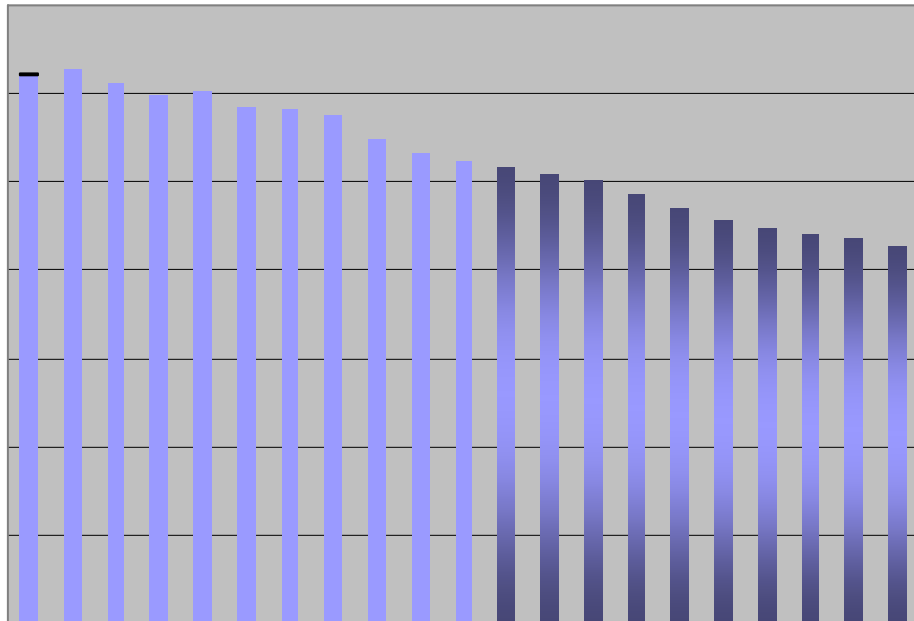


LEDYARD PUBLIC SCHOOLS ENROLLMENT PROJECTED TO 2020



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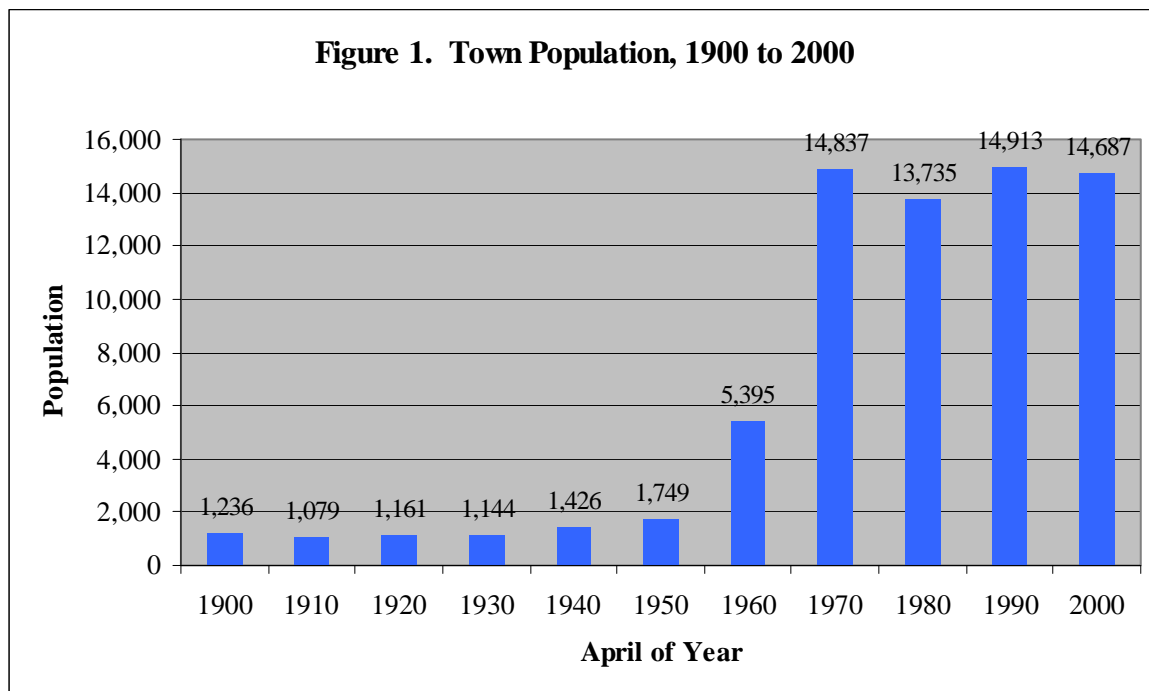
Introduction

This report presents a ten-year projection of enrollment for the Ledyard Public Schools. It is based on residents and non-residents enrolled in the Ledyard schools. The projections are divided into the three grade levels that represent how the Ledyard schools are organized: K-6, 7-8 and 9-12. The report includes the population of the town of Ledyard since 1900 and 40 years of enrollment to place the projection into a wider historical perspective. One of the primary drivers of future enrollment is births to residents. The report examines births and their relationship to kindergarten enrollment. Data on delayed entry into kindergarten and retentions are provided. Several factors that influence school enrollment - housing, migration, employment, non-public enrollment, resident enrollment in other public schools and non-resident enrollment in the Ledyard schools - are presented. Finally, the accuracy of earlier projections is examined.

Enrollment projections are a valuable planning tool. For budgeting, the numbers can place requested expenditures into a per pupil context. This can inform the public about which expenditures represent continuing expenditures to support on-going programs and expenditures for school improvement and program expansion. In this recession, it might point out areas for possible cuts. Projections are an essential step in determining the staffing that will be needed in the future. This may facilitate the transfer of teachers from one grade to another or allow the hiring process to start earlier, which can increase the likelihood of attracting the best teachers in the marketplace. Projections are a critical and required step in planning for school facilities. The State of Connecticut requires eight-year projections as a critical component of determining the size of the project for which reimbursement is eligible. In some communities the projection can determine the number of places they can make available to urban students as part of a regional desegregation effort.

Perspective

Enrollment projections typically use the most recent five years of data. While the most recent past is viewed as the best predictor of the near future, it is informative to look at a broader perspective. Figure 1 shows the population in Ledyard for the censuses conducted since 1900. The census data include both people living in households and group quarters such as prisons and nursing homes.



Between 1900 and 2000, the population of the town of Ledyard grew from 1,236 to 14,687 residents. Peak population was 14,913 in 1990. In 1900 it was the 110th largest town; by 2000 it was 72nd largest. The 1960's were the period of greatest growth. The population grew by 175 percent, increasing by 9,442 people in that decade. The growth slowed after that. In the 1970s the population decreased by 1,102 people. It grew by 1,178 people (8.60 percent) in the 1980s but decreased by 226 people (-1.5 percent) in the 1990s.

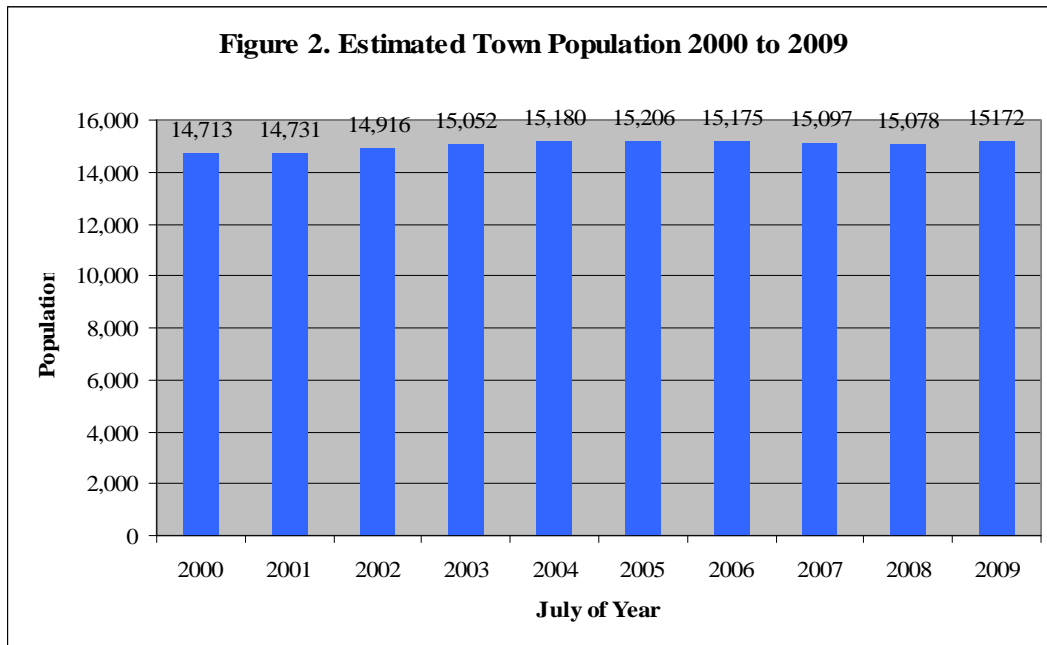
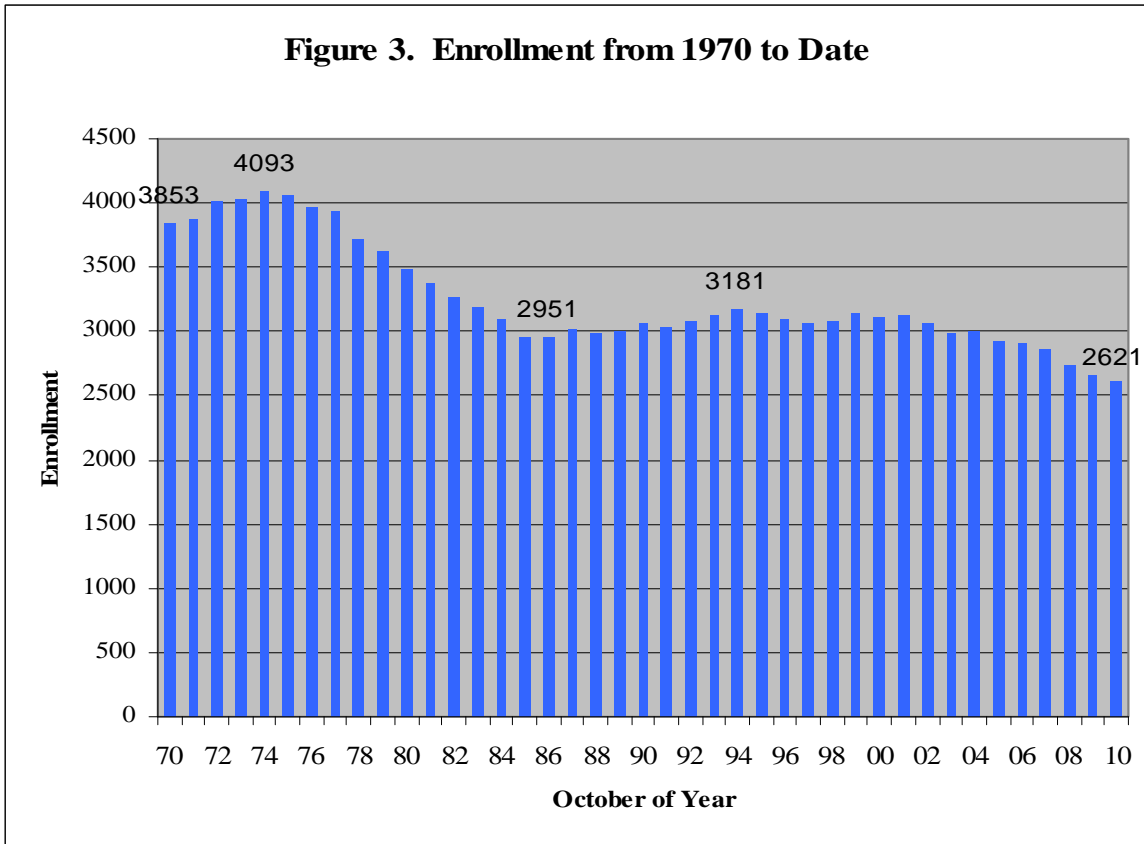


