Griffith Public Schools

POPULATION AND ENROLLMENT FORECASTS, 2013 - 2023

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EXECUTIVE SUMMARY

1. Griffith Public Schools' fertility rates over the life of the forecasts are below replacement levels. (TFR=2.03 for the district vs. 2.1 for replacement level)

2. Most non-college in-migration to the district occurs in the 25-to-34 year old age groups.

3. The locally born 18-to-24 year old population continues to leave the district, going to college or moving to other urban areas.

4. The primary factors causing the districts' enrollment to decline in the short term are an increase in aging empty nest households and the declining rate of in-migration of young families ages 25 to 34.

5. Changes in year-to-year total enrollment (particularly until 2020) will primarily be due to the size of the cohorts entering the school system (grades K and 1) in relation to the size of the cohorts leaving the system (grade 12).

6. If there was zero migration in the district during the 2013-14 to 2015-16 time period, the elementary (K-5) enrollment would decline by 31 students. The elementary enrollment is forecasted to decline by 9 students the same period.

7. Even if the district continues to have an increasing level of new home construction, the rate and magnitude of existing home sales will become the increasingly dominant factor affecting the amount of population and enrollment change.

8. Total enrollment is forecasted to decrease by 148 students, or 6.2%, between 2013-14 and 2018-19. Total enrollment will decline by 50 students, or 2.2%, from 2018-19 to 2023-24.

INTRODUCTION

By demographic principle, distinctions are made between projections and forecasts. A projection extrapolates the past (and present) into the future with little or no attempt to take into account any factors that may impact the extrapolation (e.g., changes in fertility rates, housing patterns or migration patterns) while a forecast results when a projection is modified by reasoning to take into account the aforementioned factors.

To maximize the use of this study as a planning tool, the ultimate goal is not simply to project the past into the future, but rather to assess various factors' impact on the future. The future population and enrollment growth of each school district is influenced by a variety of factors. Not all factors will influence the entire school district at the same level. Some variables may affect different areas at dissimilar magnitudes and rates causing changes at varying points of time within the same district. Forecaster's judgment based on a thorough and intimate study of the district has been used to modify the demographic trends and factors to more accurately predict likely changes. Therefore, strictly speaking, this study is a forecast, not a projection; and the amount of modification of the demographic trends varies between different areas of the district as well as within the timeframe of the forecast.

To calculate population forecasts of any type, particularly for smaller populations such as a school district or its attendance areas, realistic suppositions must be made as to what the future will bring in terms of age specific fertility rates, housing composition, family structure changes and residents' demographic behavior at certain points of the

life course. The demographic history of the school district and its interplay with the social and economic history of the area is the starting point and basis of most of these suppositions particularly on key factors such as the age structure of the area. The unique nature of each district's and attendance area's demographic composition and rate of change over time must be assessed and understood to be factors throughout the life of the forecast series. Moreover, no two populations, particularly at the school district and attendance area level, have exactly the same demographic characteristics.

The manifest purpose of these forecasts is to ascertain the demographic factors and their magnitudes that will ultimately influence the enrollment levels in the district's schools. There are of course, other non-demographic factors that affect enrollment levels over time. These factors include, but are not limited to transfer policies within the district; student transfers to and from neighboring districts; placement of "special programs" within school facilities that may serve students from outside the attendance area; state or federal mandates that dictate the movement of students from one facility to another (No Child Left Behind is an excellent example of this factor); the development of charter schools in the district; the prevalence of home schooling in the area; and the dynamics of local private schools.

Unless the district specifically requests the calculation of forecasts that reflect the effects of changes in these non-demographic factors, their influences are held constant for the life of the forecasts. Again, the main function of these forecasts is to determine what impact demographic changes will have on future enrollment. It is quite possible to calculate special "scenario" forecasts to measure the impact and magnitude of school policy modifications as well as planned economic and financial changes. However in

this case the results of these population and enrollment forecast are meant to represent the most likely scenario for demographic changes over the next 10 years in the district and its attendance areas.

