

# Projecting Public School Enrollment in Wisconsin

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The Applied Population Laboratory (APL) is a group of research professionals at the University of Wisconsin-Madison specializing in population studies and geographic data analysis. For more than fifteen years, the APL has been working with Wisconsin's school districts on demographic analyses and school enrollment projections. In 2007, the APL conducted a statewide enrollment projections study examining school enrollment as it related to Wisconsin's broader demographic trends. This brief examines school enrollment since that time and the demographic trends which have affected public school enrollment. We provide a set of updated public school enrollment projections. The goal of this study is to provide school administrators, regional planners, and state officials with information regarding the past, current, and future direction of public school enrollment in Wisconsin.

## Executive Summary

Between 2008/09 and 2013/14, 59% of Wisconsin's school districts experienced enrollment decline. However, enrollment decline has not occurred uniformly across the state. Many school districts have seen increases in enrollment over the last several years. Districts that experienced growth and districts that saw decline balanced out one another resulting in statewide school enrollment declining by 0.1% between 2008/09 and 2013/14. Some urban school districts and several suburban and exurban school districts have seen increases in enrollment, while rural school districts and larger urban school districts (like Milwaukee Public Schools) have experience decline. This brief examines the demographic trends behind recent enrollment changes and presents projected future scenarios for statewide public school enrollment over the next ten years. Based on the cohort component method, we generate projections for statewide 4K-12 public school enrollment by grade grouping, race/ethnicity, and urban/suburban/rural locale.

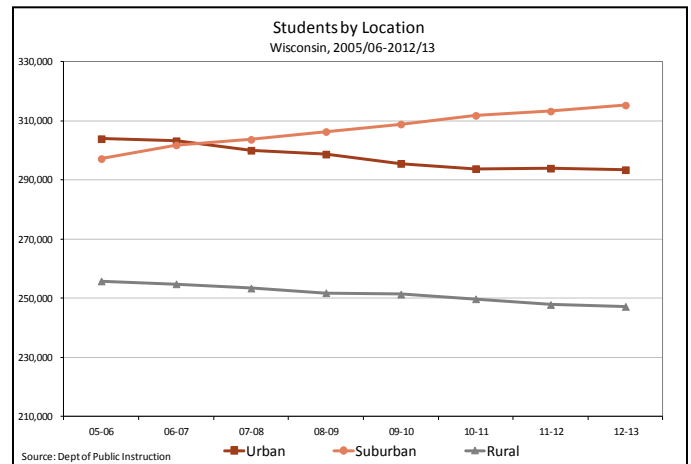
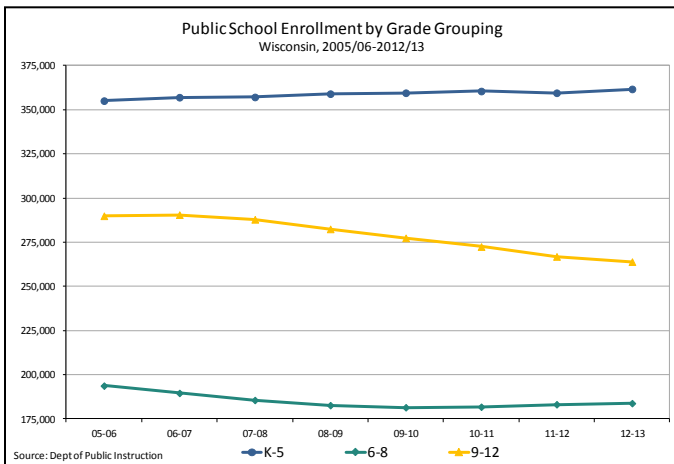
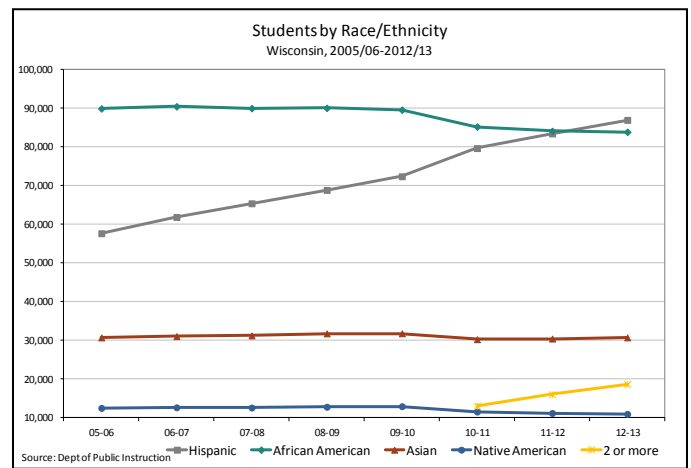
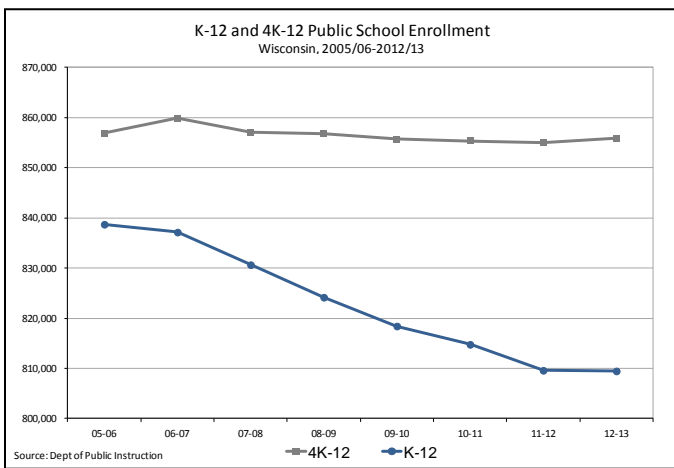
The number of kindergarteners enrolling in school in recent years has not replaced the number of graduating high school seniors largely due to the delay in births from the Millennial generation (children of the Baby Boom generation). However, the growing popularity of the four-year old kindergarten program in many districts throughout the state has meant that recent declines in enrollment have not been as severe as it may have been without the program. Our models suggest that there will be a slight increase in total enrollment at the state level in the next two years followed by a period of increased growth. The majority of growth will be in middle schools and high schools, while elementary school enrollment will begin to decline after two years of growth.

