

# Wellesley Public Schools, MA Demographic Study

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### **Executive Summary**

- 1. Wellesley's non-college fertility rates are below replacement levels over the duration of the forecasts (TFR=1.81 for the district vs. 2.1 for replacement level)
- 2. Most in-migration to the district occurs in the 0-to-9 and 30-to-44 age groups.
- 3. The locally born 18-to-24 year old population continues to leave the district, going to college or moving to other urbanized areas.
- 4. The primary factor causing the district's enrollment to decline over the next five years is the presence of small preschool age population in the district.
- 5. Changes in year-to-year enrollment largely will be due to smaller cohorts entering and moving through the system in conjunction with larger cohorts leaving the system.
- 6. As the in-migration of young families continues to slow and smaller grade cohorts enter into the school system, total enrollment will begin to decline. The district's elementary enrollment will see a steady decline for the next 10 years
- If there was zero migration during the 2012-13 to 2015-16 time period, elementary enrollment would decline by 590 students. The forecasted decline in elementary enrollment in the same period is for 166 students.
- 8. As the district continues to have virtually no new home construction, the rate and magnitude of existing home sales will be the dominant factor affecting the amount of population and enrollment change.
- 9. Total enrollment is forecasted to decline by 243 students, or -5.0%, between 2012-13 and 2017-18. Total enrollment will decline 317 students, or -6.9%, from 2017-18 to 2022-23.





#### 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 growth of each school district (and its individual attendance areas) is influenced by a variety of factors. 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. 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 or its attendance areas, realistic suppositions must be made as to what the future will bring in terms of the residents' general 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/sex distribution, local vital rates, housing characteristics and special populations 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 and attendance area level, 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 the



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 is 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 10 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 Wellesley 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. Enrollments by grade and attendance center were provided by the Wellesley Public Schools for school years 2008-2009 to 2012-13. Birth and death data were obtained from the Town of Wellesley for the years 2000 through 2012. The net migration values were calculated using Internal Revenue Service migration reports for the years 2000 through 2010. 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 260 of the over 8,700 current households in the district would have been included. For comparison 1,300 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, housing tenure and amount of 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 drop in the average household size in Wellesley 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 vears.

#### ASSUMPTIONS

For these forecasts, the mortality probabilities are held constant at the levels calculated for the year While the number of deaths in an area are 2010. impacted by and will change given the proportion of the local population over age 60, 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 the district's mortality rates between now and the year 2022. 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 and subsequent decline in the fertility rates of the United States, overall fertility rates have stayed within a 10% range (Total Fertility Rates of 1.8 to 2.0) 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 20-29) rather than any fluctuation in an area's fertility rate.

The total fertility rate (TFR), the average number of births a woman will have in her lifetime, is estimated to be 1.81 for the non-college population of 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 inmigration. Therefore, over the course of the forecast period, fertility will not be sufficient, in the absence of migration, to maintain the current level of population within the Wellesley Public Schools.

A close examination of data for the Wellesley 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 Wellesley Public Schools (and will change again over the next 10 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 out-migration occurring in





### Wellesley Public Schools Demographic Study

the 18-to-24 year old age group (those that grew up in the district) as young adults leave the area to go to college or move to other urbanized areas. The second group of out-migrants is those householders aged 70 and older who are downsizing their residences. Most of the local in-migration occurs in the 0-to-9 and 30-44 age groups (the bulk of which is from areas within 75 miles of Wellesley) primarily consisting of younger adults and their children.

As the town of Wellesley is not currently contemplating any major expansions or contractions, the forecasts also assume the current economic, political, transportation and public works infrastructure (with a few notable exceptions), social, and environmental factors of the Wellesley Public Schools and its attendance areas will remain the same through the year 2022.

Below is a list of assumptions and issues that are specific to Town of Wellesley. These issues have been used to modify the population forecast models to more accurately predict the impact of these factors on each attendance area's population change and composition. Specifically, the forecasts for the Wellesley Public School District 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 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 reached an 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 5.5%;
- c. The rate of mortgage approval stays at 1999-2002 levels and lenders do not return to "subprime" 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 2005-2008 average of the Wellesley School District for any year in the forecasts;
- f. All currently planned, platted, and approved housing developments are built out and completed by 2020. All housing units constructed are occupied by 2022;
- g. The unemployment rates for the Boston Metropolitan Area will remain below 7.0% for



the 10 years of the forecasts;

- h. The rate of students transferring into and out of the Wellesley Public Schools will remain at the 2008-09 to 2012-13 average;
- i. The inflation rate for gasoline will stay below 5% per year for the 10 years of the forecasts;
- j. There will be no building moratorium within the district;
- k. Businesses within the district and the Greater Boston Metropolitan Area will remain viable;
- 1. 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;
- m. 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 55;
- n. The Wellesley Public School District will not allow out of district students to transfer in to the district at any time over the next 10 years.
- o. Private school and home school attendance rates will remain constant;
- p. The recent decline in new home construction has ended and building rates have stabilized;
- q. The rate of foreclosures for commercial property remains at the 2004-2008 average for the Boston Metropolitan area;

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 Wellesley 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 outmigration 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-component projection refers to the future population that would result if a mathematical extrapolation of historical trends were applied to the components of change (i.e., births, deaths, and migration). 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 believed to be critical factors of influence in each specific 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 the Wellesley Public Schools and their attendance areas);
- a set of age-specific fertility rates for each attendance area to be used over the forecast period;
- c. a set of age-specific survival (mortality) rates for each attendance area;
- d. a set of age-specific migration rates for each attendance area; and
- e. the historical enrollment figures by grade.

The most significant part 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 difficult

aspect of generating the population forecasts is found in deriving the rates of change in fertility, mortality, and migration as they relate to the age structure of the district and the attendance areas. From the standpoint of demographic analysis, the Wellesley Public Schools and its seven elementary attendance center districts are classified as "small area" populations (as compared to the population of the state of Massachusetts or to that of the United States). Small area population forecasts are more difficult to calculate because local variations in fertility, mortality, and migration may be more irregular than those at the state or national scale. Especially challenging to project are 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 Wellesley Public Schools and its attendance areas 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 Wellesley Public Schools attendance areas as well as the total school district.

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 the Wellesley Public Schools for the period 2005 to 2010. 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 2010 to 2015. The survivorship rates were adjusted again for the period 2015 to 2020 to reflect the predicted changes in the amount of age-specific migration in the districts for the 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 population and enrollment forecasts at the school district level is estimated to be +2.0% for the life of the forecasts.

