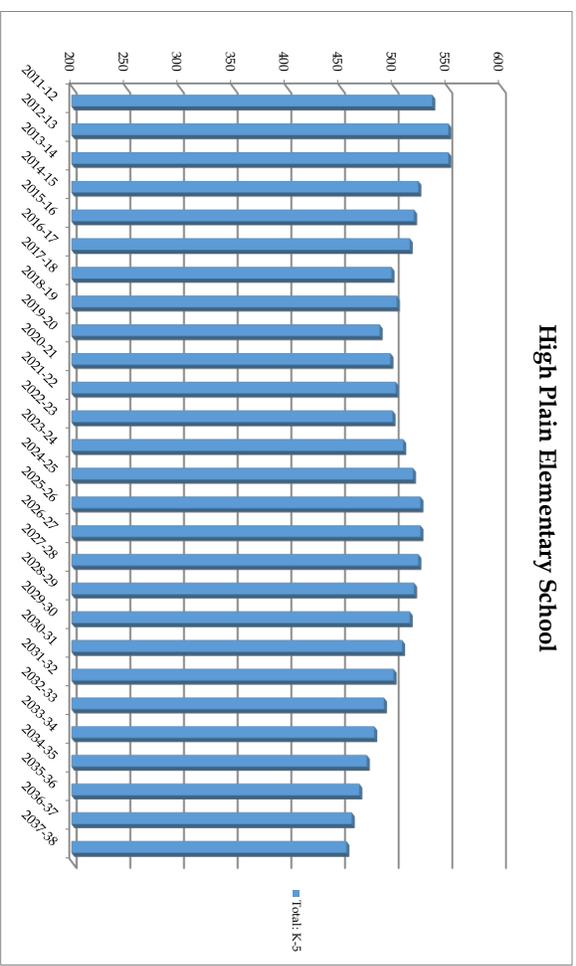
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38
K	66	67	61	65	80	77	91	89	88	88	87	87	87	87	87	88	88	88	87	87	87	86	84	83	85	86	87
1	87	75	72	62	97	93	78	99	99	98	97	96	95	94	93	92	92	91	91	90	90	89	88	87	86	87	88
2	67	88	81	80	98	96	95	79	100	101	100	99	98	97	96	95	94	94	93	93	92	92	91	90	89	88	89
3	95	68	98	90	103	97	95	97	81	103	103	102	101	100	99	97	96	95	95	94	94	93	93	92	91	90	89
4	91	98	69	95	107	112	103	97	99	83	105	105	104	103	102	100	98	97	96	96	95	95	94	94	93	92	91
5	88	90	98	70	127	118	116	106	100	102	85	108	108	107	106	104	102	100	99	98	98	97	97	96	96	95	94
Total: K-5	494	486	479	462	612	593	578	567	567	575	577	597	593	588	583	576	570	565	561	558	555	551	547	542	540	538	538
Change		-8	-7	-17	150	-19	-15	-11	0	8	2	20	-4	-5	-5	-7	-6	-5	-4	-3	-3	-4	-4	-5	-2	-2	0
Percent Change		-1.6%	-1.4%	-3.5%	32.5%	-3.1%	-2.5%	-1.9%	0.0%	1.4%	0.3%	3.5%	-0.7%	-0.8%	-0.9%	-1.2%	-1.0%	-0.9%	-0.7%	-0.5%	-0.5%	-0.7%	-0.7%	-0.9%	-0.4%	-0.4%	0.0%
Forecasts Developed October 2017																											
Green Cells (2017-18 and earlier) are historical data																											
Blue Cells (2018-19 and later) are forecasted years																											



