

NORTHFIELD SCHOOL DISTRICT #659

ENROLLMENT PROJECTIONS

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NORTHFIELD PUBLIC SCHOOLS ENROLLMENT PROJECTIONS

Executive Summary

- Over the past ten years, Northfield Public School enrollment decreased by -9 students or -0.2 percent
 - The increasing number of district residents attending a charter school or open enrolling out of the district accounts for flat enrollment
- Projected enrollment
 - Cohort Survival method projections show enrollment decreasing in both the next five years and in the second five years of the ten projection period
 - K-5 enrollment is projected to be down in the next five years due to the lower number of births and then partially rebound in the second five projection years
 - Middle school (Grades 6-8) enrollment is projected to increase in the next five years but then decrease in the second five projection years as the smaller elementary grades that reflect the recent decline in births move into middle school
 - High school enrollment is projected to increase
- Projected additional housing is modest in the near term in the Northfield School District
 - Eighty-eight (88) additional single-family detached units are projected in the next two years
 - Nearly half (47 percent) of single-family detached housing units have at least one resident who is 55+ years-old
 - Current Northfield Public School student yields are low, another indicator that the district's population is aging

CHAPTER 1

DISTRICT WIDE ENROLLMENT PROJECTIONS

Introduction

School age population is closely related to other population characteristics. For example, age can affect the number of births in a school district. A larger number of women of prime childbearing age results in more births and larger kindergarten classes five years later. Moving from one locale to another is also related to age; and the movement of families with children under 18 years of age can have a major effect on school enrollment. Population “turnover” is ongoing in a mobile society and enrollment changes throughout the school year as families and children move. In this study, enrollment projections are for the fall headcount, that is, headcount on or about October 1.

While population changes affect the total number of school age children residing in a school district, Minnesota students and their families have education choices. Therefore, when analyzing public school enrollment, choice must be considered as well as population dynamics. Choice includes nonpublic schools, home schools, and the public choices of open enrollment, charter schools and alternative schools. Two others choices exist: a) dropping out of high school, and b) delaying entering kindergarten.

Enrollment Trends

Enrollment in the Northfield Public Schools

Current Enrollment/Past Trends

Total enrollment in the Northfield Public Schools is -9 students or -0.2 percent lower in 2013-14 than in 2004-05. Enrollment was essentially flat although it fluctuated from year to year during the ten year period.

K-12 TOTAL ENROLLMENT									
2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
3,762	3,792	3,826	3,833	3,785	3,753	3,717	3,733	3,782	3,753

Source: Northfield School District, Fall Enrollment. Excludes Early Childhood and ALC

Like all population changes, school enrollment change results from two different phenomena. The difference between the size of the incoming kindergarten class and the previous year’s Grade 12, called natural increase or decrease, measures the change in past birth numbers or cohort change. For example, the Baby Boom (1946-1964) and the Baby Bust (1965-1976) set in motion cycles of rising and falling enrollment that were reflected as natural increase/decrease. As the next table shows, in the past

ten years, Northfield's kindergarten classes have been smaller than the previous year's Grade 12 every year. The difference is large in some years and smaller in others. Much of this natural decrease is artificial resulting from students who attended kindergarten elsewhere but enrolled in the Northfield Public Schools' middle school and high school, which then "inflates" Grade 12 compared to Kindergarten.

COMPONENTS OF ENROLLMENT CHANGE				
Fall to Fall	Total		Natural Increase/ Decrease	Net Migration
	#	%		
2004 to 2005	30	0.8	-58	88
2005 to 2006	34	0.9	-20	54
2006 to 2007	7	0.2	-41	18
2007 to 2008	-48	-1.3	-49	1
2008 to 2009	-32	-0.8	-45	13
2009 to 2010	-36	-1.0	-88	52
2010 to 2011	16	0.4	-46	62
2011 to 2012	49	1.3	-11	60
2012 to 2013	-29	-0.8	-91	62

The other phenomenon affecting school enrollment is migration, an indirectly derived estimate. Migration is the term used when people move across a boundary or border, in this case, the school district boundary. Net migration is calculated by the progression from grade-to-grade of public school students. For example, public school Kindergarten students are moved to Grade 1 in the following year, Grade 1 students to Grade 2, etc. Because the probability of death is very low among children, the same number of students should be in the next higher grade the following year. Therefore, if the number of students changes, migration is assumed to have occurred. A positive number indicates a net flow into the public schools and a negative number reflects a net flow out of the public schools.