Urban school districts are projected to decline slightly then enrollment will steadily increase in the foreseeable future. Suburban districts are projected to experience continued enrollment growth over the next several years. Rural districts, on the other hand, are projected to decline due to fewer births and the older population aging in place.

Projections by race/ethnicity point to the growing influence of the Hispanic population on Wisconsin's public school enrollment. The numbers of Hispanic and Asian students are projected to increase while African American and Native American students are projected to remain steady in the coming years. Non-Hispanic white enrollment is projected to decline fairly significantly over the next five years.

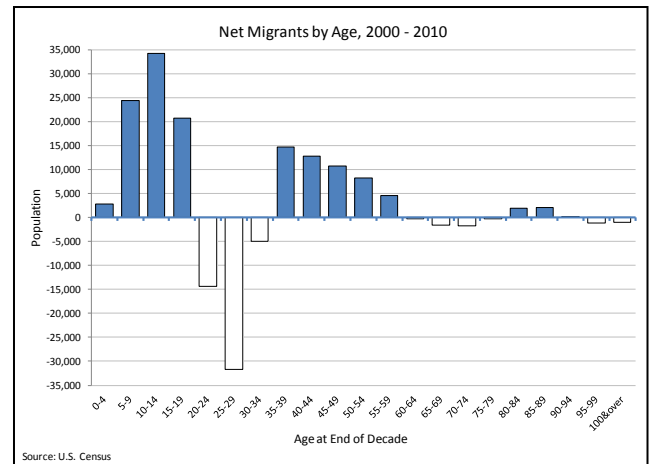
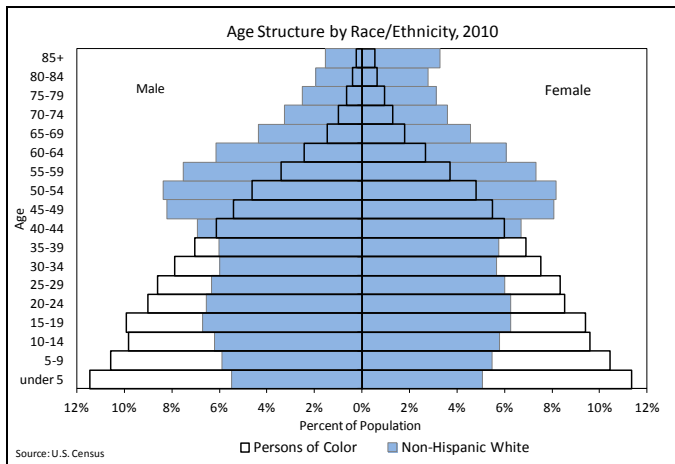
## Past Public School Enrollment