The first part of the report will examine the assumptions made in calculating the 10 year population forecasts for the Griffith Public Schools. Since the results of the population forecasts drive the subsequent enrollment forecasts, the assumptions listed in this section are paramount to understanding the area's demographic dynamics. The remainder of the report is an explanation and analysis of the district's population forecasts and how they will shape the district's grade level enrollment forecasts.

DATA

The data used for the forecasts come from a variety of sources. Enrollments by grade and attendance center were provided by the Griffith Public Schools for school years 2008-2009 to 2013-14. Birth and death data were obtained from the Indiana Department of Health for the years 2000 through 2012. The net migration values were calculated using Internal Revenue Service migration reports for the years 2000 through 2010. The data used for the calculation of migration models came from the United States Bureau of the Census, 2005 to 2010, and the models were designed using demographic and economic factors. The base age-sex population counts used are from the results of the 2010 Census.

Recently the Census Bureau began releasing annual estimates of demographic variables at the block group and tract level from the American Community Survey (ACS). There has been wide scale reporting of these results in the national, state and

local media. However, due to the methodological problems the Census Bureau is experiencing with their estimates derived from ACS data, particularly in areas with a population of less than 60,000, the results of the ACS are not used in these forecasts. For example, given the sampling framework used by the Census Bureau, each year only 200 of the over 6,600 current households in the district would have been included. For comparison 1,000 households in the district were included in the sample for the long form questionnaire in the 2000 Census. As a result of this small sample size, the ACS survey result from the last 5 years must be aggregated to produce the tract and block group estimates.

To develop the population forecast models, past migration patterns, current age specific fertility patterns, the magnitude and dynamics of the gross migration, the age specific mortality trends, the distribution of the population by age and sex, the rate and type of existing housing unit sales, and future housing unit construction are considered to be primary variables. In addition, the change in household size relative to the age structure of the forecast area was addressed. While there was a drop in the average household size in Lake County area as well as most other areas of the state during the previous 20 years, the rate of this decline has been forecasted to slow over the next ten years.

ASSUMPTIONS

For these forecasts, the mortality probabilities are held constant at the levels calculated for the year 2010. While the number of deaths in an area are impacted by and will change given the proportion of the local population over age 65, in the absence

of an extraordinary event such as a natural disaster or a breakthrough in the treatment of heart disease, death rates rarely move rapidly in any direction, particularly at the school district or attendance area level. Thus, significant changes are not foreseen in district's mortality rates between now and the year 2023. Any increases forecasted in the number of deaths will be due primarily to the general aging of the district's population and specifically to the increase in the number of residents over age 65.

Similarly, fertility rates are assumed to stay fairly constant for the life of the forecasts. Like mortality rates, age specific fertility rates rarely change quickly or dramatically, particularly in small areas. Even with the recently reported rise in the fertility rates of the United States, overall fertility rates have stayed within a 10% range for most of the last 40 years. In fact, the vast majority of year to year change in an area's number of births is due to changes in the number of women in child bearing ages (particularly ages 20-29) rather than any fluctuation in an area's fertility rate.

The total fertility rate (TFR), the average number of births a woman will have in her lifetime, is estimated to be 2.03 for the total district for the ten years of the population forecasts. A TFR of 2.1 births per woman is considered to be the theoretical "replacement level" of fertility necessary for a population to remain constant in the absence of in-migration. Therefore, over the course of the forecast period, fertility will not be sufficient, in the absence of net in migration, to maintain the current level of population within the Griffith Public Schools.

A close examination of data for the Griffith Public Schools has shown the age specific pattern of net migration will be nearly constant throughout the life of the forecasts. While the number of in and out migrants has changed in past years for the

Griffith Public Schools (and will change again over the next 10 years), the basic age pattern of the migrants has stayed nearly the same over the last 30 years. Based on the analysis of data it is safe to assume this age specific migration trend will remain unchanged into the future. This pattern of migration shows high out-migration occurring in the locally born 18-to-24 year old age group as young adults leave the area to go to college or move to other urban areas. The second group of out-migrants is those householders aged 70 and older who are downsizing their residences. Most of the local in-migration occurs in the 25-39 age groups (bulk of which is from areas within 100 miles of Griffith) primarily consisting of younger adults.