Figure 2 presents census estimates of Ledyard population from 2000 to 2009. (The 2000 data in the two figures differ because the census population data are as of April 1 and census estimates are as of July 1.) It appears that the growth has continued, but at a slower rate. The US Census Bureau estimates that the population in the town of Ledyard peaked at 15,206 people in 2005. Between 2000 and 2009 it increased by 459 people (3.1 percent). The growth rate was the 109th ranked in the state. This contrasts to an estimated growth of 3.1 percent for the state, 3.8 percent for New London County and 4.5 percent for communities with similar socio-economic status.

Figure 3 presents the enrollment in the Ledyard Public Schools from 1970 to date. The 4,093 students enrolled in October of 1974 was an all-time high for the Ledyard School District. Enrollment then went through a 12-year period of decline that took it down to 2,951 students in 1986, a 27.9 percent decline. Ledyard then went through a short eight-year growth period that took enrollment to 3,181 students in 1994. That growth was a meager 7.8 percent. Since then, the trend has been downward. By 2010, enrollment was down to 2,621 students. That is 18.6 percent below the 1994 secondary peak. This pattern is unusual in that the Ledyard schools did not see a significant growth cycle from the mid 1980s to the mid 2000s. The state's pattern is fairly typical of other districts. Between its 1971 peak and 1988, Connecticut public school enrollment declined by 31.5 percent. State enrollment hit a secondary peak in 2004. It grew 24.5 percent between the 1988 low and 2004. State enrollment declined by 2.2 percent between 2004 and 2010. Ledyard's recent decline has been deeper than the state's and has been longer in duration.

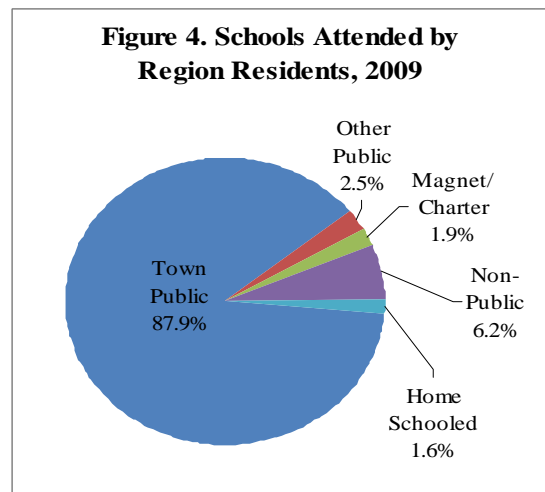
In recent years, Ledyard's school population has become a smaller proportion of the town population. In 2000 the school population was 21.3 percent of the town's population. It fell to 17.3 percent in 2009. In comparison, it was 20.6 percent in 1990 and 25.4 percent in 1980. It still is short of the 26.0 percent observed in 1970.



Current Enrollment

Table 1 and Figure 4 show where Ledyard residents attended school in 2009, the latest data available. Almost 88 percent of Ledyard's school-age residents attended the Ledyard Public Schools in 2009. About six percent attended non-public schools in state. The number attending private schools out-of-state is not known. Fifty-four students (1.9 percent) of the school-age residents attended a regional magnet school and an additional 27 students (2.5 percent) attended a public school, such as a State Technical High School, outside of Ledyard. You reported 45 children (1.6 percent) as being home schooled. There were 155 non-residents who attended the Ledyard Public Schools. The projections in this report are based upon residents and non-residents who attend the Ledyard schools. In 2010, there were 2,621 such students enrolled.

	Number	Percent
Residents		
A. Ledyard Public	2506	87.9%
B. Other Public	70	2.5%
C. Magnets	54	1.9%
D. Non-Public	177	6.2%
E. Home Schooled	45	1.6%
Total (A+B+C+D+E)	2852	
F. Non-Residents	155	
Total Enrollment (A+F)	2661	



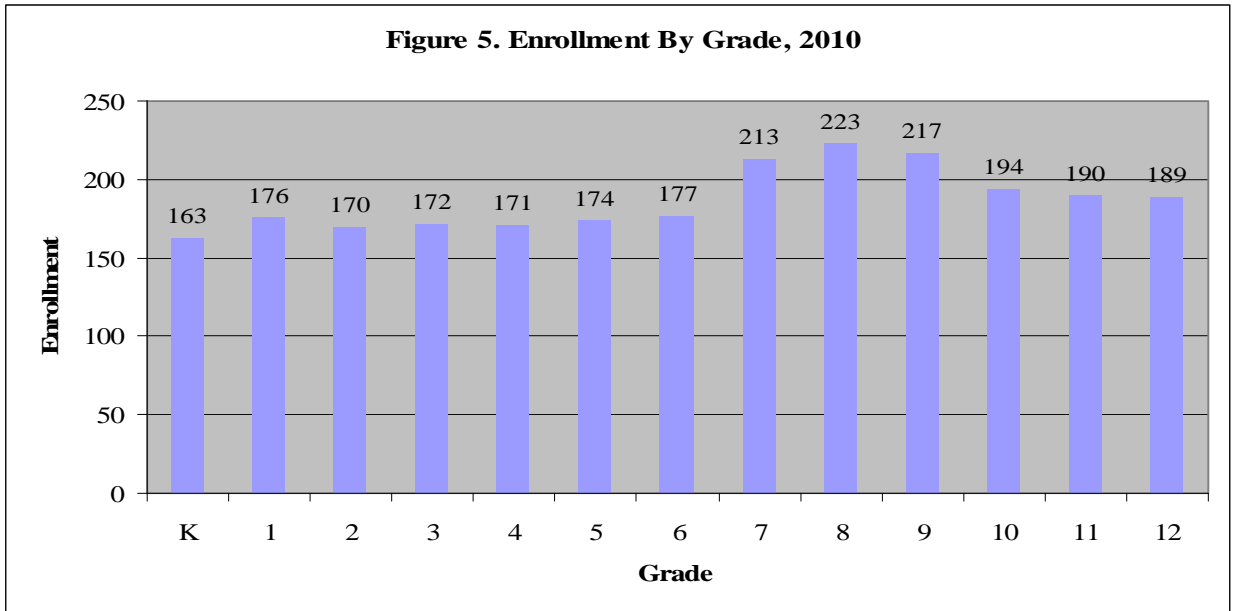


Figure 5 shows the 2010 enrollment of 2,429 resident students in grades K-12 for each grade. The 51 children in pre-kindergarten programs are not shown. Grade 8 has the largest enrollment with 223 students followed by the 217 students in grade 9 and 213 in grade 7. The smallest class was kindergarten with 163 students. Grades 1-6 averaged 173 students each. If current conditions continue, this year's kindergarten class will have 177 students when it enters the middle school in grade 7 in 2017 and 167 students when it enters grade 9 at the high school in 2019. These figures are well below the current enrollment for those grades. This grade-by-grade enrollment is the starting point for the projection of enrollment.

Projection Method

The projections in this report were generated using the cohort survival method. This is the standard method used by people running enrollment projections. For the grades above kindergarten, I compute ten years of grade-to-grade growth factors (see Appendix B). For example, if the number of fourth graders this year was 152 and the number of third graders last year was 150, then the growth factor is 1.013. Growth factors above one indicate that students moved in, transferred from non-public schools or were retained. Growth factors below one mean that students moved out, transferred to a magnet or private school, dropped out, or were not promoted from the prior grade. For each grade I calculate four different averages of the growth rates: a ten-year median, a three-year average, a five-year average and a weighted five year average. I choose the average that seems to best fit the data. The average growth factor for a grade is applied to the current enrollment from the prior grade. The projection builds grade by grade and year by year.