Statewide enrollment was at its historical peak in the 1970s when the Baby Boom generation was in school. More recently, enrollment peaked again in 1997/98 when the Millennial generation was attending public schools. Since that time, statewide enrollment has declined. However, these trends are not uniform spatially or across different racial/ethnic groups. For instance, urban and rural school districts have declined, while suburban school districts have grown. In terms of racial and ethnic differences, the number of non-Hispanic white students has been declining, while the number of minority students, particularly Hispanic students, has increased. The decline of Asian, African American, and Native American students in the last three years is likely due to the change in the reporting system and reclassification of racial descriptions with the addition of “2 or more races” classification, as opposed to actual change among these populations. The charts below show the statewide enrollment histories from 2005/06 to 2012/13 for Wisconsin’s public schools by grade grouping, race/ethnicity, and locale.



## Age Structure and Migration Trends

The shifting age structure of the general population and trends in migration and births impact the number of school age children present in the public school districts. The chart on the left shows population in the State of Wisconsin by age, sex, and race/ethnicity in the form of a population pyramid. The population pyramid for persons of color contrasts starkly with the one for non-Hispanic whites. The minority pyramid is typical of a growing population, with the most people concentrated in the younger age groups. In Wisconsin, the minority population is notably younger than the non-Hispanic white population. Subsequently, minorities can be expected to make up a growing proportion of the number of children in Wisconsin's schools.

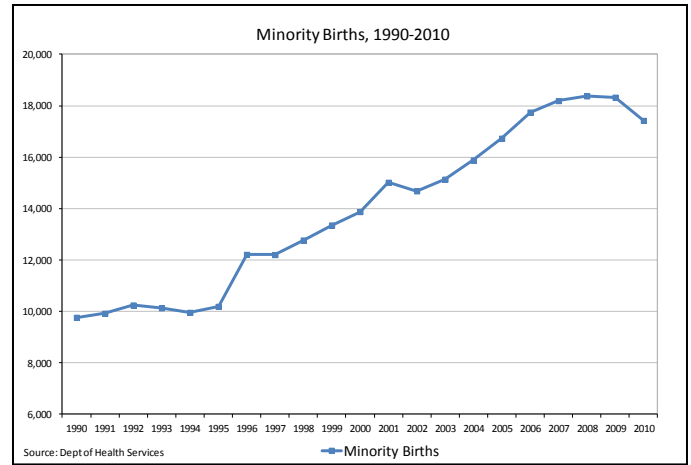
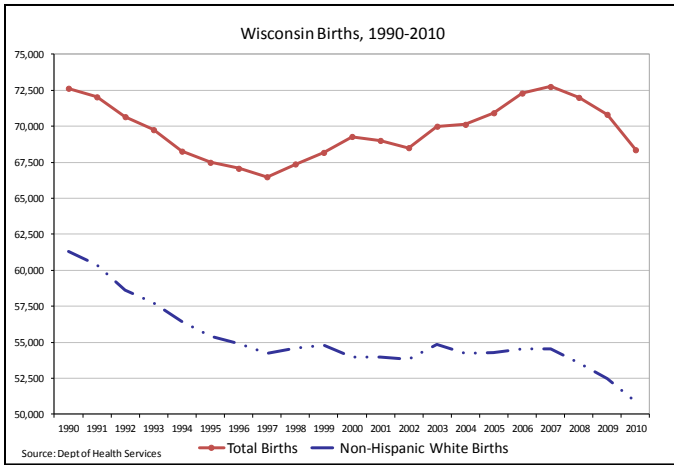


Populations change through natural increase (births minus deaths) and net migration (incoming minus outgoing migrants). The chart on the right provides the net migrants by age for the 2000s. Migration is driven by population age structure and social and economic issues. While the strong growth of the 1990s shaped the population in the State of Wisconsin, net migration in the state was much slower in the 2000s with an increase of only 79,938 migrants (compared to 227,637 in the 1990s).

Although there was an in-migration of school age children, the state experienced an out-migration of people ages 20-34 in the 2000s. This has an important impact on future projections as women age 20-34 are considered to be in their prime childbearing years. Populations with large cohorts of females in their childbearing years tend to have higher numbers of births than populations with relatively few females at childbearing age. A net in-migration of the minority population has contributed to the growth of school age children.

