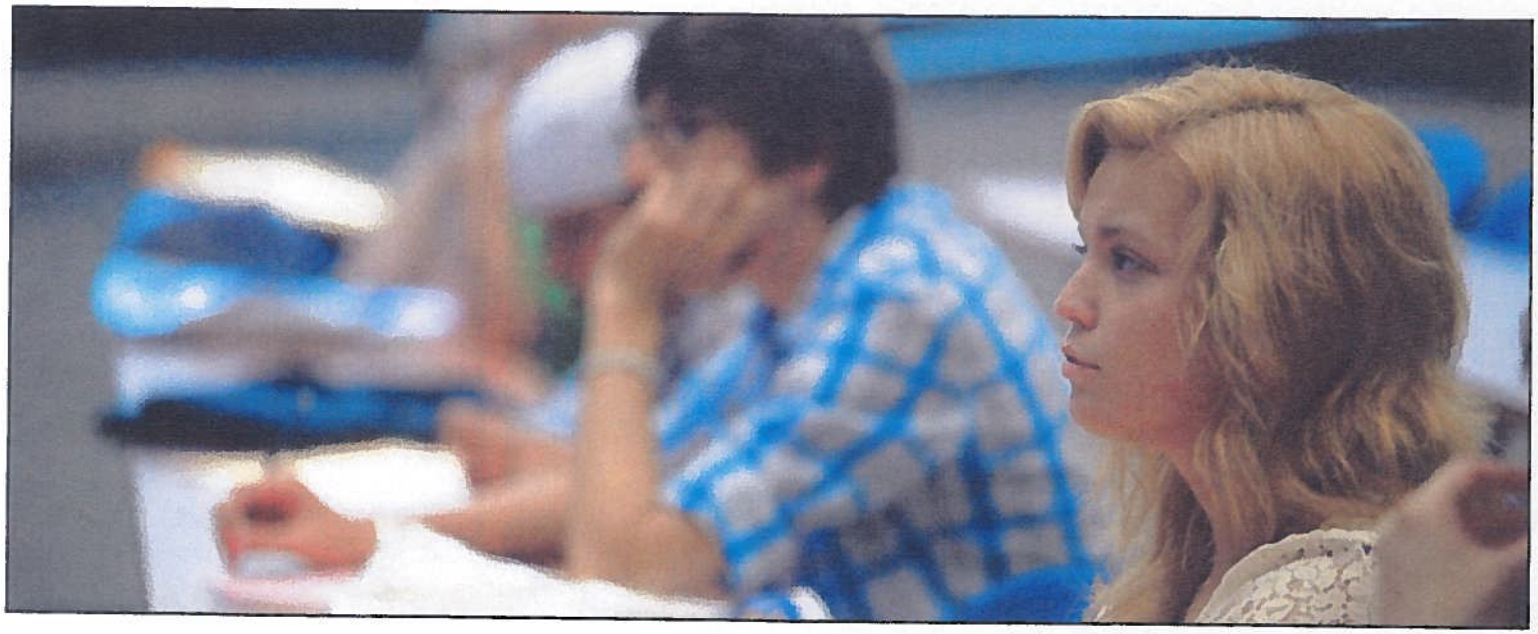
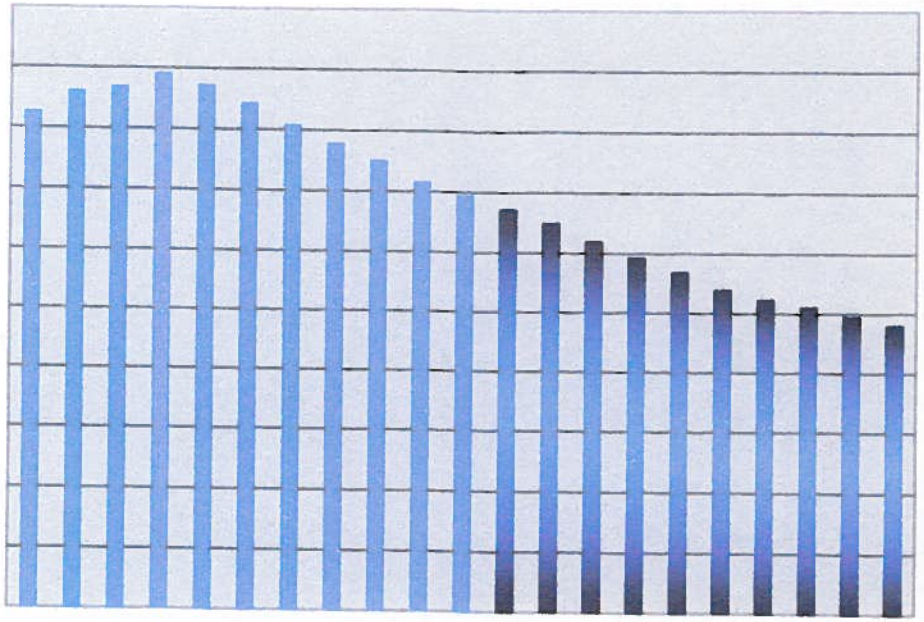
Monroe Public Schools

Enrollment Summary



MONROE PUBLIC SCHOOLS ENROLLMENT PROJECTED TO 2022



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Introduction

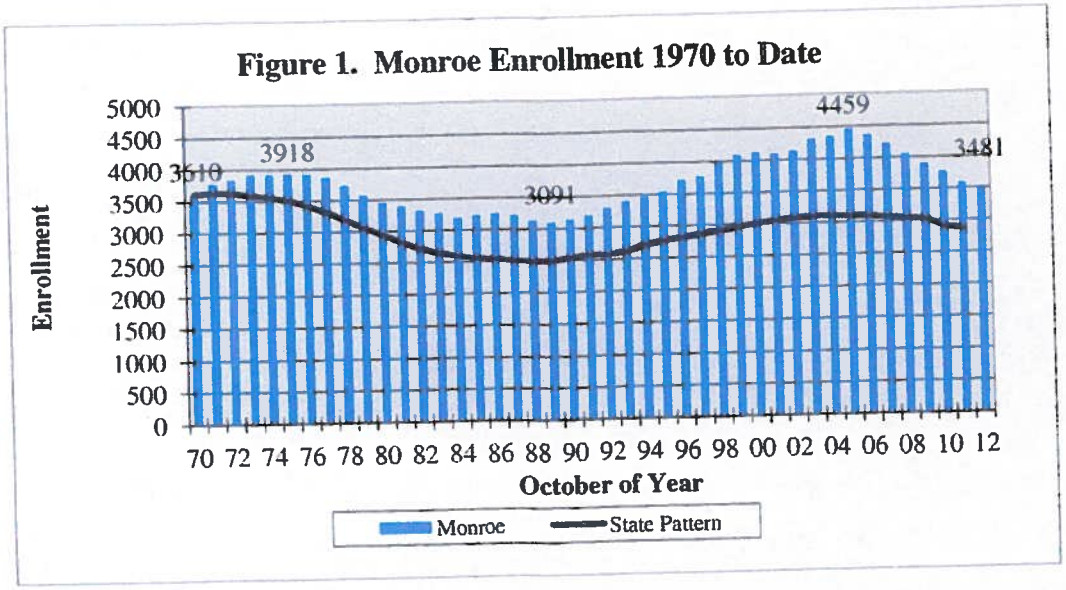
This report presents a ten-year projection of enrollment for the Monroe Public Schools. It is based on students enrolled in Monroe schools. The projection is divided into the three grade levels that represent how the Monroe schools are now organized: K-5, 6-8 and 9-12. The report includes 43 years of 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. Several factors that influence school enrollment - town population, women of child-bearing age, housing, migration, non-public enrollment, high school drop-outs and resident enrollment in other public 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. They 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 school-based projections as a critical component of determining the size of the project for which reimbursement is eligible. This report is appropriate for that purpose for the middle and high school only. 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 enrollment in Monroe from 1970 to date and compares it to public school enrollment statewide.

Figure 1. Monroe Enrollment 1970 to Date



Enrollment rose from 3,610 students in 1970 to 3,918 in 1975. Enrollment then went on a 14-year decline which took it down 21.1 percent to 3,091 students in 1989. Enrollment in the Monroe Public Schools then entered a growth phase that took it to an all-time high of 4,459 students in 2005. In those 16 years the enrollment grew by 1,368 students or 44.3 percent. Enrollment is currently in another down phase. Enrollment has fallen by 978 students since 2005. The 21.9 percent decline brought enrollment to 3,481 students in 2012. Enrollment now lies close to the level of 1994. Part of the recent loss can be attributed to the loss of 218 tuitioned-in students at Masuk High. Discounting that loss, the decline was 17.1 percent.