As Griffith is not currently contemplating any major expansions or contractions, the forecasts also assume the current economic, political, transportation and public works infrastructure (with a few notable exceptions), social, and environmental factors of the Griffith Public Schools and its attendance areas will remain the same through the year 2023.

Below is a list of assumptions and issues that are specific to the city of Griffith and the Griffith Public Schools. These issues have been used to modify the population forecast models to more accurately predict the impact of these factors on each area's population change. Specifically, the forecasts for the Griffith Public Schools assume that throughout the study period:

a. There will be no short term economic recovery in the next 18 months and the

national, state or regional economy does not go into deep recession at anytime during the 10 years of the forecasts; (Deep recession is defined as four consecutive quarters where the GDP contracts greater than 1% per quarter)

b. Interest rates have reached an historic low and will not fluctuate more than one percentage point in the short term; the interest rate for a 30 year fixed home mortgage stays below 5.5%;

c. The rate of mortgage approval stays at 1999-2002 levels and lenders do not return to "sub-prime" mortgage practices;

d. There are no additional restrictions placed on home mortgage lenders or additional bankruptcies of major credit providers;

e. The rate of housing foreclosures does not exceed 125% of the 2005-2007 average of Lake County for any year in the forecasts;

f. All currently planned, platted, and approved housing developments are built out and completed by 2022. All housing units constructed are occupied by 2023;

g. The unemployment rates for Lake County will remain below 9.5% for the 10 years of the forecasts;

h. The rate of students transferring into and out of the Griffith Public Schools will remain at the 2008-09 to 2013-14 average;

i. The inflation rate for gasoline will stay below 5% per year for the 10 years of the forecasts;

j. The transfer rates of students within the district remain at 2010 to 2013 levels.

k. There will be no building moratorium within the district;

l. Businesses within the district and Lake County will remain viable;

m. The number of existing home sales in the district that are a result of "distress sales" (homes worth less than the current mortgage value) will not exceed 20% of total homes sales in the district for any given year;

n. Housing turnover rates (sale of existing homes in the district) will remain at their current levels. The majority of existing home sales are made by home owners over the age of 55;

o. Private school and home school attendance rates will remain constant;

p. The recent decline in new home construction has ended and building rates have stabilized;

q. The rate of foreclosures for commercial property remains at the 2004-2007 average for Lake County;

If a major employer in the district or in the Greater Griffith area closes, reduces or expands its operations, the population forecasts would need to be adjusted to reflect the changes brought about by the change in economic and employment conditions. The same holds true for any type of natural disaster, major change in the local infrastructure (e.g., highway construction, water and sewer expansion, changes in zoning regulations etc.), a further economic downturn, any additional weakness in the housing market or any instance or situation that causes rapid and dramatic population changes that could not be foreseen at the time the forecasts were calculated.

The high proportion of high school graduates from the Griffith Public Schools that attend college or move to urban areas outside of the district for employment is a significant demographic factor. Their departure is a major reason for the extremely high

out-migration in the locally born18-to-24 age group and was taken into account when calculating these forecasts. The out-migration of graduating high school seniors is expected to continue over the period of the forecasts and the rate of out-migration has been forecasted to remain the same over the life of the forecast series.

Finally, all demographic trends (i.e., births, deaths, and migration) are assumed to be linear in nature and annualized over the forecast period. For example, if 1,000 births are forecasted for a 5-year period, an equal number, or proportion of the births are assumed to occur every year, 200 per year. Actual year-to-year variations do and will occur, but overall year to year trends are expected to be constant.

METHODOLOGY

The population forecasts presented in this report are the result of using the Cohort-Component Method of population forecasting (Siegel, and Swanson, 2004: 561-601) (Smith et. al. 2004). As stated in the **INTRODUCTION**, the difference between a projection and a forecast is in the use of explicit judgment based upon the unique features of the area under study. Strictly speaking, a cohort-component forecast refers to the future population that would result if a mathematical extrapolation of historical trends were applied to the components of change (i.e., births, deaths, and migration). Conversely, a cohort-component forecast refers to the future population that is expected because of a studied and purposeful selection of the components of change believed to be critical factors of influence in each specific area.