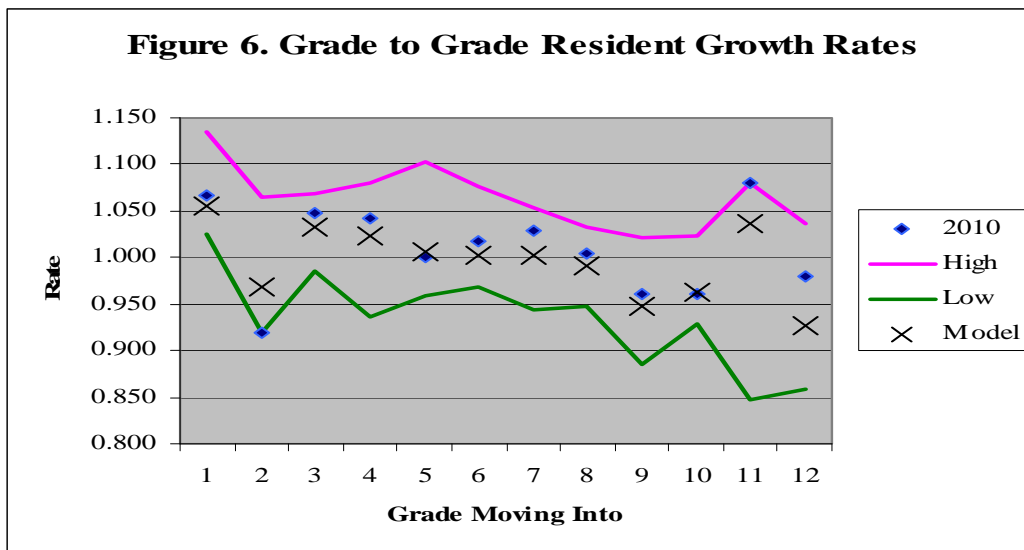
In the standard model, kindergarten enrollment is compared to births five years prior and some average of the observed growth or decline is used to project future kindergarten enrollment. My method breaks kindergarten enrollment into three parts: five-year olds, six-year olds entering kindergarten for the first time, and six-year old repeaters. Each component is analyzed separately and then combined to get total projected kindergarten. Kindergarten enrollment is notoriously difficult to predict. The correlation between kindergarten enrollment and births five years earlier in Ledyard is a moderate 0.74. I feel that this component model can improve the predictability slightly.

To extend the projections beyond four years, I needed to project births. The Connecticut State Department of Public Health recorded 133 births to Ledyard residents that occurred in Connecticut as their preliminary count for 2009. In 2007 and 2008 (the most recent data available) a total of 22 births to

a Ledyard resident occurred out of state. Thus, I used 144 births as my estimate for 2009 births. To estimate births in 2010, I compared the mid-year births in both 2009 and 2010. There were four fewer in 2010, so I conservatively estimated there would be 140 births in 2010. In 2011 to 2015, I utilized the Connecticut State Data Center's (CtSDC) projection of Ledyard children of ages 0-4 in 2005, 2010 and 2015. I calculated the projected growth in these intervals, annualized them and applied them to the two year running averages of births starting with the estimated births in 2009 and 2010 births.

The agri-science and technology program (vocational-agriculture) at Ledyard High in the upcoming years will try to maintain an enrollment of about 150 non-resident students. I determined the weighted five-year average growth rates for grades 10-12 and then set the grade 9 enrollment to yield a target enrollment of 150 students. This required 42-43 non-residents in grade 9 annually. This represented from 2.8 to 3.0 percent of the projected grade 8 enrollment in six key sending districts, a level that has been attained in five of the past seven years.

Figure 6 gives a perspective of the Ledyard's grade-to-grade growth factors. An "x" indicates the growth factor used in this projection. The diamond is the growth observed between last year and this year. The upper line indicates the largest growth factor observed over the past ten years and the lower line, the lowest. In general, the narrower the gap between the two lines is, the greater the accuracy of the projection. Large gaps may indicate a change in policy such as student retention or the opening or expansion of a regional magnet. There appears to have been a policy change of how students were assigned to grades 9-12 in 2006. With the exception of grade 1, the model growth factors in grades 1-8 are all close to or slightly above 1.000 indicating a net in-migration of students. Typically in towns like Ledyard, I see a drop in Grade 9 that reflects that a number of children choose to attend a non-public school or a state technical high school. The rates below 1.000 in grades 10-12 are usually indicative of dropouts.



In this projection I used a five-year weighted average of the observed grade-to-grade growth. This gives the recent years a higher weight so that the projection responds more quickly to a possible shift in the growth rates. In most grades, the model growth rates are close to the rates observed in 2010. The model growth rates are noticeably below the 2010 rates in grades 11 and 12 and above them in grade 2.

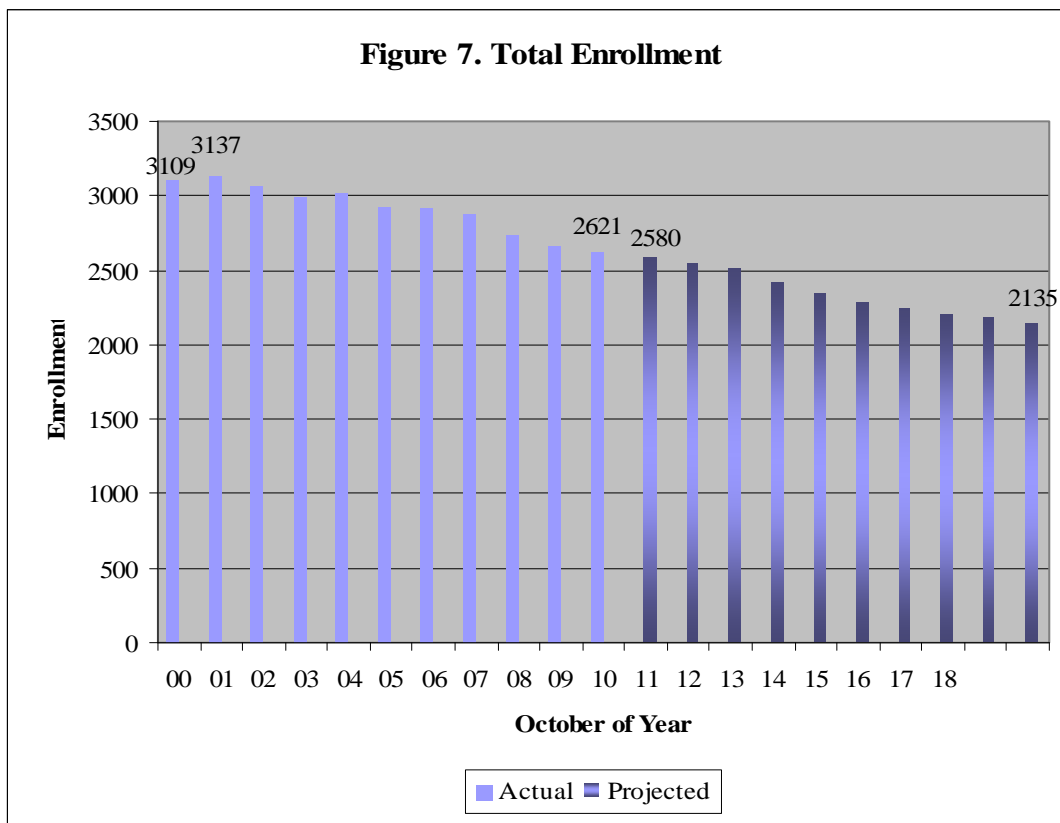
Enrollment data from 2000 to 2009 were taken from the files of the Connecticut State Department of Education. The data through 2009 are available on the Department's website at www.sde.ct.gov under the Grants Management section. The 2010 data were provided by the Ledyard central office. All enrollment data after 2007 are subject to minor changes as they are reviewed and audited. Births from 1980 to 2010 are from the records of the State Department of Public Health.

Total Enrollment

Table 2 and Figure 7 present the observed total enrollment in Ledyard from 2000 to 2010 and projected enrollment through 2020. Detailed grade-by-grade data may be found in Appendix A. Total enrollment in Ledyard grew from 3,109 in 2000 to 3,137 in 2001 and then began to decline. By 2010 it was down to 2,621 students. Between 2000 and 2010, enrollment fell by 488 students or 15.7 percent. Statewide in that period, enrollment is projected to have decreased by 0.6 percent. Between 1999 and 2009 (the most recently available data), enrollment growth in Ledyard was the lowest among peers (DRG D districts) in the region. Ledyard's enrollment change of -15.3 percent was lower than that of Colchester (+10.5 percent), Old Saybrook (+7.6 percent), Stonington (+3.9 percent), East Hampton (+1.1 percent), East Lyme (-0.7 percent) and Waterford (-3.0 percent).

I project that enrollment will continue to decline over the next ten years. Next year, I anticipate that total enrollment will decrease by 40-45 students or 1.6 percent as a senior class of 230 students (including non-residents) departs and a kindergarten class projected to be about 160 students enters. I project that total enrollment will be 2,135 students in 2020. That is about 490 students or 18.5 percent below the current enrollment. Statewide, I project total enrollment will decline by 7.3 percent between 2010 and 2020. Total enrollment in Ledyard should average about 2,340 students over the ten-year projection period compared to an average total enrollment of 2,894 students over the past ten years.