## RESULTS AND ANALYSIS OF THE POPULATION FORECASTS

From 2010 to 2020, the populations of the Wellesley Public Schools, Norfolk County; the state of Massachusetts, and the United States are forecasted to change as follows; the Wellesley Public Schools will increase by 2.0%, Norfolk County will grow by 4.5% Massachusetts will increase by 5.3%; and the United States increase by 8.4% (see Table 1)

<b>Table 1: Forecasted Pop</b>	pulation Change, 2010 to 2020

				10-Year
	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>Change</u>
U.S. (in millions)	308	322	334	8.4%
Massachusetts	6,547,629	6,688,000	6,892,000	5.3%
Norfolk County	670,850	687,000	701,000	4.5%
Wellesley	27,982	28,290	28,540	2.0%

A number of general demographic factors will influence the growth rate of the Wellesley Public Schools during this period, and include the following:

- a. The Baby Boom generation will have passed through prime childbearing ages by 2003, thereby reducing the overall proportion of the population at risk of having children;
- b. The remaining population in childbearing ages (women ages 15-45) will have fewer children;
- c. The local non-college18-to-24 year old population, will continue to leave the area to go to college or to other urban areas, with the magnitude of this out-migration flow slowly increasing; and,
- d. The district will experience virtually no increase in housing stock. The vast majority of inmigrating families will into existing housing units.

The Wellesley Public Schools will continue to experience in-migration (movement of new young families into the district) over the next 10 years. However, the size and age structure of the pool of potential in-migrants will change and the effects of the in-migration of families on population growth will be greatly offset by the continued steady growing outmigration of young adults as graduating seniors continue to leave the district.





From 2010 to 2015, the district's population is forecasted to increase by 308 or 1.1%, to 28,290. From 2015 to 2020, the population is forecasted to continue to increase by an additional 250 persons or 0.9%. During the ten years of the forecasts, all seven of the elementary attendance areas are forecasted to increase in population with the growth rates ranging from 7.9% in the Bates area to 0.4% in the Hardy area (See Table 2 for population forecast results of each elementary attendance area).

While all elementary areas will see some amount of gross in-migration, (primarily in the 0-to-9 and 30-to-44 age groups,) all areas also will continue to see gross outmigration. This out-migration primarily will be young adults, 18-to-24 years old, as graduating seniors continue to leave the district to go to college or seek employment in larger urbanized areas. There will also be an important secondary out migration flow, that of householders over the age of 65. This outflow is key given that fact that the district is almost totally dependent on the sale of existing homes to provide open housing units for new young families with children or who will have children in the future.

Table 2: Forecasted Elementary Area Population Change, 2010 to 2020

			2010-2015		2015-2020	2010-2020
	<u>2010</u>	<u>2015</u>	<u>Change</u>	<u>2020</u>	<u>Change</u>	<u>Change</u>
Bates	3,132	3,260	3.9%	3,380	3.7%	7.9%
Fiske	5,582	5,630	0.9%	5,650	0.4%	1.2%
Hardy	2,958	2,940	-0.6%	2,970	1.0%	0.4%
Hunnewell	5,604	5,620	0.3%	5,630	0.2%	0.5%
Schofield	3,689	3,790	2.7%	3,810	0.5%	3.3%
Sprague	4,683	4,720	0.8%	4,720	0.0%	0.8%
Upham	2,334	2,330	-0.2%	2,380	2.1%	2.0%
District Total	27982	28290	1.1%	28540	0.9%	2.0%

As stated in the ASSUMPTIONS and emphasized above, the impact of the high proportion of high school graduates that leave the district to continue on to college or to seek employment in large urban areas is significant to the size and structure of the future population of the district. Up to 65% of all births occur to women between the ages of 20 and 29. (This is still true even with the recent rise in fertility rates for women age 30 and over) As the graduating seniors continue leave the district, the number of women at risk of childbirth the declines. during next decade Consequently, even though the district's fertility rate is just 0.3 points below the replacement level, the smaller Wellesley Public Schools



number of women in the district in prime child bearing ages will keep the number of births low despite the district having an increasing population (see the population pyramids in the appendix of this report for a graphic representation of the age distributions of the district and all of the attendance areas). This will require the district to become dependent on the in-migration of children just to maintain current grade cohort sizes.

Another factor that needs to be considered is the birth dynamics of the last twenty years. An examination of national birth trends shows there was a large "Baby Boomlet" born between 1980 and 1995. This Boomlet was nearly as large as the Baby Boom of the 1950s and 1960s. However, unlike the Baby Boom, the Boomlet was a regional and not a national phenomenon (McKibben, et. al. 1999). Because Massachusetts did not experience a Baby Boomlet, most of the expected enrollment growth will have to result from in-migration and not from an increase in the grade cohort size.

## Table 3: Household Characteristics by ElementaryDistricts, 2010 Census

	HH w/ Pop	% HH w/ Pop	Total	Household	Persons Per
	Under 18	Under 18	Households	Population	Household
Bates	520	50.9%	1021	3132	3.07
Fiske	610	41.2%	1480	3993	2.70
Hardy	451	41.6%	1082	2958	2.73
Hunnewell	481	35.7%	1347	3504	2.60
Schofield	616	49.0%	1258	3687	2.93
Sprague	676	38.4%	1763	4556	2.58
Upham	377	50.7%	744	2334	3.14
District Total	3730	42.9%	8695	24164	2.78

Clearly, the dominant factor that has affected the population growth rates of the Wellesley Public Schools over the last 20 years has been the pace of existing homes sales. However, the dynamics of this in migration flow are more complex than many realize. There is a common misconception that any changes in the economy, housing market or transportation system will have an immediate impact on the size of an area's population and the total impact of that change will be experienced immediately..

This "delayed demographic reaction" is a key issue when attempting to ascertain the impact and duration of a trend. While it is true that the households moving into these new housing units bring many school age (particularly elementary) children into the district, they also bring many preschool age children as well. Consequently, the full impact of the growth in existing home sales is not seen immediately in elementary enrollment as it takes three to seven years for all of the





children of a given household to age into the schools. This is a key issue since the number of births in the Wellesley Public Schools is insufficient to maintain current enrollment levels over the next 10 years. The number of women living in the district ages 20-29 (prime child bearing ages) is too small to produce birth cohorts that are the same size as those currently in the elementary grades.

Of additional concern are the issues of the district's aging population and the growing number of "empty nest" households, particularly in the Upham attendance area. For example, after the last school age child leaves high school, the household becomes an "empty nest" and most likely will not send any more children to the school system. In most cases, it takes 20 to 30 years before all original (or first time) occupants of a housing area move out and are replaced by new, young families with children. This principle also applies to children leaving elementary school and moving on to middle school. Households can still have school age children in the district's school, but also in effect be an "empty nest" of elementary age children.