Five sets of data are required to generate population and enrollment forecasts. These five data sets are:

a. a base-year population (here, the 2010 Census population for the Griffith Public Schools and its attendance areas);

b. a set of age-specific fertility rates for each attendance area to be used over the forecast period;

c. a set of age-specific survival (mortality) rates for each attendance area;

d. a set of age-specific migration rates for each attendance area; and

e. the historical enrollment figures by grade.

The most significant aspect of producing enrollment forecasts is the generation of the population forecasts in which the school age population (and enrollment) is embedded. In turn, the most difficult aspect of generating the population forecasts is found in calculating the fertility, mortality, and migration models that are specific to the demographic dynamics of an individual school district. From the standpoint of demographic analysis, the Griffith Public Schools district is classified as a "small area" population (as compared to the population of the state of Indiana or to that of the United States). Small area population forecasts are more difficult to calculate because local variations in fertility, mortality, and migration may be more irregular than those at the state or national scale. Especially challenging to project are migration rates for local areas, because changes in the area's socioeconomic characteristics can quickly change from past and current patterns and frequently are closely tied to changes in other geographic areas (Peters and Larkin, 2002.)

The population forecasts for Griffith Public Schools and its attendance areas were calculated using a cohort-component method with the populations divided into male and female groups by five-year age cohorts that range from 0-to-4 years of age to 85 years of age and older (85+). Age- and sex-specific fertility, mortality, and migration

models were constructed to specifically reflect the unique demographic characteristics of each of the Griffith Public Schools attendance areas as well as the total school district.

The enrollment forecasts were calculated using a modified average survivorship method. Average survivor rates (i.e., the proportion of students who progress from one grade level to the next given the average amount of net migration for that grade level) over the previous five years of year-to-year enrollment data were calculated for grades two through twelve. This procedure is used to identify specific grades where there are large numbers of students changing facilities for non-demographic factors, such as private school transfers or enrollment in special programs.

The survivorship rates were modified or adjusted to reflect the average rate of forecasted in and out migration of 5-to-9, 10-to-14 and 15-to-17 year old cohorts to each of the attendance centers in the Griffith Public Schools for the period 2005 to 2010. These survivorship rates then were adjusted to reflect the forecasted changes in age-specific migration the district should experience over the next five years. These modified survivorship rates were used to project the enrollment of grades 2 through 12 for the period 2010 to 2015. The survivorship rates were adjusted again for the period 2015 to 2020 to reflect the predicted changes in the amount of age-specific migration in the districts for the period.

The forecasted enrollments for kindergarten and first grade are derived from the 5-to-9 year old population of the age-sex population forecast at the elementary attendance center district level. This procedure allows the changes in the incoming grade sizes to be factors of forecasted population change and not an extrapolation of

previous class sizes. Given the potentially large amount of variation in kindergarten enrollment due to parental choice, changes in the state's minimum age requirement, and differing district policies on allowing children to start kindergarten early, first grade enrollment is deemed to be a more accurate and reliable starting point for the forecasts. (McKibben, 1996) The level of the accuracy for both the population and enrollment forecasts at the school district level is estimated to be ±2.0% for the life of the forecasts.

RESULTS AND ANALYSIS OF THE POPULATION FORECASTS

From 2010 to 2020, the populations of the Griffith Public Schools, Lake County; the state of Indiana, and the United States are forecasted to change as follows; the Griffith Public Schools will increase by 1.9%, Lake County will decline by -0.5% Indiana will increase by 4.8%; and the United States increase by 8.4% (see Table 1).

Table 1: Forecasted Population Change, 2010 to 2020

	2010	2015	2020	10-Year Change
U.S. (in millions)	308	322	334	8.4%
Indiana	6,483,800	6,638,000	6,798,000	4.8%
Lake County	496,005	495,200	493,300	-0.5%
Griffith Public Schools	16,795	17,040	17,120	1.9%

A number of general demographic factors will influence the growth rate of the Griffith Public Schools during this period, and include the following:

a. The Baby Boom generation will have passed through prime childbearing ages by 2003, thereby reducing the overall proportion of the population at risk of having children;

b. The remaining population in childbearing ages (women ages 15-45) will have fewer children;

c. The locally born 18-to-24 year old population, in prime childbearing ages, will continue to leave the area to go to college or to other urban areas, with the magnitude of this out-migration flow slowly increasing; and,

d. The district will experience continued increase in housing stock, with an average of 15 new units being built each year through 2016. New housing construction will continue after that point, with an average of 10 units built per year until 2023.