High Plain Elementary School

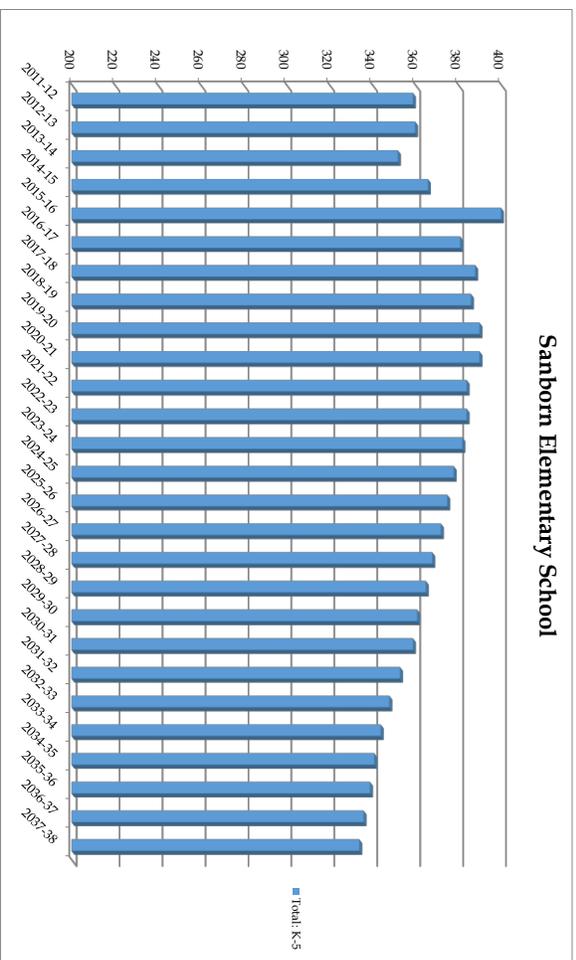
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38
K	63	59	66	56	68	64	58	67	69	71	72	73	75	76	77	77	77	76	75	73	73	72	71	70	70	69	70
1	75	74	68	76	71	80	80	72	75	78	79	80	81	82	83	83	82	81	80	79	77	76	75	74	73	72	71
2	96	93	86	82	89	73	78	86	77	80	83	84	85	86	87	87	87	86	85	83	82	80	79	78	76	74	74
3	114	105	105	95	87	96	81	83	91	82	84	87	88	89	90	90	90	90	89	88	85	84	82	81	80	78	77
4	94	124	106	104	103	95	106	85	87	96	85	87	90	92	93	93	92	92	92	91	90	87	86	84	83	82	80
5	94	96	120	110	101	107	95	110	88	90	99	88	90	93	95	95	95	94	94	94	93	92	89	88	86	85	84
Total: K-5	536	551	551	523	519	515	498	503	487	497	502	499	509	518	525	525	523	519	515	508	500	491	482	475	468	461	456
Total: K-5	536	551	551	523	519	515	498	503	487	497	502	499	509	518	525	525	523	519	515	508	500	491	482	475	468	461	456
Change		15	0	-28	-4	-4	-17	5	-16	10	5	-3	10	9	7	0	-2	-4	-4	-7	-8	-9	-9	-7	-7	-7	-5
Percent Change		2.8%	0.0%	-5.1%	-0.8%	-0.8%	-3.3%	1.0%	-3.2%	2.1%	1.0%	-0.6%	2.0%	1.8%	1.4%	0.0%	-0.4%	-0.8%	-0.8%	-1.4%	-1.6%	-1.8%	-1.8%	-1.5%	-1.5%	-1.5%	-1.1%

Forecasts Developed October 2017
 Green Cells (2017-18 and earlier) are historical data
 Blue Cells (2018-19 and later) are forecasted years