This method for estimating migration does not distinguish between physical movement across the district's boundaries and education choices, such as transferring from a nonpublic school to a public school, transferring to a charter school or open enrolling in another public school outside the district. Further, students who move into or out of a school district but never enroll in the district's public schools are not reflected in the migration numbers in this report.

Based on the described methodology, net migration has been positive every year. These numbers largely reflect the inflows from nonpublic schools and other public options.

Student Choices in the Northfield School District

Minnesota students and their families have education choices. Nonpublic schools have been an option for many years. More recently, home schools became another option. Since its inception, public school options are attracting more students. Open enrollment allows residents of one district to attend

public schools in another district. Charter schools are another public option. All these choices mean competition for a district’s public schools.

Nonpublic Enrollment and Home Schools

Today, nonpublic enrollment falls into two categories—traditional nonpublic schools and home schools. Most traditional nonpublic schools are associated with religious institutions and many home school curriculums also have religious ties.

NONPUBLIC SETTINGS			
Year	Traditional Nonpublic Schools	Home Schools	Total
2004-05	194	109	303
2005-06	199	123	322
2006-07	191	130	321
2007-08	215	129	344
2008-09	223	133	356
2009-10	231	128	359
2010-11	231	123	354
2011-12	235	123	358
2012-13	232	115	347
2013-14	185	111	296

Source: Northfield School District

In Minnesota, 8.1 percent of all enrolled students were enrolled in traditional nonpublic schools and 1.9 percent of enrolled students were home schooled in 2011-12. (To date, the Minnesota Department of Education has not released comparable date for 2012-13.) In the Northfield School District, traditional nonpublic schools accounted for 4.2 percent of enrolled students and home schooled students accounted for 2.9 percent. The proportion of ISD #659 residents in nonpublic settings is lower than the statewide percentages. Combining home school students and nonpublic students, 6.9 percent of Northfield district residents were in nonpublic settings. In Minnesota, 10.0 percent were enrolled in nonpublic settings.

In the past ten years, traditional nonpublic enrollment decreased statewide while home schooled children increased. Traditional nonpublic enrollment in the Northfield School District increased but today it is about what it was in 2004-05. Home schooled students show the same pattern and today, the number of home schooled students is similar to 2004-05.

Public Options

Open Enrollment. Open enrollment allows Minnesota students to attend public schools outside their district of residence. The application to open enroll is made by the student and his/her parents and families generally provide their own school transportation. No tuition is charged.

Some students attend public schools outside their home district because their home district enters into an agreement with another district, usually to provide specialized services. This is called a tuition agreement, but this arrangement is not technically a student choice.

Since its beginning, open enrollment has attracted more and more students statewide and in the Northfield School District. In 2013-14, 281 nonresident students open enrolled into the Northfield Public Schools while 193 district residents attended public schools elsewhere through open enrollment.

PUBLIC OPTIONS					
Year	In	Out			Net
	Open Enrollment & Tuition	Open Enrollment & Tuition	Charter Schools	Other Options* (ALC and Other)	
2004-05	279	124	181	118	-26
2005-06	247	129	197	58	-79
2006-07	257	147	189	89	-79
2007-08	250	135	201	77	-86
2008-09	294	144	205	98	-55
2009-10	276	157	256	80	-137
2010-11	282	176	262	76	-156
2011-12	262	164	254	67	-156
2012-13	278	191	300	42	-213
2013-14	281	193	268	52	-180

Other Options not included in the net
 Source: Northfield School District

Nonresident students who open enroll into the Northfield Public Schools accounted for 7.0 percent of Northfield's total enrollment in 2011-12. Students leaving the district to attend public schools elsewhere represented 3.8 percent of district school age residents. In 2011-12, 6.4 percent of Minnesota students chose open enrollment.