The Griffith Public Schools will continue to experience significant in-migration (movement of new young families into the district) over the next 10 years. However, the size and age structure of the pool of potential in-migrants will change and the effects of the in-migration of families on population growth will be greatly offset by the continued steady growing out-migration of young adults as graduating seniors continue to leave the district.

From 2010 to 2015, the district's population is forecasted to increase by 245 or 1.5%, to 17,040. From 2015 to 2020, the population is forecasted to continue to increase by an additional 80 persons or 0.5%. However, during the ten years of the forecasts, only one of the three elementary attendance areas is forecasted to increase in population; 6.8% in the Ready area. The Beiriger and Wadsworth areas will see slight declines. (See Table 2 for population forecast results of each elementary attendance area).

While all elementary areas will see some amount of gross in-migration, (primarily in the 25-to-34 age group,) all areas also will continue to see gross out-migration. This out-migration primarily will be young adults, 18-to-24 years old, as graduating seniors continue to leave the district to go to college or seek employment in larger urban areas. Consequently, most of the attendance areas will experience a modest reduction in their average household size.

As stated in the **ASSUMPTIONS** and emphasized above, the impact of the high proportion of high school graduates that leave the district to continue on to college or to seek employment in large urban areas is significant to the size and structure of the future population of the district. Up to 70% of all births occur to women between the

ages of 20 and 29. As the graduating seniors continue leave the district, the number of women at risk of childbirth during the next decade declines. Consequently, even though the district's fertility rate is slightly below the replacement level, the relatively small number of non-college women in the district ages 20-29 will keep the number of births declining at a modest rate despite the district having a growing population (see the population pyramids in the appendix of this report for a graphic representation of the age distributions of the district and all of the attendance areas).

Table 2: Forecasted Elementary Area Population Change, 2010 to 2020

	2010	2015	*2010-2015 Change*	2020	*2015-2020 Change*	*2010-2020 Change*
Beiriger ES	6,251	6,190	*-1.0%*	6,150	*-0.6%*	*-1.6%*
Ready ES	6,378	6,630	*3.8%*	6,810	*2.7%*	*6.8%*
Wadsworth ES	4,166	4,220	*1.3%*	4,160	*-1.4%*	*-0.1%*
District Total	**16,795**	**17,040**	***1.4%***	**17,120**	***0.5%***	***1.9%***

As a general rule of thumb, for every two seniors that leave the district, one new household must move into the district to replace the young adults that have left and to replace their lost potential fertility. Over the course of the forecast period, the average number of graduating seniors will be approximately 180 per year and at least 75% of them will move out of the district within three years of graduation. Using the general rule, approximately 67 new families will be required to move into the district every year or 670 new families for the ten-year study period to replace the graduating seniors and their lost fertility. It is forecasted that the impact of the steadily increasing out-migration of young adults will continue to be mostly offset by young family (25-39 year old

householders) in-migration and that the total number of births will continue to slightly decline throughout the forecast period.

Another factor that needs to be considered is the birth dynamics of the last twenty years. An examination of national birth trends shows there was a large "Baby Boomlet" born between 1980 and 2000. This Boomlet was nearly as large as the Baby Boom of the 1950s and 1960s. However, unlike the Baby Boom, the Boomlet was a regional and not a national phenomenon (McKibben, et. al. 1999). Because Indiana did not experience a Baby Boomlet, most of the expected enrollment growth will have to result from in-migration and not from an increase in the grade cohort size.