Monroe's enrollment pattern is fairly similar to that of the state's public schools. 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 2.8 percent between 2004 and 2012. The 1975 to 1989 decline in Monroe was very slightly shorter in duration and much shallower than the state's. The subsequent enrollment growth cycle in Monroe was the same length as the state's but much more robust. The state entered a second cycle of decline in 2005; Monroe did so one year later. Had Monroe followed the state pattern of enrollment since 1970, it would have had 2,874 students in October of 2011 instead of the 3,581 that were enrolled on that date.

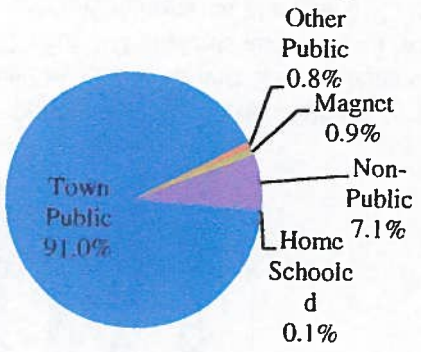
Current Enrollment

Table 1 and Figure 2 provide a picture of where Monroe residents attended school in October of 2011, the latest data available. They show that 91.0 percent of Monroe's school-age residents attended the Monroe Public Schools in 2011. A little over seven percent of the school-age residents attended non-public schools in state. The number attending private schools out-of-state is not known. Other school-age residents attended magnet schools (0.9 percent) or public schools in other districts (0.8 percent). Few (five children or 0.1 percent) were reported as being home schooled. There were no non-residents who were enrolled in the Monroe Public Schools in 2011. The projections in this report are based upon the 3,481 residents who were enrolled in the Monroe Public Schools on October 1, 2012.

Table 1. 2011 Enrollment

	Number	Percent
Residents		
A. Monroe Public	3581	91.0%
B. Other Public	30	0.8%
C. Magnets	37	0.9%
D. Non-Public	281	7.1%
E. Home Schooled	5	0.1%
Total (A+B+C+D+E)	3934	
F. Non-Residents	0	
Total Enrollment (A+F)	3581	

Figure 2. Schools Attended by Town Residents, 2011



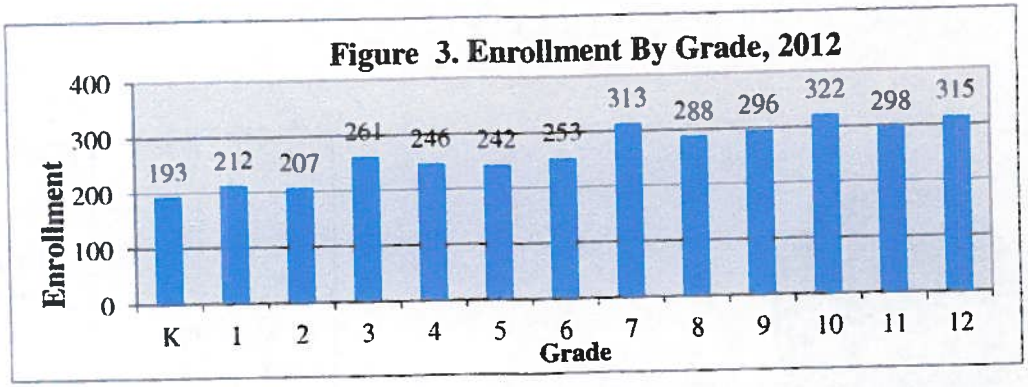


Figure 3 shows the October 2012 grade-by-grade enrollment by of students in the Monroe Public Schools. The children in pre-kindergarten programs are not shown. Grade 10 had the largest enrollment with 322 students. It was followed by Grade 12 with 315 students and Grade 7 with 313 students. Kindergarten was the smallest class with only 193 students followed by Grade 2 with 207 students and Grade 1 with 212 students. This pattern is indicative of a future enrollment decline. If current conditions continue, this year's Kindergarten class of 212 students will have 213 students when it enters Grade 6 at Jockey Hollow Middle School in 2018 and 209 students when it enters Grade 9 at Masuk High School in 2021. Both these figures are well below the current enrollment in each of those grades. The current year enrollment by grade is the starting point for this projection. How it moves forward is discussed below.

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 grade-to-grade growth rates for ten years (see Appendices A and B). For example, if the number of fourth graders this year is 253 and the number of third graders last year was 250, then the growth rate is 1.012. Growth rates above 1.000 indicate that students moved in, transferred from non-pubic schools or other public schools or were retained. Growth rates below one mean that students moved out, transferred to private or other public schools, dropped out, or were not promoted from the prior grade. For each grade I calculate four different averages of the year-to-year growth rates: a three-year average; a weighted 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 rate for a grade is applied to the current enrollment from the prior grade. The projection builds grade by grade and year by year.

To project enrollment of students in Monroe schools, I utilized a weighted three-year average of the annual growth rates. It was the highest of the four averages I examined. In Monroe, all four of the averages I computed were fairly close. I broke kindergarten into five year olds, six year olds entering kindergarten for the first time and repeaters. I used the weighted three-year average of each component in the projection. In 2012, 19.7 percent of the Monroe Public School kindergarten enrollment was students who entered late and 3.6 percent was students who had been retained.

To extend the projections beyond four years, I needed to estimate births for the years 2012 to 2017. The Connecticut State Department of Public Health recorded 157 births to Monroe residents in 2009. That is the last official count. To estimate births in 2010, I used the preliminary count of 137 that were recorded in state and out-of-state in 2010. That is the fewest births since I began tracking them in 1980. There were 138 in-state births and one out-of-state birth to Monroe residents in 2011. Through July of 2012, there were 74 in-state births recorded. This is below the comparable figures for the past four years. From that I estimate there will be 131 births to Monroe residents in 2012. This would be a new low

since 1980. I then assumed that the decline in births would be temporary and that births would return to 154 (the average of 2008 and 2009 births) by 2015. Births in 2013 and 2014 were prorated and births in 2016 and 2017 were estimated from the growth in the Connecticut State Data Center's (CtSDC) projection of children ages 0-4 in 2010, 2015 and 2020. I calculated the projected growth in these intervals, annualized them and applied them to prior year estimate of births starting with 2015 to get an estimate for 2016 and 2017.

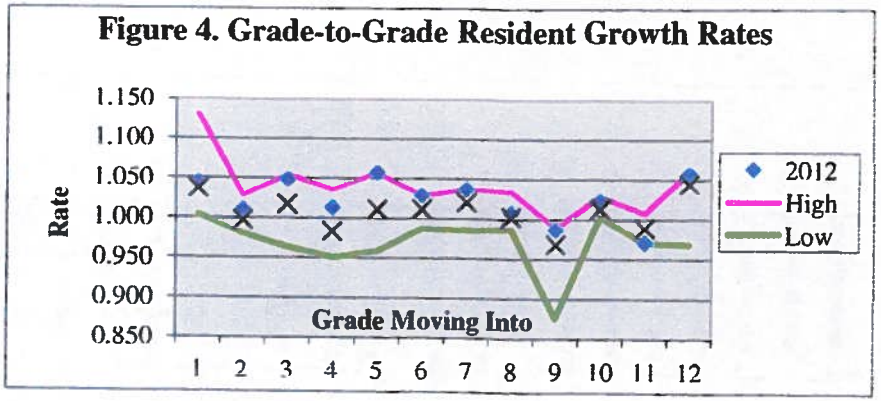


Figure 4 gives a perspective of the grade-to-grade growth rates for students attending the Monroe schools. An "x" indicates the average growth rate used in this projection. The diamond is the growth observed between last year and this year. The upper line indicates the largest growth rate observed over 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. The growth rates used in the projection were based on a weighted five-year average of the observed grade-to-grade growth. Most model growth rates are toward the middle or upper end of the ten-year range. Grades 1, 2 and 11 appear to be the exceptions. Six of eight growth rates in grades 1-8 are above 1.00 indicating that children are moving into the Monroe schools. The high rate in Grade 1usually indicates students enrolling in grade 1 after attending full-day kindergarten elsewhere. The high rate in Grade 12 may indicate that students with too few credits are repeating that grade. The Grade 9 rate is reflective of about nine percent of Monroe residents choose a non-public or other school for high school, some students returning for high school and a zero percent repeater rate in Grade 9. The rate in Grade 11 could be a reflection of students transferring out or a small number of dropouts. For the most part, the model growth rates are similar to those observed in 2012. The exceptions are in grades 3-5. Note that ten-year highs were set in grades 3, 5, 6, 7, 10 and 12. If the 2012 rates were to continue, the projected enrollments will turn out low.

