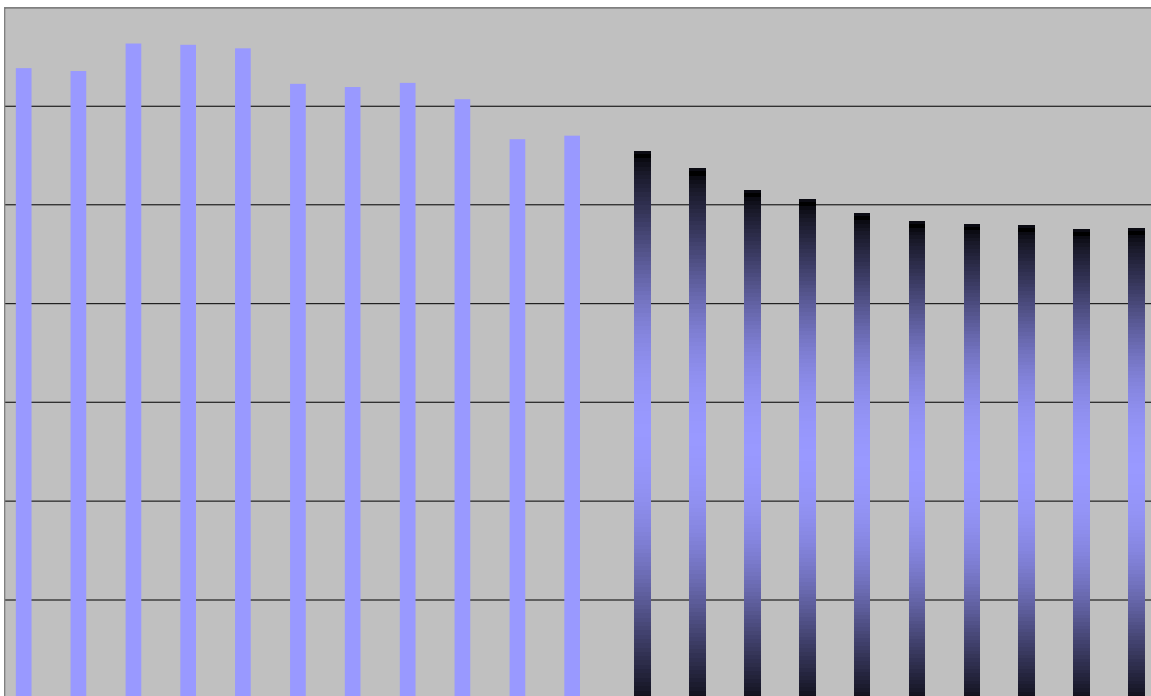


# MANSFIELD PUBLIC SCHOOLS ENROLLMENT BY SCHOOL PROJECTED TO 2028



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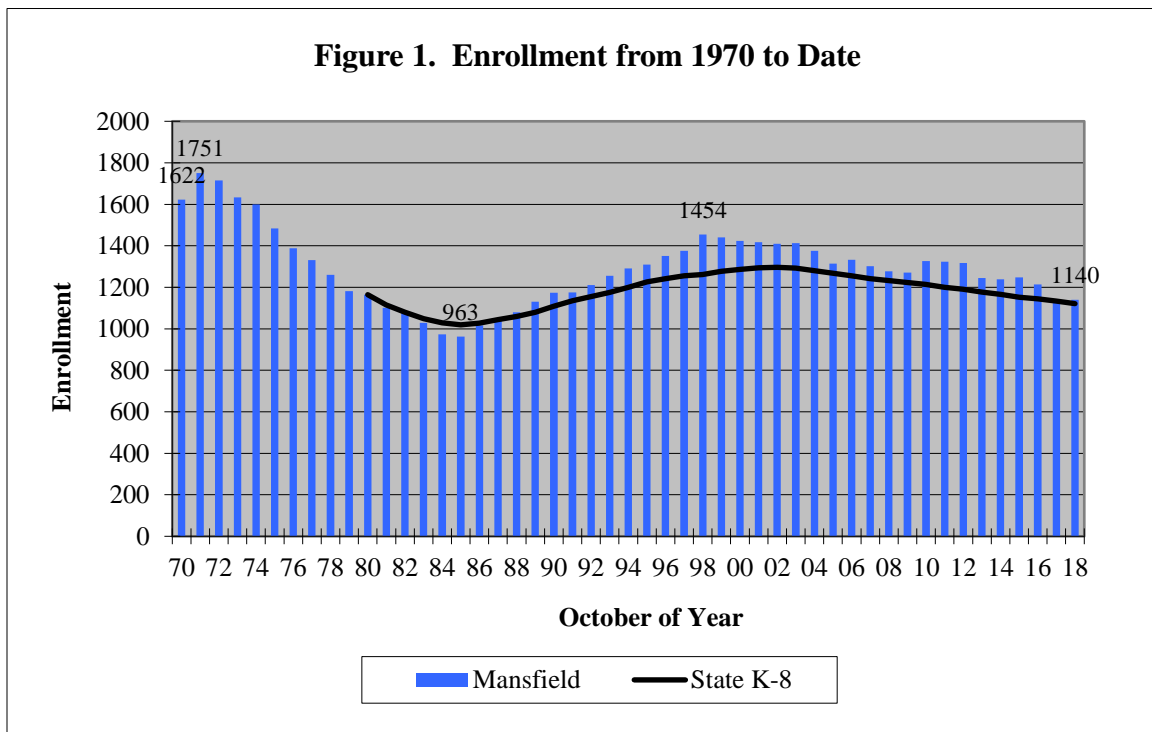
## Introduction

This report is an update of the ten-year projection of enrollment for the Mansfield Public Schools done on October 13, 2018. It is based on students attending the Mansfield Public Schools on October 1 of the school year. The projection is divided into the two grade levels that represent how the Mansfield schools are organized: PK-4 and 5-8. It includes projections for the town's three elementary schools – Dorothy C. Goodwin, Southeast and Annie E. Vinton. The report includes 49 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, the labor force, housing, non-public enrollment and migration - 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 projections by school as a critical component of determining the size of the project for which reimbursement is eligible. This projection would be appropriate for all four schools.

## 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 Mansfield from 1970 to date.



Enrollment in the Mansfield Public Schools peaked at 1,751 students in 1971. Between 1971 and 1985 enrollment fell to 963 students. In those 14 years, enrollment declined by 788 students or 45.0 percent. Between 1985 and 1998 enrollment grew by 491 students, or 51.0 percent, and reached a secondary peak of 1,454 students. The 2018 enrollment was 1,140 students, 314 students (21.6 percent) below the 1998 level.

Mansfield's enrollment pattern is fairly similar to that of the state's public schools in grades K-8. I have tracked public school K-8 enrollment since 1980. Public school K-8 enrollment bottomed in 1985, the same year as Mansfield. It reached a secondary peak in 2002. In those 17 years, state K-8 enrollment grew by 27.2 percent. Mansfield's period of growth was slightly shorter than the state's, but much more intense. The state's public-school K-8 enrollment has been declining for 15 years and it is expected to decline in 2018. Between 2002 and 2018, I project it will have fallen by 12.8 percent. Mansfield's downturn started three years before the state's. The second decline in Mansfield has been very slightly deeper than the state's. Had Mansfield followed the state pattern of enrollment since 1980, it would have had 1,122 students in October of 2018 instead of the 1,140 that were enrolled on that date.

### Current Enrollment

Table 1 and Figure 2 provide a picture of where Mansfield residents in grades PK-8 attended school on October 1, 2018. The non-public figure is projected. They show that 96.7 percent of Mansfield's elementary school-age residents attended the Mansfield Public Schools in 2018. Relatively few (2.1 percent) of the school-age residents attended non-public schools in state. Eight school-age residents attended magnet schools (0.7 percent) and one attended a public school in another district (0.1 percent). The district paid for five students (0.4 percent) to attend non-public special education facilities. There were no non-residents enrolled in the Mansfield Public Schools in 2018. The projections in this report are based on the 1,140 students who attended the Mansfield Public Schools on October 1, 2018 (see "Total Enrollment" below.)

<b>Table 1. 2018 Enrollment</b>		
	Number	Percent
<b>Residents</b>		
A. Mansfield Public	1,140	96.7%
B. Other Public	1	0.1%
C. Magnets	8	0.7%
D. Non-Public	24	2.1%
E. Non-Public (SE)	5	0.4%
<b>Total (A+B+C+D+E)</b>	1,178	
F. Non-Residents	0	
<b>Total Enrollment (A+F)</b>	1,140	

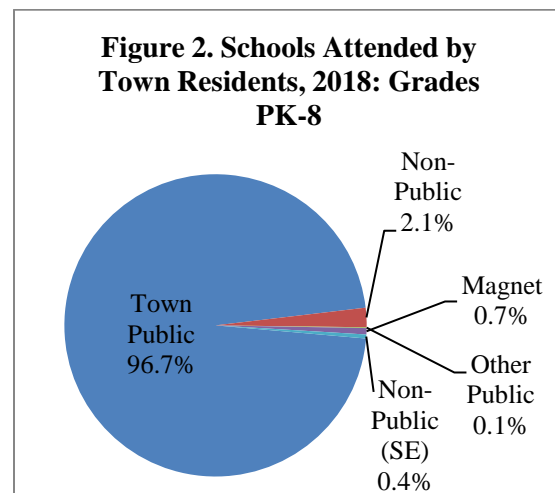
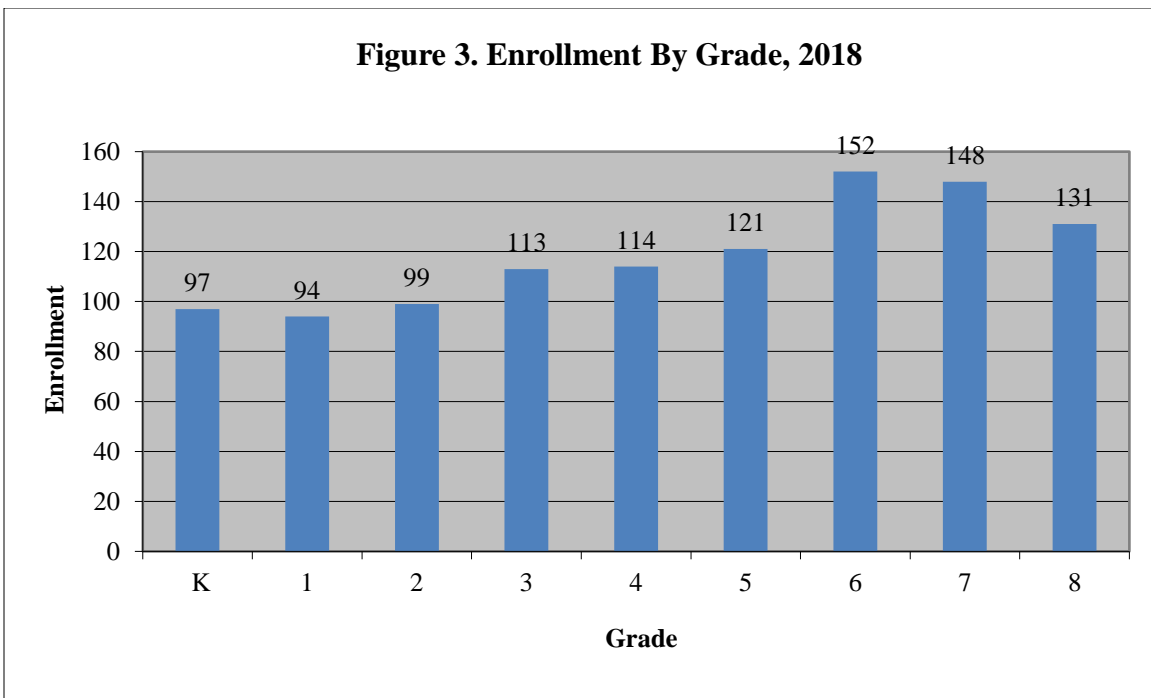