## Birth Trends

In the 1990s, as a smaller population of women in their childbearing years aged and age-specific fertility rates declined among women under 30 years old, the number of births in Wisconsin decreased through 1997. Births then increased until 2007, as birth rates rose among women ages 25-39. Then the state experienced another decline in births possibly a result of women who postponed having children due to the Great Recession (December 2007-June 2009).



The chart on the left compares total births by all Wisconsin mothers to the number of births by non-Hispanic white mothers. Births to white mothers decreased between 1990 and 1997, remained relatively steady between 1997 and 2007 and then decreased again. While the total number of births in Wisconsin has been decreasing, trends vary by race/ethnicity. The chart on the right shows the total minority births in the State of Wisconsin. The number of Hispanic births grew from 4,484 in 2000 to 6,560 in 2010 (an increase of 46.3%). Asian births increased by 38.4% while American Indian births increased by 29.8%. The increase in the number of African American births was the smallest at 6.3%. Interestingly, non-Hispanic white births began to decline in 2008 while minority births did not start to decrease until 2010.

In sum, Wisconsin's population is growing older. While the Baby Boom population continues to age in place, the children of the Baby Boomers, although now in prime childbearing years, have delayed having children. The potential for increasing numbers of births over the next 5 to 10 years as the economy improves and as young couples start families is a possibility. Because of the age structure of the minority population, a relatively large proportion of future births may be born to persons of color although these birth rates have also declined in comparison to those seen in the early 2000s.

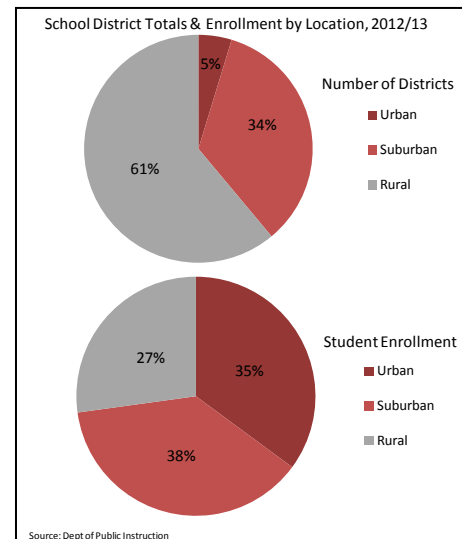
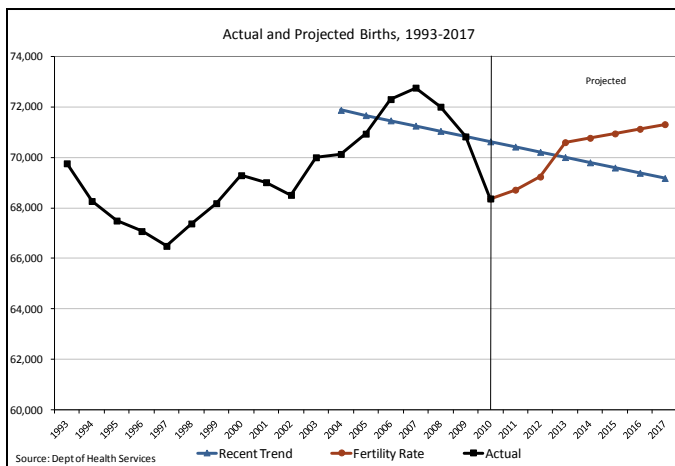
### Data for Enrollment Projections

The Applied Population Laboratory's projections are based on public school enrollment histories and observed and projected state births. Enrollment histories are composed of student counts in public schools on the third Friday of each September by grade and by race/ethnicity from 2005/06 school year through the 2012/13 school year, as reported by the Wisconsin Department of Public Instruction.

Data on past births are taken from the Wisconsin Department of Health Services. They represent reported births to women from birth certificates, based on the county of residence and the race/ethnicity of the mother. We estimate projected data on future births based on past birth trends (trend model) and age specific fertility rates (fertility rate model) garnered by modifying 5-year birth projections provided by the Wisconsin Department of Administration.

## Methodology for Enrollment Projections

The three projection models (5 Year Trend, 3 Year Trend, and Fertility Rate) vary in that different assumptions are used to project future births. For the 5 Year and 3 Year Trend models, we perform a linear regression on observed birth counts over the last seven years (2004-2010). In contrast, the Fertility Rate model is not linked to past trends, but rather to the current and expected future age structure of the female population and their fertility rates. The chart on the left shows the actual births (1993-2010) and projected births (2011-2017) based on these different methods.