Enrollment data from 2002 to 2011 were taken from the files of the Connecticut State Department of Education. The public school data are available on the Department's website at www.sde.ct.gov. Data for 2012 were provided by the Monroe district office. All enrollment data after 2009 are subject to minor changes as they are reviewed and audited. Births from 1980 to 2012 were provided by the Healthcare Quality, Statistics, Analysis and Reporting Unit of the State Department of Public Health.

Total Enrollment

Table 2 presents the observed total enrollment and Figure 5 presents resident enrollment in Monroe schools from 2002 to 2012 and projected enrollment through 2022. Detailed grade-by-grade data may be found in Appendices A and B. Total enrollment in Monroe increased from 4,135 students in 2002 to 4,364 in 2006. Enrollment then fell to 3,481 students in 2012. Between 2002 and 2012, enrollment decreased by 654 students or 15.8 percent. The loss was 617 resident students or 15.1 percent. I estimate that statewide public school enrollment declined 4.0 percent in that period. Between 2001 and 2011, the latest comparable data available, Monroe's enrollment loss of 10.8 percent of resident students was highest among similar towns in the area. New Fairfield lost 7.4 percent, Brookfield lost 7.2 percent and Region 15 lost 2.1 percent while enrollment gains were registered in Newtown (5.6 percent), Trumbull (9.7 percent) and Fairfield (24.5 percent).

I project that the enrollment decline that started in 2006 will continue. Next year, I anticipate that total enrollment will decrease by 80 students as the incoming kindergarten class will be smaller than the outgoing graduating 12th grade class. This will continue for several years. By the year 2022, enrollment should be about 2,400 students. The last time total enrollment was below 3,000 students was 1989. The projected 10-year decline is almost 1,080 students or 31 percent. In the state's public schools, I am projecting a 9.0 percent decline between 2012 and 2022. Total enrollment in Monroe should average 2,827 students over the ten-year projection period compared to an average total enrollment of 4,046 students over the past ten years.

Table 2. Total Enrollment

Year	Students	Percent Change
2002	4,135	
2003	4,310	4.2%
2004	4,349	0.9%
2005	4,459	2.5%
2006	4,364	-2.1%
2007	4,221	-3.3%
2008	4,045	-4.2%
2009	3,894	-3.7%
2010	3,755	-3.6%
2011	3,581	-4.6%
2012	3,481	-2.8%
2013	3,361	-3.4%
2014	3,248	-3.4%
2015	3,098	-4.6%
2016	2,964	-4.3%
2017	2,843	-4.1%
2018	2,696	-5.2%
2019	2,617	-2.9%
2020	2,554	-2.4%
2021	2,484	-2.7%
2022	2,403	-3.3%

Figure 5. Total Resident Enrollment

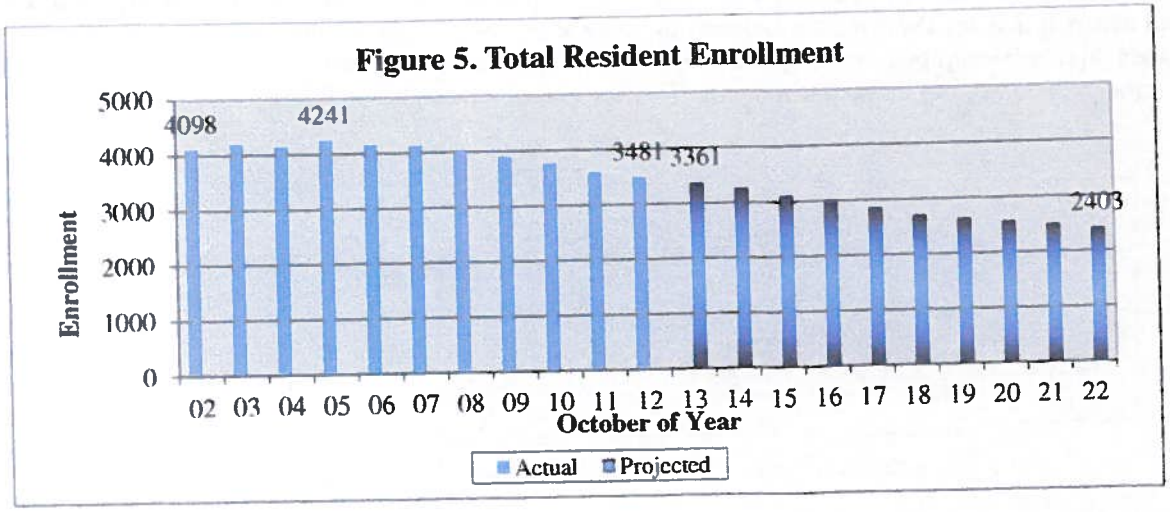


Table 3 and Figure 6 present actual enrollment in grades K-5 from 2002 to 2012 and projected enrollment to 2022 at the Monroe Elementary, Stepney and Fawn Hollow schools. Enrollment by grade may be found in Appendix A. The 1,940 students enrolled in 2003 was the culmination of at least 18 years of K-5 enrollment growth. Enrollment in grades K-5 is now in a down cycle. It fell from 1,920 students in 2002 to 1,361 students in 2012. The loss of 559 students represented 29.1 percent of the enrollment in 2002. I estimate that public school enrollment statewide in grades K-5 declined by 8.4 percent in the past ten years.

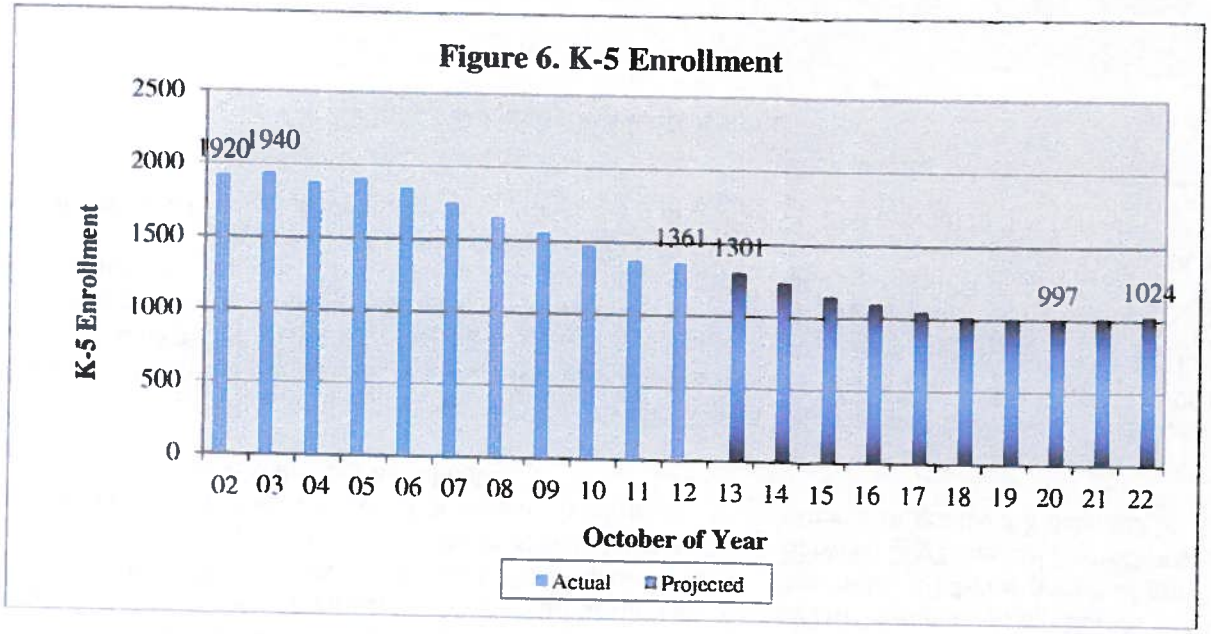
In the upcoming years, I expect that enrollment will move downward at a fairly steep rate through 2018, slow down and then begin to recover. Next year, I anticipate that enrollment in these grades will be 60 students less than this year. The ten-year low should come in 2020 when I anticipate that enrollment will fall to about 1,000 students. By 2022 I project that grade K-5 enrollment will be about 1,025 students. This will be about 340 students less than 2012, a loss of about 25 percent. In grades K-5 in the state's public schools, I am projecting a 8.7 percent enrollment decline. Over the ten-year projection period, I believe enrollment in grades K-5 will average about 1,090 students compared to the average of 1,674 students observed over the past ten years.

These figures do not include the children in your pre-kindergarten programs. I the past ten years, pre-kindergarten enrollment ranged from 35 to 60 children. There were 35 children in these programs in 2012. My projection model keeps pre-kindergarten enrollment at 35 children for the next ten years.