Table 4: Household	ler Characteristics by Elementary
Districts, 2010 Cens	<u>us</u>

	Percentage of	Percentage of	Percentage of
	Householders	Householders	Householders
	aged 35-54	aged 65+	Who Own Homes
Bates	52.3%	25.4%	97.4%
Fiske	42.7%	28.4%	72.0%
Hardy	46.7%	27.6%	90.5%
Hunnewell	38.4%	36.2%	73.9%
Schofield	48.7%	22.4%	84.4%
Sprague	43.9%	28.1%	73.8%
Upham	47.6%	23.5%	96.1%
District Total	45.2%	27.8%	81.8%

Note as well the steady increase in the median age of the population in the Wellesley Public Schools and all of its attendance areas (see population forecasts in the appendix for the median age for each forecast year). The district as a whole will see the median age of its population increase from 37.8 in 2010 to 39.9 in 2020. (A 2.1 year increase over the course of a decade is a large increase for a district of this size with two colleges located within its boundaries) This rise in median age is due to three factors, 18-24 years leaving the district, a high proportion of their parents staying in their existing households and the decline in the number of births. (See Table 4)



As a result of the "empty nest" syndrome, the attendance areas in the Wellesley Public Schools will see a steady rise in the median age of their populations, even while the district as a whole continues to attract some new young families. It should be noted that many of these "childless" households are single persons and/or elderly (See Table 5). Consequently, even if many of these housing units "turnover" and attract households of similar characteristics, they will add little to the number of school age children in the district. Furthermore, several of the empty nest households will "down size" to smaller households within the district. In these cases new housing units may be developed in an area, yet there is no corresponding increase in school enrollment.

Table 5:Single Person Households and Single PersonHouseholds over age 65 by Elementary Districts, 2010

Census

	Percentage of	Percentage of
	Single Person	Households single
	Households	person and 65+
Bates	14.6%	9.9%
Fiske	23.7%	13.6%
Hardy	19.7%	11.1%
Hunnewell	25.6%	15.9%
Schofield	15.7%	8.0%
Sprague	26.5%	12.4%
Upham	10.3%	6.5%
District Total	20.7%	11.6%

1	
McKibben De	mographic



## RESULTS AND ANALYSIS OF ENROLLMENT FORECASTS

#### **Elementary Enrollment**

The total elementary enrollment of the district is forecasted to decline from 2,309 in 2012-13 to 2,066 in 2017-18, a decrease of 243 students or 10.5%. From 2017-18 to 2022-23, elementary enrollment is expected to drop by 154 students to 1,912. This will represent a -7.5% decrease over the five-year period. All of the seven elementary attendance areas will experience a net decline in enrollment over the next ten years (see Chart 6).

The reason for this turnaround in elementary enrollment pattern is the convergence of the effects of three factors, all affecting the enrollment level for the next 10 years. These factors are the reversal of cohort sizes in the elementary grades, the growth in the number of empty nest households and a "dearth" of population in the preschool ages. Each of these factors will contribute in part to the decline in elementary enrollment until at least 2022-23.

Over the last several years, one of the main reasons elementary enrollment was consistently declining was due to the fact that the number of children entering Kindergarten and 1st grade was much smaller than the number leaving elementary school after completing 5th grade. This enrollment decline was in spite of the extra Kindergarten through 5th grade students the district was gaining through in-migration of young families. Over the next 10 years, the number of students in 5th grade will average 365 each year as opposed to the 325 average size of the 1st grade cohort.

#### Table 6: Total Elementary Enrollment, 2012, 2017, 2022

			2012-2017		2017-2022	2012-2022
	<u>2012</u>	<u>2017</u>	<u>Change</u>	<u>2022</u>	<u>Change</u>	<u>Change</u>
Bates	320	308	-3.8%	274	-11.0%	-14.4%
Fiske	335	302	-9.9%	281	-7.0%	-16.1%
Hardy	328	319	-2.7%	287	-10.0%	-12.5%
Hunnewell	298	262	-12.1%	237	-9.5%	-20.5%
Schofield	341	333	-2.3%	320	-3.9%	-6.2%
Sprague	394	351	-10.9%	331	-5.7%	-16.0%
Upham	226	191	-15.5%	182	-4.7%	-19.5%
District Total	2,309	2,066	-10.5%	1,912	-7.5%	-17.2%



The second factor is that there is currently a significantly dearth of population in the district's preschool population. An excellent example of this impact of the trend is shown in the single year of age counts of the district from the 2010 Census (See Table 7). The population at age six is closely related to the combined 1st grade enrollment of the public and private students in the district (as it is for all ages and elementary grades). However, note the relatively lower number of residents younger than five years old, particularly when compared to the cohort sizes of the age 6 through 10 population. This trend is an indication of the proportion of households in each area that will produce elementary age students over the next five years.

Even with a substantial in-migration of young families with children under the age of five, this "preschool cohort" will results in significant decline in elementary enrollments over the next five years. For example, if there was zero migration during the 2012-13 to 2015-16 school years, elementary enrollment would decline by 590 students due to the substantially smaller pre-school age cohort aging into the elementary grades. However in this case, the forecasted decline in elementary enrollment in the same period is for 166 students. This is a result of the forecasts adding 424 elementary students over the same period through inmigration. Thus, even though the district will experience a substantial level of in-migrating young households, this migration flow will be insufficient in magnitude to fully compensate for the smaller preschool age cohorts.

Table 7: Age Under One to Age Ten PopulationCounts, by Year of Age, by Elementary AttendanceArea: 2010 Census

	r				-						
		Age in Years									
	Under 1	1	2	3	4	5	6	7	8	9	10
Bates	34	49	47	64	69	52	68	81	76	77	60
Fiske	43	43	50	70	59	61	68	91	83	77	86
Hardy	28	31	46	52	52	40	51	61	53	59	45
Hunnewell	21	27	37	37	46	47	49	68	62	67	69
Schofield	47	52	59	54	61	59	87	76	62	83	92
Sprague	35	55	61	63	60	73	73	88	91	82	81
Upham	16	24	23	24	34	25	39	40	51	53	62
District Total	224	280	323	363	380	357	434	505	478	498	495





## WELLESLEY PUBLIC SCHOOLS

The third factor is the rise of the number of empty nest households in the district. In 2010 the district had 45.2% of their households headed by people ages 35-54 (The ages most people have school aged children). The district's proportion of households in these age groups has dropped over the last five years as the homeowners (and their children) aged and the households became empty nest. Unfortunately, the large and growing bubble of now empty nest households, (particularity empty of elementary age students) will not reach their 70s during the life of these forecasts. Post 70 year old households are the stage of life when most householders downsize, allowing new young families with children to move in.

The demographic factors that will become the most influential over the next ten years are the growth rate of empty nest household in the attendance areas, the number of sales of existing homes, the rate and magnitude of existing housing unit "turn over," the relative size of the elementary and pre-school age cohorts and each area's fertility rate. Each of these factors will vary in the scale of their influence and timing of impact on the enrollment trends of any particular elementary area.

