

Future School Needs Committee

Enrollment Projections for School Years Beginning in 2009 Discussion and Analysis October 17, 2009

Each year the Future School Needs (FSN) Committee projects school enrollment for the next ten years. The goal of the projections is to both reflect an accurate picture of the next year's enrollment and determine general trends over the longer term. Historically, accurately projecting the number of students who will enter kindergarten has been the most difficult part of the projection.

For the purpose of this report, the impact of Section 40B has not been included as we have not received any data on these projects. Our understanding is that the largest 40B project (Charles River Landing) will be in place by next year and our projections next year should reflect this change.

Birth Trends

The births reflect reported births from September 1 to August 31 of each year. The reported births in the 2008/2009 year were 295. This figure is comparable to the figures in 3 of the past 4 years (315 in 04/05, 306 in 05/06 and 288 in 06/07). These 3 years plus the current year represent the four lowest counts in the past 10 years. We used a six year average from 2004-2009 to estimate future assumed births (318 per year). Last year's figure was 325. Declining births affect our projections and we monitor this each year.

Accuracy of Prior Year Projections

Last year we projected total enrollment of 5,143 for the 2009/2010 school year. Actual enrollment is 5,238 -- a difference of 95 students. This represents a 1.8% understatement. We have shown our projection results for the last 15 years on the next page.

Year	Projected	Actual	% Understated (overstated)
2009	5,143	5,238	1.8%
2008	5,034	5,059	0.5%
2007	5,060	5,003	(1.1%)
2006	5,013	4,979	(0.7%)
2005	4,915	4,879	(0.7%)
2004	4,780	4,838	1.2%
2003	4,611	4,667	1.2%
2002	4,513	4,565	1.2%
2001	4,417	4,439	0.5%
2000	4,411	4,374	(0.8%)
1999	4,378	4,334	(1.0%)
1998	4,393	4,303	(2.1%)
1997	4,209	4,281	1.7%
1996	4,134	4,110	(0.6%)
1995	3,980	4,049	1.7%

Percent understated reflects Actual/Projected in percentage terms.

The past projections show that FSN usually projects annual enrollment for the next year within 2.0% (14 of the last 15 years). In 7 of the last 15 years the projections were within 1.0%. Since the revised kindergarten methodology was adopted 12 years ago (see below), only once (in 1998, the first year of the new method) was the projection off by more than 2.0%. Our results this year represent the largest percentage difference since 1998. This year illustrates that despite better accuracy, the projections are **estimates** and in any given year there could be as much as a 3.0% (or greater) variance.

On a grade by grade basis, there is no grade where the number of students is less than projected. We have never seen such an occurrence in doing this work over the past 20 years. Public kindergarten attendance is expected to be about 92% of all kindergartners. This is the highest percentage we have seen in measuring this over the past 12 years. We expect this is the result of the economy. In addition, the census data increased more than expected at all pre-kindergarten ages. For example, a net of 32 children who were eligible for kindergarten in 2009 moved to Needham in 2008. The combination of a higher percentage of students attending public school and greater than expected in-migration has driven our projections up significantly from last year. Our projections this year exceed even our high end projections from last year for the next 8 years.

General Methodology

Projections for grades 1-12 are determined based on the average of retention factors for each grade for the past five years. A retention factor is the enrollment in a given grade this year divided by the enrollment for the preceding grade last year. A retention factor greater than one indicates there are more children in a grade this year than were in the preceding grade last year. For example, the current retention factor for third grade is 1.0213 which equals 479 (third grade enrollment for 09/10 school year) divided by 469 (second grade enrollment for 08/09 school year). This factor is averaged with the factors from the prior four years to produce the average retention factor this year for fifth grade of 1.0125.

Census Data and Kindergarten Methodology

Twelve years ago, we began using annual census data to project kindergarten enrollment. The prior methodology used the annual birth rates to project the number of kindergarteners 5 years later. We found the prior methodology to be generally reasonable but inconsistent from year to year. The revised methodology uses the annual census to track pre-school age children in town to help estimate the number who will be kindergarten eligible each year. We then estimate the percentage that will attend public school upon entering kindergarten. Our prior results clearly indicate that this methodology has significantly improved kindergarten accuracy. Until 2005, there was a clear increasing trend of public kindergarten attendance (91% in 2004, 89% in 2003, 85% in 2002, 80% in 2001 and 77% in 2000). We indicated two years ago that this trend may be topping out. The figures were 89% for 2005, 90% in 2006 and 85% in both 2007 and 2008. The estimate for 2009 has jumped to 92%. We used a figure of 91% in our projections this year.