Sanborn Elementary School

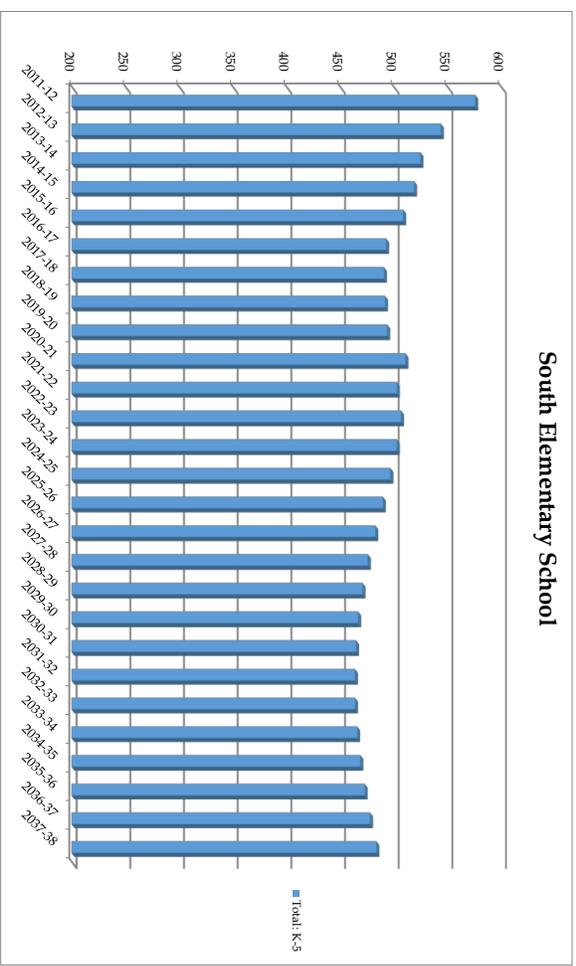
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38
K	42	40	36	46	61	48	51	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	48	49	48	49
1	52	59	52	48	63	62	58	59	60	60	59	59	58	58	57	60	56	56	55	55	54	54	53	53	52	51	51
2	59	59	63	61	55	68	70	63	64	65	64	63	63	62	62	60	60	59	59	58	58	57	57	56	55	55	55
3	72	65	65	73	75	63	69	74	67	68	70	68	67	67	66	66	64	64	63	63	61	61	60	60	59	59	58
4	61	69	67	72	73	68	67	71	76	69	70	72	70	69	69	68	68	66	66	65	64	62	61	61	60	60	60
5	73	68	69	66	73	72	73	69	73	78	71	72	74	72	71	71	70	70	68	68	66	65	63	63	62	62	61
Total: K-5	359	360	352	366	400	381	388	386	390	390	390	384	382	378	375	372	368	365	361	359	353	348	344	341	339	336	334
Change		1	-8	14	34	-19	7	-2	4	0	-6	0	-2	-4	-3	-3	-4	-3	-4	-2	-6	-5	-4	-3	-2	-3	-2
Percent Change		0.3%	-2.2%	4.0%	9.3%	-4.8%	1.8%	-0.5%	1.0%	0.0%	-1.5%	0.0%	-0.5%	-1.0%	-0.8%	-0.8%	-1.1%	-0.8%	-1.1%	-0.6%	-1.7%	-1.4%	-1.1%	-0.9%	-0.6%	-0.9%	-0.6%
Forecasts Developed October 2017																											
Green Cells (2017-18 and earlier) are historical data																											
Blue Cells (2018-19 and later) are forecasted years																											



South Elementary School

	2011-12	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	2034-35	2035-36	2036-37	2037-38
K	77	68	70	69	87	70	77	78	77	77	77	76	74	73	72	73	72	72	71	72	72	73	74	75	76	77	78
1	92	84	77	73	69	91	79	83	83	82	82	81	80	78	77	76	76	78	75	74	75	75	76	77	78	79	80
2	100	97	87	79	85	68	93	80	84	84	84	84	83	82	80	79	78	78	77	77	76	77	77	78	79	80	81
3	86	104	98	96	96	79	68	96	82	87	87	87	87	85	84	82	81	83	80	80	80	79	79	79	80	81	82
4	107	88	105	96	96	85	87	70	99	84	90	90	90	90	88	86	84	83	82	82	81	81	81	80	81	82	83
5	114	103	88	106	93	89	87	85	69	97	83	89	89	89	89	87	85	83	82	81	81	80	80	79	79	80	80
Total: K-5	576	544	525	519	509	493	491	492	494	511	503	507	503	497	490	483	476	471	467	465	464	464	466	469	473	478	484
Total: K-5	576	544	525	519	509	493	491	492	494	511	503	507	503	497	490	483	476	471	467	465	464	464	466	469	473	478	484
Change		-32	-19	-6	-10	-16	-2	1	2	17	-8	4	-4	-6	-7	-7	-7	-5	-4	-2	-1	0	2	3	4	5	6
Percent Change		-5.6%	-3.5%	-1.1%	-1.9%	-3.1%	-0.4%	0.2%	0.4%	3.4%	-1.6%	0.8%	-0.8%	-1.2%	-1.4%	-1.4%	-1.4%	-1.1%	-0.8%	-0.4%	-0.2%	0.0%	0.4%	0.6%	0.9%	1.1%	1.3%