Attendance areas that are currently experiencing a rise in empty nest households tend to be the same areas that are not the areas that will experience any large number of existing home sales. Thus, areas like Hardy will see sustained net declines in elementary enrollment. While these areas will continue to see net in migration of families, it will not be at a sufficient rate to maintain current attendance levels.

As all the elementary attendance areas become almost completely dependent upon existing home sales to attract new families, the overall elementary enrollment trend of the district will decline. Thus, the best primary short- and long-term indicator for enrollment change in most of the attendance area will be the year-to-year rate of housing turnover. If the Total Fertility Rates of all the attendance areas remain at their current low levels (and they are forecasted to do so) they will insure that enrollments will continue to see declines.

There is one additional factor affecting the in migration characteristics of the households moving to Wellesley, the cost of housing. The household demographic dynamics of homes priced at \$400,000 to \$500,000 tend to be quite different from houses priced at \$900,000 and higher. The latter group, which makes up a sizeable proportion of the housing units in Wellesley, tend to draw occupants that have completed their family formation and the children they do have are frequently Wellesley Public Schools

**B** 

in the late elementary or early middle school grades.

#### Middle School Enrollment

The total middle school enrollment for the district is forecasted to decline from 1,165 in 2012-13 to 1,049 in 2017-18, a 116 student or -10.0%. Between 2017-18 and 2022-23 middle school enrollment is forecasted to decline to 1,012, a decrease of 37 students or -3.5%. The difference in the size of the individual grade cohorts and the aging of students through the school system are the primary reasons why the middle school enrollment trends are more moderate than those of the elementary grades.

There are currently smaller grade cohorts enrolled in the elementary school grades compared to those in the middle schools' grade cohorts. As these elementary school cohorts "age" into middle school and smaller middle school cohorts age into high school, they decrease the overall middle school enrollment level. Note how the size of the incoming 6th grade class is usually smaller than the previous year's 8th grade class, which has now moved on to high school. As long as this "dearth" in the enrollment pattern exists, (even with the aforementioned in-migration of middle age students) there will be to some degree, a decrease in middle school enrollment at least until the 2017-2018 school year.

By 2018 the full impact of the current dearth of population should be seen in the middle school grades. The district should experience a much more moderate decline in middle school enrollment as the year to year changes are more a reflection of each year's relative cohort size.

#### High School Enrollment

Enrollment at the high school level is forecasted to grow from 1,383 in 2012-13 to 1,499 in 2017-18, an increase of 116 students or 8.4%. After 2017-18, the high school enrollment will begin to decline. The net result for the five-year period 2017-18 to 2022-23 will be a decrease of 126 students to 1,373 or -0.7%.

The aforementioned effects of changes in cohort size on middle school enrollment are also affecting the growth patterns of the high school population. The difference here is that for the next five years the incoming 9th grade cohort will be larger than the graduation 12th grade cohorts of the year before. From 2012-13 to 2017-18, the larger grade cohorts that are in middle school begin to enter high school. Until the current bubble of students passes through the high school grades, there will be continued growth at the





### Wellesley Public Schools Demographic Study



district's high school.

After 2017, this trend reverses. The incoming 9th grade cohorts will be smaller than the previous year's graduating 12th grade class. The will results in a slow, uneven decline in total high school enrollment that will continue beyond the 10 year horizon of these forecasts. It is important to note that the vast majority of this future high school enrollment growth will be a result of students aging into those grades. Specifically, students who already live in the district (and not in-migration of students ages 14 to 18) will be the primary cause of the forecasted increase in high school enrollment. Additionally, as was mentioned earlier, these forecasts represent the demographic changes that will affect high school enrollment. Any changes in the district's student transfer policy and/or changes in special high school level programs will need to be added or subtracted from the forecast result

High school enrollment is the most difficult of all the grade levels to project. The reason for this is the varying and constantly changing dropout rates, particularly in grades 10 and 11. For these forecasts the dropout rates at the high school were calculated for each grade over the last five years. These five-year averages were then held constant for the life of the forecast. The effects of any policy changes dealing with any school's dropout rates, program placement or reassignment of former students to new grade levels will need to be added or subtracted from the forecast results.

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### Wellesley Schools Total Population Census 2010



Without Group Quarters Population









Fiske School District Total Population Census 2010









Fiske School District Total Population Census 2010 Without Group Quarters Population (note different scale)











### Wellesley Public Schools Demographic Study







Hunnewell Total Population Census 2010 Without Group Quarters Population (note different scale)







### Schofield School District Total Population Census 2010



Sprague School District Total Population Census 2010







### Upham School District Total Population Census 2010







### Wellesley Public Schools Demographic Study



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**Appendix B: Enrollment Forecast Charts** 































### Wellesley Public Schools Demographic Study









### Wellesley Public Schools Demographic Study









<b>Appendix C: Projected</b>	l Enrollment Tables
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		-	-			Wellesl	y Public S	Schools:	Total En	rollment			-		
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
K	394	352	354	353	352	337	330	315	313	307	300	295	295	291	301
1	422	413	359	381	365	369	355	345	330	323	317	310	305	302	298
2	415	414	419	362	389	367	370	356	350	335	327	321	319	314	311
3	446	407	411	438	365	395	372	375	366	360	345	337	334	332	327
4	399	439	406	413	433	361	391	369	377	368	362	347	343	340	337
5	405	396	427	408	405	424	354	383	365	373	365	358	345	341	338
Elementary Total	2481	2421	2376	2355	2309	2253	2172	2143	2101	2066	2016	1968	1941	1920	1912
Change		-60	-45	-21	-46	-56	-81	-29	-42	-35	-50	-48	-27	-21	-8
Percent Change		-2.42%	-1.86%	-0.88%	-1.95%	-2.43%	-3.60%	-1.34%	-1.96%	-1.67%	-2.42%	-2.38%	-1.37%	-1.08%	-0.42%
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
6	368	390	397	410	381	390	408	341	370	353	361	354	348	336	333
7	377	360	380	382	411	370	378	396	332	361	345	353	347	342	331
8	315	383	361	384	373	413	372	381	399	335	365	349	358	352	348
Middle School Total	1060	1133	1138	1176	1165	1173	1158	1118	1101	1049	1071	1056	1053	1030	1012
Change		73	5	38	-11	8	-15	-40	-17	-52	22	-15	-3	-23	-18
Percent Change		6.89%	0.44%	3.34%	-0.94%	0.69%	-1.28%	-3.45%	-1.52%	-4.72%	2.10%	-1.40%	-0.28%	-2.18%	-1.75%
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
9	350	296	369	346	383	364	403	363	372	390	327	357	342	350	345
10	292	350	295	374	342	380	361	400	360	369	387	325	355	340	348
11	297	284	342	297	360	334	372	353	392	352	361	379	319	348	334
12	319	294	289	338	298	356	331	369	350	388	349	358	376	317	346
High School Total	1258	1224	1295	1355	1383	1434	1467	1485	1474	1499	1424	1419	1392	1355	1373
Change		-34	71	60	28	51	33	18	-11	25	-75	-5	-27	-37	18
Percent Change		-2.70%	5.80%	4.63%	2.07%	3.69%	2.30%	1.23%	-0.74%	1.70%	-5.00%	-0.35%	-1.90%	-2.66%	1.33%
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Total Enrollment	4799	4778	4809	4886	4857	4860	4797	4746	4676	4614	4511	4443	4386	4305	4297
Change		-21	31	77	-29	3	-63	-51	-70	-62	-103	-68	-57	-81	-8
Percent Change		-0.44%	0.65%	1.60%	-0.59%	0.06%	-1.30%	-1.06%	-1.47%	-1.33%	-2.23%	-1.51%	-1.28%	-1.85%	-0.19%