Year	Non-Residents	
	Residents	Residents
2000	2962	147
2001	2979	158
2002	2853	208
2003	2812	177
2004	2820	191
2005	2742	185
2006	2730	186
2007	2694	186
2008	2574	166
2009	2506	155
2010	2480	141
2011	2438	142
2012	2396	145
2013	2351	150
2014	2272	150
2015	2191	150
2016	2125	150
2017	2087	150
2018	2052	150
2019	2021	150
2020	1985	150



Elementary Enrollment

Table 3 and Figure 8 present observed enrollment from 2000 to 2010 and projected enrollment through 2020 in your elementary schools.

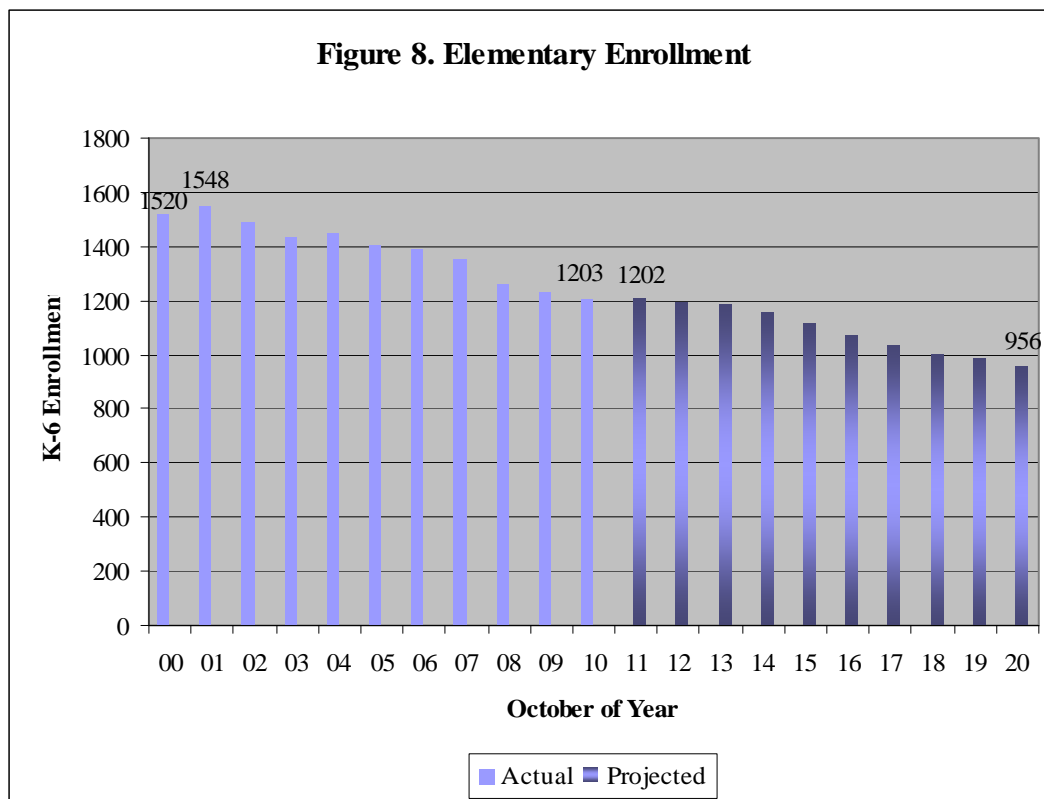
Enrollment by grade may be found in Appendix A. Enrollment in grades K-6 rose from 1,520 in 2000 to 1,548 in 2001 and has been declining since. In 2010 it was 1,203 students. Between 2000 and 2010 enrollment declined by 317 students or 26.4 percent. I project that statewide K-6 enrollment will have declined 7.1 percent between 2000 and 2010.

I anticipate that the decline will continue, but at a slower rate. I believe that October 2011 elementary enrollment will be about the same as this year's. I project that elementary enrollment will decline to 950-960 students by 2020. Between 2010 and 2020 the projected decline is almost 250 students or 20.5 percent. Statewide, I am projecting a 8.8 percent decline in K-6 enrollment between 2010 and 2020. Over the ten-year projection period, I believe elementary enrollment will average almost 1,090 students compared to the average of 1,376 students observed over the past ten years.

These figures exclude pre-kindergarten children. In the past ten years, pre-kindergarten enrollment ranged from 23 to 54 children. There were 51 children in these programs in 2010. My projection model keeps pre-kindergarten enrollment constant at 51 children throughout the projection. In 2009, 13 Ledyard residents attended prekindergarten in non-public elementary schools in Connecticut and none attended pre-kindergarten in another public school.

Table 3. Elementary School Enrollment

Year	Students	Percent Change
2000	1520	
2001	1548	1.8%
2002	1489	-3.8%
2003	1435	-3.6%
2004	1447	0.8%
2005	1403	-3.0%
2006	1389	-1.0%
2007	1352	-2.7%
2008	1259	-6.9%
2009	1233	-2.1%
2010	1203	-2.4%
2011	1202	-0.1%
2012	1189	-1.1%
2013	1184	-0.4%
2014	1153	-2.6%
2015	1111	-3.6%
2016	1072	-3.5%
2017	1036	-3.4%
2018	1000	-3.5%
2019	982	-1.8%
2020	956	-2.6%



Ledyard Middle School Enrollment

Table 4 and Figure 9 present observed enrollment from 2000 to 2010 and projected enrollment through 2020 at Ledyard Middle School.

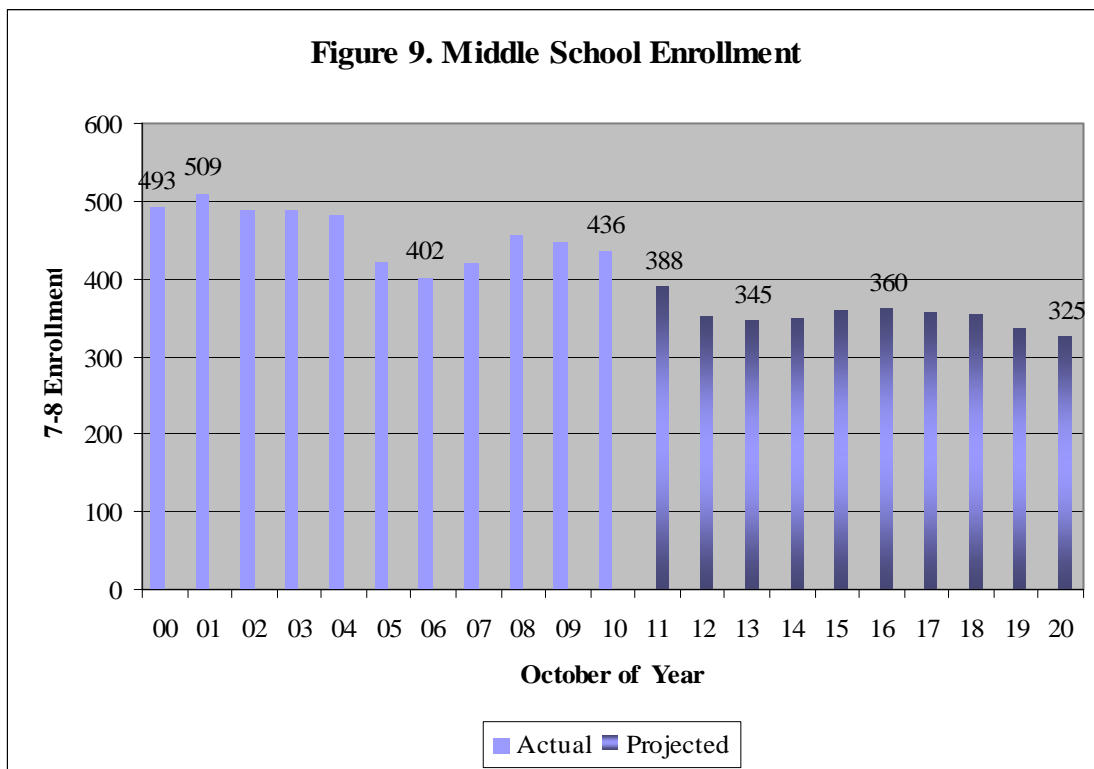
Enrollment by grade may be found in Appendix A. Enrollment in grades 7-8 rose from 493 in 2000 to 509 in 2001, dropped to 402 in 2006 and was 436 in 2010. Between 2000 and 2010 the school's enrollment declined by 57 students or 11.6 percent. In that interval I have projected that statewide enrollment grades 7-8 will have declined 1.1 percent.

I anticipate that the decline will continue, but at an accelerated rate. I believe that October 2011 middle school enrollment will be almost 50 students less than this year's as this year's grade 8 of 228 students exits and is replaced by this year's grade 6 class of 177 students. I project that Ledyard Middle School enrollment will drop to 345 students in 2013, rise to 360 students in 2016 and then decline to 325 students in 2020.

Between 2010 and 2020 the projected decline is about 110 students or 25.5 percent. Statewide, I am projecting a 7.9 percent decline in grade 7-8 enrollment between 2010 and 2020. Over the ten-year projection period, I believe middle school enrollment will average 352 students compared to the average of 455 students observed over the past ten years.

Table 4. Ledyard Middle School Enrollment

Year	Students	Percent Change
2000	493	
2001	509	3.2%
2002	489	-3.9%
2003	488	-0.2%
2004	482	-1.2%
2005	422	-12.4%
2006	402	-4.7%
2007	420	4.5%
2008	455	8.3%
2009	448	-1.5%
2010	436	-2.7%
2011	388	-11.0%
2012	350	-9.8%
2013	345	-1.4%
2014	348	0.9%
2015	357	2.6%
2016	360	0.8%
2017	356	-1.1%
2018	352	-1.1%
2019	334	-5.1%
2020	325	-2.7%



Ledyard High School Enrollment

Grade 9 is a time when students exercise a wide range of options about where to attend high school. The State Technical High Schools are one option that is not available before Grade 9. Figure 10 presents what schools Ledyard residents enrolled in Grade 9 chose to attend in 2009, the latest data available. Almost 83 percent attended Ledyard High School. The balance attended non-public schools in state (7.4 percent), the State Technical High (7.0 percent), or another public school such as a regional magnet (2.9 percent).