Charter Schools. Charter schools are another public education option. While 4.1 percent of Minnesota students attend charter schools, 5.9 percent of Northfield School District residents attend charter schools, making charter schools the public option with the largest (net) negative impact on Northfield Public School enrollment.

As the public option data show, the Northfield Public Schools are a net loser among students selecting public options. The net loss has increased over the past decade.

Summary of District School Age Residents

To estimate market share (capture rate), there must be an estimate of a district's school age population or more precisely, a district's school age population enrolled in school. A district's enrolled population can be constructed based on resident students in the district's schools and then adding district residents attending traditional nonpublic schools, residents being home schooled and residents

opting for open enrollment out, charter schools and other public options. Based on 2004-05 and 2013-14, the estimated resident school age population increased slightly, going from 4,209 to 4,281. During this same period, resident enrollment in the Northfield Public Schools decreased by -11 students or -0.3 percent. These data suggest that the Northfield Public Schools' market share decreased, which is typical in Minnesota. Based on the estimated 2013-14 enrolled population of 4,281, the Northfield Public Schools captured 81.1 percent of the district's school age population. In 2004-05, using the same definition, market share was 82.8 percent. Northfield's current market share is higher than the state wide average.

NORTHFIELD SCHOOL DISTRICT ESTIMATED RESIDENT SCHOOL AGE POPULATION				
Year	Northfield Public Schools Resident Enrollment	Nonpublic Settings	Public Options*	Total
2004-05	3,483	303	423	4,209
2005-06	3,545	322	384	4,251
2006-07	3,569	321	425	4,315
2007-08	3,583	344	413	4,340
2008-09	3,491	356	447	4,294
2009-10	3,477	359	493	4,329
2010-11	3,435	354	514	4,303
2011-12	3,471	358	485	4,314
2012-13	3,504	347	533	4,384
2013-14	3,472	296	513	4,281

*Includes Other Options

History of Resident Enrollment by Grade

The history of public school enrollment contains several patterns with implications for the future. First, the size of the kindergarten class fluctuated from year to year but in 2013-14 was smaller than in 2004-05. In most years between these two years, kindergarten was larger.

Future enrollment is heavily influenced by current grade size. A way of expressing grade size differences is to calculate the "average" number of students per grade. For example, the average elementary grade (K-5) has 269 students. The average middle school grade (Grades 6-8) has 304 students while the average for a high school grade is 307 students. The larger middle school and high school classes reflects some net inflow of students; however, the difference between the size of the average elementary grade and the average middle school grade points to decline if kindergarten remains near its current level.

Minnesota's largest graduating high school class since 1978 graduated in 2009. Statewide, graduating classes will be getting smaller. Based on Northfield's enrollment history, Northfield's largest senior class most likely graduated in 2010.

ENROLLMENT										
Grade	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
K	250	254	280	272	247	269	247	267	281	235
1	262	268	249	287	272	251	273	256	269	300
2	249	250	276	250	291	255	258	283	251	266
3	258	258	264	281	253	290	254	271	276	255
4	284	265	258	274	273	248	292	264	270	278
5	262	288	272	264	281	273	256	306	269	278
6	292	299	331	287	293	306	297	264	339	296
7	319	314	294	336	279	282	297	306	269	347
8	312	328	316	298	334	277	290	297	314	269
9	324	336	336	331	305	346	307	310	319	328
10	311	313	332	335	317	311	335	298	307	310
11	327	319	305	322	326	310	298	319	292	296
12	312	300	313	296	314	335	313	292	326	295
Total	3,762	3,792	3,826	3,833	3,785	3,753	3,717	3,733	3,782	3,753

Source: Northfield School District. Excludes Early Childhood and ALC

Enrollment Projections

Projection Background

Some factors affecting future school enrollment are known. However, other important factors are less clear. First, the trends around which there is confidence.