Figure 3 below shows the October 2018 grade-by-grade enrollment of students in the Mansfield Public Schools. The children in pre-kindergarten programs are not shown. Grades 6-8 averaged 144 students, grades 3-5 averaged 116 students and grades K-2 averaged only 97 students. This is a classic pattern for a future decline. If current conditions continue, this year's kindergarten class of 97 children will grow to 106 students when it enters grade 5 in 2023. That is below the current enrollment for that grade. 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 Appendix B). For example, if the number of fifth graders this year is 122 and the number of fourth graders last year was 120, then the growth rate is 1.0167. A growth rate above 1.000 indicates that students moved in, transferred from a non-public school or they were retained. A growth rate below 1.000 means that students moved out, transferred or were not promoted from the prior grade. I did this for each elementary school and the middle school. Unlike the earlier projection, I was not able to adjust the 2013 rates in grades 2, 5, and 6 to reflect the opening of the Charles Barrows STEM Academy. The data were not available by school. For each grade I calculate four different averages of the annual growth rates: a three-year average, a weighted three-year average, a five-year average and a weighted five-year average. I chose the five-year average for this projection because I wanted the greater stability it affords the school projections. The average growth rate for a grade was applied to the prior year’s enrollment from the prior grade at each elementary school. The projection builds grade by grade and year by year. The results were summed to get the district total for grades K-4. Enrollments in grades 5-8 were built up from the district as a whole.

In the earlier projection, I broke 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. These data were not available by school. However, because relatively few children enrolled in kindergarten are either repeaters (zero in 2018) or late entrants (three in 2018), using the traditional method of comparing kindergarten enrollment to births five years prior will have little impact.

To extend the projection beyond four years, I need to estimate births. The State Department of Public Health recorded 86 births in 2015, the latest official figure. The provisional counts are 84 births in 2016 and 83 in 2017. To estimate births in 2018, I started with the 58 in-state births recorded through October. There were 70 births in that period last year. I expect 13 births in November to December based on the ratio of November to December births to January to October births observed in Mansfield over the past

five years. Adding one out-of-state birth, I expect there will be only 71 births to Mansfield residents in 2018. I set births in 2019 to 2023 at 79, the average of the past three years.

Enrollment data from 2008 to 2018 were taken from files provided by the Connecticut State Department of Education. Their data system records as residents, students of staff who live out-of-town. Note that current district-level data on the Department's website may include special education students educated outside of the district and exclude students in a Detention Center. These are recent changes to the way the Department reports enrollment data. Projections require consistency. The data I have chosen for this analysis **exclude** special education students educated outside of the district and may **include** students in a Detention Center. Enrollment data can change daily until an audited final file is closed. This process can take up to two years. Thus, it is possible that the enrollment data in this report could differ slightly from data in earlier reports and that may have been reported by your Board of Education to the public. Births from 1980 to 2018 were provided by the Healthcare Quality, Statistics, Analysis and Reporting Unit of the State Department of Public Health.

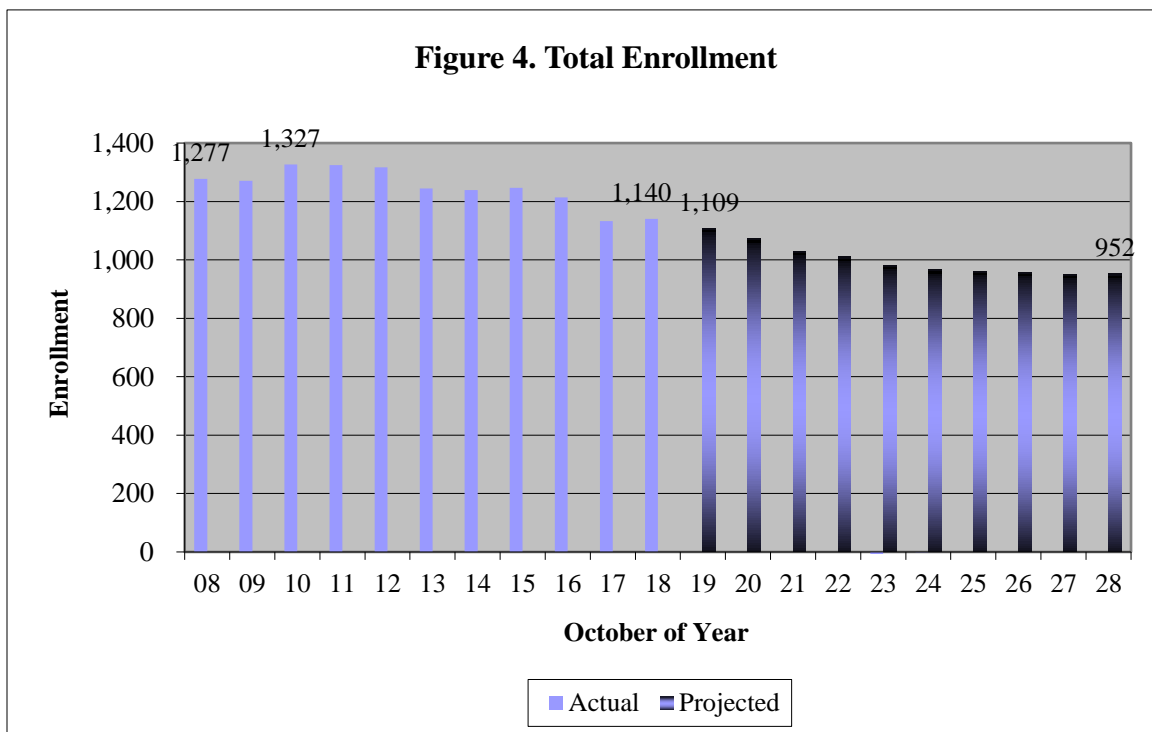
## Total Enrollment

Table 2 and Figure 4 present the observed total enrollment in Mansfield from 2008 to 2018 and projected enrollment through 2028. Detailed grade-by-grade data may be found in Appendix A. Between 2008 and 2010 enrollment grew from 1,277 to 1,327 students. It then fell irregularly to 1,140 students with large losses in 2013 and 2017. That represented a 10-year loss of 137 students or 10.7 percent. Grade K-8 enrollment in the state’s public schools decreased by 9.0 percent in that interval.

Mansfield’s decline of 10.7 percent between 2008 and 2018 was smaller than most similar districts in the region. Enrollment grew by 4.0 percent in grades PK-8 in Ellington. All other similar districts had losses in grade PK-8 enrollment that were larger than Mansfield. Enrollment declined by 10.8 percent in Bolton, 24.6 percent in Columbia, 29.8 percent in Pomfret, 30.7 percent in Tolland, 42.8 percent in Andover (grades PK-6), and 45.1 percent in Hebron (grades PK-6).

I anticipate that enrollment will decline throughout the projection period. Next year, I anticipate that total enrollment will be about 30 students less than this year’s. I project that enrollment could be about 950 students in 2028. That would be about 190 students below the current enrollment, a decline of between sixteen and 17 percent. I have projected that K-8 enrollment statewide will be down 5.7 percent in that period. Your total enrollment should average about 1,000 students over the ten-year projection period. This compares to an average total enrollment of 1,246 students over the past ten years.

Year	Students	Percent Change
2008	1,277	
2009	1,271	-0.5%
2010	1,327	4.4%
2011	1,324	-0.2%
2012	1,317	-0.5%
2013	1,245	-5.5%
2014	1,239	-0.5%
2015	1,247	0.6%
2016	1,214	-2.6%
2017	1,133	-6.7%
2018	1,140	0.6%
2019	1,109	-2.7%
2020	1,073	-3.2%
2021	1,029	-4.1%
2022	1,010	-1.8%
2023	982	-2.8%
2024	966	-1.6%
2025	961	-0.5%
2026	958	-0.3%
2027	950	-0.8%
2028	952	0.2%





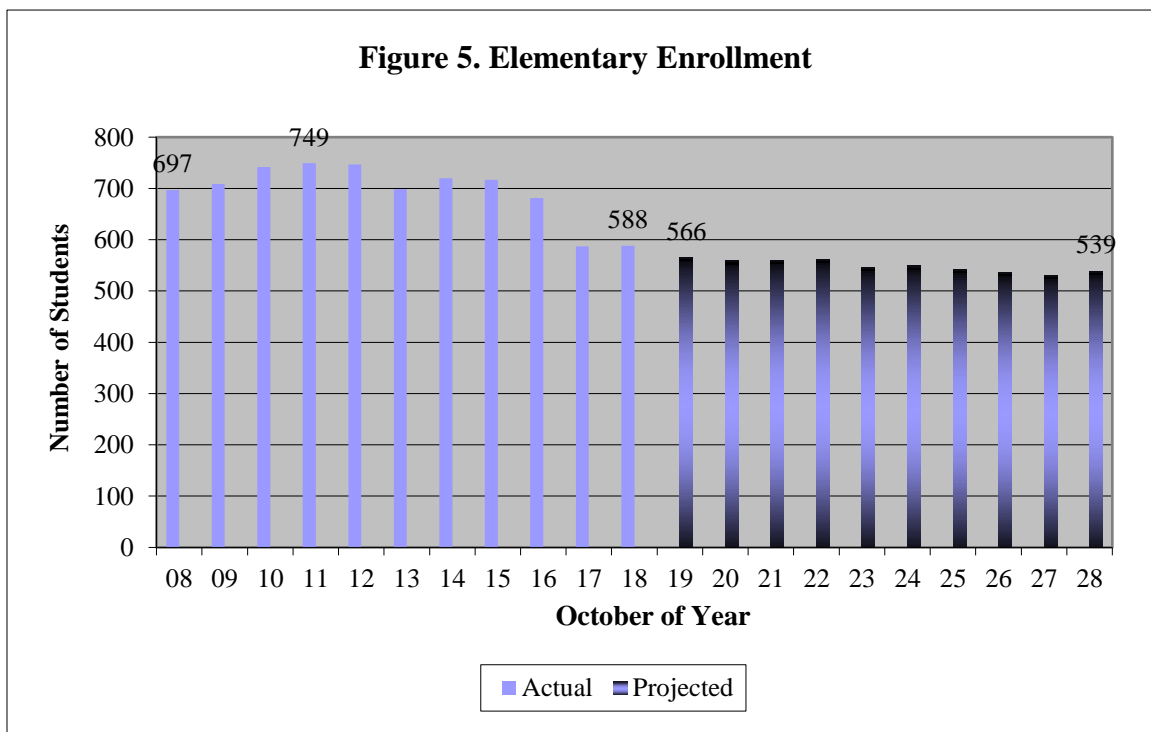
## Elementary School Enrollment

Table 3 and Figure 5 present actual enrollment from 2008 to 2018 and projected enrollment through 2028 at the Mansfield's three elementary schools. Grade PK-4 enrollment grew from 697 students in 2008 to 749 students in 2011. It fell afterwards. By 2018, elementary enrollment was down to 588 students. Between 2008 and 2018 enrollment fell by 109 students or 15.6 percent. The state public school enrollment in grades K-4 fell 11.0 percent in that interval.