Table 3. Grade K-5 Enrollment

Year	Students	Percent Change
2002	1,920	
2003	1,940	1.0%
2004	1,876	-3.3%
2005	1,906	1.6%
2006	1,846	-3.1%
2007	1,752	-5.1%
2008	1,656	-5.5%
2009	1,557	-6.0%
2010	1,475	-5.3%
2011	1,375	-6.8%
2012	1,361	-1.0%
2013	1,301	-4.4%
2014	1,237	-4.9%
2015	1,145	-7.4%
2016	1,101	-3.8%
2017	1,047	-4.9%
2018	1,010	-3.5%
2019	1,001	-0.9%
2020	997	-0.4%
2021	1,009	1.2%
2022	1,024	1.5%

Figure 6. K-5 Enrollment



Grade 6-8 Enrollment

Table 4 and Figure 7 present actual enrollment in grades 6-8 in 2002 to 2012 and projected enrollment at Jockey Hollow Middle School to 2022. Enrollment by grade may be found in Appendix B. Jockey Hollow added Grade 6 in 2011 with the closing of Chalk Hill at the end of the 2010-11 school year. Enrollment in grades 6-8 grew from 955 students in 2002 to 1,026 students in 2005. That ended a 13-year period of growth that started in 1992. Enrollment then retreated to 854 students in 2012. Between 2002 and 2012 enrollment in grades 6-8 declined by 101 students or 10.6 percent. I estimate that enrollment in grades 6-8 declined by 8.1 percent in that period in the state's public schools.

I believe that future enrollment in the Jockey Hollow Middle School will continue downward. Next year I anticipate a decrease of 35-40 students. I expect the school's enrollment will fall below 700 students in 2017 and below 600 students in 2020. The last time grade 6-8 enrollment was below 700 students was 1991. It should end the projection at about 530 students. Over the ten-years, I project a net decline of about 320 students or almost 38 percent. Over the ten-year projection period, I believe enrollment at the school will average about 670 students compared to the average of 968 students observed over the past ten years. In the state's public schools, I project that enrollment in grades 6-8 will decline by 13.9 percent in that period.

Figure 7. Grade 6-8 Enrollment

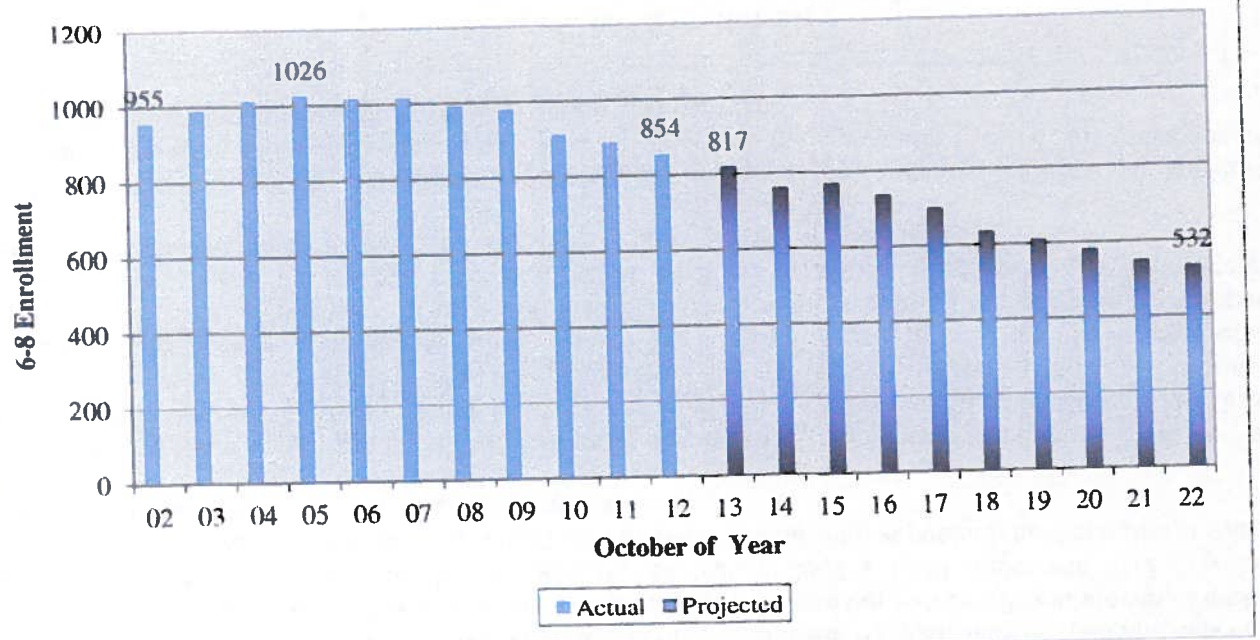


Table 4. Grade 6-8 Enrollment

Year	Students	Percent Change
2002	955	
2003	988	3.5%
2004	1013	2.5%
2005	1026	1.3%
2006	1016	-1.0%
2007	1015	-0.1%
2008	992	-2.3%
2009	979	-1.3%
2010	911	-6.9%
2011	888	-2.5%
2012	854	-3.8%
2013	817	-4.3%
2014	761	-6.9%
2015	770	1.2%
2016	735	-4.5%
2017	696	-5.3%
2018	634	-8.9%
2019	608	-4.1%
2020	581	-4.4%
2021	549	-5.5%
2022	532	-3.1%

Masuk High School Enrollment

In most districts, Grade 9 is the time when the opportunity to attend state technical high schools and agriculture science and technology centers first becomes available. In October 2011, 91.3 percent of Monroe residents enrolled in Grade 9 were enrolled in the district. An estimated 6.4 percent were enrolled in non-public schools in state. Only eight students (2.3 percent) were enrolled in a state technical high school, an agriculture science program, a magnet or another public high school.

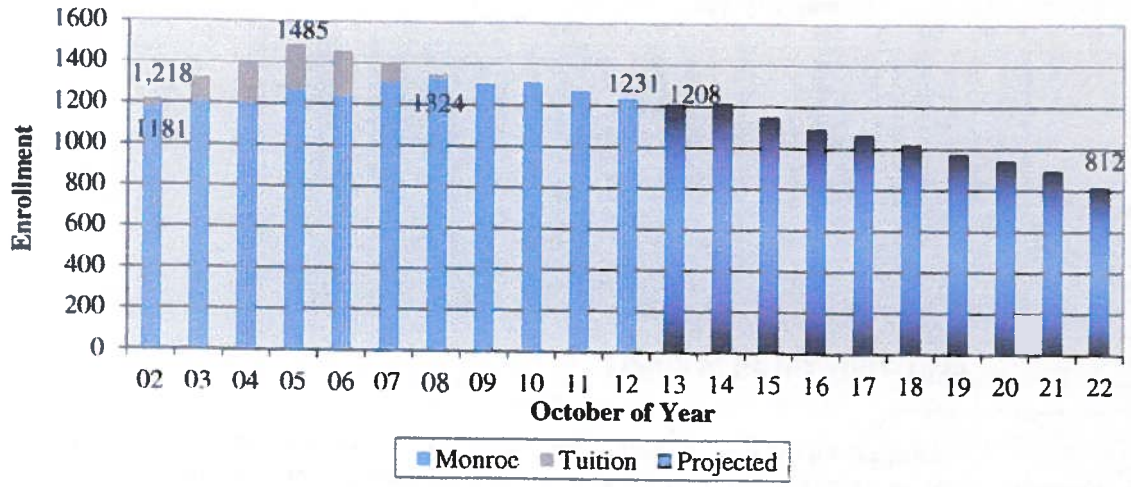
Table 5 and Figure 8 present enrollment at the Masuk High School. Grade-by-grade enrollment may be found in Appendix B. Resident enrollment grew from 1,181 students in 2002 to 1,324 in 2008. This is the peak and represents the end of an 18-year period of high school enrollment growth. Between 2002 and 2012, grade 9-12 resident enrollment increased by 50 students or 4.2 percent. I estimate that statewide public school enrollment in grades 9-12 grew 3.3 percent in that 10-year period.

I expect that next year's enrollment at Masuk High School will be 20-25 students less than this year. I anticipate enrollment will fall below 1,100 students in 2016 and below 1,000 students in 2019. The last time high school enrollment was below 1,000 students was 1993. I anticipate that enrollment will be about 810 students in 2022. That will be about 420 students below the October 2012 count, a decline of about 34 percent. Statewide, I have projected a 9.3 percent decline in public school grade 9-12 enrollment between 2012 and 2022. I believe enrollment at Masuk High School will average about 1,035 students over the next ten years compared to the average of 1,266 resident students observed over the past ten years.