							Bate	es Elemer	ntary						
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
K	68	62	59	62	56	48	50	46	46	44	43	42	41	41	42
1	70	73	58	59	66	59	50	52	48	47	45	44	43	42	42
2	79	68	78	59	62	68	61	52	54	50	49	47	47	46	45
3	66	74	68	80	60	63	69	62	53	55	51	50	49	49	48
4	50	68	75	64	79	58	61	67	61	52	54	50	50	49	49
5	60	47	68	72	64	77	56	59	66	60	51	53	49	49	48
Total	393	392	406	396	387	373	347	338	328	308	293	286	279	276	274
Change		-1	14	-10	-9	-14	-26	-9	-10	-20	-15	-7	-7	-3	-2
% Change		-0.3%	3.6%	-2.5%	-2.3%	-3.6%	-7.0%	-2.6%	-3.0%	-6.1%	-4.9%	-2.4%	-2.4%	-1.1%	-0.7%

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							Fisk	e Elemer	ntary						
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
K	65	53	61	56	57	54	54	53	52	51	50	49	49	48	49
1	61	67	52	59	52	55	52	52	51	51	50	49	48	48	47
2	66	66	68	51	57	51	54	51	52	51	51	50	48	47	47
3	69	60	62	68	49	55	49	52	50	51	50	50	49	47	46
4	56	72	60	62	63	48	53	48	51	49	50	49	49	48	46
5	65	57	70	61	57	60	46	51	47	49	48	49	47	47	46
Total	382	375	373	357	335	323	308	307	303	302	299	296	290	285	281
Change		-7	-2	-16	-22	-12	-15	-1	-4	-1	-3	-3	-6	-5	-4
% Change		-1.8%	-0.5%	-4.3%	-6.2%	-3.6%	-4.6%	-0.3%	-1.3%	-0.3%	-1.0%	-1.0%	-2.0%	-1.7%	-1.4%

							Harc	ly Eleme	ntary						
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
K	48	43	47	47	57	52	49	46	46	45	44	43	44	43	44
1	60	49	48	53	53	61	58	54	51	50	49	48	47	47	46
2	48	58	51	48	48	51	59	56	53	50	49	48	48	47	47
3	50	46	59	57	49	49	52	60	58	55	52	51	50	50	49
4	48	48	45	62	57	49	49	53	61	59	56	53	52	51	51
5	59	48	46	44	64	56	48	48	52	60	58	55	52	51	50
Total	313	292	296	311	328	318	315	317	321	319	308	298	293	289	287
Change		-21	4	15	17	-10	-3	2	4	-2	-11	-10	-5	-4	-2
% Change		-6.7%	1.4%	5.1%	5.5%	-3.0%	-0.9%	0.6%	1.3%	-0.6%	-3.4%	-3.2%	-1.7%	-1.4%	-0.7%

				-	-	-	Hunne	well Elen	nentary		-				· · ·
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
K	44	41	45	37	42	41	39	36	36	36	35	34	35	34	35
1	63	43	48	51	38	46	45	42	39	38	38	37	36	36	35
2	47	58	47	50	54	39	47	46	44	41	40	40	39	38	38
3	64	45	60	49	52	56	40	48	48	46	43	42	42	41	40
4	61	59	48	62	51	53	57	41	50	50	48	45	45	45	43
5	55	61	59	53	61	50	52	56	41	51	51	48	46	46	46
Total	334	307	307	302	298	285	280	269	258	262	255	246	243	240	237
Change		-27	0	-5	-4	-13	-5	-11	-11	4	-7	-9	-3	-3	-3
% Change		-8.1%	0.0%	-1.6%	-1.3%	-4.4%	-1.8%	-3.9%	-4.1%	1.6%	-2.7%	-3.5%	-1.2%	-1.2%	-1.3%

							Schofi	eld Elem	entary						
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
К	60	56	48	60	54	57	55	54	53	52	51	51	50	50	52
1	53	66	54	50	62	56	59	57	56	54	53	52	52	51	51
2	69	47	66	52	56	61	55	58	56	55	53	52	53	53	52
3	75	73	51	66	55	58	63	57	61	59	58	56	55	56	56
4	68	70	69	48	63	52	55	59	55	59	57	56	55	54	55
5	54	62	71	67	51	62	51	54	58	54	58	56	56	55	54
Total	379	374	359	343	341	346	338	339	339	333	330	323	321	319	320
Change		-5	-15	-16	-2	5	-8	1	0	-6	-3	-7	-2	-2	1
% Change		-1.3%	-4.0%	-4.5%	-0.6%	1.5%	-2.3%	0.3%	0.0%	-1.8%	-0.9%	-2.1%	-0.6%	-0.6%	0.3%







							Sprag	ue Eleme	entary						
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
K	71	65	62	49	57	56	55	52	52	51	50	49	50	49	52
1	73	73	65	73	54	61	60	58	55	54	53	52	51	51	50
2	67	76	67	65	74	55	62	61	59	56	55	54	54	53	53
3	73	68	72	72	65	75	56	63	63	61	58	57	57	57	56
4	71	71	68	74	72	65	75	56	64	64	62	59	59	59	59
5	67	75	69	69	72	73	66	76	57	65	65	63	61	61	61
Total	422	428	403	402	394	385	374	366	350	351	343	334	332	330	331
Change		6	-25	-1	-8	-9	-11	-8	-16	1	-8	-9	-2	-2	1
% Change		1.4%	-5.8%	-0.2%	-2.0%	-2.3%	-2.9%	-2.1%	-4.4%	0.3%	-2.3%	-2.6%	-0.6%	-0.6%	0.3%