I project that next year's enrollment at the schools will be about 20 students less than this year's as a 4<sup>th</sup> grade of 114 students exits and a kindergarten class projected to be 86 children enters. I anticipate enrollment will decline to about 530 students in 2027 and then recover very slightly. The last time PK-4 enrollment was below 550 students was 1984. The projected 2028 enrollment of 539 students would represent a loss of over eight percent. Statewide, I have projected a 3.4 percent decrease in grade K-4 public school enrollment in that period. Over the ten-year projection period, I believe enrollment at your elementary schools will average about 550 students. This is below the average of 694 students observed over the past ten years.

These figures include pre-kindergarten children. In the past ten years, pre-kindergarten enrollment ranged from 63 to 91 children. Each of your three elementary schools has two pre-kindergarten classes with a target enrollment of 16 children each. That gives you a pre-kindergarten capacity of 96 children. There were only 71 children enrolled this year. I kept future pre-kindergarten enrollment at that figure.

Year	Students	Percent Change
2008	697	
2009	709	1.7%
2010	742	4.7%
2011	749	0.9%
2012	747	-0.3%
2013	699	-6.4%
2014	720	3.0%
2015	717	-0.4%
2016	681	-5.0%
2017	587	-13.8%
2018	588	0.2%
2019	566	-3.7%
2020	559	-1.2%
2021	560	0.2%
2022	562	0.4%
2023	546	-2.8%
2024	549	0.5%
2025	542	-1.3%
2026	536	-1.1%
2027	531	-0.9%
2028	539	1.5%



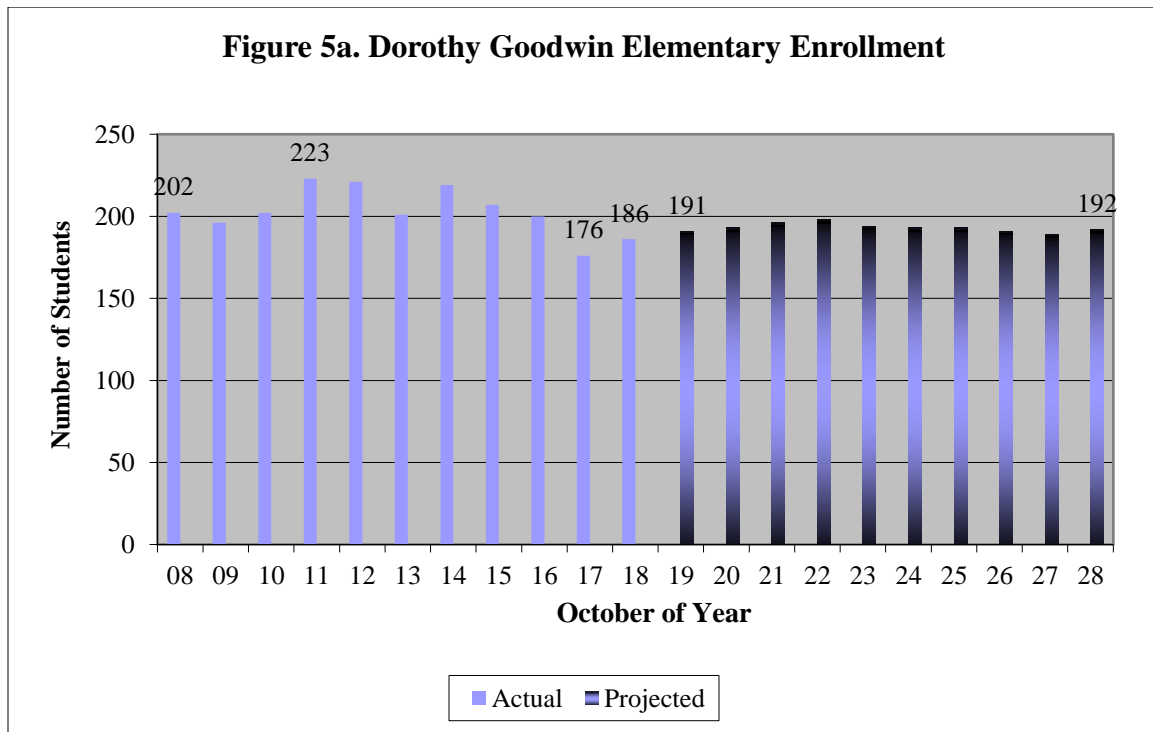
## Dorothy C. Goodwin Elementary Enrollment

Table 3a and Figure 5a present actual enrollment from 2008 to 2018 and projected enrollment through 2028 at the Dorothy C. Goodwin Elementary School. Between 2008 and 2011 the school’s enrollment grew from 202 students to 223 students. Enrollment then dropped to 176 students in 2017 before recovering to 186 students in 2018. Between 2008 and 2018 enrollment declined by 16 students or 7.9 percent. In that interval, district PK-4 enrollment fell by 15.6 percent and state public school enrollment in grades K-4 fell by 11.0 percent.

I project that next year's enrollment at the Dorothy C. Goodwin Elementary School will be about five students more than this year. I anticipate enrollment will increase to about 200 students in 2022 and then dip slightly below that level through 2028. Between 2018 and 2028, I project the school’s enrollment will grow by 5-10 students or about three percent. I expect that the decline in the district’s elementary school enrollment will be 8.3 percent. Statewide, I have projected a 3.4 percent decrease in grade K-4 public school enrollment in that period. Over the ten-year projection period, I believe enrollment at the Goodwin elementary school will average about 195 students. This is slightly below the average of 203 students observed over the past ten years.

These figures include pre-kindergarten children. In the past ten years, the school’s pre-kindergarten enrollment ranged from 17 to 30 children. There were 24 children enrolled this year. The school has the capacity to enroll 32 pre-kindergarten students.

Year	Students	Percent Change
2008	202	
2009	196	-3.0%
2010	202	3.1%
2011	223	10.4%
2012	221	-0.9%
2013	201	-9.0%
2014	219	9.0%
2015	207	-5.5%
2016	200	-3.4%
2017	176	-12.0%
2018	186	5.7%
2019	191	2.7%
2020	193	1.0%
2021	196	1.6%
2022	198	1.0%
2023	194	-2.0%
2024	193	-0.5%
2025	193	0.0%
2026	191	-1.0%
2027	189	-1.0%
2028	192	1.6%



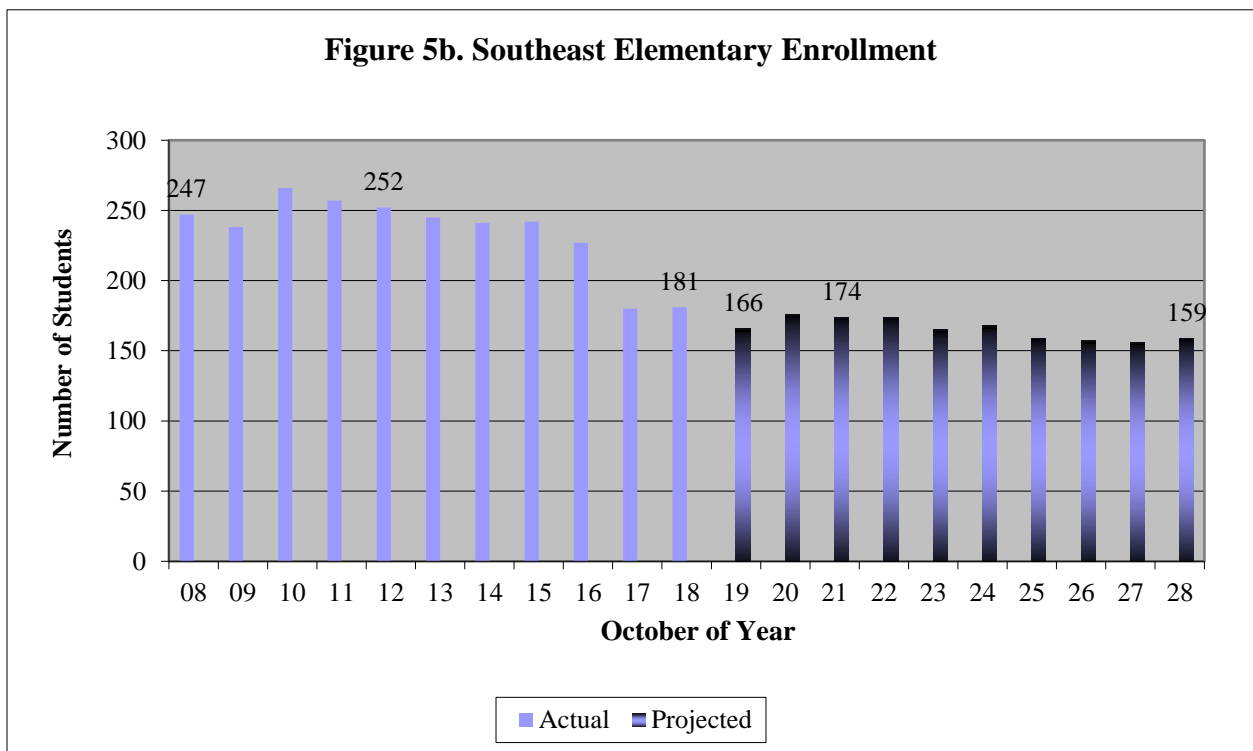
## Southeast Elementary School Enrollment

Table 3b and Figure 5b present actual enrollment from 2008 to 2018 and projected enrollment through 2028 at the Southeast Elementary School. Between 2008 and 2018, the school's enrollment fell from 247 to 181 students. In between it hit a high of 266 students in 2010. Between 2008 and 2018 enrollment fell by 66 students or 26.7 percent. In that interval, district PK-4 enrollment fell by 15.6 percent and state public school enrollment in grades K-4 fell by 11.0 percent.