Trends Where Confidence is High

- Aging. The population in the U.S. and Minnesota is aging. By 2020, 16-17 percent of Minnesota's population will be 65 years old or older. In 2010, the elderly made up 12.9 percent of the population. There is no historical precedent for this high proportion of older population; therefore, society is entering uncharted waters as to the effects of this change. However, we know that aging will affect the housing market and reduce geographic mobility because older people move less frequently than younger people.
- Decrease in the school age population per household. From 2000 to 2010, the number of school age children per household decreased sharply as Baby Boomer households empty nested and started to "age in place." After 2010, households with children will be headed primarily by Generation X parents who are members of a much smaller generation. Gen X (1965-1976) is only 60 percent the size of the Baby Boom (1946-1964) generation, which means the percentage of households with 5-17 year-olds will continue to decrease but more slowly.
- Shift in size of key adult age groups. The size of the Baby Boom generation and the Baby Bust generation will result in significant changes in the size of adult age groups, which in turn will affect the demand for new housing units. The modest increase in the 20-34 year-old population

between 2010 and 2020 is especially significant for the demand for “first” homes (including apartments) and the decrease in 35-54 year-olds will affect the “move up” market. Growth in the 55+ year-old markets will create demand for housing for mature adults and seniors; however, these units will not yield school age children. These population changes by age point to a future very different from the recent past. Demand for additional housing will slow because the adult population age 20+ will increase more slowly and the 35-54 year-old age group that helped fuel the housing boom will decrease from 2010-2020. Furthermore, 60 percent of the increase in adults 20 years of age and older will be persons 65+ years of age. There may be more sellers than buyers in the housing market.

- Fertility. Today, completed fertility is near the replacement level. Completed fertility refers to the number of children born per woman throughout her childbearing years. In the U.S., White non-Hispanic and Black women have near or below replacement fertility. (Replacement is 2.11 children per female at the end of childbearing.) Fertility rates are likely to remain at or near replacement levels. Hispanic women and immigrant women have higher fertility.
- Births. Births fell after 1990 in the U.S. and in Minnesota; however, since 2003, births had been increasing until the past four years. In 2007, births were higher than at any time since 1964; however, 2007 births were well below the peak Minnesota birth year of 1959 (88,000 resident births). Births fell in the U.S. and Minnesota in 2008, 2009, 2010 and 2011, although in Minnesota, births were flat between 2010 and 2011 (+9 births). These declines are attributed to the poor economy.

As the history of resident births shows, from 1998 to 2011, resident births in Minnesota increased 4.9 percent while resident births in Rice County increased 9.2 percent. Resident births in Northfield City increased 6.7 percent. Rice County resident births peaked in 2006.

RESIDENT LIVE BIRTHS			
Calendar Year	Minnesota	Rice County	Northfield City
1998	65,207	671	195
1999	65,953	670	175
2000	67,451	663	159
2001	66,617	721	210
2002	68,037	716	201
2003	70,053	698	191
2004	70,617	797	223
2005	70,950	794	231
2006	73,515	842	242
2007	73,675	796	213
2008	72,382	794	203
2009	70,617	748	206
2010	68,407	720	178
2011	68,416	733	208

Source: Minnesota Department of Health

- Enrollment cycles. Births will increase again and a third enrollment cycle will occur in the first half of this century. Already, kindergarten classes are increasing in some districts, a sign of the beginning of this third enrollment cycle. The end of the third enrollment cycle is projected to be around 2040. (From start to finish, these cycles last about 30 years.)

Unknowns

The unknowns reflect recent changes such as the collapse of the housing market and tighter credit. Another unknown is the longer-term effect of the recession on domestic migration and international immigration, especially in a sluggish economy. Furthermore, will attitude and behavior changes prompted by the recession last?

- Collapse of the housing market and tighter credit. A high level of mobility was possible with a robust housing market with rapid appreciation and easy credit. This has now changed with the collapse of the housing market and tighter credit. The change in the housing market has slowed growth in many school districts. Recently, however, home prices have been increasing and new construction is occurring.
- The recession. Although the recession is over, the sluggish job market slowed population movement between and within states. Minnesota felt the effect of this change as fewer young and middle-aged adults moved to Minnesota slowing population growth, although population has increased more rapidly in the past year. The recession also increased public school enrollment as some families decided that nonpublic schools were beyond their current financial resources.

Cohort Survival Method

The most common and most robust model for projecting school enrollment is the cohort survival method. The first step in the cohort survival method is aging the population. In a standard cohort survival model, aging the population involves estimating the number of deaths expected in an age group before it reaches the next older age group. When the cohort survival method is applied to school enrollment, the first step is to move a grade to the next higher grade. However, because mortality is so low in the school age population, the entire grade is assumed to “survive” to the next higher grade in the following year.