Table 3: Household Characteristics by Elementary Area, 2010 Census

	HH w/ Pop Under 18	% HH w/ Pop Under 18	Total Households	Household Population	Persons Per Household
Beiriger ES	766	31.7%	2413	6247	2.59
Ready ES	984	37.9%	2598	6374	2.45
Wadsworth ES	550	34.3%	1605	4166	2.60
District Total	**2300**	**34.8%**	**6616**	**16787**	**2.54**

Clearly, the dominant factor that has affected the population growth rates of the Griffith Public Schools over the last 20 years has been the number, pace, and cost of existing home sales and the number of new homes constructed. However, the dynamics of this in migration flow are more complex than many realize. There is a common misconception that any changes in the economy, housing market or transportation system will an immediate impact of the size of an area's population and the total impact of that change will be experiences immediately.

This "delayed demographic reaction" is a key issue when attempting to ascertain the impact and duration of a trend. While it is true that the households moving into these new housing units bring many school age (particularly elementary) children into the district, they also bring many preschool age children as well. Consequently, the full impact of the growth in existing home sales and new home construction is not seen immediately in elementary enrollment as it takes three to seven years for all of the children to age into the schools. This is a key issue since the number of births in the Griffith Public Schools is insufficient to maintain current enrollment levels.

Table 4: Householder Characteristics by Elementary Districts, 2010 Census

	Percentage of Householders aged 35-54	Percentage of Householders aged 65+	Percentage of Householders who own homes
Beiriger ES	45.0%	20.2%	84.7%
Ready ES	39.1%	16.1%	43.3%
Wadsworth ES	39.9%	22.2%	73.8%
District Total	**41.4%**	**19.1%**	**65.8%**

Of additional concern are the issues of the district's aging population and the growing number of "empty nest" households, particularly in the Beiriger attendance area. For example, after the last school age child leaves high school, the household becomes an "empty nest" and most likely will not send any more children to the school system. In most cases, it takes 20 to 30 years before all original (or first time) occupants of a housing area move out and are replaced by new, young families with

children. This principle also applies to children leaving elementary school and moving on the middle school. Households can still have school age children in the district's school, but also in effect be "empty nest" of elementary age children.

Note as well the slight increase in the median age of the population in the Griffith Public Schools and all of its attendance areas (see population forecasts in the appendix for the median age for each forecast year). The district as a whole will see the median age of its population increase from 35.9 in 2010 to 38.0 in 2020. This rise in median age is due to three factors, locally raised 18-24 years leaving the district, a high proportion of their parents staying in their existing households and the slight decline in the number of births. (See Table 4)

As a result of the "empty nest" syndrome, the attendance areas in the Griffith Public Schools will see a slight rise in the median age of their populations, even while the district as a whole continues to attract some new young families. It should be noted that many of these "childless" households are single persons and/or elderly (See Table 5). Consequently, even if many of these housing units "turnover" and attract households of similar characteristics, they will add little to the number of school age children in the district. Furthermore, many of the empty nest households will "down size" to smaller households within the district. In these cases new housing units may be built in an area, yet there is no corresponding increase in school enrollment.

There are several additional factors that are responsible for the difference between growth in population and growth in housing stock. Included among these factors are: people building new "move up" homes in the same area or district, (an important point since the children in move up homes tend to be of middle or high school

age); children moving out of their parents homes and establishing residence in the same area; the increase in single-individual households; and divorce, with both parents remaining in the same area.

Table 5: Single Person Households and Single Person Households over age 65 by Elementary Districts, 2010 Census

	Percentage of Single Person Households	Percentage of Households single person and 65+
Beiriger ES	24.0%	7.8%
Ready ES	29.1%	6.7%
Wadsworth ES	25.1%	8.6%
District Total	**26.3%**	**7.6%**

RESULTS AND ANALYSIS OF ENROLLMENT FORECASTS

Elementary Enrollment

The total elementary enrollment of the district is forecasted to decrease from 1,168 in 2013-14 to 1,169 in 2018-19, a decrease of 9 students or -0.7%. From 2018-19 to 2023-24, elementary enrollment is expected to drop by 13 students to 1,156. This will represent a -1.1% decrease over the five-year period. Two of the three elementary attendance schools will experience a net decrease in enrollment over the next ten years (see Table 6).