I project that next year's enrollment at the Southeast Elementary School will be about 15 students less than this year's as a grade 4 class of 40 students exits and a kindergarten class expected to be 24 children enters. I anticipate the peak enrollment over the next ten years will be 176 students in 2020. I project the enrollment in 2028 could be about 160 students. Between 2018 and 2028, I project the school's enrollment could decline by 20-25 students or about 12 percent. I expect that the decline in the district's elementary school enrollment will be 8.3 percent. Statewide, I have projected a 3.4 percent decrease in grade K-4 public school enrollment in that period. Over the ten-year projection period, I believe enrollment at the Southeast Elementary School will average 165 students. This is well below the average of 233 students observed over the past ten years.

These figures include pre-kindergarten children. In the past ten years, the school's pre-kindergarten enrollment ranged from 21 to 30 children. There were 22 children enrolled this year. The school has the capacity to enroll 32 pre-kindergarten students.

Year	Students	Percent Change
2008	247	
2009	238	-3.6%
2010	266	11.8%
2011	257	-3.4%
2012	252	-1.9%
2013	245	-2.8%
2014	241	-1.6%
2015	242	0.4%
2016	227	-6.2%
2017	180	-20.7%
2018	181	0.6%
<hr/>		
2019	166	-8.3%
2020	176	6.0%
2021	174	-1.1%
2022	174	0.0%
2023	165	-5.2%
2024	168	1.8%
2025	159	-5.4%
2026	157	-1.3%
2027	156	-0.6%
2028	159	1.9%



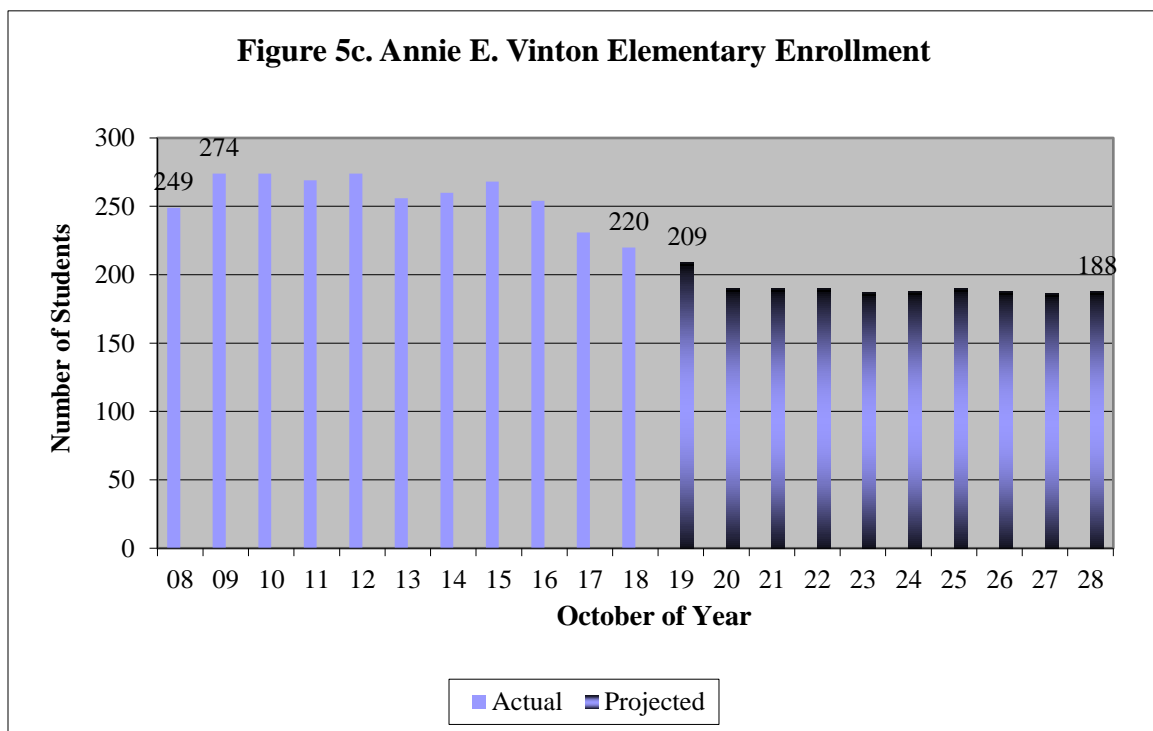
## Annie E. Vinton Elementary School Enrollment

Table 3c and Figure 5c present actual enrollment from 2008 to 2018 and projected enrollment through 2028 at the Annie E. Vinton Elementary School. Between 2008 and 2009, the school's enrollment grew from 249 to 274 students. By 2018, enrollment had fallen to 220 students. Between 2008 and 2018 enrollment declined by 29 students or 11.6 percent. In that interval, district PK-4 enrollment fell by 15.6 percent and state public school enrollment in grades K-4 fell by 11.0 percent.

I project that next year's enrollment at the Annie E. Vinton Elementary School will be about ten students less than this year's as a grade 4 class of 43 students exits and a kindergarten class expected to be 29 children enters. I anticipate enrollment will decline to 190 students in 2020 and remain around that level through 2028. Between 2018 and 2028, I project the school's enrollment will decline by about 30 students or 14-15 percent. I expect that the decline in the district's elementary school enrollment will be 8.3 percent. Statewide, I have projected a 3.4 percent decrease in grade K-4 public school enrollment in that period. Over the ten-year projection period, I believe enrollment at the Vinton elementary school will average about 190 students. This is below the average of 258 students observed over the past ten years.

These figures include pre-kindergarten children. In the past ten years, the school's pre-kindergarten enrollment ranged from 22 to 33 children. There were 25 children enrolled this year. The school has the capacity to enroll 32 pre-kindergarten students.

Year	Students	Percent Change
2008	249	
2009	274	10.0%
2010	274	0.0%
2011	269	-1.8%
2012	274	1.9%
2013	256	-6.6%
2014	260	1.6%
2015	268	3.1%
2016	254	-5.2%
2017	231	-9.1%
2018	220	-4.8%
2019	209	-5.0%
2020	190	-9.1%
2021	190	0.0%
2022	190	0.0%
2023	187	-1.6%
2024	188	0.5%
2025	190	1.1%
2026	188	-1.1%
2027	186	-1.1%
2028	188	1.1%

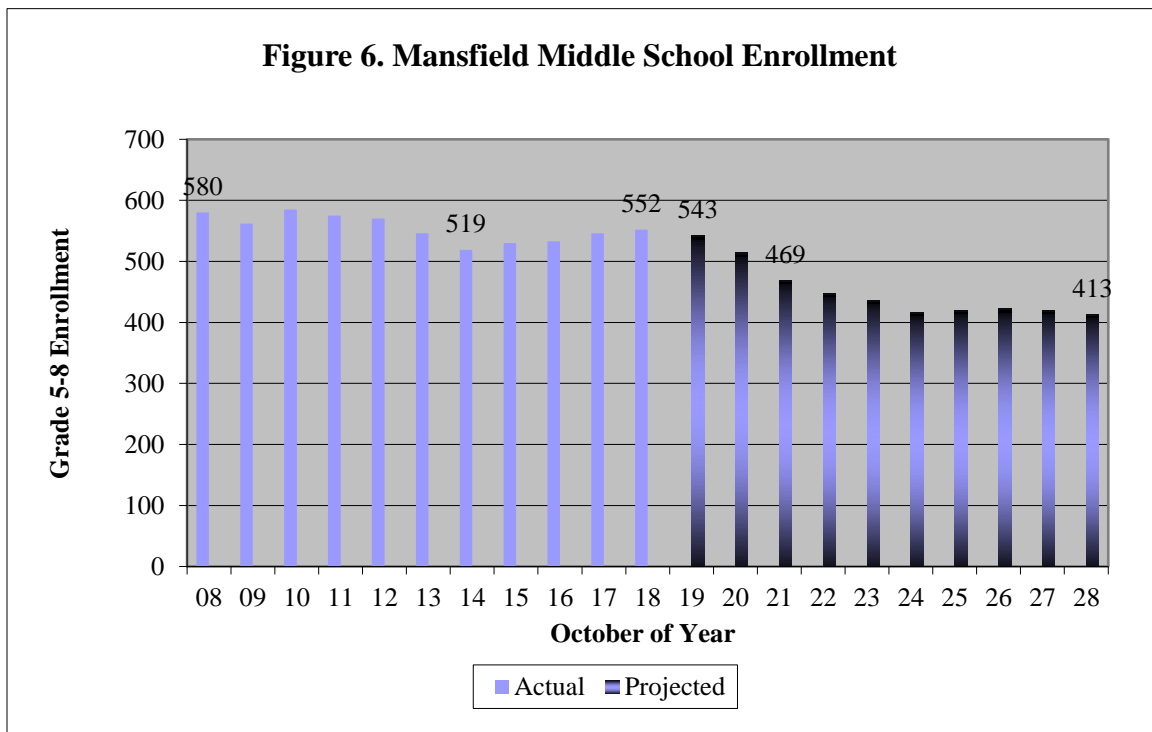


## Mansfield Middle School Enrollment

Table 4 and Figure 6 present past enrollment from 2008 to 2018 and projected future enrollment to 2028 at the Mansfield Middle School. Over the past ten years, enrollment declined from 580 students in 2008 to 519 students in 2014 and then rebounded to 552 students in 2018. The recent peak was 677 students in 2003. Between 2008 and 2018, enrollment declined by 28 students or 4.8 percent. Public school enrollment in grades 5-8 statewide decreased 6.6 percent between 2008 and 2018.

I believe that next year's enrollment at Mansfield Middle School enrollment will be almost 10 fewer students than this year's. I project that enrollment will fall to close to 420 students in 2024 and change little through 2028. I anticipate that the middle school enrollment will be about 415 students. The last time enrollment in grades 5-8 was close to that level was 1987. The projected 2028 enrollment would be about 140 students below the current level, a decline of over 25 percent. I project that public school enrollment in grades 5-8 statewide will decline by 8.4 percent in that period. Over the ten-year projection period, enrollment at the Mansfield Middle School is expected to average about 450 students. This is well below the average of 552 students observed over the past ten years.

Year	Students	Percent Change
2008	580	
2009	562	-3.1%
2010	585	4.1%
2011	575	-1.7%
2012	570	-0.9%
2013	546	-4.2%
2014	519	-4.9%
2015	530	2.1%
2016	533	0.6%
2017	546	2.4%
2018	552	1.1%
2019	543	-1.6%
2020	514	-5.3%
2021	469	-8.8%
2022	448	-4.5%
2023	436	-2.7%
2024	417	-4.4%
2025	419	0.5%
2026	422	0.7%
2027	419	-0.7%
2028	413	-1.4%



## Factors Affecting the Projection

The primary reasons for elementary enrollment change lie in the births and yield from the birth cohort. Figure 7 presents the actual births from 1980 to 2015 and provisional and estimated births through 2023. Births ranged from a high of 150 in 1988 to a low of 75 in 2014. There was an official count of 86 births in 2015. The provisional counts of births are 84 in 2016 and 83 in 2017. In-state births through October of 2018 indicate there will only be 71 births that year. From 2000 to 2008 there was an average of 113 births annually. In the five years from 2009 to 2013 (this fall's kindergarten through 4<sup>th</sup> graders) births averaged 91. Births in the 2014 through 2018 period (the K-4 students of 2023) will likely average 80. The projection in years 2024 to 2028 assumes an average of 79 births annually between 2019 and 2023.