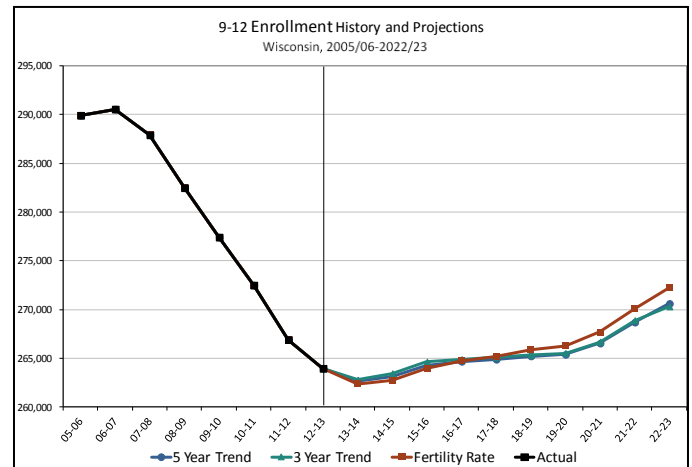
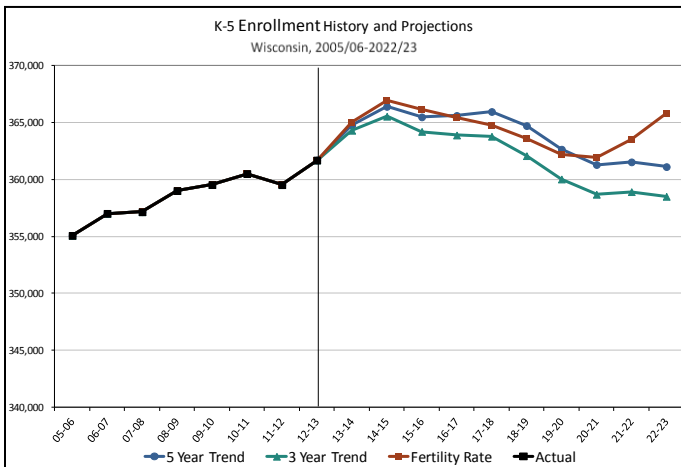
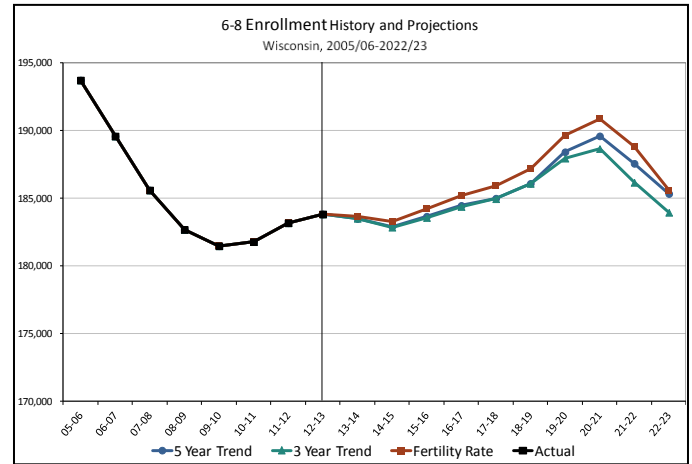
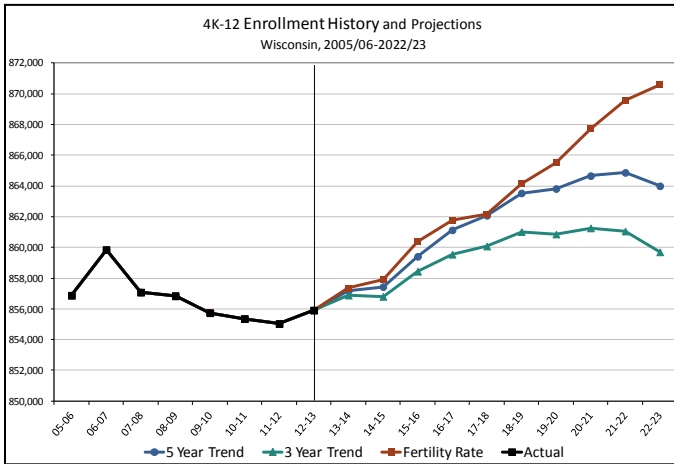
District enrollment was divided by location in order to generate projections by area. The chart on the right shows the breakdown of the number of districts classified as urban, suburban, and rural and the percent of all public school students enrolled in these districts in the 2012/13 school year. Drawing on U.S. Census Bureau locale codes, we classify school districts in large and medium cities as urban districts (20). Districts in the suburbs of these cities and of large border state cities are classified as suburban districts (145), and all other districts are classified as rural districts (259).