Forecast: Developed October 2017
 Green Cells (2017-18 and earlier) are historical data
 Blue Cells (2018-19 and later) are forecasted years



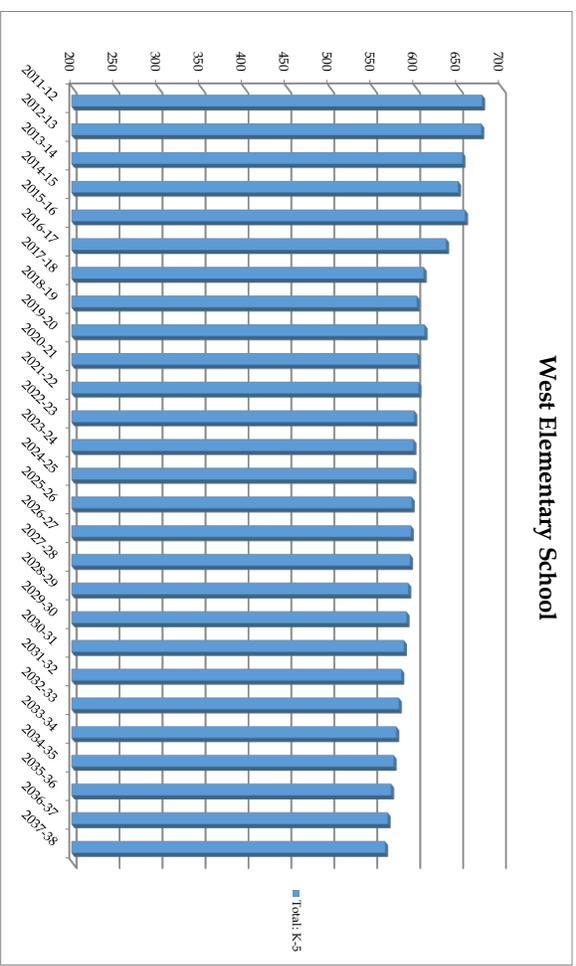
West Elementary School

	2011-12	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	2034-35	2035-36	2036-37	2037-38
K	73	62	56	69	84	96	86	85	86	87	86	87	87	88	88	89	89	89	88	88	87	87	86	86	86	86	86
1	89	87	83	78	106	99	103	98	98	99	99	98	98	97	97	96	96	95	95	94	94	93	93	92	92	91	91
2	79	97	84	89	101	107	98	105	100	100	101	101	100	99	99	100	99	99	98	98	97	97	96	96	95	95	94
3	145	127	149	125	117	103	113	101	108	103	102	103	103	102	102	101	102	101	101	100	100	99	99	98	97	96	96
4	154	149	130	152	118	112	97	115	103	110	105	104	105	105	104	104	103	104	103	103	102	102	101	101	100	99	98
5	138	155	153	137	132	119	113	98	116	104	111	106	105	106	106	105	105	104	104	104	104	103	103	102	102	101	100
Total: K-5	678	677	655	650	658	636	610	602	611	603	604	599	598	598	596	595	594	592	590	587	584	581	578	575	572	568	565
Change		-1	-22	-5	8	-22	-26	-8	9	-8	1	-5	-1	0	-2	-1	-1	-2	-2	-3	-3	-3	-3	-3	-3	-4	-3
Percent Change		-0.1%	-3.2%	-0.8%	1.2%	-3.3%	-4.1%	-1.3%	1.5%	-1.3%	0.2%	-0.8%	-0.2%	0.0%	-0.3%	-0.2%	-0.2%	-0.3%	-0.3%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.7%	-0.5%