Table 5. Masuk High School Enrollment

Year	Students	Percent Change
2002	1,218	
2003	1,323	8.6%
2004	1,404	6.1%
2005	1,485	5.8%
2006	1,456	-2.0%
2007	1,402	-3.7%
2008	1,345	-4.1%
2009	1,302	-3.2%
2010	1,309	0.5%
2011	1,272	-2.8%
2012	1,231	-3.2%
2013	1,208	-1.9%
2014	1,215	0.6%
2015	1,148	-5.5%
2016	1,093	-4.8%
2017	1,065	-2.6%
2018	1,017	-4.5%
2019	973	-4.3%
2020	941	-3.3%
2021	891	-5.3%
2022	812	-8.9%

Figure 8. Masuk High School Enrollment



Factors Affecting the Elementary Projection

The primary reasons for elementary enrollment change lie in the births and yield from the birth cohort. Figure 9 presents the births from 1980 to 2009 and preliminary and estimated births through 2017. Births ranged from a low of 145 in 1981 to a high of 252 in 1993. The preliminary count of births in 2010 is 137 and in 2011 is 139. From recorded in-state births through July, I estimate there will be 131 births in calendar year 2012. This would be a new low. In the 1990s there was an average of 235 births annually. In the five years from 2003 to 2007 (this fall's kindergarten through 4th graders) births averaged 188. Births in the 2008 through 2012 period will average 143. The projection in years 2018 to 2022 assumes an average of 148 births annually between 2013 and 2017. This is based in part upon my assumption that births will rebound from the recent lows.

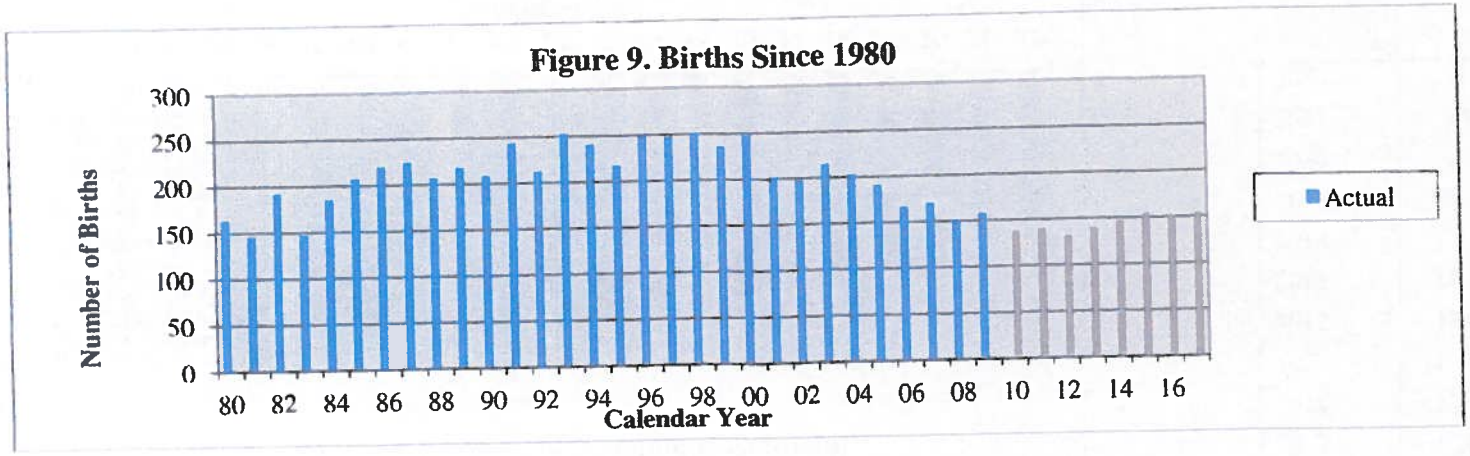


Figure 10 depicts the kindergarten yield five and six years later from the birth cohorts of 1997 to 2007 for Monroe residents attending kindergarten in Monroe. For example, there were 166 births in 2006 and 166 Monroe children enrolled in Monroe kindergarten at age five in 2011 and an additional 38 who first enrolled in kindergarten at age six in 2012. That is a yield of 119.9 percent. The yield from the birth cohort ranged from a low of 105 percent in 2005 to a high of 125 percent in 2000. The estimated yield for births in 2006 is a low 107 percent. Note that 2007 yield is an estimate because we will not know the actual number of children who will enter kindergarten for the first time as six-year olds until October 2013. Yields above 100 percent generally mean that parents move into town after giving birth elsewhere. In the five-year look-back period of the projection the average yield was 111.6 percent.

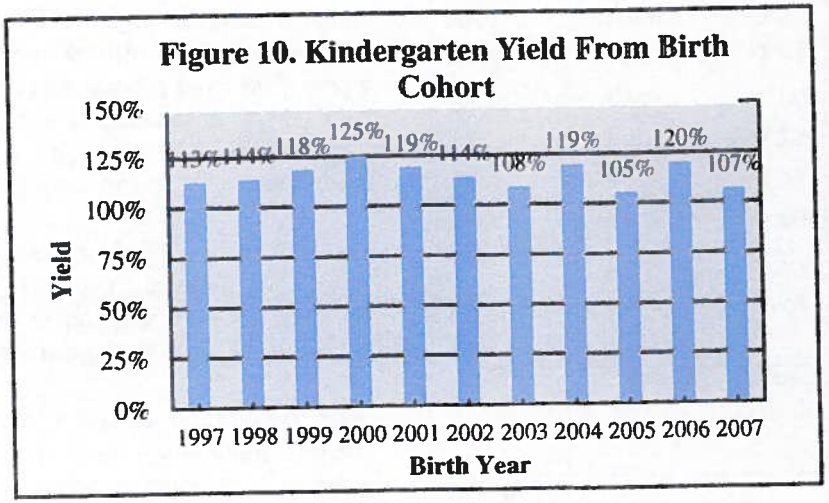


Table 6 gives a history of enrollment in kindergarten since 2002 and relates the components of kindergarten enrollment back to the appropriate birth cohort. Retention is tied to the prior year's kindergarten enrollment. To estimate kindergarten enrollment, I used the weighted five-year average of retentions, and yields from births five and six years ago. I estimated kindergarten from 92.2 percent of births five years ago, 19.0 percent of births six years ago, and 2.7 percent of current Kindergarten students retained.

Table 6. Analysis of Kindergarten Enrollment

Year	Birth Year	Births	K	Retained From Prior Year	Non-Retained Born 5-Years Prior: Resident	Non-Retained Born 5-Years Prior: Non-Resident	Born 6 Years Prior	Percent Retained	Yield From Births 5-Years Prior	Yield From Births 6-Years Prior	Total Yield From Birth Cohort
2002	1997	248	286	5	254	0	27	1.7%	102.4%	10.8%	112.5%
2003	1998	250	271	1	245	0	25	0.3%	98.0%	10.1%	113.6%
2004	1999	235	279	0	240	0	39	0.0%	102.1%	15.6%	118.3%
2005	2000	248	318	1	279	0	38	0.4%	112.5%	16.2%	125.0%
2006	2001	201	251	4	216	0	31	1.3%	107.5%	12.5%	118.9%
2007	2002	198	219	2	194	0	23	0.8%	98.0%	11.4%	113.6%
2008	2003	214	236	3	202	0	31	1.4%	94.4%	15.7%	108.4%
2009	2004	202	245	8	207	0	30	3.4%	102.5%	14.0%	119.3%
2010	2005	190	199	2	163	0	34	0.8%	85.8%	16.8%	104.7%
2011	2006	166	203	6	161	0	36	3.0%	97.0%	18.9%	119.9%
2012	2007	169	193	7	148	0	38	3.4%	87.6%	22.9%	*106.5%*
3-Year Average								2.3%	89.9%	19.4%	110.4%
Weighted 3-Year Average								2.9%	90.4%	20.6%	110.7%
5-Year Average								2.4%	93.6%	17.4%	111.8%
Weighted 5-Year Average								**2.7%**	**92.2%**	**19.0%**	**111.6%**

The correlation between births and kindergarten enrollment five-year later was a relatively high 0.90 over the 1990 to 2012 period. If this relationship were used to predict kindergarten enrollment, the estimate would have been off by an average of 14 children annually over the past ten years. The cohort survival method, even with my breakout into five-year olds, six-year old delayed entrants and children retained, cannot overcome the underlying unpredictability of kindergarten enrollment from earlier births.

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 eight factors that could affect enrollment: town population, women of child-bearing age; new home construction; sales of existing homes; non-public enrollment; the annual high school drop-out rate; resident enrollment in other public schools and student migration.

Figure 11 presents the US Census Bureau estimate of Monroe population growth between July, 2010 and 2011. In that year, the town population is estimated to have grown by 163 people. The population gain of 0.84 percent was the 8th ranked in the state. In contrast, Fairfield County grew by 0.82 percent, the state grew by 0.15 percent and communities with similar economic and need characteristics grew by 0.33 percent. The census population data show that from April 2000 to April 2010 Monroe's population grew from 19,247 people to 19,479. The 232-person growth was the smallest in the past eight decades. The 1.2 percent increase between 2000 and 2010 was the 144th largest in the state.