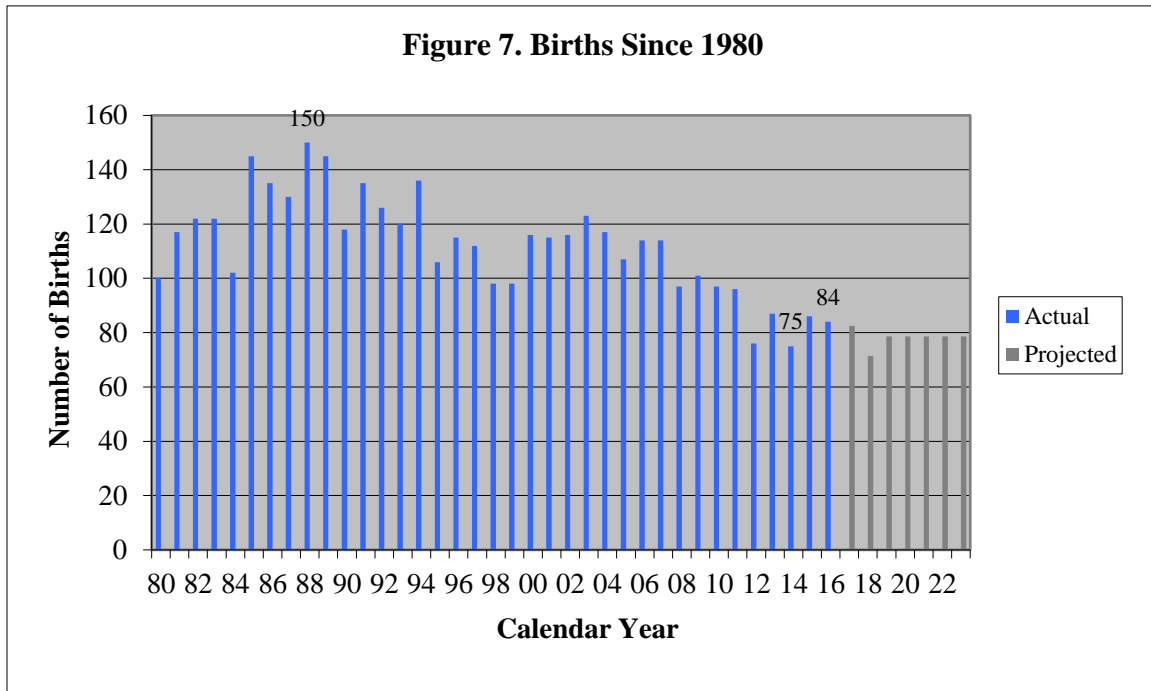
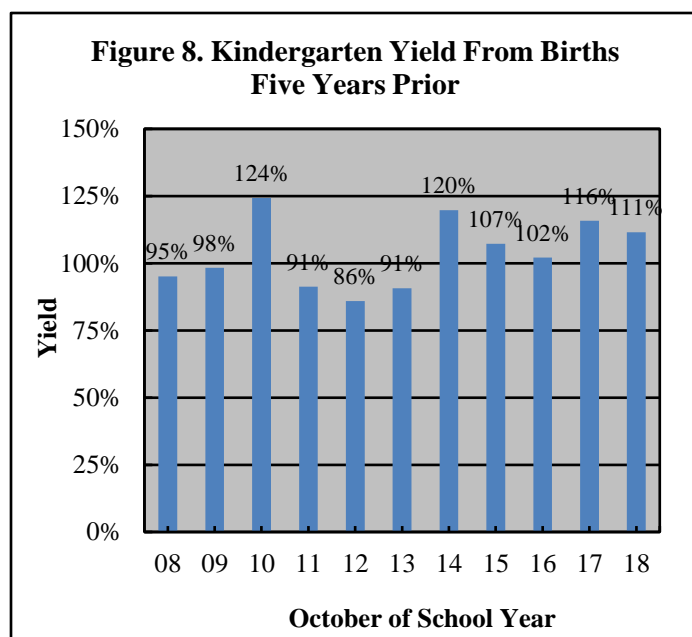


Figure 8 depicts the kindergarten yield from births five years prior in October of the 2008 to 2018 school years. Mansfield has very few students who are retained in kindergarten or who delay entry into kindergarten. There were 87 babies born to Mansfield residents in 2013 and 97 children enrolled in kindergarten in October of 2018. That is a yield of 111 percent. In the past ten years, the yield ranged from a low of 86 percent in 2008 to a high of 124 percent in 2010. The projection used a yield of 111.3 percent, the average over the past five years. The median yield since full-day kindergarten started in 2008 was 109.8 percent.

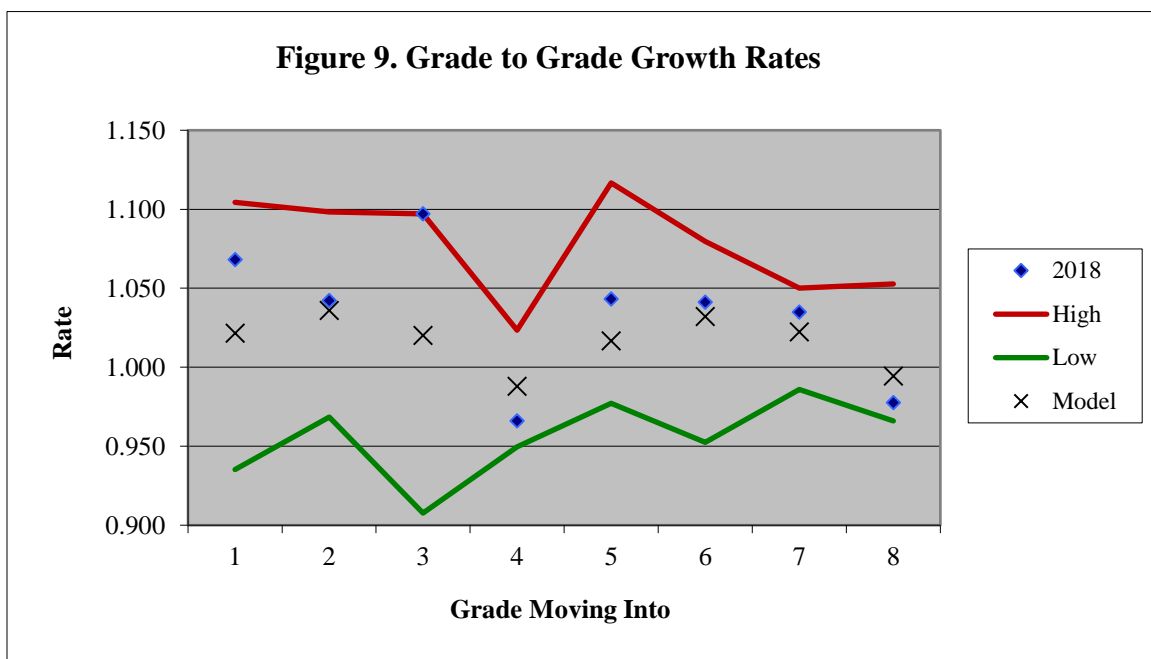


The correlation between births and kindergarten enrollment five-year later from the past 12 years (when full-day kindergarten was available) was a moderate to high 0.79. If this relationship were used to predict kindergarten enrollment, the estimate would have been off by an average of eight children annually over the past ten years. The cohort survival method cannot overcome the underlying unpredictability of kindergarten enrollment from earlier births.

The “Connecticut Early Childhood Report on Changing the Kindergarten Date,” mandated by Public Act 14-39, recommended that the start date for kindergarten be moved back to October 1<sup>st</sup> phased in one-month increments over the course of three years. It further recommended the elimination of the section of C.G.S Sec. 10-184 which allows parents the option of not enrolling their age-eligible child. Funds for the implementation have not yet been made available by the General Assembly. Unless the state’s fiscal situation changes for the better or a court intervenes, I do not believe this common-sense change will be implemented. Once implemented, the changes will very slightly decrease the size of your kindergarten class for three years and increase your pre-kindergarten enrollment. This change is not built into this projection, but will be built into future projections once the implementation date is set.

Figure 9 gives a perspective of the grade-to-grade growth rates for students attending the Mansfield 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 three-year weighted average of the observed grade-to-grade growth. This was the highest of the four I examined.

All the model growth rates appear to be in the middle of the ten-year range. Seven of the eight of the model growth rates are above 1.00 indicating that families with elementary school-age children are moving into the Mansfield schools. The model rates are close to the annual rates of 2018 in grades 2, 6, 7 and 8 only; they were above the 2018 rates in grade 4, but below the 2018 rates in grades 1, 3 and 5. The average growth rate across grades 2-8 used for the projection was 1.016. The rate in 2018 was 1.029; the median rate over the past 20 years was 1.014.



## Context of the Projection

The cohort-survival method 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. Analyzing how the factors underlying the projection changed in the prior year can be an important step in this process.

To assist in this endeavor, this report examines seven factors that could affect enrollment: town population; women of child-bearing age; people in the labor market; new home construction; sales of existing homes; non-public enrollment and student migration.

Figure 10 presents the US Census Bureau estimate of Mansfield population growth between July, 2010 and 2017. It is based, in part, on relative housing growth within the county. In that period, the town population is estimated to have declined by 1,115 people. The population loss of 4.1 percent was the 158th ranked in the state. In contrast, Tolland County declined by 1.4 percent, the state grew by 0.2 percent and communities with similar economic and need characteristics declined by 1.3 percent.

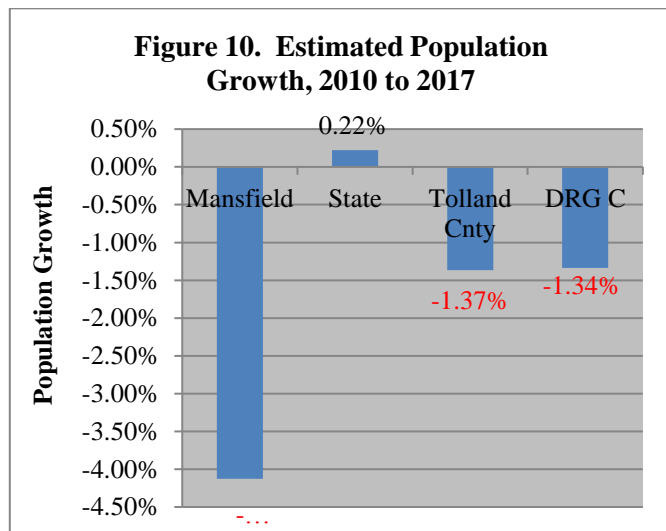


Figure 11 presents the Connecticut State Data Center's 2017 population projections for Mansfield's residents 0-14 years of age in the years 2015, 2020 and 2025. They projected that population ages 0-4 would decline from 471 children in 2015 to 282 children in 2020. They projected that the population ages 5-9 would decline by 45 percent between 2015 and 2025. The number of children ages 10-14 was projected to decrease 11 percent between 2015 and 2025. I believe that the severe decline in the 0-4 cohort may be due to a problem in their projection model. It does not consider that many local apartment complexes function like group quarters; they have a population that does not age, but instead replaces itself with people the same age.