The reason for this declining pattern in elementary enrollment is the convergence of the effects of three factors, all reaching their peak influence roughly by 2017. These

factors are the existence of a "dearth" of population in the pre-school ages, the reversal of cohort sizes in the elementary grades and the aging out of households that currently have children under the age of 10. Each of these factors will contribute in part to the drop in elementary enrollment until 2017 and the slowing decline afterwards.

Table 6: Total Elementary Enrollment, 2013, 2018, 2023

	2013	2018	*2013-2018 Change*	2023	*2018-2023 Change*	*2013-2023 Change*
Beiriger ES	430	410	*-4.7%*	414	*1.0%*	*-3.7%*
Ready ES	405	434	*7.2%*	434	*0.0%*	*7.2%*
Wadsworth ES	337	319	*-5.3%*	302	*-5.3%*	*-10.4%*
District Total	**1,178**	**1,169**	***-0.8%***	**1,156**	***-1.1%***	***-1.9%***

There is currently a dearth of population in the district's pre-school population compared to the existing 3 to 7 year old population. An excellent example of this impact of the trend is shown in the single year of age counts of the district from the 2010 Census (See Table 7). The population at age six is closely related to the combined 1st grade enrollment of the public and private students in the district (as it is for all ages and elementary grades). However, note the relatively lower number of residents from age one to four, particularly when compared to the cohort sizes of the age 5 and 10 population. This trend is an indication of the proportion of households in each area that will produce elementary age students over the next five years. Without a substantial in-migration of young families with children under the age of five, this "pre-school cohort" will results in decline in elementary enrollments over the next five years.

Table 7: Age Under One to Age Ten Population Counts, by Year of Age, by Elementary Attendance Area: 2010 Census

	Under 1 year	1 year	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years	10 years
Beiriger ES	65	61	59	69	56	55	65	57	65	76	90
Ready ES	117	92	113	108	111	90	107	99	99	93	88
Wadsworth ES	54	46	39	51	50	54	53	59	51	57	63
District Total	236	199	211	228	217	199	225	215	215	226	241

Secondly, over the last several years, one of the main reasons elementary enrollment was decreasing was due to the fact that the number of children entering Kindergarten and 1st grade was much smaller than the number leaving elementary school after completing 5th grade. However over the next five years the incoming 1st grade cohorts will average 270 students in size where as the outgoing 5th grade cohorts have averaged 168. Thus, the rate of enrollment decline should moderate compared to that of the last 5 years.

The third factor is the rise of the number of empty nest households in the district. In 2010 the district had 41.4% of their households headed by people ages 35-54 (The ages most people have school aged children). The district's proportion of households in these age groups has dropped over the last five years as people aged and the households became empty nest. Unfortunately, the large bubble of now empty nest households, (particularity empty of elementary age students) will not reach their 70s during the life of these forecasts. Post 70 year old households are the stage of life when

most downsize, allowing new young families with children to move in.

The demographic factors that will become the most influential over the next ten years are the growth rate of empty nest household in the attendance areas, the number of sales of existing and new homes, the rate and magnitude of existing housing unit "turn over," the relative size of the elementary and pre-school age cohorts and each area's fertility rate. Each of these factors will vary in the scale of their influence and timing of impact on the enrollment trends of any particular elementary area.

Attendance areas that are currently experiencing a rise in empty nest households tend to be the same areas that are the recipients of limited or no new housing construction. Thus, areas like Wadsworth will see net declines in elementary enrollment. While these areas will continue to see net in migration of families, it will not be at a sufficient rate to maintain current attendance levels.

As more areas become completely dependent upon existing home sales to attract new families, the overall elementary enrollment trend of the district will decline. Areas such as Beiriger will see their elementary enrollments peak by the end of the decade and then slowly decline. Thus, the best primary short- and long-term indicator for enrollment change in most of the attendance area will be the year-to-year rate of housing turnover. If the Total Fertility Rates of all the attendance areas remain at their current low levels (and they are forecasted to do so) they will insure that enrollments will continue to see slowing growth (or outright declines) even if the levels of net out-migration are greatly reduced.