Although the majority of land in the state is rural, the majority of students attend urban or suburban schools. Urban districts make up only 5% of the total number of districts, but their enrollment comprises 35% of all public school students in Wisconsin. Suburban districts make up 34% of districts, and 38% of the students. Rural districts, on the other hand, make up 61% of districts, but only 27% of the students.

The cohort component method is used to project school enrollment by grade level ten years into the future. Specifically, we generate the average ratio of grade progression from one grade to the next to move cohorts of students through the school system over time, and a ratio of births (five years previous) to kindergarteners is used to project kindergarten enrollment. To project future grade cohorts, for example, we examine the average number of first graders in year 1 compared to the average number of second graders in year 2. These average ratios are used to project future enrollment. Because the pattern of entry and exit from grade to grade are relatively consistent over time at the state level, the grade progression ratios for each grade transition remain relatively stable.

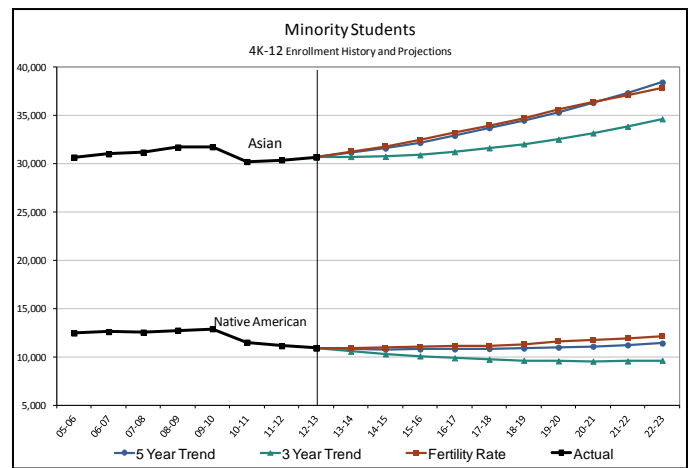
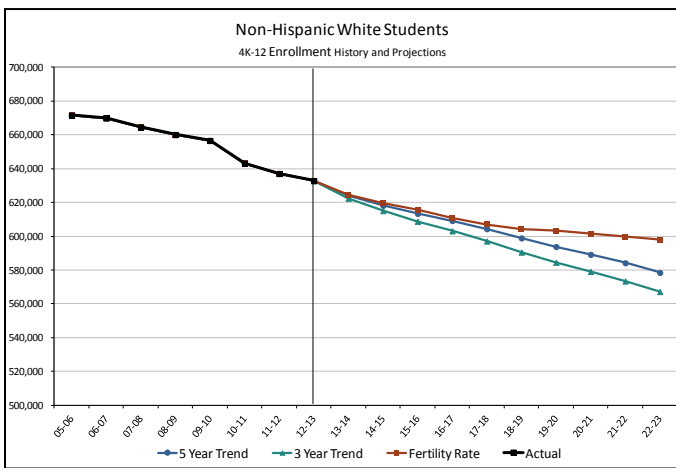
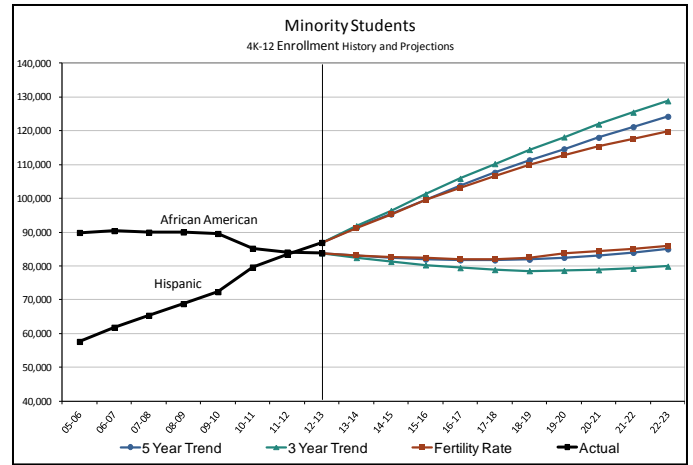
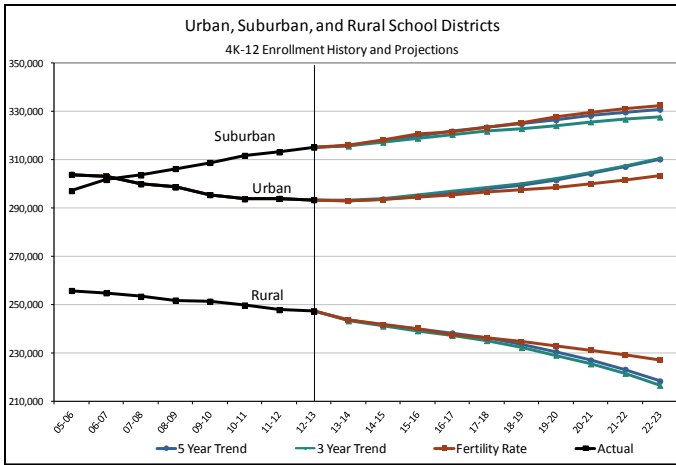
## Future Public School Enrollment