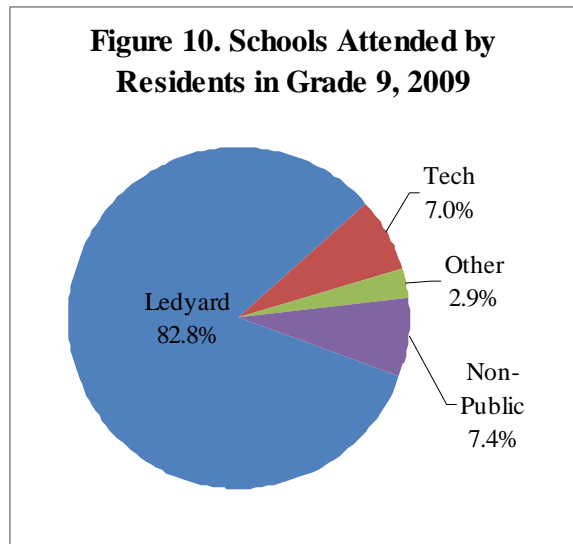


Figure 11 and Table 5 present enrollment in grades 9-12. Between 2000 and 2006, enrollment in grades 9-12 inched upward from 1,072 to 1,085 students. By 2010, it had receded to 926 students. The net decrease of 146 students represented a 13.6 percent loss. High school enrollment statewide is projected to have increased 10.9 percent in the past ten years.

Enrollment is expected to continue to decline over the next ten years. Next year I anticipate enrollment will be about the same as this year. I anticipate that the peak enrollment over the next ten years will be 951 residents and non-residents in 2012. By 2020, I anticipate high school enrollment will be about 800 students, a decline of 13.3 percent. Statewide, I project that high school enrollment will drop 8.0 percent between 2010 and 2020. The projection assumes a 94.7 percent yield from Grade 8 in Ledyard and 42-43 non-residents entering the agri-science and technology program Grade 9 annually. That figure will result in an enrollment of 150 students from area towns. This year the vocational-agriculture program enrolled 44 students in Grade 9 from the area. That represented 2.8 percent of last year's grade 8 students from six key sending communities. That percentage will need to be as high as 3.0 percent in the future.

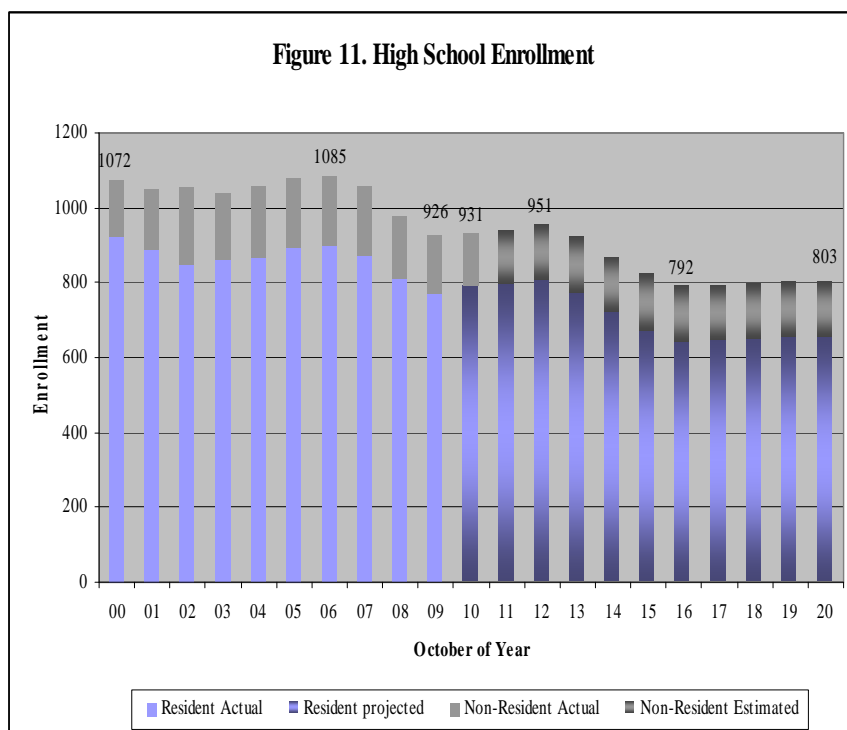
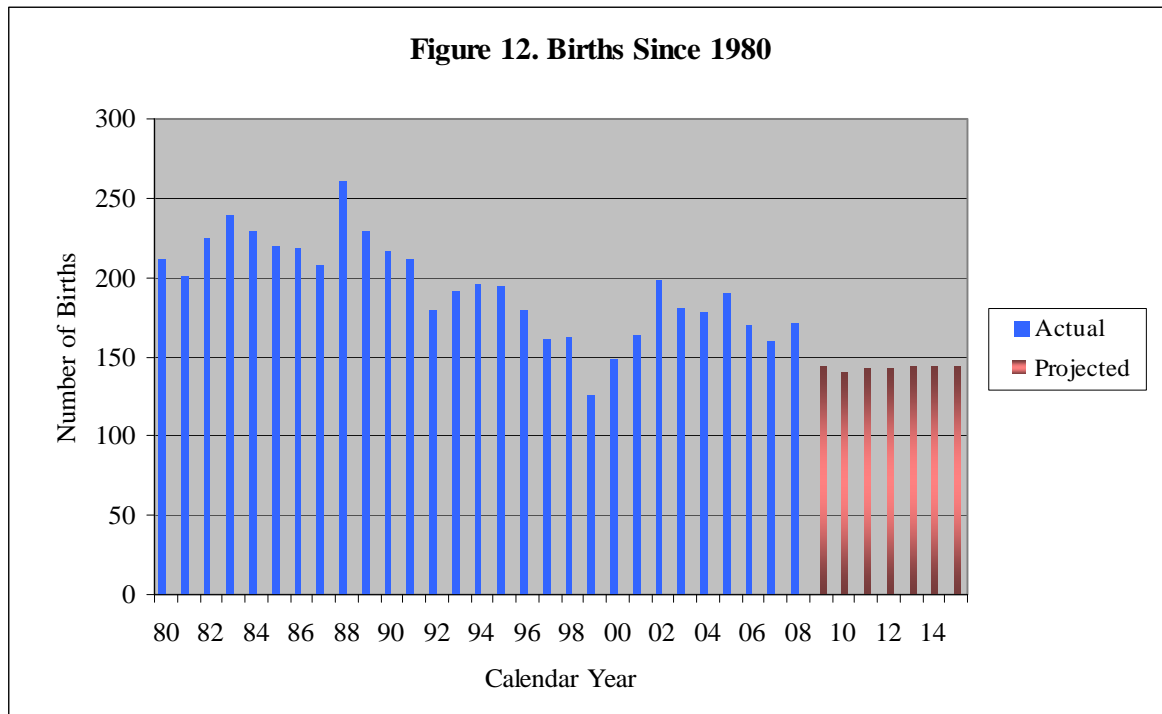


Table 5. Ledyard High School Enrollment

Year	Residents	Non-Residents
2000	925	147
2001	889	158
2002	845	208
2003	860	177
2004	868	191
2005	894	185
2006	899	186
2007	872	186
2008	811	166
2009	771	155
2010	790	141
2011	797	142
2012	806	145
2013	771	150
2014	720	150
2015	672	150
2016	642	150
2017	644	150
2018	649	150
2019	654	150
2020	653	150

Factors Affecting the Elementary Projection

The primary reasons for elementary enrollment change lie in the births and total yield from the birth cohort. Figure 12 presents the births from 1980 to 2008 and projected births through 2015. Births ranged from a high of 261 in 1988 to a low of 125 in 1999. There were 171 births to Ledyard residents in 2008. The State Department of Public Health count of Ledyard births that occurred in Connecticut in 2009 is 133. I anticipate that there will be 11 children born out-of-state. The mid-year count for 2010 is slightly below last year's mid-year count. In the five years from 2001 to 2005 (this fall's kindergarten through 4th graders) births averaged 182. Births in the 2006 through 2011 period will average 157. The projection in years 2016 to 2020 assumes an average of 143 births annually between 2011 and 2015. This is based in part upon the Connecticut State Data Center projection of Ledyard children ages 0-4.



Most models project kindergarten directly from births five-years prior. My model breaks kindergarten enrollment into its component parts and bases the projection on an analysis of each part. Figure 13 gives the breakdown of the 2010 kindergarten enrollment. That class of 165 children had 145 five-year olds, 14 six-year olds who had entered kindergarten for the first time (parent hold-outs or special education children held in pre-kindergarten for an extra year) and six children who had been retained in kindergarten.