The accuracy of the overall projections is based largely on the accuracy of kindergarten. The following table demonstrates our kindergarten results over the past 12 years. Our understatements in 2004 and 2005 were primarily due to understating METCO kindergartners.

Year	Projected	Actual	Proj. – Actual
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2009	404	423	(19)
2008	385	399	(14)
2007	410	380	30
2006	447	456	(9)
2005	405	414	(9)
2004	422	433	(11)
2003	366	394	(28)
2002	347	383	(36)
2001	337	339	(2)
2000	346	346	0
1999	338	323	15
1998	365	315	50

There are several items that should be pointed out from the above chart. First, kindergarten is extremely difficult to estimate and the results can vary significantly from year to year. It is unreasonable to expect to be consistently within 10 students. Second, although the first year of the revised methodology (1998) produced a difference of 50 students, it was a better estimate than the prior methodology would have produced. Third, when a trend begins or changes our figures will tend to lag for several years before catching up.

We analyze census data each year in determining our projections. We continue to track the census until January 1 of the year following the entrance of kindergarten (we assume for this purpose that the number of children in a grade will be the same on a given September 1 and the following January 1).

Our methodology reflects our best estimate for the projected number of children eligible for kindergarten in September 2010. To do this we used our estimate of 91% for public kindergarten enrollment and a METCO kindergarten enrollment range of 10 students. We assumed that the children eligible for kindergarten in September 2010 would increase to 413 (an increase from the current level of 376 as of 1/1/09). This estimate is based on our analysis of town census data (net in-migration) over the past five years at the pre-school ages. Assuming 91% of the 413 attend public school and there are 10 METCO kindergartners, there would be 386 kindergartners in 2010 ($413 \times .91 + 10 = 386$).

For years beyond 2012, we used a factor of 1.22 times the number of births to estimate the number of kindergarten students. This factor is based on an approximation using the actual and estimated ratios from 2007 through 2012. This factor is a significant increase from last year's factor of 1.13.

Effect of Alternative Kindergarten and Future Birth Assumptions

The assumed values for kindergarten enrollment each year have a significant impact on the long-term projections. We become less confident of our kindergarten estimates (and correspondingly our total estimates) as we move further away from the January 1, 2009 data. By the time we reach the kindergarten estimate for the school year 2015/2016 and beyond, the children have not yet been born and our calculation is based entirely on estimates of future births. Therefore we have estimated an expected range for enrollment in 5 years and in 10 years based on alternative assumptions. The ranges are intended to show a reasonable range in future years (both above and below our estimate), but there is no guarantee that the actual enrollment in 10 years will be within the ranges shown. Our results from this year illustrate that one year can significantly affect the prior year projections. It is much more likely (but again certainly not guaranteed) that the enrollment 5 years from now will be within the ranges shown.

For alternative kindergarten assumptions, we assumed low-end enrollment would be 10 students less than the figures on our spreadsheet for school years beginning in 2010, 2011, and 2012. We assumed it would be 20 students lower than expected in 2013 and beyond. For the high-end assumption, we assumed enrollment would be 10 students greater than the figures on our spreadsheet for the school years beginning in 2010, 2011, and 2012 and 20 students greater than expected in 2013 and beyond.

The range for kindergarten was coupled with birth assumptions after fiscal year 2009 of 300 children each year (low-end) and 340 children each year (high-end). This was approximated as a difference of approximately 20 (plus or minus) from the estimated births beyond fiscal year 2009 of 318.

Total

Year	<u>14/15</u>	<u>19/20</u>
Low end of range	5,400	5,049
FSN projection	5,471	5,339
High end of range	5,545	5,655

K-5

Year	<u>14/15</u>	<u>19/20</u>
Low end of range	2,416	2,155
FSN projection	2,487	2,395
High end of range	2,561	2,657

6-8

Year	<u>14/15</u>	<u>19/20</u>
Low end of range	1,324	1,231
FSN projection	1,324	1,272
High end of range	1,324	1,315

9-12

Year	<u>14/15</u>	<u>19/20</u>
Low end of range	1,660	1,663
FSN projection	1,660	1,672
High end of range	1,660	1,683

The Committee welcomes any comments regarding these projections.

Respectfully submitted,

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David Coelho	appointed by Selectmen
Marianne Cooley	appointed by School Committee
Ann DerMarderosian	appointed by Finance Committee
Heidi Black	appointed by Parent-Teachers' Council
Marjorie Margolis	appointed by Moderator
Mary Riddell	appointed by League of Women Voters
Roger Toran	appointed by Planning Board