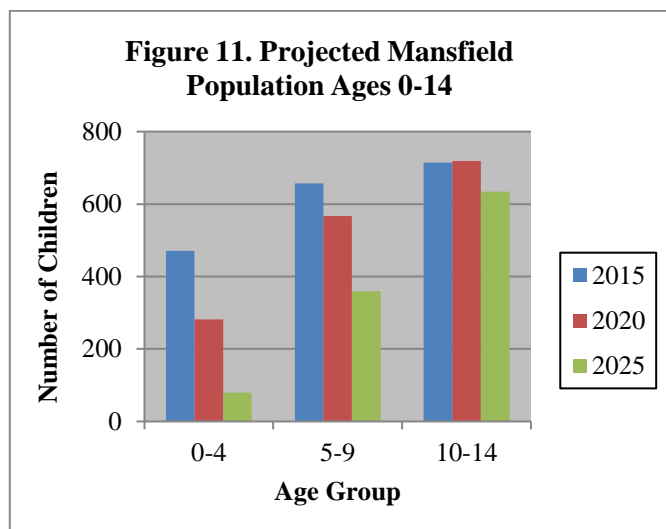




Figure 12 presents the number of women of child-bearing age (in households) from the 2000 and 2010 censuses. There were 116 births to Mansfield residents in 2000 and a count of 97 in 2010. In communities such as yours, women in the 30-34 age group have the highest rate of births. The number of women in this group fell from 407 in 2000 to 312 in 2010. The second highest birth rate in communities like yours is women ages 25-29. The number in that age range dipped from 378 in 2000 to 362 in 2010. The only age range that increased at all was 20-24. This age range typically has a relatively low birth rate in communities like yours. These figures exclude women in university housing.

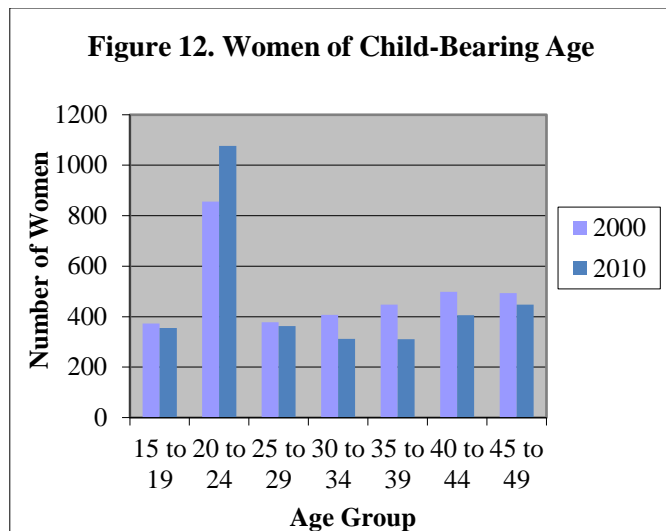


Figure 13 examines the number of people in the labor force from the US Department of Labor, Bureau of Labor Statistics. These are people 16 years of age or older working or actively seeking employment. Since it excludes most students and the elderly, I find it a very rough proxy of the number of school-age families. The Mansfield labor force decreased between 2010 and 2013, but has been rising recently. The decline was 2.2 percent between 2010 and 2017. This was worse than the state (+0.4 percent) and Tolland County (+0.5 percent). The 2017 unemployment level of 4.1 percent was down 3.9 percentage points from the 2011 high. The town rate is better than the state rate of 4.7 percent and close to the Tolland County rate of 4.0 percent.

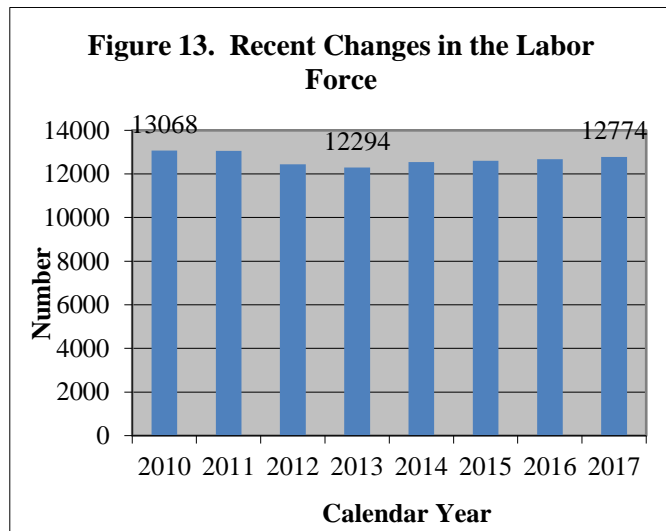


Figure 14 presents the net new housing units constructed from 2007 to 2017 from the State Department of Economic and Community Development. In the past ten years the number of net (of demolitions) new housing units constructed in Mansfield ranged from a high 42 in 2007 down to a low of -2 in 2017 (more demolition than construction permits). In the three-year look-back period for this projection, there was an average of no net new housing units constructed. The 2010 census indicated that Mansfield had 6,017 housing units of which 92.8 percent were occupied in April 2010.

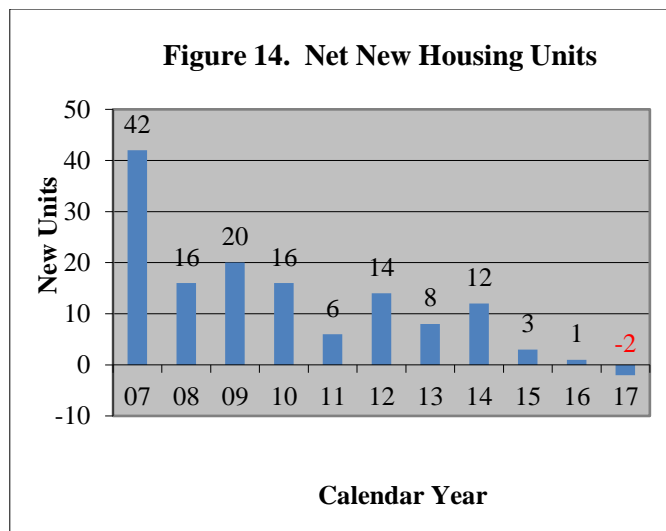


Figure 15 presents my estimate of the number of sales of existing homes. I derived it by taking the number of real estate transactions from The Warren Group/Commercial Record and subtracting the number of new single-family housing units authorized. This is an estimate because of the lag between the time a new house is authorized and it is sold. The estimated number of sales of existing homes ranged from a low of 144 in 2009 to a high of 229 in 2016. There were 210 existing houses sold in 2017. In the three-year look back period for the projection, there were 208 sales annually. Based on sales through August, I anticipate there will be about 230 sales of existing houses in 2018. Most of this expected increase is already reflected in your 2018 enrollment.

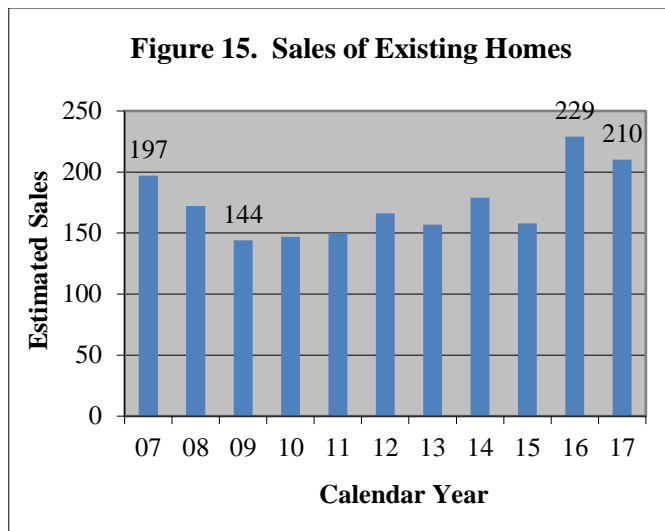


Figure 16 presents the non-public enrollment in grades PK-8 over the past ten years for students from the town of Mansfield. The data are from the records of the Connecticut State Department of Education. Non-public enrollment ranged from a high of 34 students in 2007 to a low of 21 students in 2014. There were 31 students enrolled in 2017. In the past ten years, enrollment in the non-public schools decreased by three students or nine percent. The 2017 enrollment represented only 2.6 percent of all PK-8 students from Mansfield. That is basically unchanged from the 2007 level. I project the non-public enrollment from Mansfield will be about the same in 2018. Mansfield now loses some residents to magnet and other public schools. That count rose from zero in 2007 to 13 in 2017.