							Upha	m Eleme	ntary						
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
К	38	32	32	42	29	29	28	28	28	28	27	27	26	26	27
1	42	42	34	36	40	31	31	30	30	29	29	28	28	27	27
2	39	41	42	37	38	42	32	32	32	32	30	30	30	30	29
3	49	41	39	46	35	39	43	33	33	33	33	31	32	32	32
4	45	51	41	41	48	36	41	45	35	35	35	35	33	34	34
5	45	46	44	42	36	46	35	39	44	34	34	34	34	32	33
Total	258	253	232	244	226	223	210	207	202	191	188	185	183	181	182
Change		-5	-21	12	-18	-3	-13	-3	-5	-11	-3	-3	-2	-2	1
% Change		-1.9%	-8.3%	5.2%	-7.4%	-1.3%	-5.8%	-1.4%	-2.4%	-5.4%	-1.6%	-1.6%	-1.1%	-1.1%	0.6%

	-	-	-	-	-		W	ellesly N	15	-	-	-	-		-
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
6	368	390	397	410	381	390	408	341	370	353	361	354	348	336	333
7	377	360	380	382	411	370	378	396	332	361	345	353	347	342	331
8	315	383	361	384	373	413	372	381	399	335	365	349	358	352	348
Total	1060	1133	1138	1176	1165	1173	1158	1118	1101	1049	1071	1056	1053	1030	1012
Change		73	5	38	-11	8	-15	-40	-17	-52	22	-15	-3	-23	-18
% Change		6.9%	0.4%	3.3%	-0.9%	0.7%	-1.3%	-3.5%	-1.5%	-4.7%	2.1%	-1.4%	-0.3%	-2.2%	-1.7%

							Welle	sly High	School						
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
9	350	296	369	346	383	364	403	363	372	390	327	357	342	350	345
10	292	350	295	374	342	380	361	400	360	369	387	325	355	340	348
11	297	284	342	297	360	334	372	353	392	352	361	379	319	348	334
12	319	294	289	338	298	356	331	369	350	388	349	358	376	317	346
Total	1258	1224	1295	1355	1383	1434	1467	1485	1474	1499	1424	1419	1392	1355	1373
Change		-34	71	60	28	51	33	18	-11	25	-75	-5	-27	-37	18
% Change		-2.7%	5.8%	4.6%	2.1%	3.7%	2.3%	1.2%	-0.7%	1.7%	-5.0%	-0.4%	-1.9%	-2.7%	1.3%

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Females

0-4

5-9

10-14

15-19

20-24

25-29

30-34

35-39

40-44

45-49

50-54

55-59

60-64

65-69

70-74

75-79

80-84

85+

Females 0-4

5-9

10-14

15-19

20-24

25-29

30-34

35-39

40-44

45-49

50-54

55-59

60-64

65-69

70-74

75-79

80-84

85+

Total 1,635

Total 15,646

2010

138

170

144

115

32

20

41

111

163

155

123

104

95

71

56

45

27

23

2010

789

1,120

1,169

2,009

1,833

289

398

789

1,031

1,201

1,064

904

798

592

465

386

373

436

2015

670

1,010

1,170

2,090

1,870

370

440

670

920

1,070

1,180

1,030

830

730

510

420

370

430

2015

100

160

180

120

30

30

50

90

130

170

150

120

90

90

60

50

40

30

1,690 1,760

15,780 15,920

2020

100

120

170

150

30

30

50

80

120

160

170

150

120 90

80

50

50

40

2020

630 910

1,050

2,080

1,870

380

510

710

880

1,010

1,060

1,170

970

770

650

470

360

440



#### **Appendix D: Population Forecast Tables**

#### Wellesly Public Schools

Males	2010	2015	2020
0-4	781	690	640
5-9	1,152	1,010	930
10-14	1,211	1,200	1,040
15-19	1,136	1,300	1,270
20-24	766	800	820
25-29	236	300	330
30-34	320	380	470
35-39	626	610	660
40-44	884	760	790
45-49	1,084	920	840
50-54	952	1,080	920
55-59	809	910	1,010
60-64	766	760	850
65-69	542	650	650
70-74	364	430	560
75-79	292	310	390
80-84	229	220	260
85+	186	180	190
Total	12,336	12,510	12,620

Total	2010	2015	2020
0-4	1,570	1,360	1,270
5-9	2,272	2,020	1,840
10-14	2,380	2,370	2,090
15-19	3,145	3,390	3,350
20-24	2,599	2,670	2,690
25-29	525	670	710
30-34	718	820	980
35-39	1,415	1,280	1,370
40-44	1,915	1,680	1,670
45-49	2,285	1,990	1,850
50-54	2,016	2,260	1,980
55-59	1,713	1,940	2,180
60-64	1,564	1,590	1,820
65-69	1,134	1,380	1,420
70-74	829	940	1,210
75-79	678	730	860
80-84	602	590	620
85+	622	610	630
Total	27,982	28,290	28,540
Median Age	37.8	38.3	39.9

	2010-2015	2015-2020
Births	940	900
Deaths	1,050	1,110
Natural Increase	-110	-210
Net Migration	530	480
Change	420	270

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

Bates	Eleme	ntary
-------	-------	-------

	2010-2015	2015-2020
Births	110	120
Deaths	100	120
Natural Increase	10	0
Net Migration	120	100
Change	130	100

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

Males	2010	2015	2020
0-4	123	110	100
5-9	185	150	130
10-14	156	190	150
15-19	124	130	160
20-24	20	40	40
25-29	8	20	40
30-34	33	40	40
35-39	91	90	70
40-44	142	110	120
45-49	139	150	140
50-54	127	140	150
55-59	77	120	130
60-64	92	70	120
65-69	68	80	60
70-74	43	50	70
75-79	37	30	50
80-84	18	30	30
85+	14	20	20
Total	1,496	1,570	1,620

201	Total
26	0-4

Total	2010	2015	2020
0-4	261	210	200
5-9	355	310	250
10-14	300	370	320
15-19	239	250	310
20-24	52	70	70
25-29	28	50	70
30-34	74	90	90
35-39	202	180	150
40-44	304	240	240
45-49	294	320	300
50-54	251	290	320
55-59	182	240	280
60-64	187	160	240
65-69	139	170	150
70-74	99	110	150
75-79	82	80	100
80-84	46	70	80
85+	38	50	60
Total	3,132	3,260	3,380
Median Age	40.9	42.1	44.8

3		
McKibben	Demo	graphics



Females

0-4

5-9

10-14

15-19

20-24

25-29

30-34

35-39

40-44

45-49

50-54

55-59

60-64

65-69

70-74

75-79

80-84

85+

Total

2,861

2,870 2,870



-40

2010-2015 2015-2020 

-20

Differences between period Totals may

not equal Change due to rounding.