Figure 11. Estimated Population Growth, 2010 to 2011

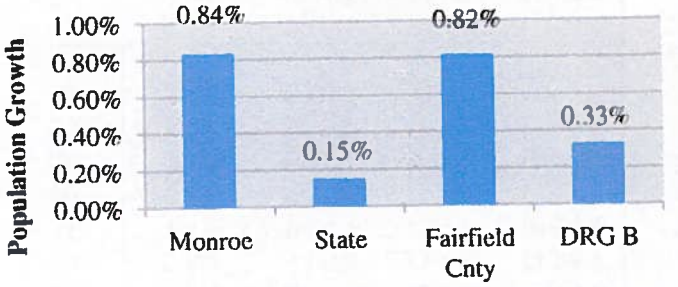


Figure 12 presents the number of women of child-bearing age from the 2000 and 2010 censuses. There were 248 births to Monroe residents in 2000 and a preliminary count of 137 in 2010. In communities like yours, women in the 30-34 age group have the highest rate of births. The number in this group plummeted from 692 in 2000 to 398 in 2010. The second highest birth rate in communities like Monroe is women ages 25-29. The number in that age range declined from 346 in 2000 to 318 in 2010. The number in the 35-49 and 40-44 age

Figure 12. Monroe Women of Child-Bearing Age

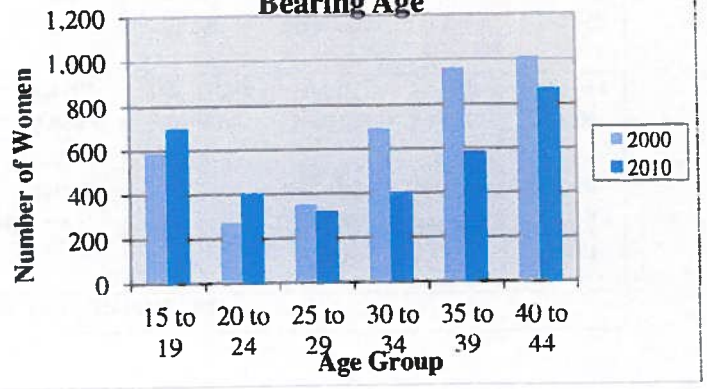


Figure 13 presents the net new housing units constructed from 2001 to 2011 from the State Department of Economic and Community Development. In the past ten years the number of net (of demolitions) new housing units constructed in Monroe ranged from a high 38 in 2005 down to a low of zero in 2009. The town issued permits for six new housing units in 2011. In the five-year look-back period for this projection, there was an average of seven net new housing units constructed. The 2010 census indicated that Monroe had 6,918 housing units of which 97.4 percent were occupied in April 2010.

Figure 13. Net New Housing Units

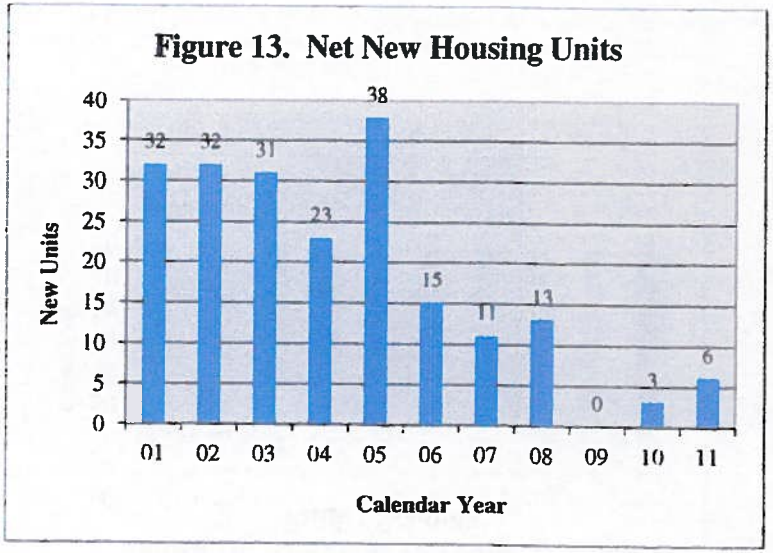


Figure 14 presents my estimate of the number of sales of existing homes. I derived it by taking the number of real estate transactions from The Warren Group/Commercial Record and subtracting the number of new single-family housing units authorized. This is an estimate because of the lag between the time a new house is authorized and it is sold. The estimated number of sales of existing homes ranged from a low of 159 in 2011 to a high of 366 in 2002. In the five-year look back period for the projection, there were 198 sales annually. Sales through July indicate there will be over 200 sales in 2012.

Figure 14. Sales of Existing Homes

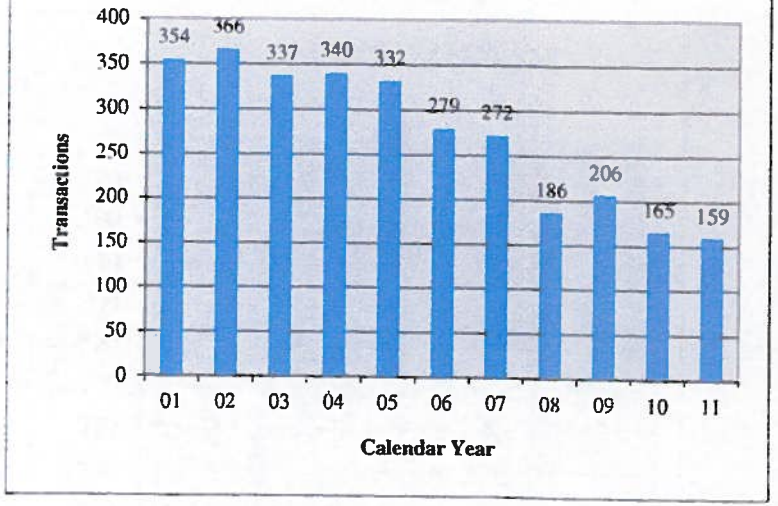


Figure 15 presents the non-public enrollment over the past ten years for students from the town of Monroe. The data are from the records of the Connecticut State Department of Education. Non-public enrollment ranged from a high of 422 students in 2001 to a low of 281 students in 2011, the latest data available. In the past ten years, Monroe enrollment in the state's non-public schools decreased by 141 students or 33.4 percent. The 2011 enrollment represented 7.2 percent of all in-state students from Monroe. That is down 0.7 percentage points from 2010 and below the 9.1 percent recent high set in 2005. I project the non-public enrollment from Monroe will decline by about 10 students in 2012.

Figure 15. Non-Public School Enrollment

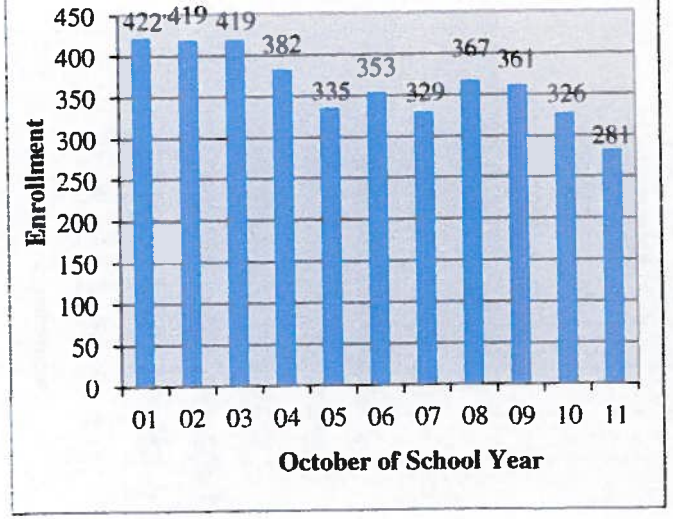


Figure 16 presents the enrollment of Monroe residents in other public schools in Connecticut from 2002 to 2011. The number educated out-of-district rose from 53 in 2002 to 67 in 2011. The number enrolled in area magnet or charter schools rose from 26 to 37 students. In 2011, in addition to the 37 students in magnet or charter schools, seven students attended the agriculture science program at Trumbull High School, nine attended the Henry Abbott state technical high school and 14 attended a special education program run by a regional education service center, an early childhood program or another public school.