Forecasters Developed October 2017

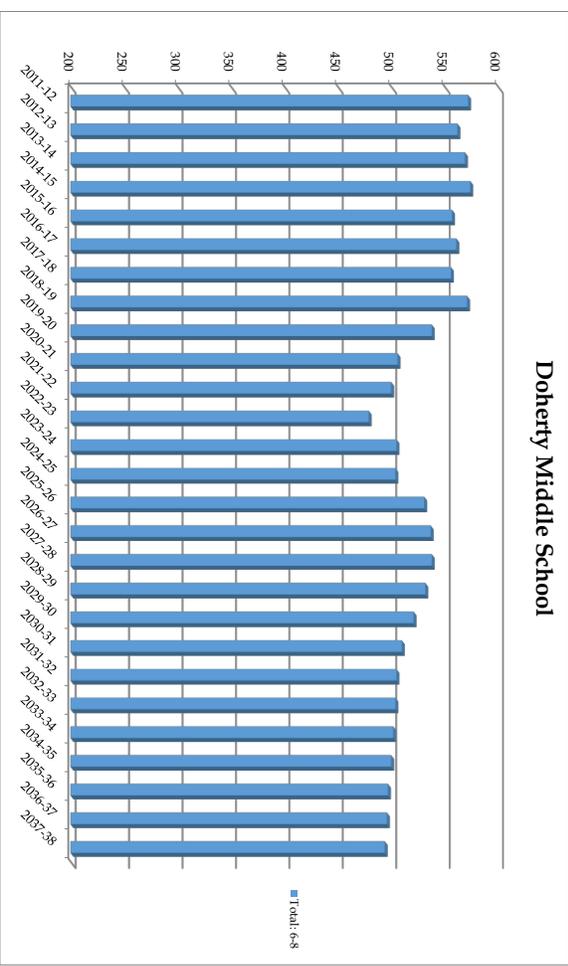
Green Cells (2017-18 and earlier) are historical data