The following charts show the total (4K-12) statewide enrollment projections as well as the conventional grade groupings (K-5, 6-8, and 9-12). Public school enrollment is projected to increase over time. Grades K-5 will increase in the next two years then decline, while grades 6-8 and 9-12 are projected to decline for the next one to two years then increase for the foreseeable future. The tables in Appendix A (page 8) show the projected enrollment totals by grade grouping.



## School Enrollment by Location and Race/Ethnicity

Urban school districts are projected to increase slightly after one year of decline. Suburban districts are projected to increase over time, while rural districts are projected to continue to decline. Our projections by race/ethnicity suggest that the number of non-Hispanic white students will continue to decline over the next decade. Hispanic and Asian student populations are projected to increase while African American and Native American student populations are projected to remain relatively stable.



## Conclusion

Despite the optimistic outlook presented here, it is important to note that we have not accounted for all types of school districts. Even if statewide public school enrollment and enrollment in urban and suburban districts generally increases over the next ten years, many of Wisconsin’s districts may still face decline. Districts that are particularly white, older, and rural or districts with less ability to build new housing may see more prolonged enrollment decline. This decline might occur in the smallest and most remote districts, while districts in cities or in metropolitan areas with minority populations may increase. The total statewide public school projections may be viewed with high reliability over the next few years because most students have already been born or are already in school. As with nearly all types of forecasts, dependability in these enrollment projections decreases over time.

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## Appendix A

### Summary of 4K-12 Enrollment Projections

	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23
Five Year Trend	857,373	857,952	860,419	862,836	864,413	866,896	867,577	868,738	869,247	868,583
Three Year Trend	857,181	857,438	859,412	861,132	862,083	863,538	863,828	864,666	864,877	864,003
Fertility Rate Trend	856,886	856,805	858,443	859,550	860,080	861,023	860,863	861,260	861,058	859,703

### Summary of K-5 Enrollment Projections

	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23
Five Year Trend	365,060	366,975	366,243	366,495	367,041	366,331	364,251	362,895	363,136	362,722
Three Year Trend	364,767	366,419	365,498	365,624	365,969	364,728	362,657	361,307	361,541	361,124
Fertility Rate Trend	364,318	365,555	364,221	363,901	363,794	362,089	360,032	358,692	358,925	358,511

### Summary of 6-8 Enrollment Projections

	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23
Five Year Trend	183,661	183,302	184,221	185,201	185,939	187,209	189,686	190,941	188,916	186,662
Three Year Trend	183,487	182,920	183,663	184,465	184,999	186,094	188,431	189,609	187,576	185,341
Fertility Rate Trend	183,510	182,852	183,569	184,384	184,960	186,093	187,959	188,670	186,171	183,953

### Summary of 9-12 Enrollment Projections

	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23
Five Year Trend	262,360	262,701	263,929	264,752	265,183	265,844	266,270	267,674	270,108	272,251
Three Year Trend	262,635	263,126	264,226	264,655	264,864	265,205	265,370	266,521	268,672	270,591
Fertility Rate Trend	262,765	263,425	264,628	264,877	265,076	265,331	265,502	266,668	268,874	270,292