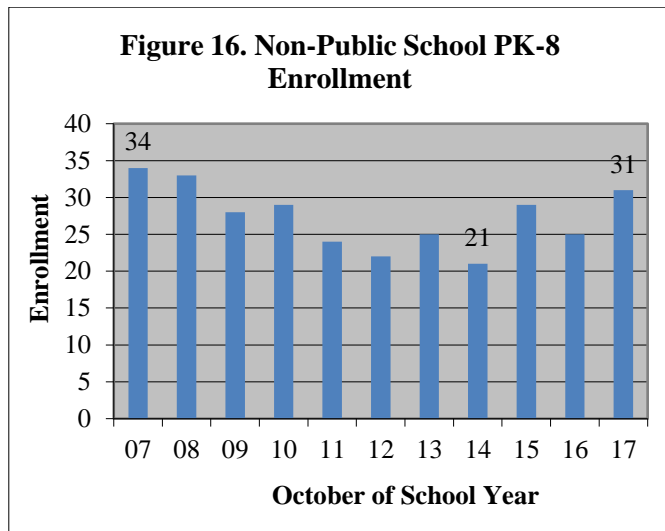
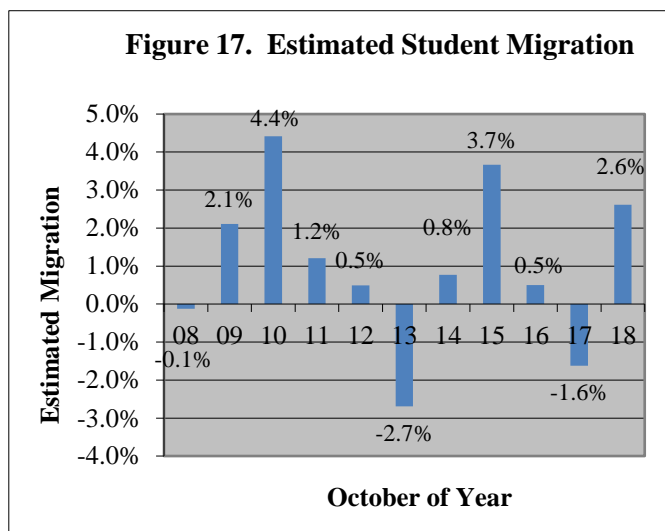


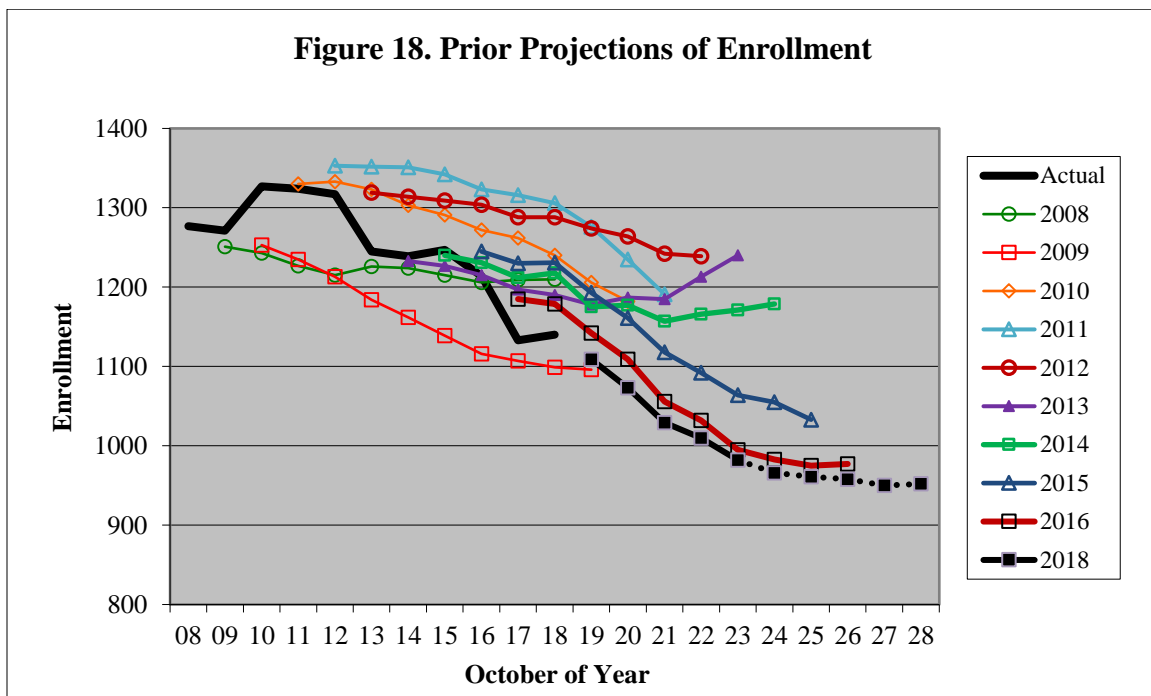
Figure 17 presents the estimated migration of students from Mansfield. Estimated migration ranged from a low of -2.7 percent in 2013 to a high of +4.4 percent in 2010. The rate between October, 2017 and October, 2018 was +2.7 percent. The data behind these figures may be found in Appendix B. The average migration in the five-year look-back period of the projection was +1.2 percent. The median five-year migration observed over the past 25 years was +1.33 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 18 presents the enrollment projections that I have run for Mansfield since 2008. The eight enrollment projections that I did between 2008 and 2016 had one-year error rates that averaged 2.9 percent. The six projections done between 2008 and 2013 had an average five-year error rate of 6.4 percent, which is 1.25 percent annualized.

My 2016 projection for Mansfield is running 3.4 percent high over two years. In that analysis, I projected that K-4 enrollment would be 543 students in 2018. The actual enrollment of 517 was 26 students less than projected. The projection was high by 5.0 percent or 2.5 percent per year. I projected that enrollment in grades 5-8 would be 557 students in 2018. The actual enrollment of 552 was five students less than projected. The projection was high by 0.9 percent, or 0.45 percent per year. The 2016 projection kept pre-kindergarten enrollment at 79 children. The actual enrollment in 2018 was 71 children.



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 2008. I found for the 67 district-level projections that I ran in 2008 the median projection was 5.5 high in predicting 2012 enrollment. That is an annual error rate of 0.7 percent. The absolute error rate (regardless of whether it was high or low) averaged 8.6 percent. That error was less than five percent in 46 percent of the projections and more than 15 percent in 15 percent of the projections. Among the 87 elementary projections run, the median projection was 9.5 percent high (1.1 percent annually). Among the 70 middle school projections run, the median projection was 8.2 percent high (1.0 percent annually). This illustrates what an economic downturn can do to projections run with the cohort-survival method.

## Summary

I project that total enrollment could decline from 1,140 students in 2018 to about 950 students in 2028. The ten-year enrollment decline is expected to be about 190 students or 16-17 percent. I project that combined enrollment at your three elementary schools could decline from 588 students in 2018 to about 540 students in 2028. I project that enrollment at the Dorothy C. Goodwin Elementary School will change little, going from 186 students in 2018 to 192 students in 2028. I project that enrollment at the Southeast Elementary School will decline from 181 students in 2018 to about 160 students in 2028. That would be a loss of about 20 students or a little more than 12 percent. I project that enrollment at the Annie E. Vinton Elementary School will decline from 220 students in 2018 to about 190 students in 2028. That would be a loss of about 30 students or 14-15 percent. Enrollment at the Mansfield Middle School was 552 students in October 2018. I project it will decline to about 415 students in 2028, a loss of almost 140 students or 25 percent. I expect the school's enrollment over the next ten years will average about 450 students.

This report is projecting a moderate decline in enrollment. It is critical to remember that a projection is just a moving forward of recent trends. Is the forecast realistic? In the five years from 2009 to 2013 (this fall's kindergarten through 4<sup>th</sup> graders) births averaged 91. Births in the 2014 through 2018 period will average only 80. This pattern of births, which except for the last third of 2018 has already happened, support the decline. My estimate of 79 births annually in 2019 to 2023 is not based on any sophisticated model, but is simply the average of the past three years. My kindergarten model expects an 11.3 percent growth between births and eventual kindergarten enrollment. The average of the grade-to grade growth rates across grades 2-8 that I used to grow future enrollment was 1.016. The annual growth rate averaged 1.029 in 2018 and the median over the last 20 years was 1.014. Taking these three key factors into consideration, I cannot consider the projected decline as overly pessimistic. I am not as confident about the decline projected after 2023 because that is based in part on a weak estimate of births after 2018.

These projections are based upon several key 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 full-day; retention policies will not change and limited enrollment of Mansfield residents in magnet schools. The projection assumes the following factors will not change appreciably: a student migration of +1.2 percent, four percent of parents will start their children in kindergarten at age six (or have had a special education child held in pre-school for an extra year); four new housing units constructed annually and 187 sales of existing homes.

This projection is slightly different than my October 13, 2018 projection. That projection had total enrollment falling to 916 students; this projection has total enrollment of about 950 students in 2028. There are two basic reasons for the difference. First, in the process of updating births, I found that my historical count of births was slightly less than the current count of the State Department of Public Health. Second, I used a five-year enrollment history to obtain greater stability at the school level. My original district-wide projection used a weighted three-year average in an attempt to capture more recent trends.

It is important to remember that the cohort survival method relies on observed data from the recent past. Its key assumption is that those conditions will persist. It does not try to predict when the economic conditions might change. We cannot know today how long these conditions will continue. 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 Mansfield and then make adjustments as necessary.

## Appendix A. Enrollment Projected by Grade to 2028

School Year	Birth Year	Births <sup>1</sup>	K <sup>2</sup>	1	2	3	4	5	6	7	8	PreK	PK-4	5-8	Total
2008-09	2003	123	116	129	133	136	120	140	143	137	160	63	697	580	1,277
2009-10	2004	117	115	112	129	131	132	134	146	143	139	90	709	562	1,271
2010-11	2005	107	133	127	123	137	131	147	141	151	146	91	742	585	1,327
2011-12	2006	114	139	137	123	128	135	142	140	147	146	87	749	575	1,324
2012-13	2007	114	138	130	138	119	131	139	142	147	142	91	747	570	1,317
2013-14	2008	97	112	135	128	133	113	128	136	140	142	78	699	546	1,245
2014-15	2009	101	121	118	138	133	132	113	130	140	136	78	720	519	1,239
2015-16	2010	97	104	123	123	148	135	138	122	133	137	84	717	530	1,247
2016-17	2011	96	98	104	130	121	149	136	133	124	140	79	681	533	1,214
2017-18	2012	76	88	95	103	118	116	146	143	134	123	67	587	546	1,133
2018-19	2013	87	97	94	99	113	114	121	152	148	131	71	588	552	1,140
<b>Projected</b>															
2019-20	2014	75	86	99	98	102	110	116	125	155	147	71	566	543	1,109
2020-21	2015	86	96	88	103	100	101	112	120	128	154	71	559	514	1,073
2021-22	2016	84	95	98	92	105	99	103	116	123	127	71	560	469	1,029
2022-23	2017	83	94	97	102	94	104	101	106	119	122	71	562	448	1,010
2023-24	2018	71	81	96	101	104	93	106	104	108	118	71	546	436	982
2024-25	2019	79	89	83	100	103	103	95	109	106	107	71	549	417	966
2025-26	2020	79	89	91	87	102	102	105	98	111	105	71	542	419	961
2026-27	2021	79	89	91	95	89	101	104	108	100	110	71	536	422	958
2027-28	2022	79	89	91	95	97	88	103	107	110	99	71	531	419	950
2028-29	2023	79	89	91	95	97	96	89	106	109	109	71	539	413	952

<sup>1</sup> 2003 to 2017 births are from the State Department of Public Health. Births in 2016 and 2017 are preliminary. Births in 2018 were estimated from recorded in-state births through October. Births in 2019-2023 were set to the average number of births in 2016 to 2018.

<sup>2</sup> Based on the five-year average of births five years prior..