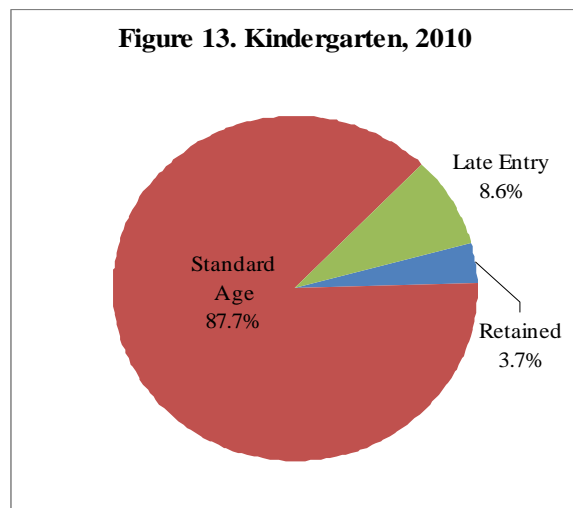
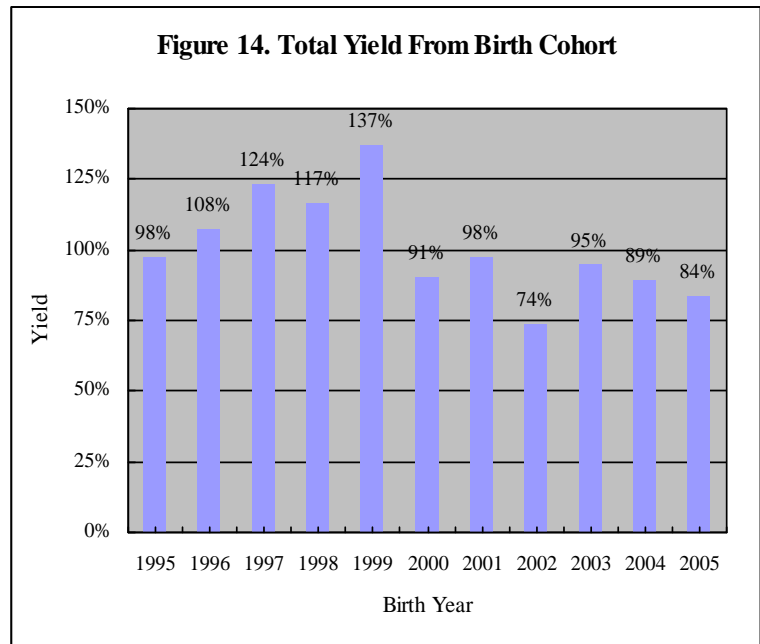


Table 6 gives a history of enrollment in kindergarten since 2000 for Ledyard and relates the components of kindergarten enrollment back to the appropriate birth cohort. Retention is tied to the prior year's kindergarten enrollment. Ledyard's kindergarten is half-day.

Year	Birth Year	Births	Retained From Prior Year				Yield From Births 5-Years Prior	Yield From Births 6-Years Prior	Total Yield From Birth Cohort		
			K	Resident	Non-Resident	Born 6 Years Prior					
2000	1995	195	190	0	177	0	13	0.0%	90.6%	6.8%	97.5%
2001	1996	179	192	0	179	0	13	0.0%	99.8%	6.9%	107.5%
2002	1997	161	199	0	173	0	14	0.0%	107.5%	7.8%	123.6%
2003	1998	162	190	1	164	0	26	0.5%	101.2%	16.1%	116.7%
2004	1999	125	172	2	150	0	25	1.1%	120.0%	15.4%	136.8%
2005	2000	148	140	2	117	0	21	1.2%	79.1%	16.8%	90.5%
2006	2001	164	163	2	144	0	17	1.4%	87.8%	11.5%	97.6%
2007	2002	199	155	7	132	0	16	4.3%	66.3%	9.8%	73.9%
2008	2003	181	174	1	158	0	15	0.6%	87.3%	7.5%	95.0%
2009	2004	178	165	6	145	0	14	3.4%	81.5%	7.7%	89.3%
2010	2005	190	163	6	143	0	14	3.6%	75.3%	7.9%	83.5%
3-Year Average								2.6%	81.2%	7.7%	89.3%
Weighted 3-Year Average								3.1%	79.3%	7.8%	87.4%
5-Year Average								2.8%	79.2%	8.7%	87.9%
Weighted 5-Year Average								2.9%	79.0%	8.3%	87.0%

To give a simple picture of the growth between birth and kindergarten, I calculate the total yield from the birth cohort. This is the percentage of a given birth year who enter your school as five- or six-year olds. The 2004 birth cohort of 178 children had 145 enter kindergarten in 2009 as five-year olds and 14 enter kindergarten in 2010 as six-year olds. This computes to a 89.3 percent yield. Figure 14 shows how the total yield from the birth cohort dropped precipitously between 1999 and 2000. It has remained below 100% since then. The yield ranged from 74 percent for the 2002 birth cohort to 137 percent for the 1999 birth cohort. I estimate that the 2005 cohort will have a yield of 84 percent. Yields below 100 percent are an indication that families with young children are moving out of Ledyard after giving birth in town or enrolling their children in non-public schools or the Multicultural Magnet School. This projection used a yield of 87.0 percent plus 2.9 percent retention from the prior year's kindergarten. Note that this yield is higher than the estimated 2005 yield.



Births five-years prior is the key component of the three I use to project kindergarten enrollment. How accurately kindergarten enrollment can be projected is illustrated by the relationship between births and kindergarten enrollment. For the period 1990 to 2010, the correlation between births and kindergarten enrollment five years later was a moderate 0.74. This means that births five years prior to kindergarten explained about 54 percent of the movement of kindergarten enrollment. Factors such as migration, retention and hold-outs contributed to the balance. On average, over the past ten years, kindergarten enrollment differed by 22 children from the level predicted using regression analysis of births five years prior.

Context of the Projection

The cohort-survival method typically needs only births and a few years of recent enrollment data to generate a projection. Mathematically, nothing else matters. But enrollment changes do not occur in a vacuum. Events and policies in the district, community and region all have some bearing on enrollment. Remember that a basic assumption of the cohort-survival method is that the recent past can be a good predictor of the near future. It is incumbent for every receiver of a projection to determine what events happened in the past five years and whether they are likely to change.

To assist in this endeavor, this report examines seven factors that could affect enrollment: new home construction; sales of existing homes; people in the labor market; non-public enrollment; student migration; non-resident enrollment in Ledyard schools and resident enrollment in other public schools.

Figure 15 presents the net new housing units constructed from 1999 to 2009 from the State Department of Economic and Community Development. In the past ten years the number of net (of demolitions) new housing units constructed in Ledyard ranged from a high of 79 in 2003 to a low of 5 in 2008. There was a net gain of 7 units in 2009. In the five-year look-back period for this projection, there was an average of 15 net new housing units constructed. It is unlikely that housing will pick up significantly in 2010. Through August of 2010 there were permits for seven units issued, compared to five issued through August of 2009.

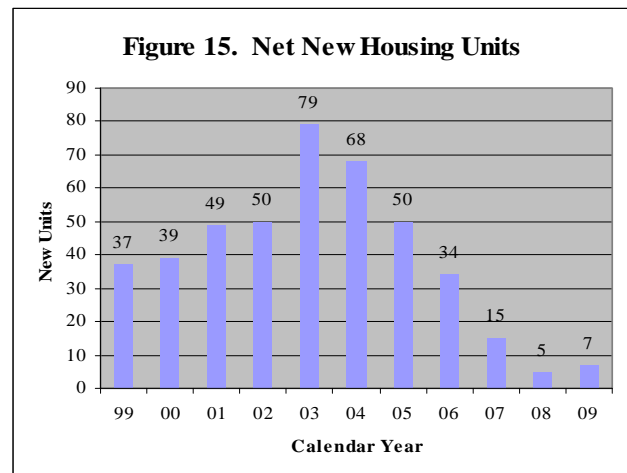


Figure 16 presents my estimate of the number of sales of existing homes. I derived it by taking the number of real estate transactions from The Warren Group/Commercial Record and subtracting the number of new single-family housing units authorized. This is an estimate because of the lag between the time a new house is authorized and it is sold. The estimated number of sales of existing homes ranged from a high of 359 in 2003 to a low of 178 in 2009. The projection assumes 213 sales annually. I estimate there will be about 160 sales of existing homes in 2010.

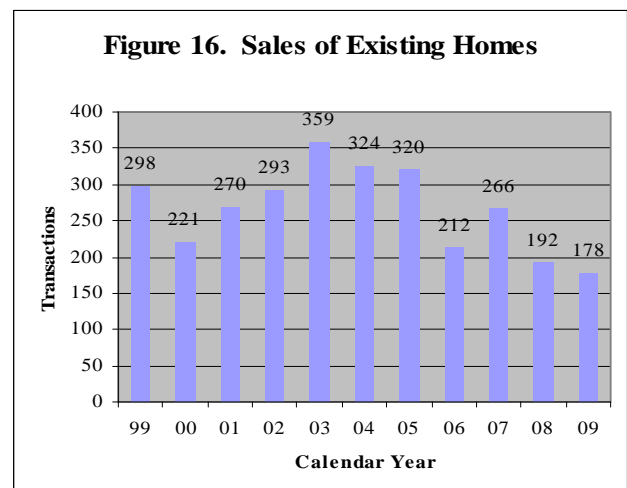


Figure 17 examines the number of people in the labor market from the US Department of Labor, Bureau of Labor Statistics. These are people 16 years of age or older who were working or actively seeking employment. Since it excludes most students and the elderly, I find it a very rough proxy of the number of school-age families. The Ledyard labor force increased 4.2 percent between 2005 and 2009. This growth was smaller than the state (4.6 percent) but slightly better than New London County (4.1 percent). In the past ten years, the unemployment rate ranged from 1.8 percent in 2000 to 7.0 percent in 2009. The 2009 rate, while high, compares favorably to the 8.3 percent statewide and 7.7 percent in New London County

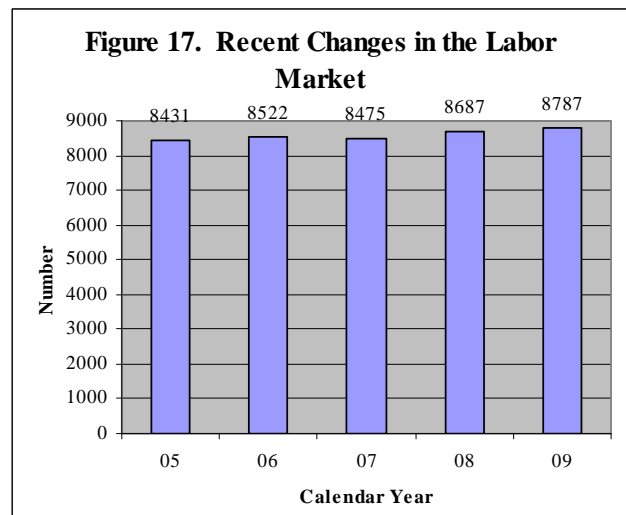


Figure 18 presents the non-public enrollment over the past ten years for students from the town of Ledyard. The data are from the records of the Connecticut State Department of Education. Non-public enrollment ranged from a low of 150 students in 2000 to a high of 197 students in 2005. There were 177 students in the state's non-public schools in 2009. That represented 6.2 percent of the combined public and non-public enrollment. The ten-year high was 6.3 percent in 2005.