Births

Deaths

Change

Natural Increase

**Net Migration** 

Males	2010	2015	2020
0-4	147	110	100
5-9	192	160	140
10-14	193	200	170
15-19	428	430	430
20-24	574	590	580
25-29	77	90	80
30-34	61	80	100
35-39	100	100	120
40-44	138	120	130
45-49	162	150	140
50-54	158	170	160
55-59	124	150	160
60-64	125	120	140
65-69	83	110	100
70-74	49	70	100
75-79	41	40	60
80-84	32	40	40
85+	37	30	30
Total	2,721	2,760	2,780

#### **Fiske Elementary**

Total	2010	2015	2020
0-4	265	220	200
5-9	380	290	280
10-14	386	400	310
15-19	861	860	860
20-24	986	1,030	1,020
25-29	160	180	180
30-34	126	170	200
35-39	217	200	250
40-44	301	260	270
45-49	361	330	290
50-54	336	370	340
55-59	255	320	360
60-64	253	240	300
65-69	161	230	210
70-74	112	140	210
75-79	121	100	120
80-84	118	120	90
85+	183	170	160
Total	5,582	5,630	5,650
Median Age	24.6	25.4	29.3

#### Н

ardy Elementary				
Total	2010	2015	2020	
0-4	208	170	160	
5-9	263	270	260	
10-14	249	270	280	
15-19	172	210	230	
20-24	62	50	70	
25-29	52	80	60	
30-34	79	100	130	
35-39	192	150	170	
40-44	262	250	200	
45-49	289	260	240	
50-54	250	280	260	
55-59	196	250	270	
60-64	199	180	230	
65-69	142	160	150	
70-74	103	100	130	
75-79	91	90	90	
80-84	81	50	20	
85+	65	20	20	
Total	2,958	2,940	2,970	
Median Age	43.8	43.4	43.1	

Females	2010	2015	2020
0-4	112	80	80
5-9	136	140	130
10-14	122	140	150
15-19	83	100	120
20-24	28	20	30
25-29	28	40	30
30-34	46	50	60
35-39	113	80	90
40-44	142	140	110
45-49	146	140	140
50-54	120	140	140
55-59	109	120	140
60-64	97	100	110
65-69	82	80	90
70-74	57	60	70
75-79	46	50	60
80-84	45	40	10
85+	39	10	10
Total	1,552	1,530	1,570

Males	2010	2015	2020
0-4	96	90	80
5-9	127	130	130
10-14	127	130	130
15-19	89	110	110
20-24	34	30	40
25-29	24	40	30
30-34	33	50	70
35-39	79	70	80
40-44	121	110	90
45-49	144	120	100
50-54	131	140	120
55-59	87	130	130
60-64	102	80	120
65-69	60	80	60
70-74	46	40	60
75-79	44	40	30
80-84	36	10	10
85+	27	10	10
Total	1,406	1,410	1,400

	2010-2015	2015-2020
Births	100	100
Deaths	130	130
latural Increase	-30	-30
Net Migration	90	80
Change	60	50

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





Females

0-4

5-9

10-14

15-19

20-24

25-29

30-34

35-39

40-44

45-49

50-54

55-59

60-64

65-69

70-74

75-79

80-84

85+

Total

Females

0-4

5-9

10-14

15-19

20-24

25-29

30-34

35-39

40-44

45-49

50-54

55-59

60-64

65-69

70-74

75-79

80-84

85+

Total

3,988

1,937

1,232

1,260

1,990 2,0

4,000 4,010

1,270



#### Hunnewell Elementary

	2010-2015	2015-2020
Births	150	150
Deaths	200	200
Natural Increase	-50	-50
Net Migration	70	70
Change	20	20

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

5-9	293	260	240
10-14	345	300	260
15-19	1,104	1,150	1,090
20-24	1,265	1,300	1,310
25-29	82	90	120
30-34	89	100	130
35-39	168	160	180
40-44	238	220	240
45-49	315	250	250
50-54	288	310	250
55-59	282	280	300
60-64	230	260	260
65-69	179	210	240
70-74	178	150	170
75-79	122	160	130
80-84	143	110	150
85+	115	130	130
Total	5,604	5,620	5,630
Median Age	23.5	23.5	24.0

Total 2010 2015

0-4

168 180 180

Males	2010	2015	2020
0-4	74	90	90
5-9	147	120	120
10-14	175	150	120
15-19	121	160	130
20-24	33	40	40
25-29	32	30	50
30-34	34	40	60
35-39	73	70	80
40-44	104	100	110
45-49	150	110	110
50-54	133	150	110
55-59	130	130	140
60-64	105	120	120
65-69	86	90	110
70-74	76	70	70
75-79	51	70	60
80-84	54	40	60
85+	38	40	40
Total	1,616	1,620	1,620

#### **Schofield Elementary**

	-	-
	2010-2015	2015-2020
Births	140	130
Deaths	120	130
Natural Increase	20	0
Net Migration	60	50
Change	80	50

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

2015	2020	Total	2010	2015	2020
120	100	0-4	272	240	200
180	160	5-9	367	350	320
190	180	10-14	392	380	350
170	150	15-19	241	320	300
30	40	20-24	79	70	70
60	50	25-29	76	100	110
70	90	30-34	118	130	160
110	120	35-39	260	210	230
140	130	40-44	283	270	250
150	140	45-49	348	280	270
170	150	50-54	280	340	270
150	170	55-59	280	260	330
130	140	60-64	251	260	240
110	120	65-69	159	220	230
80	100	70-74	106	140	200
50	70	75-79	74	90	130
40	50	80-84	58	70	90
40	40	85+	43	60	60
1,990	2,000	Total	3,689	3,790	3,810
		Median Age	40.7	41.8	43.3

Males	2010	2015	2020
0-4	132	120	100
5-9	181	170	160
10-14	190	190	170
15-19	127	150	150
20-24	31	40	30
25-29	32	40	60
30-34	51	60	70
35-39	124	100	110
40-44	129	130	120
45-49	172	130	130
50-54	119	170	120
55-59	137	110	160
60-64	129	130	100
65-69	75	110	110
70-74	49	60	100
75-79	35	40	60
80-84	20	30	40
85+	18	20	20
Total	1,752	1,800	1,810





Females

0-4

2010

126

• •

2015 2020

110

. . .