Blue Cells (2018-19 and later) are forecasted years



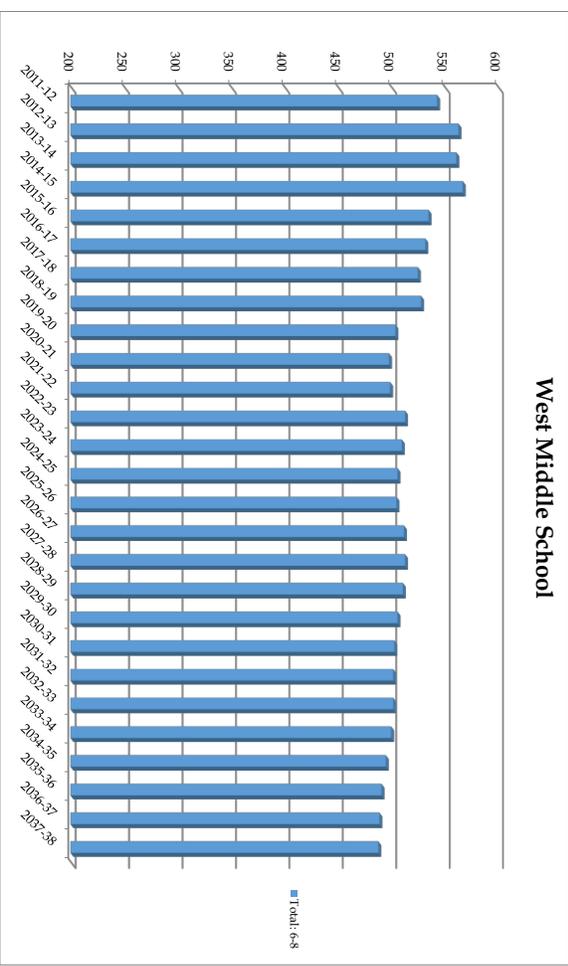
Doherty Middle School

	2011-12	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	2034-35	2035-36	2036-37	2037-38
6	179	189	201	190	172	204	185	184	171	133	178	150	178	178	177	178	175	171	167	165	165	165	163	163	162	162	161
7	200	175	192	192	191	168	202	183	182	169	151	176	149	176	176	179	180	177	173	169	168	168	168	166	166	165	165
8	193	198	176	192	194	189	169	204	185	184	171	153	178	150	178	180	183	184	181	176	172	171	171	171	169	169	168
Total 6-8	572	562	569	574	557	561	556	571	538	506	500	479	505	504	531	537	538	532	521	510	505	504	502	500	497	496	494
Total 6-8	572	562	569	574	557	561	556	571	538	506	500	479	505	504	531	537	538	532	521	510	505	504	502	500	497	496	494
Change		-10	7	5	-17	4	-5	15	-33	-32	-6	-21	26	-1	27	6	1	-6	-11	-11	-5	-1	-2	-2	-3	-1	-2
Percent Change		-1.7%	1.2%	0.9%	-3.0%	0.7%	-0.9%	2.7%	-5.8%	-5.9%	-1.2%	-4.2%	5.4%	-0.2%	5.4%	1.1%	0.2%	-1.1%	-2.1%	-2.1%	-1.0%	-0.2%	-0.4%	-0.4%	-0.6%	-0.2%	-0.4%
Forecasts Developed October 2017																											
Green Cells (2017-18 and earlier) are historical data																											
Blue Cells (2018-19 and later) are forecasted years																											



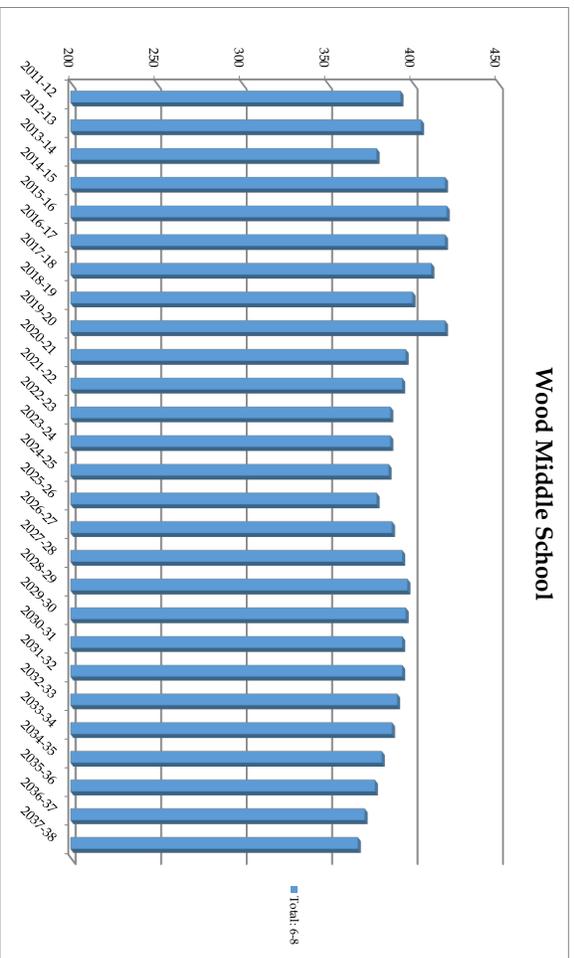
West Middle School

	2011-12	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	2034-35	2035-36	2036-37	2037-38
6	177	195	190	182	164	182	176	171	155	170	171	168	167	167	168	166	166	165	163	163	164	163	161	159	159	159	158
7	183	179	198	192	182	172	181	178	173	157	173	174	171	170	170	172	173	171	170	168	168	169	168	166	164	164	164
8	183	189	173	193	189	178	168	179	176	171	155	171	172	169	168	172	174	175	173	172	170	170	171	170	168	166	166
Total 6-8	543	563	561	567	535	532	525	528	504	498	499	513	510	506	505	512	513	511	506	503	502	502	500	495	491	489	488
Total 6-8	543	563	561	567	535	532	525	528	504	498	499	513	510	506	505	512	513	511	506	503	502	502	500	495	491	489	488
Change	20	-2	6	-32	-3	-7	3	-24	-6	1	14	-3	-4	-1	7	1	-2	-5	-3	-1	0	-2	-5	-4	-2	-1	
Percent Change	3.7%	-0.4%	1.1%	-5.6%	-0.6%	-1.3%	0.6%	-4.5%	-1.2%	0.2%	2.8%	-0.6%	-0.8%	-0.2%	1.4%	0.2%	-0.4%	-1.0%	-0.6%	-0.2%	0.0%	-0.4%	-1.0%	-0.8%	-0.4%	-0.2%	
Forecasts Developed October 2017																											
Green Cells (2017-18 and earlier) are historical data																											
Blue Cells (2018-19 and later) are forecasted years																											