Figure 16. Residents Enrolled in Other Public Schools

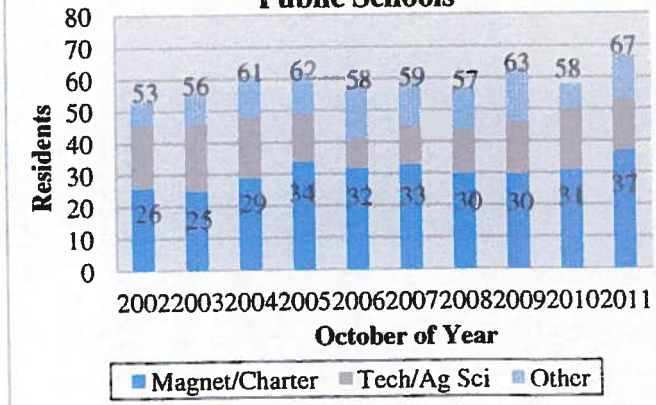


Figure 17 presents the annual drop-out rate for Masuk High for the 2003-04 to 2010-11 school years. Over the past eight years there have been a total of 12 dropouts, or 1.5 per year. In the latest two years that the data are available there were no dropouts. The peak drop-out rate in recent years was 2.75 percent in 2006-07. Many districts have the policy of retaining students with insufficient credits in 9th grade. Monroe does not. Instead the data indicate students with insufficient credits are retained in Grade 12.

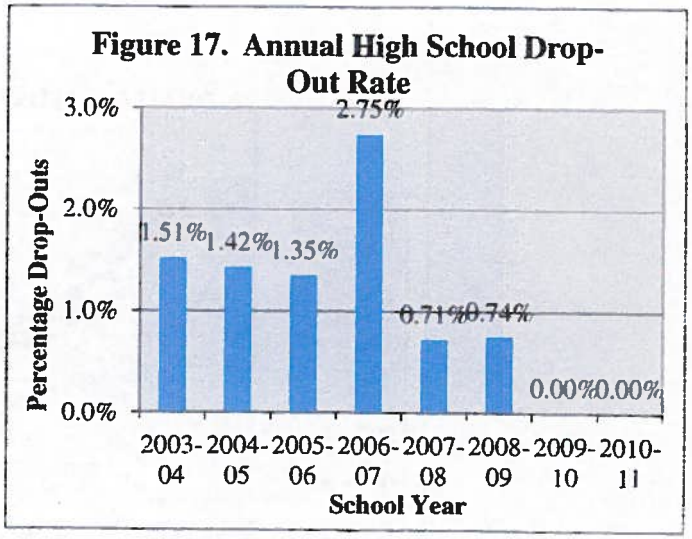
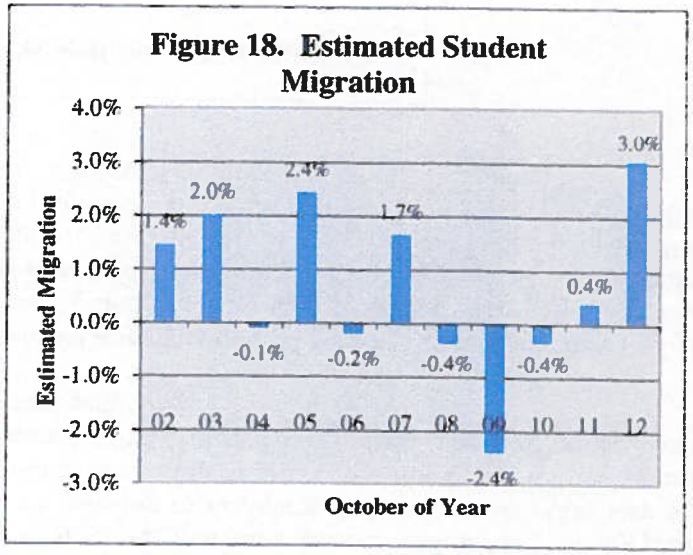


Figure 18 presents the estimated migration of students from Monroe. The calculation takes into account non-residents enrolled in Monroe and Monroe residents enrolled in other public schools. Estimated migration ranged from a low of -2.4 percent in 2009 to a high of +3.1 percent in 2012. The data behind these figures may be found in Appendices A and B. The average migration in the five-year look-back period of the projection was +0.06 percent. This is the third lowest in the past 22 years. The median estimated five-year migration rate was 1.03 percent. The peak five-year rate was +1.84 percent in the 1996 to 2000 period.

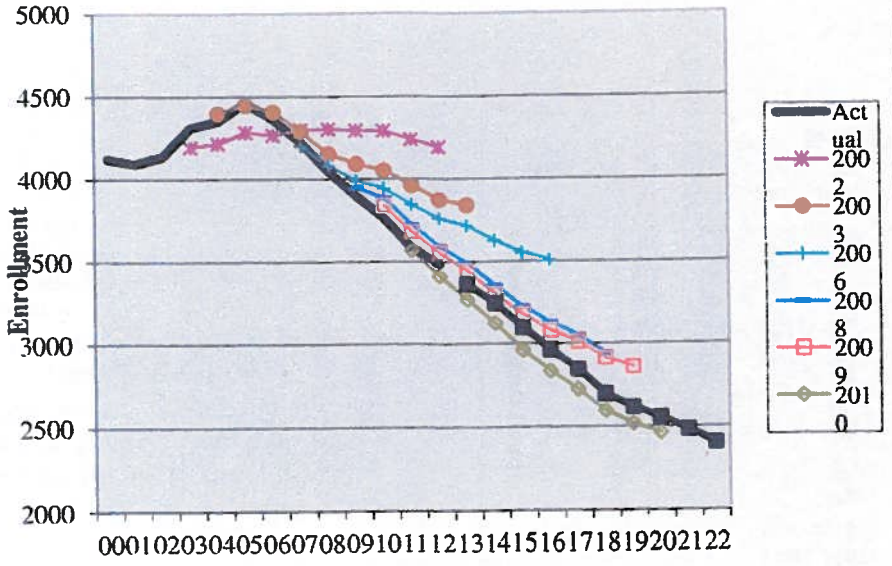


Prior Projections of Enrollment

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 19 presents the enrollment projections that I have run for Monroe since 2002. The six enrollment projections that I did between 2002 and 2010 had one-year error rates that averaged 1.4 percent. The three projections done between 2002 and 2007 had an average five-year error rate of 3.9 percent, which is 0.77 percent annualized.

My 2010 projection for Monroe is running 2.07 percent low after two years, an annual error rate of 1.04 percent. In that analysis, I projected that K-5 enrollment would be 1,314 students in 2012. The actual enrollment of 1,361 was 47 students more than projected. The projection was low by 3.45 percent after two years. I projected that enrollment in grades 6-8 would be 826 students in 2012. The actual enrollment of 854 was 28 students more than projected. The projection was low by 3.28 percent after two years, or 1.65 percent per year. In 2010, I projected that high school enrollment would be 1,209 students in 2012. The actual enrollment of 1,231 was 22 students more than projected. The projection was low by 1.79 percent or 0.90 percent per year. The 2010 projection kept pre-kindergarten enrollment constant at 60 children. The actual enrollment was only 35 children.

Figure 19. Prior Projections of Enrollment



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 2003. I found for the 54 district-level projections that I ran in 2003 the median projection was 6.0 high in predicting 2011 enrollment. That is an annual error rate of 0.7 percent. The absolute error rate (regardless of whether it was high or low) averaged 7.0 percent. That error was less than five percent in 44 percent of the projections and more than 15 percent in 7 percent of the projections. Among the 73 elementary projections run, the median projection was 9.6 percent high (1.2 percent annually). Among the 61 middle school projections run, the median projection was 9.1 percent high (1.1 percent annually). Among the 57 high school projections run, the median projection was 2.8 percent high (-0.35 percent per year). This illustrates what an economic downturn can do to projections run with the cohort-survival method.

Summary

I project that total enrollment will decrease 31 percent, going from 3,481 students in 2012 to about 2,400 students in 2022. I project that K-5 enrollment will move downward from 1,361 in 2012 to about 1,000 students in 2021 and then rebound to about 1,025 students in 2022. This will be about a 340-student loss, a decline of about 25 percent. I believe that future enrollment in the Jockey Hollow Middle School will continue downward from 854 in 2012 to about 530 students at the end of the projection. The net decline between 2012 and 2022 will be about 320 students or almost 38 percent. I project that Masuk High School's enrollment will fall from 1,231 in 2012 to about 810 students in 2022. This will represent a loss of 420 students, a drop of about 34 percent.