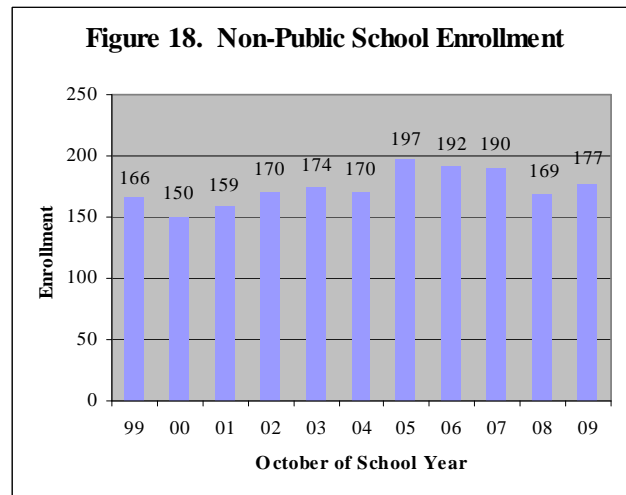


Figure 19 presents Ledyard enrollment in other public schools. This would include Grasso and Norwich Technical High Schools; the Multicultural Magnet School, the Science and Technology Magnet High School of Southeastern CT, Integrated Day Charter, the Inter-district School for Arts and Communication Charter and special education programs run by LEARN and Norwich. The number of Ledyard residents attending a public school other than the Ledyard Public Schools peaked at 133 students in 2003. It dropped to 90 students in 2006 and rebounded to 124 students in 2009. Data for 2010 are not yet available. In 2009 a total of 54 Ledyard students attended a magnet or charter school, 57 attended a state technical high school and 13 attended some other public school. These data were extracted from the Public School Information System (PSIS) of the Connecticut State Department of Education.

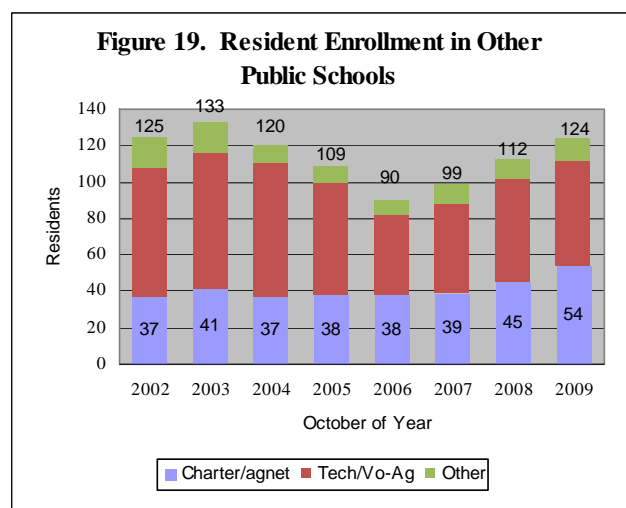


Figure 20 displays the changes in non-resident enrollment in Ledyard's agri-science and technology program. There were 141 non-residents enrolled in this program at Ledyard High School in 2010. The count was as high as 208 in 2002. In 2009, these students came from 12 different area communities. These were led by New London (39) and followed by Preston (26), Groton (25) and Norwich (24). The projection assumes there will be 150 students from towns outside of Ledyard in the upcoming years. This will require a freshman class of 42-43 non-resident students annually.

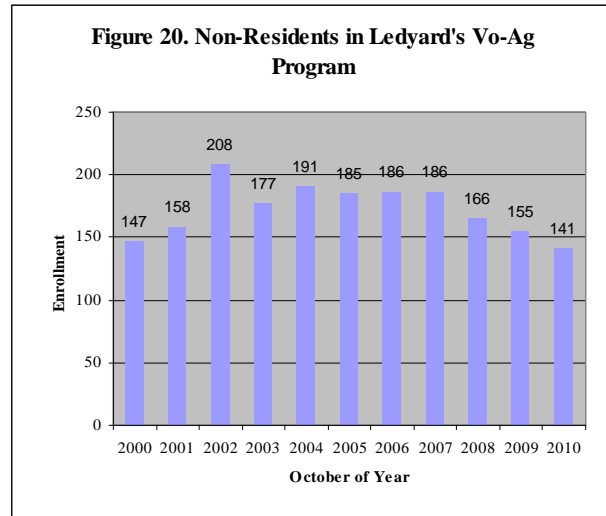
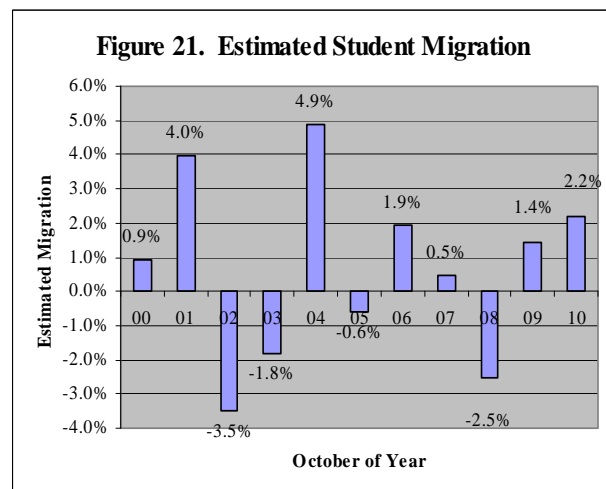


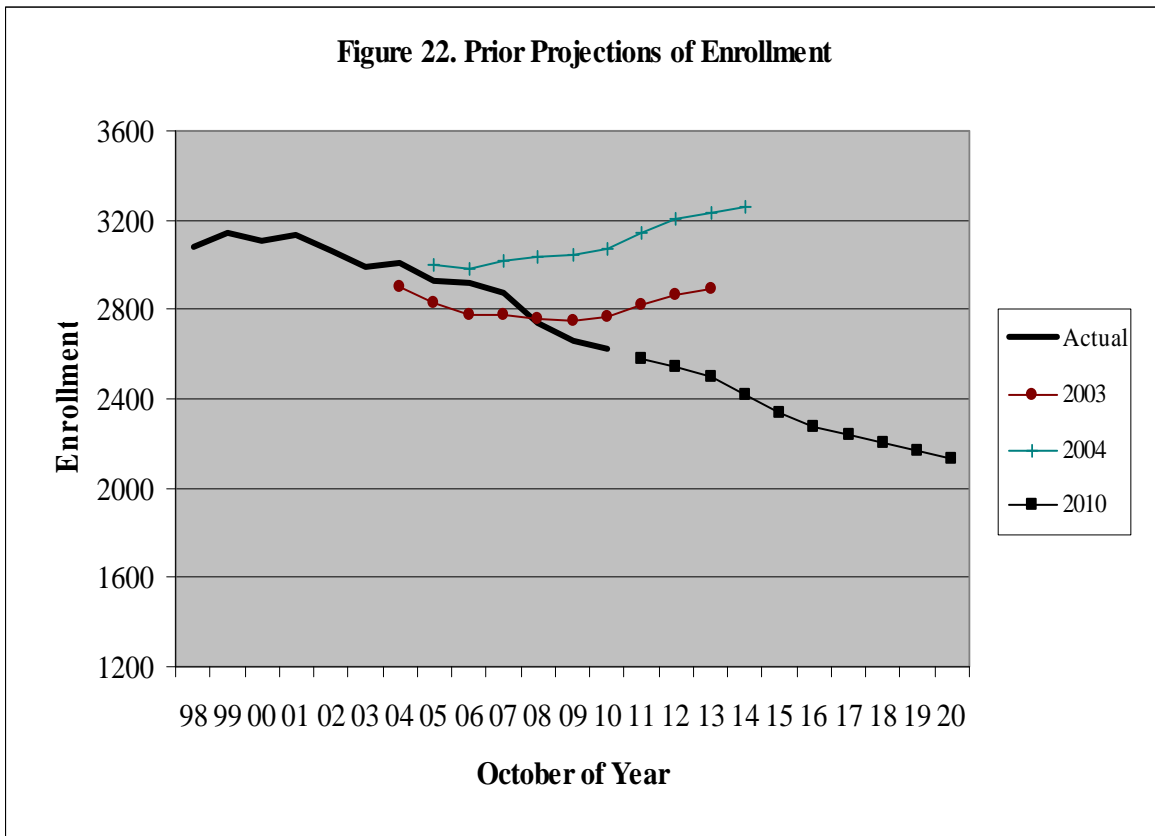
Figure 21 presents the estimated student migration for the 2000 to 2010 period. It is based on observed enrollment in the Ledyard public schools in grades 2-8 with adjustments residents in other public schools. Estimated migration ranged from a high of +4.9 percent in 2004 to a low of -3.5 percent in 2002. The estimated migration was +2.2 percent in 2010. The projection assumes an average in-migration of +0.80 percent.