## Appendix B. Growth from Grade to Grade across Years

October of Year	Grade Moved Into from Prior Year										Average	Estimated Migration <sup>1</sup>
	K	1	2	3	4	5	6	7	8	PreK		
<b>2009</b>	0.983	0.966	1.000	0.985	0.971	1.117	1.043	1.000	1.015		1.012	2.11%
<b>2010</b>	1.243	1.104	1.098	1.062	1.000	1.114	1.052	1.034	1.021		1.061	4.42%
<b>2011</b>	1.219	1.030	0.969	1.041	0.985	1.084	0.952	1.043	0.967		1.009	1.21%
<b>2012</b>	1.211	0.935	1.007	0.967	1.023	1.030	1.000	1.050	0.966		0.997	0.49%
<b>2013</b>	1.155	0.978	0.985	0.964	0.950	0.977	0.978	0.986	0.966		0.973	-2.69%
<b>2014</b>	1.198	1.054	1.022	1.039	0.992	1.000	1.016	1.029	0.971		1.015	0.77%
<b>2015</b>	1.072	1.017	<i>1.068</i>	1.072	1.015	<i>1.053</i>	<i>1.088</i>	1.023	0.979		1.039	3.66%
<b>2016</b>	1.021	1.000	1.057	0.984	1.007	1.007	0.964	1.016	1.053		1.011	0.50%
<b>2017</b>	1.158	0.969	0.990	0.908	0.959	0.980	1.051	1.008	0.992		0.982	-1.63%
<b>2018</b>	1.115	1.068	1.042	1.097	0.966	1.043	1.041	1.035	0.978		1.034	2.61%
<b>3-Year Ave.</b>	1.098	1.013	1.030	0.996	0.977	1.010	1.019	1.020	1.007		1.009	
<b>Weighted 3-Year</b>	1.114	1.024	1.027	1.015	0.970	1.016	1.032	1.023	0.995		1.013	
<b>5-Year Ave.</b>	<b>1.113</b>	<b>1.022</b>	<b>1.036</b>	<b>1.020</b>	<b>0.988</b>	<b>1.017</b>	<b>1.032</b>	<b>1.022</b>	<b>0.994</b>		1.016	
<b>Weighted 5-year</b>	1.107	1.020	1.033	1.017	0.981	1.018	1.033	1.022	0.996		1.015	
<b>Enrollment Multiplier<sup>3</sup></b>	1.113	1.022	1.036	1.020	0.988	1.017	1.032	1.022	0.994		1.016	

<sup>1</sup> Adjusted for non-residents enrolled in Mansfield and Mansfield residents enrolled in other public schools.

<sup>2</sup> *Italicized* figures adjusted for start-up of the Charles Barrows STEM Academy in Windham.

<sup>3</sup> Projection based on 5-year averages of grade-by-grade enrollment growth in grades 1-8 within school.

<b>Appendix C. Dorothy C. Goodwin Elementary School Enrollment Projected to 2028</b>									
<b>School Year</b>	<b>Birth Year</b>	<b>Births</b>	<b>K</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>PK</b>	<b>Total</b>
<b>2008-09</b>	2003	47	40	35	32	36	39	20	202
<b>2009-10</b>	2004	52	31	36	34	32	34	29	196
<b>2010-11</b>	2005	29	36	31	37	39	29	30	202
<b>2011-12</b>	2006	40	44	37	31	43	39	29	223
<b>2012-13</b>	2007	40	45	35	39	28	44	30	221
<b>2013-14</b>	2008	34	35	43	32	40	28	23	201
<b>2014-15</b>	2009	26	38	36	46	32	40	27	219
<b>2015-16</b>	2010	23	26	34	39	48	32	28	207
<b>2016-17</b>	2011	30	30	29	34	37	46	24	200
<b>2017-18</b>	2012	22	31	27	31	33	37	17	176
<b>2018-19</b>	2013	21	33	32	34	33	30	24	186
<b>Projected</b>									
<b>2019-20</b>	2014	25	33	33	35	34	32	24	191
<b>2020-21</b>	2015	24	32	33	36	35	33	24	193
<b>2021-22</b>	2016	26	34	32	36	36	34	24	196
<b>2022-23</b>	2017	26	34	34	35	36	35	24	198
<b>2023-24</b>	2018	22	29	34	37	35	35	24	194
<b>2024-25</b>	2019	24	32	29	37	37	34	24	193
<b>2025-26</b>	2020	24	32	32	32	37	36	24	193
<b>2026-27</b>	2021	24	32	32	35	32	36	24	191
<b>2027-28</b>	2022	24	32	32	35	35	31	24	189
<b>2028-29</b>	2023	24	32	32	35	35	34	24	192
<b>Projection Growth Rates<sup>1</sup>:</b>			1.314	0.994	1.096	1.005	0.973		
<b>Annual Growth Rates</b>									<b>Migration</b>
<b>2009</b>			0.596	0.900	0.971	1.000	0.944		-4.90%
<b>2010</b>			1.241	1.000	1.028	1.147	0.906		2.26%
<b>2011</b>			1.100	1.028	1.000	1.162	1.000		4.90%
<b>2012</b>			1.125	0.795	1.054	0.903	1.023		-5.81%
<b>2013</b>			1.029	0.956	0.914	1.026	1.000		-2.72%
<b>2014</b>			1.462	1.029	1.070	1.000	1.000		2.67%
<b>2015</b>			1.130	0.895	1.083	1.043	1.000		0.66%
<b>2016</b>			1.000	1.115	1.000	0.949	0.958		-0.68%
<b>2017</b>			1.409	0.900	1.069	0.971	1.000		-1.54%
<b>2018</b>			1.571	1.032	1.259	1.065	0.909		5.74%

<sup>1</sup> Based on five-year averages of annual growth rates.

<b>Appendix D. Southeast Elementary School Enrollment Projected to 2028</b>									
<b>School Year</b>	<b>Birth Year</b>	<b>Births</b>	<b>K</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>PK</b>	<b>Total</b>
<b>2008-09</b>	2003	45	42	44	52	51	37	21	247
<b>2009-10</b>	2004	37	30	43	41	48	48	28	238
<b>2010-11</b>	2005	44	52	39	47	46	52	30	266
<b>2011-12</b>	2006	49	47	52	38	45	46	29	257
<b>2012-13</b>	2007	39	49	48	46	37	43	29	252
<b>2013-14</b>	2008	36	36	47	53	44	37	28	245
<b>2014-15</b>	2009	34	38	40	42	53	44	24	241
<b>2015-16</b>	2010	41	32	44	38	49	52	27	242
<b>2016-17</b>	2011	34	33	25	50	41	54	24	227
<b>2017-18</b>	2012	29	27	30	24	39	36	24	180
<b>2018-19</b>	2013	33	33	28	31	27	40	22	181
<b>Projected</b>									
<b>2019-20</b>	2014	25	24	33	28	32	27	22	166
<b>2020-21</b>	2015	38	36	24	33	29	32	22	176
<b>2021-22</b>	2016	30	29	36	24	34	29	22	174
<b>2022-23</b>	2017	29	28	29	36	25	34	22	174
<b>2023-24</b>	2018	26	24	28	29	37	25	22	165
<b>2024-25</b>	2019	28	27	24	28	30	37	22	168
<b>2025-26</b>	2020	28	27	27	24	29	30	22	159
<b>2026-27</b>	2021	28	27	27	27	25	29	22	157
<b>2027-28</b>	2022	28	27	27	27	28	25	22	156
<b>2028-29</b>	2023	28	27	27	27	28	28	22	159
<b>Projection Growth Rates<sup>1</sup>:</b>			0.960	0.999	0.995	1.030	0.997		
<b>Annual Growth Rates</b>									<b>Migration</b>
<b>2009</b>			0.811	1.024	0.932	0.923	0.941		-4.76%
<b>2010</b>			1.182	1.300	1.093	1.122	1.083		13.58%
<b>2011</b>			0.959	1.000	0.974	0.957	1.000		-1.63%
<b>2012</b>			1.256	1.021	0.885	0.974	0.956		-4.40%
<b>2013</b>			1.000	0.959	1.104	0.957	1.000		0.56%
<b>2014</b>			1.118	1.111	0.894	1.000	1.000		-0.56%
<b>2015</b>			0.780	1.158	0.950	1.167	0.981		5.78%
<b>2016</b>			0.971	0.781	1.136	1.079	1.102		4.29%
<b>2017</b>			0.931	0.909	0.960	0.780	0.878		-13.42%
<b>2018</b>			1.000	1.037	1.033	1.125	1.026		5.00%

<sup>1</sup> Based on five-year averages of annual growth rates.



**Appendix E. Annie E. Vinton Elementary School Enrollment Projected to 2028**

School Year	Birth Year	Births	K	1	2	3	4	PK	Total
<b>2008-09</b>	2003	30	35	50	49	49	44	22	249
<b>2009-10</b>	2004	28	54	33	54	51	49	33	274
<b>2010-11</b>	2005	34	45	57	39	52	50	31	274
<b>2011-12</b>	2006	23	48	48	54	40	50	29	269
<b>2012-13</b>	2007	35	44	47	53	54	44	32	274
<b>2013-14</b>	2008	27	41	45	43	49	48	30	256
<b>2014-15</b>	2009	39	45	42	50	48	48	27	260
<b>2015-16</b>	2010	33	46	45	46	51	51	29	268
<b>2016-17</b>	2011	32	35	50	46	43	49	31	254
<b>2017-18</b>	2012	25	30	38	48	46	43	26	231
<b>2018-19</b>	2013	33	31	34	35	52	43	25	220
<b>Projected</b>									
<b>2019-20</b>	2014	25	29	33	35	36	51	25	209
<b>2020-21</b>	2015	24	28	31	34	36	36	25	190
<b>2021-22</b>	2016	28	32	30	32	35	36	25	190
<b>2022-23</b>	2017	28	32	34	31	33	35	25	190
<b>2023-24</b>	2018	24	28	34	35	32	33	25	187
<b>2024-25</b>	2019	26	30	30	35	36	32	25	188
<b>2025-26</b>	2020	26	30	32	31	36	36	25	190
<b>2026-27</b>	2021	26	30	32	33	32	36	25	188
<b>2027-28</b>	2022	26	30	32	33	34	32	25	186
<b>2028-29</b>	2023	26	30	32	33	34	34	25	188
<b>Projection Growth Rates<sup>1</sup>:</b>			1.156	1.066	1.022	1.031	0.988		
<b>Annual Growth Rates</b>								<b>Migration</b>	
<b>2009</b>			1.929	0.943	1.080	1.041	1.000		2.19%
<b>2010</b>			1.324	1.056	1.182	0.963	0.980		3.13%
<b>2011</b>			2.087	1.067	0.947	1.026	0.962		-0.52%
<b>2012</b>			1.257	0.979	1.104	1.000	1.100		4.21%
<b>2013</b>			1.519	1.023	0.915	0.925	0.889		-6.57%
<b>2014</b>			1.154	1.024	1.111	1.116	0.980		5.62%
<b>2015</b>			1.394	1.000	1.095	1.020	1.063		4.32%
<b>2016</b>			1.094	1.087	1.022	0.935	0.961		0.00%
<b>2017</b>			1.200	1.086	0.960	1.000	1.000		0.57%
<b>2018</b>			0.939	1.133	0.921	1.083	0.935		1.23%

<sup>1</sup> Based on five-year averages of annual growth rates.