The Pew Research Center has linked a decline in birth rates to periods of recession. In the past they have found this effect has been transitory. The number of births in Monroe has been falling since 2001 as the number of women of child-bearing age decreased. The numbers of births in 2010 and 2011 and projected in 2012 are unusually low. It is difficult to determine whether this pattern was based on the economy. I assumed that births would rebound in 2015 to the levels observed in 2008 and 2009. If this assumption does not hold up, the elementary growth that I have projected to start in 2018 may not come to fruition. Any policy decisions based on the projected elementary enrollment after 2018 should be made with caution

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; a modest expansion of area magnet schools and no change in the low drop-out rate. The projection assumes the following population growth factors will not change appreciably: births will average 148 over the 2013 to 2017 period; an 11 percent increase between the number of births and subsequent kindergarten enrollment; and a student migration of +0.06 percent. Additionally, there will be little change in non-public school enrollment; six new housing units will be constructed annually; there will be an average of 247 sales of existing homes and a slowly increasing labor force.

This remains a difficult time to predict future enrollment. A high but improving unemployment rate, a slow economic recovery and tight mortgage lending requirements all make conditions today different than a few years ago. Monroe's 7.6 percent unemployment rate for 2011 was the second highest since these data were reported in the Local Area Unemployment Statistics of the US Department of Labor starting in 1990. These conditions are only a part of the five-year enrollment history that is used to look forward to the next ten years. We cannot know today how long these conditions will continue. The cohort survival method relies on observed data from the recent past. The method is somewhat unresponsive to cyclical 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 Monroe and then make adjustments as necessary.

Appendix A. Monroe Enrollment Projected by Grade to 2022: Grades PK-5

School Year	Birth Year	Births[1]	K	T	1	2	3	4	5	PK	K-5	Total PK-5
2002-03	1997	248	286	15	327	278	340	360	314	42	1,920	1,962
2003-04	1998	250	271	15	319	336	293	346	360	59	1,940	1,999
2004-05	1999	235	279	15	294	314	340	289	345	56	1,876	1,932
2005-06	2000	248	318	15	292	297	328	352	304	42	1,906	1,948
2006-07	2001	201	251	16	314	287	301	328	349	46	1,846	1,892
2007-08	2002	198	219	16	267	316	294	308	332	52	1,752	1,804
2008-09	2003	214	236	15	225	271	316	287	306	52	1,656	1,708
2009-10	2004	202	245	0	251	223	261	302	275	56	1,557	1,613
2010-11	2005	190	199	0	251	246	232	247	300	60	1,475	1,535
2011-12	2006	166	203	0	205	249	243	229	246	46	1,375	1,421
2012-13	2007	169	193	0	212	207	261	246	242	35	1,361	1,396
Projected												
2013-14	2008	150	175	0	200	211	210	256	249	35	1,301	1,336
2014-15	2009	157	178	0	181	199	214	206	259	35	1,237	1,272
2015-16	2010	137	161	0	184	180	202	210	208	35	1,145	1,180
2016-17	2011	139	158	0	167	183	183	198	212	35	1,101	1,136
2017-18	2012	131	151	0	164	166	186	180	200	35	1,047	1,082
2018-19	2013	138	156	0	156	164	169	183	182	35	1,010	1,045
2019-20	2014	146	165	0	162	156	167	166	185	35	1,001	1,036
2020-21	2015	154	174	0	171	162	158	164	168	35	997	1,032
2021-22	2016	151	173	0	180	170	165	155	166	35	1,009	1,044
2022-23	2017	153	174	0	179	179	173	162	157	35	1,024	1,059
Projection			1.036	0.997	1.016	0.982	1.011					

Appendix A. Monroe Enrollment Projected by Grade to 2022: Grades PK-5

Annual Growth								Estimated Migration[4]
2003	1.084	0.050	1.131	1.028	1.054	1.018	1.000	2.00%
2004	1.187	0.052	1.102	0.984	1.012	0.986	0.997	-0.05%
2005	1.282	0.055	1.064	1.010	1.045	1.035	1.052	2.43%
2006	1.249	0.054	1.003	0.983	1.013	1.000	0.991	-0.20%
2007	1.106	0.050	1.084	1.006	1.024	1.023	1.012	1.65%
2008	1.103	0.064	1.051	1.015	1.000	0.976	0.994	-0.36%
2009	1.213	0.068	1.083	0.991	0.963	0.956	0.958	-2.39%
2010	1.047		1.024	0.980	1.040	0.946	0.993	-0.35%
2011	1.223		1.030	0.992	0.988	0.987	0.996	0.37%
2012	1.142		1.044	1.010	1.048	1.012	1.057	3.04%
3-Year Ave.	1.137		1.033	0.994	1.025	0.982	1.015	
Weighted 3-Year	1.153		1.036	0.999	1.027	0.993	1.026	
5-Year Ave.	1.146		1.047	0.998	1.008	0.976	1.000	
Weighted 5-Year	1.151		1.042	0.997	1.016	0.982	1.011	

[1] 2010 and 2011 births are preliminary. The 2012 births were based upon in-state births through July. Births in 2015 set to the average of 2008 and 2009. 2016-2017 births were based on projected growth in ages 0-5 by the Connecticut State Data Center applied to the prior year's births.
[2] Growth rates based on weighted 5-year averages of annual growth rates by grade.
[3] Kindergarten based on weighted five-year averages of the yields from births five- and six-years ago and retention.
[4] Estimated by comparing the enrollment in grades 3-8 one year with the enrollment in grades 2-7 the prior year with an adjustment for non-residents in and residents out to public schools.

Appendix B. Monroe Enrollment Projected by Grade to 2022: Grades 6-12											
School Year	6	7	8	9	10	11	12	9-12 Tuition-ed	6-8 Total	9-12 Total	District Total
2002-03	334	320	301	320	280	310	271	37	955	1,218	4,135
2003-04	318	339	331	288	329	282	311	113	988	1,323	4,310
2004-05	363	313	337	310	290	323	273	208	1,013	1,404	4,349
2005-06	345	369	312	332	318	291	326	218	1,026	1,485	4,459
2006-07	303	349	364	290	333	319	296	218	1,016	1,456	4,364
2007-08	347	309	359	360	296	328	322	96	1,015	1,402	4,221
2008-09	333	346	313	331	365	294	334	21	992	1,345	4,045
2009-10	302	331	346	300	332	367	303	0	979	1,302	3,894
2010-11	277	302	332	303	300	332	374	0	911	1,309	3,755
2011-12	302	286	300	315	307	298	352	0	888	1,272	3,581
2012-13	253	313	288	296	322	298	315	0	854	1,231	3,481
Projected											
2013-14	245	258	314	279	300	318	311	0	817	1,208	3,361
2014-15	252	250	259	304	282	297	332	0	761	1,215	3,248
2015-16	262	257	251	251	308	279	310	0	770	1,148	3,098
2016-17	210	267	258	243	254	305	291	0	735	1,093	2,964
2017-18	214	214	268	250	246	251	318	0	696	1,065	2,843
2018-19	202	218	214	259	253	243	262	0	634	1,017	2,696
2019-20	184	206	218	207	262	250	254	0	608	973	2,617
2020-21	187	188	206	211	210	259	261	0	581	941	2,554
2021-22	170	191	188	199	214	208	270	0	549	891	2,484
2022-23	168	173	191	182	201	212	217	0	532	812	2,403
Projection Growth	1.011	1.020	1.002	0.968	1.012	0.989	1.044				

Appendix B. Monroe Enrollment Projected by Grade to 2022: Grades 6-12

Annual Growth Rates								Estimated Migration[2]
2003	1.013	1.015	1.034	0.957	1.028	1.007	1.003	2.00%
2004	1.008	0.984	0.994	0.937	1.007	0.982	0.968	-0.05%
2005	1.000	1.017	0.997	0.985	1.026	1.003	1.009	2.43%
2006	0.997	1.012	0.986	0.929	1.003	1.003	1.017	-0.20%
2007	0.994	1.020	1.029	0.989	1.021	0.985	1.009	1.65%
2008	1.003	0.997	1.013	0.922	1.014	0.993	1.018	-0.36%
2009	0.987	0.994	1.000	0.958	1.003	1.005	1.031	-2.39%
2010	1.007	1.000	1.003	0.876	1.000	1.000	1.019	-0.35%
2011	1.007	1.032	0.993	0.949	1.013	0.993	1.060	0.37%
2012	1.028	1.036	1.007	0.987	1.022	0.971	1.057	3.04%
3-Year Ave.	1.014	1.023	1.001	0.937	1.012	0.988	1.045	
Weighted 3-Year	1.018	1.029	1.002	0.956	1.016	0.983	1.052	
5-Year Ave.	1.006	1.012	1.003	0.938	1.010	0.993	1.037	
Weighted 5-year	1.011	1.020	1.002	0.946	1.012	0.989	1.044	

[1] Based on weighted 5-year averages of annual growth rates by grade except for the 2-year average used for Grade 9..
[2] Estimated by comparing the enrollment in grades 3-8 one year with the enrollment in grades 2-7 the prior year with an adjustment for non-residents in and residents out to public schools.