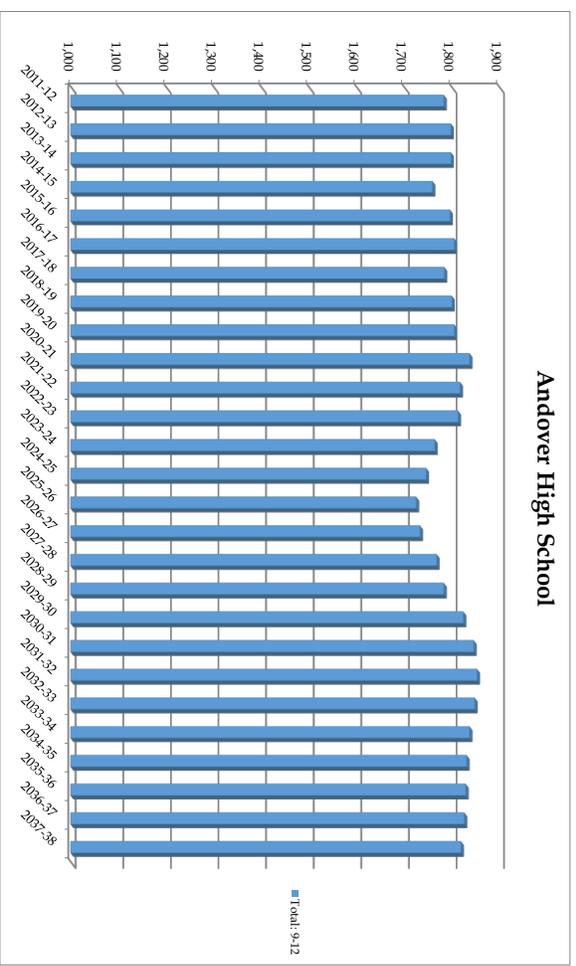
Wood Middle School

	2011-12	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	2034-35	2035-36	2036-37	2037-38			
6	115	130	118	158	141	120	143	127	140	120	124	132	120	123	125	128	128	128	127	126	126	124	123	120	120	117	116			
7	140	125	132	124	159	143	125	147	131	144	125	129	137	125	128	131	134	134	134	133	132	132	130	129	126	123	123			
8	138	150	129	137	120	156	143	126	148	132	145	126	130	138	126	129	132	135	135	135	136	135	135	133	132	129	129			
Total 6-8	393	405	379	419	420	419	411	400	419	396	394	387	387	386	379	388	394	397	396	394	394	394	394	394	391	388	382	378	372	368
Total 6-8	393	405	379	419	420	419	411	400	419	396	394	387	387	386	379	388	394	397	396	394	394	394	394	394	391	388	382	378	372	368
Change		12	-26	40	1	-1	-8	-11	19	-23	-2	-7	0	-1	-7	9	6	3	-1	-2	0	-3	-3	-6	-4	-6	-4	-4		
Percent Change		3.1%	-6.4%	10.6%	0.2%	-0.2%	-1.9%	-2.7%	4.8%	-5.5%	-0.5%	-1.8%	0.0%	-0.3%	-1.8%	2.4%	1.5%	0.8%	-0.3%	-0.5%	0.0%	-0.8%	-0.8%	-1.5%	-1.0%	-1.6%	-1.1%			
Forecasts Developed October 2017																														
Green Cells (2017-18 and earlier) are historical data																														
Blue Cells (2018-19 and later) are forecasted years																														