Prior Projections of Enrollment

The cohort-survival projection method works by moving forward the pattern of recent events that are subsumed within the grade-by-grade enrollment. This works very well when communities are stable. That includes places that are growing or declining at a steady rate. One way to know if that assumption is valid is to examine how past projections have fared. Figure 22 presents the enrollment projections that I have run for Ledyard since 2000. The two enrollment projections that I did between 2000 and 2008 had one-year error rates that averaged a high 3.1 percent. The two projections done between 2000 and 2005 had an average five-year error rate of 7.50 percent, which is 1.45 percent annualized.

In my work I have found the cohort-survival method provides estimates that are sufficiently accurate for intermediate-range policy planning. The eight-year planning horizon for school construction grants is at the limit of the useful accuracy of the method. I analyzed the eight-year accuracy of the district projections from across the state that I ran in 1999. I found for the 66 district-level projections, the 1999 projection had a 7.5 percent error rate in predicting 2007 enrollment. The error was less than five percent in 38 percent of the projections and more than 15 percent in 11 percent of the projections. The projections run in 1999 underestimated the 2007 enrollment by an average of 1.7 percent.



Summary

I project that total enrollment will decrease 18.5 percent, going from 2,480 students in 2010 to 2,135 students in 2020. Elementary enrollment is projected to decrease by 20.5 percent from the October 2010 level of 1,202 students to 950-960 students in 2020. I project that Ledyard Middle School enrollment will contract by 25.5 percent from 436 students in the fall of 2010 to about 325 students in 2020. I anticipate that Ledyard High School enrollment will decline by 13.3 percent from 926 to about 800 students over the next ten years. The projected high school count includes about 150 students from neighboring towns enrolled in your agri-science and technology program.

The Pew Research Center has linked a decline in birth rates to the recession. In the past this effect has been transitory. The number of births in Ledyard in recent years has been trending downward since 2002. I anticipate a decline of almost 25-30 births between 2008 and 2009. This may be a continuation of the downward trend or exacerbated by the economic decline. If the case is the later, then we may soon find a jump in births as people who deferred having children decide to have them. We will get a better picture of what is happening when census data by age of women is released and birth rates can be calculated.

These projections are based upon several other assumptions revolving around the notion that the recent past is a good predictor of the near future. The projection assumes that the following school policies will continue: kindergarten will remain half-day; retention policies will not change; no new magnet schools in the region, enrollment of 150 non-residents in the agri-science and technology program and no change in the drop-out rate. The projection assumes the following population growth factors will not change appreciably: births will average 143 over the 2011 to 2015 period; a 13 percent decrease between the number of births and subsequent kindergarten enrollment; and a student migration of +0.80 percent. Additionally, there will be a proportionate change in non-public school enrollment; 11 percent of children will start kindergarten at age six; 15 new housing units will be constructed annually; there will be an average of 213 sales of existing homes and a slowly increasing labor force.

This is an incredibly difficult time to predict future enrollment. A high unemployment rate, the sputtering economic recovery and mortgage foreclosures all make conditions today different than a couple of years ago. Ledyard's 7.0 percent unemployment rate for 2009 is the highest since these data were reported in the Local Area Unemployment Statistics of the US Department of Labor starting in 1990. The rate in 2010 likely will be slightly worse. These conditions are only a part of the five-year enrollment history that is used to look forward to the next ten years. We have not yet fully seen how they will impact enrollment. We cannot know today how long these conditions will continue. Just how they will impact your particular town is a matter of speculation. The cohort survival method relies on observed data from the recent past. The method is somewhat unresponsive to change. However, I know of no alternative data-based model that is responsive and produces grade-level data.

This projection should be used as a starting point for local planning. Examine the factors and assumptions underlying the method. You know your community best. Apply your knowledge of the specific conditions in Ledyard and then make adjustments as necessary.

Appendix A. Ledyard Enrollment Projected by Grade to 2020

School Year	Birth Year	Births¹	K	1	2	3	4	5	6	7	8	9²	10²	11²	12²	Tuition 9-12	PreK	K-6	7-8	9-12	Total
2000-01	1995	195	190	186	198	217	233	254	242	259	234	229	227	237	232	147	24	1520	493	1072	3109
2001-02	1996	179	192	208	198	204	231	257	258	252	257	232	230	218	209	158	33	1548	509	1047	3137
2002-03	1997	161	199	218	210	195	191	227	249	246	243	233	230	195	187	208	30	1489	489	1053	3061
2003-04	1998	162	190	223	216	209	192	183	222	243	245	215	230	213	202	177	29	1435	488	1037	2989
2004-05	1999	125	172	200	230	231	219	198	197	234	248	232	220	225	191	191	23	1447	482	1059	3011
2005-06	2000	148	140	182	195	231	239	218	198	188	234	242	227	213	212	185	23	1403	422	1079	2927
2006-07	2001	164	163	154	177	206	221	246	222	208	194	239	239	227	194	186	40	1389	402	1085	2916
2007-08	2002	199	159	168	161	183	210	226	245	223	197	194	222	241	215	186	50	1352	420	1058	2880
2008-09	2003	181	174	163	159	161	172	208	222	231	224	182	189	226	214	166	49	1259	455	977	2740
2009-10	2004	178	165	185	164	164	174	174	207	222	226	202	176	193	200	155	54	1233	448	926	2661
2010-11	2005	190	163	176	170	172	171	174	177	213	223	217	194	190	189	141	51	1203	436	931	2621
Projected																					
2011-12	2006	170	162	172	170	176	176	172	174	177	211	211	209	201	176	142	51	1202	388	939	2580
2012-13	2007	160	146	171	167	176	180	177	172	174	176	200	203	217	186	145	51	1189	350	951	2541
2013-14	2008	171	154	154	166	172	180	181	177	172	173	167	193	210	201	150	51	1184	345	921	2501
2014-15	2009	144	133	162	149	171	176	181	181	177	171	164	161	200	195	150	51	1153	348	870	2422
2015-16	2010	140	127	140	157	154	175	177	181	181	176	162	158	167	185	150	51	1111	357	822	2341
2016-17	2011	143	129	134	136	162	158	176	177	181	179	167	156	164	155	150	51	1072	360	792	2275
2017-18	2012	142	129	136	130	140	166	159	176	177	179	169	161	162	152	150	51	1036	356	794	2237
2018-19	2013	143	129	136	132	134	143	167	159	176	176	169	163	167	150	150	51	1000	352	799	2202
2019-20	2014	143	130	136	132	136	137	144	167	159	175	167	163	169	155	150	51	982	334	804	2171
2020-21	2015	144	130	137	132	136	139	138	144	167	158	166	161	169	157	150	51	956	325	803	2135

¹ 2009 births based upon a count of 133 resident births in Connecticut and an estimate of 11 out of state. Births in 2010 are based on mid-year 2009 and 2010 births that occurred in Connecticut. Births in 2011 to 2015 were derived from the growth in the projected number of Ledyard children ages 0-4 by the Connecticut State Data Center.

² Ledyard residents only.

Appendix B. Growth from Grade to Grade across Years

October of Year	Grade Moved Into from Prior Year													PreK	Average	Estimated Migration ¹
	K	1	2	3	4	5	6	7	8	9	10	11	12			
2001	1.073	1.095	1.065	1.030	1.065	1.103	1.016	1.041	0.992	0.991	1.004	0.960	0.882	1.020	3.99%	
2002	1.236	1.135	1.010	0.985	0.936	0.983	0.969	0.953	0.964	0.907	0.991	0.848	0.858	0.962	-3.50%	
2003	1.173	1.121	0.991	0.995	0.985	0.958	0.978	0.976	0.996	0.885	0.987	0.926	1.036	0.986	-1.55%	
2004	1.376	1.053	1.031	1.069	1.048	1.031	1.077	1.054	1.021	0.947	1.023	0.978	0.897	1.019	4.45%	
2005	0.946	1.058	0.975	1.004	1.035	0.995	1.000	0.954	1.000	0.976	0.978	0.968	0.942	0.991	-0.60%	
2006	0.994	1.100	0.973	1.056	0.957	1.029	1.018	1.051	1.032	1.021	0.988	1.000	0.911	1.011	1.93%	
2007	0.799	1.031	1.045	1.034	1.019	1.023	0.996	1.005	0.947	1.000	0.929	1.008	0.947	0.999	0.46%	
2008	0.961	1.025	0.946	1.000	0.940	0.990	0.982	0.943	1.004	0.924	0.974	1.018	0.888	0.970	-2.51%	
2009	0.927	1.063	1.006	1.031	1.081	1.012	0.995	1.000	0.978	0.902	0.967	1.021	0.885	0.995	1.43%	
2010	0.858	1.067	0.919	1.049	1.043	1.000	1.017	1.029	1.005	0.960	0.960	1.080	0.979	1.009	2.19%	
5 Year Ave.	0.908	1.057	0.978	1.034	1.008	1.011	1.002	1.005	0.993	0.961	0.964	1.025	0.922	0.997		
3 Year Ave.	0.915	1.052	0.957	1.027	1.021	1.001	0.998	0.991	0.996	0.929	0.967	1.040	0.917	0.991		
Weighted 5 year Median, past 10 years	0.898	1.055	0.968	1.033	1.023	1.006	1.002	1.002	0.992	0.947	0.963	1.037	0.927	0.996		
Enrollment Multiplier²	³	1.055	0.968	1.033	1.023	1.006	1.002	1.002	0.992	0.947	0.963	1.037	0.927	1.000		

¹ Estimated by comparing the enrollment in grades 3-8 one year with the enrollment in grades 2-7 the prior year with adjustments for residents out and non-residents in.

² Based on five-year weighted averages.

³ Based on five-year weighted averages of births five- and six- years ago and retentions.