It is important to note that not all new housing construction results in an increase in elementary enrollment. Frequently in cases where the new home construction is

primarily move up houses (priced $417,000 or higher, the lower limits of a jumbo mortgage until 2008) the impact on enrollment is felt more at the middle and high school levels than at the elementary level. Since the construction of these types of homes are usually in area outside of the Griffith School District these new home contribute to the outmigration flow of households with late elementary and middle school age children. These homes are usually purchased by families who have completed their childbearing and the children they do have tend to be ages 10 and older.

Additionally, areas that are characterized by the relatively high percentage of rental housing units and large concentrations of young adults tend to have more stable population distribution and enrollment trends. In these cases, young adults or the newly married, move to these areas and establish households. Because the population is in prime child bearing ages, these areas also have both a high absolute number of births and a higher than the district average birth rate. Later, as family size increases, these families often move to single family homes--usually moderately priced single family homes in other parts of the school district.

Consequently, Ready and other sub-attendance areas with the aforementioned characteristics, serve as feeder areas for outlying attendance areas in the district. This internal migration flow is far more important in determining future enrollment trends than the construction of new single family homes as an average of eight existing homes are sold for every new home built. Indeed, a close examination of the year to year trends in the family formation areas will serve as an excellent bellwether for short and medium term changes in areas that depend on in-migration for enrollment growth.

Middle School Enrollment

The total middle school enrollment for the district is forecasted to decline from 372 in 2013-14 to 326 in 2018-19, a 46 student or 12.4% decrease. Between 2018-19 and 2023-24 middle school enrollment is forecasted to grow to 349, an increase of 23 students or 7.1%. The difference in the size of the individual grade cohorts and the aging of students through the school system are the primary reasons why the middle school enrollment trends deviate from those of the elementary grades.

There are currently smaller grade cohorts enrolled in the elementary school grades compared to those in the middle schools' grade cohorts. As these elementary school cohorts "age" into middle school and larger middle school cohorts age into high school, they decrease the overall middle school enrollment level. Note how the size of the incoming 7th grade class is usually smaller than the previous year's 8th grade class, which has now moved on the high school. As long as this "wave" in the enrollment pattern exists, there will be to some degree, a decrease in middle school enrollment at least until the 2018-19 school year.

After the 2018-2019 school year, this cohort trend reverses. There will then be larger grade cohorts entering the middle school grades compared to those leaving. The result is a modest increase in middle school enrollment until at least 2023 and most likely beyond.

High School Enrollment

Enrollment at the high school level is forecasted to decline from 822 in 2013-14 to 729 in 2018-19, a decrease of 93 students or -12.7%. After 2017-18, the rate of high

school enrollment decline will slow and begin to stabilize after the 2020-21 school year. The net result for the five-year period 2018-19 to 2023-24 will be an decrease of 60 students to 669 or -8.2%.

The aforementioned effects of changes in cohort size on middle school enrollment are also affecting the growth patterns of the high school population. Over the next four years, the larger grade cohorts that are in the middle school enrollment begin to enter high school. Until the current wave of students passes through the high school grades, there will be continued growth at the district's high school. One relatively small grade cohort (currently in grade 9) will cause the high school enrollment to increase noticeable after they graduate in 2017. After that point, high school enrollment will stabilize and experience more modest year to year changes.

It is important to note that the vast majority of this future high school enrollment growth will be a result of students aging into those grades. Specifically, students who already live in the district (and not in- migration of students ages 14 to 18) will be the primary cause of the forecasted increase in high school enrollment. Additionally, as was mentioned earlier, these forecasts represent the demographic changes that will affect high school enrollment. Any changes in the district's student transfer policy and/or changes in special high school level programs will need to be added or subtracted from the forecast result

High school enrollment is the most difficult of all the grade levels to project. The reason for this is the varying and constantly changing dropout rates, particularly in grades 10 and 11. For these forecasts the dropout rates at the high school were calculated for each grade over the last five years. These five-year averages were then

held constant for the life of the forecast. The effects of any policy changes dealing with any school's dropout rates, program placement or reassignment of former students to new grade levels will need to be added or subtracted from the forecast results.

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