Andover High School

	2011-12	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	2034-35	2035-36	2036-37	2037-38
9	448	466	488	420	471	446	473	442	470	471	452	439	421	451	431	447	457	466	472	469	465	461	461	463	462	458	455
10	450	433	444	477	413	459	429	464	433	461	462	443	430	413	442	422	438	448	457	463	460	456	452	452	454	453	449
11	462	440	430	432	469	421	455	427	462	431	459	460	441	428	411	440	420	436	446	445	461	438	454	450	450	452	447
12	424	453	429	415	429	462	410	450	423	457	427	454	455	437	424	407	436	416	432	442	450	456	449	449	446	447	447
SP	-	7	8	16	15	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Total: 9-12	1,784	1,799	1,799	1,760	1,797	1,806	1,785	1,801	1,806	1,838	1,818	1,814	1,765	1,747	1,726	1,734	1,769	1,784	1,825	1,847	1,854	1,849	1,838	1,832	1,830	1,827	1,820
Change		15	0	-39	37	9	-21	16	5	32	-20	-4	-49	-18	-21	8	35	15	41	22	7	-5	-11	-6	-2	-3	-7
Percent Change		0.8%	0.0%	-2.2%	2.1%	0.5%	-1.2%	0.9%	0.3%	1.8%	-1.1%	-0.2%	-2.7%	-1.0%	-1.2%	0.5%	2.0%	0.8%	2.3%	1.2%	0.4%	-0.3%	-0.6%	-0.3%	-0.1%	-0.2%	-0.4%
Forecasts Developed October 2017																											
Green Cells (2017-18 and earlier) are historical data																											
Blue Cells (2018-19 and later) are forecast years																											



Shawsheen Elementary School

	2011-12	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	2034-35	2035-36	2036-37	2037-38
K	70	74	66	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	72	62	58	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	52	69	51	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total: K-5	194	205	175	173	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total: K-5	194	205	175	173	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Change		11	-30	-2	-173	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent Change		5.7%	-14.6%	-1.1%	-100.0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forecasts Developed October 2017																											
Green Cells (2017-18 and earlier) are historical data																											
Blue Cells (2018-19 and later) are forecasted years																											



Appendix E: Forecast Evaluation

Forecast Evaluation by Grade

**Comparison of 2017 ADM Enrollment With July 2017 forecasts
Andover Public Schools, MA**

	2017 ADM Enrollment	July 2017 Forecast of 2017 Enrollment	Difference	Percent Difference
Pre-K	87	73	-14	-19.2%
K	363	358	-5	-1.4%
1	398	409	11	2.7%
2	434	435	1	0.2%
3	426	429	3	0.7%
4	460	460	0	0.0%
5	484	477	-7	-1.5%
6	504	511	7	1.4%
7	508	510	2	0.4%
8	480	482	2	0.4%
9	473	479	6	1.3%
10	429	437	8	1.8%
11	455	457	2	0.4%
12	410	417	7	1.7%
SP	18	18	0	0.0%
District Total	5,929	5,952	23	0.39%

Student Data as of Fall 2017 ADM Data

Forecast Evaluation by School

**Comparison of 2017 ADM Enrollment With July 2017 forecasts
Andover Public Schools, MA**

	2017 ADM Enrollment	July 2017 Forecast of 2017 Enrollment	Difference	Percent Difference
Pre-K	87	73	-14	-19.18%
Bancroft Elementary School	578	576	-2	-0.35%
High Plain Elementary School	498	506	8	1.58%
Sanborn Elementary School	388	375	-13	-3.47%
South Elementary School	491	484	-7	-1.45%
West Elementary School	610	627	17	2.71%
ELEMENTARY TOTAL	2,652	2,641	-11	-0.42%

Doherty Middle School	556	575	19	3.30%
West Middle School	525	525	0	0.00%
Wood Middle School	411	403	-8	-1.99%
MIDDLE SCHOOL TOTAL	1,492	1,503	11	0.73%

Andover High School	1,785	1,808	23	1.27%
HIGH SCHOOL TOTAL	1,785	1,808	23	1.27%
DISTRICT TOTAL	5,929	5,952	23	0.39%

Student Data as of Fall 2017 ADM Data