120

1 1 0



170

230

-60

60

0

2010-2015 2015-2020 180

210

-30

70

40

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

Births

Deaths

Change

Natural Increase

**Net Migration** 

Males	2010	2015	2020
0-4	149	120	120
5-9	201	190	170
10-14	221	210	200
15-19	138	190	180
20-24	50	40	70
25-29	49	60	50
30-34	90	80	90
35-39	112	140	140
40-44	175	120	150
45-49	208	170	120
50-54	168	200	170
55-59	147	160	190
60-64	135	140	150
65-69	112	120	120
70-74	74	90	100
75-79	67	70	80
80-84	48	60	60
85+	39	40	50
Total	2,182	2,200	2,210

#### **Sprague Elementary**

Total	2010	2015	2020
0-4	275	240	230
5-9	407	360	330
10-14	413	420	370
15-19	303	350	370
20-24	114	110	110
25-29	104	130	130
30-34	190	170	190
35-39	274	290	280
40-44	363	290	320
45-49	447	360	290
50-54	366	440	350
55-59	314	350	420
60-64	286	300	330
65-69	239	260	270
70-74	178	200	230
75-79	150	170	190
80-84	118	140	150
85+	144	140	160
Total	4,683	4,720	4,720
Median Age	43.6	45.0	45.5

#### am Elementary

5-9	206	170	160	
10-14	192	210	170	
15-19	164	160	190	
20-24	64	70	40	
25-29	55	70	80	
30-34	100	90	100	
35-39	161	150	140	
40-44	187	170	170	
45-49	240	190	170	
50-54	198	240	180	
55-59	167	190	230	
60-64	151	160	180	
65-69	127	140	150	
70-74	104	110	130	
75-79	83	100	110	
80-84	70	80	90	
85+	104	100	110	
Total	2,501	2,520	2,510	
				Uph
Females	2010	2015	2020	
0-4	61	50	50	
5-9	88	90	80	
10-14	145	100	100	

120

20

20

30

50

80

100

120

130

90

70

50

20

20

20

1,180 1,200

115

17

9

24

55

88

122

129

97

80

57

26

22

18

21

1,171

15-19

20-24

25-29

30-34

35-39

40-44

45-49

50-54

55-59

60-64

65-69

70-74

75-79

80-84

85+

Total

80

20

20

40

50

80

110

100

120

120

80

60

50

20

20

	2010-2015	2015-2020
Births	70	60
Deaths	80	90
Natural Increase	-10	-30
Net Migration	40	40
Change	30	10

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

Males	2010	2015	2020
0-4	60	50	50
5-9	119	90	80
10-14	149	130	100
15-19	109	130	110
20-24	24	20	20
25-29	14	20	20
30-34	18	30	40
35-39	47	40	60
40-44	76	70	70
45-49	110	90	100
50-54	116	110	90
55-59	107	110	100
60-64	79	100	100
65-69	58	60	90
70-74	27	50	60
75-79	17	20	50
80-84	21	10	20
85+	13	20	20
Total	1,162	1,150	1,180

-			
Total	2010	2015	2020
0-4	120	100	100
5-9	207	180	160
10-14	295	230	200
15-19	224	250	190
20-24	41	40	40
25-29	23	40	40
30-34	42	60	80
35-39	101	90	110
40-44	163	150	150
45-49	231	190	210
50-54	245	230	190
55-59	205	240	220
60-64	158	190	220
65-69	114	130	170
70-74	53	100	120
75-79	39	40	100
80-84	39	30	40
85+	34	40	40
Total	2,334	2,330	2,380
Median Age	43.5	45.7	47.9

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McKibb	en Demograph	ics
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**Appendix E: Live Attend Report** 





#### LIVE ATTEND ANALYSIS

This map series focuses on illustrating the geographic distribution of Wellesley Public Schools' 2012-2013 students in relation to school attendance boundaries.

Here is an example of a map from this series.

#### Basic Map Elements

The legend explains how different features are represented, either by a point (e.g. schools and students), or by an area/polygon (e.g. attendance boundaries). The scale bar references the distance ratio of the map in relation to the real world. So the length between 0 and 2 on the map image is equal to a real world distance of two miles.

Please note that each yellow dot represents a student's address, at which, multiple students could reside. Therefore, counting the number of dots shown on the map might not reflect the student population accurately.





#### WELLESLEY PUBLIC SCHOOLS LIVE ATTEND ANALYSIS 2012-2013

#### Live-Attend Tables

Each map has a table listing various statistics about the student data in this region. Here is a guide for reading this table:

Bates ES (K-5)						
Total Enrollment	387					
Matched	381					
Unmatched	6					
Out of District	15					
Total Live-In	376					
Live and Attend In	361					
Live Out, Attend In	26					
Live In, Attend Out	15					

Total Enrollment - number of students attending Bates ES.

<u>Matched</u> – number of students attending Bates ES whose addresses were located by the GIS, and placed on the map.

<u>Unmatched</u> - number of students whose addresses were not able to be located, and have not been placed on the map.

<u>Out of District</u> – number of students who live outside of the Wellesley Public Schools boundaries, yet attend this school.

<u>Total Live-In</u> – number of students who live within the school's attendance boundary, who are in the K-5 grade cohort. The 'total-live in' statistic here indicates there are 376 Kindergarten through Fifth grade students living within the Bates ES attendance boundary.

Live and Attend In – number of K-5 students who live within the attendance boundary, and

also attend that school. In this example, 361 of the 376 Kindergarten through Fifth grade students who live within the Bates ES attendance boundary also attend Bates ES.

<u>Live Out, Attend In</u> – number of K-5 students who live outside of the Bates ES attendance boundary, but attend Bates ES. Any student records that are unmatched are not included in this count, since it is not known whether or not these unmatched students live within or outside the attendance boundary in question. Due to the methods used to calculate the statistics in this table, this is the only circumstance where this is relevant.

Live In, Attend Out – number of K-5 students who live inside the Bates ES attendance boundary, yet attend a different elementary school.



















#### LIVE ATTEND MATRIX

The table below gives details on the schools that students attend and the school zones where they live. The schools of attendance are listed across the top while the zones where students live are listed on the left. The table includes all students in Kindergarten through Fifth Grade. The numbers highlighted in green are counts of students who attend the assigned schools for the zones where they live.

		Where Students Attend School										
	K-5 Live Attend Matrix	1 cè	hallive Ball Ba	In the first	oke He	udy H	unnewel	notield Spirield	rastie	and the	Data	ath hierd Out
	Total Attending		387	334	329	297	344	395	223	5		
	Bates School District	376	361	1		2	3	2	7		15	
Where Students Live	Fiske School District	335		315		5	4	9	2		20	
	Hardy School District	324	4		310	5	1	2	2		14	
	Hunnewell School District	282		2	6	268	2	1	2	1	14	
	Schofield School District	340		10	2	1	312	10	4	1	28	
	Sprague School District	382	1	1	5	6	1	359	8	1	23	
	Upham School District	191						2	187	2	4	
	Out of District	76	15	5	6	10	20	9	11			
	Unmatched	8	6				1	1				
	Live Out, Attend In		26	19	19	29	32	36	36			



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