Once a grade or cohort has been “aged” to the next grade, net migration is added to or subtracted from that grade. Using survival rates accomplishes both “aging” and migration in a single step. Over time, the size of a cohort will increase or decrease as a result of migration as its progresses through the grades. For example, the 2004-05 kindergarten class had 250 members. This same cohort had 328 members in Grade 9 in 2013-14; however, most of this increase represents nonpublic and charter school students entering the Northfield Public Schools not new residents to the district.

The projection of future kindergarten class size is important in long-term enrollment projections because these students will be in school over the life of the projection. If a school census exists, it is a resource for short-term kindergarten projections, i.e., a couple of years. However, school censuses are notoriously inaccurate for children less than four years of age.

To project kindergarten, the best theoretical approach, but the least practical, is to project births based on the age of the female population. These birth projections then must be survived to age five and then adjusted for migration to yield kindergarten projections. Determining the age of females in a school district is the first challenge and then, many assumptions must be made, making this approach impractical.

A simpler approach is to use resident births as a proxy for kindergarten five years later. Of course, not every child born in the district will enter the district's kindergarten classes five to six years later. However, some "native born" children who move out before enrolling in kindergarten will be replaced by children born elsewhere who move into the district before entering kindergarten. If the number of "ins" and "outs" is equal, the net effect is zero and the kindergarten class would be 100 percent of resident births. However, no public school system captures all its potential. Some resident kindergarten students attend private schools or are home schooled. Others may attend a charter school or open enroll at another district. Therefore, a public school's capture rate is expected to be less than 100 percent. If the capture rate is 100 percent or higher, more preschool children are moving into the district than leaving (net in migration).

Using resident births as a proxy for kindergarten results in kindergarten projections for only a few years into the future. To extend kindergarten projections another five years, Northfield's kindergarten will be projected based on the Minnesota Demographic Center's projection of Rice County resident births.

Kindergarten Assumptions

Although births five years earlier are a good proxy for a kindergarten class, kindergarten students must be 5 years-old by September 1. This age requirement means that about one-third of the kindergarten class is born six years earlier not five years earlier. Adjusting birth years to fit the age requirements of kindergarten creates a kindergarten pool.

DISTRICT RESIDENT LIVE BIRTHS SEPTEMBER 1 TO AUGUST 31	
1998-1999	196
1999-2000	183
2000-2001	235
2001-2002	209
2002-2003	220
2003-2004	230
2004-2005	231
2005-2006	229
2006-2007	259
2007-2008	211
2008-2009	226
2009-2010	204
2010-2011	174
2011-2012	127
2012-2013	145

Source: Minnesota Department of Health

Upon special request, the Minnesota Department of Health will provide resident births by address so births can be geocoded to a school district's boundaries. Some "out-of-wedlock" births may be withheld because unmarried parents may choose whether to make birth information by address public. (All resident births are reported in published city and county data.)

The resident births pool for District #659 is smaller in 2012-13 than it was in 1998-1999; and for the past three years, the pool is smaller than it was earlier. Further, the district's births are less than those in the City of Northfield in 2010-11 suggesting that more births by address are being withheld. Therefore, the Northfield District pool was adjusted upward to maintain the typical ratio between district and city resident births. The adjusted numbers for the past three years are shown in parentheses. Even with the adjustment, kindergarten classes will be smaller in the future unless more preschool children move into the district in the next several years.

NORTHFIELD'S KINDERGARTEN AS A PERCENTAGE OF THE DISTRICT KINDERGARTEN POOL			
Birth Years	Northfield District Pool	Percentage	Kindergarten Year
1998; 1999	196	127.6%	2004-05
1999; 2000	183	138.8%	2005-06
2000; 2001	235	119.1%	2006-07
2001; 2002	209	130.1%	2007-08
2002; 2003	220	112.3%	2008-09
2003; 2004	230	117.0%	2009-10
2004; 2005	231	106.9%	2010-11
2005; 2006	229	116.6%	2011-12
2006; 2007	259	108.5%	2012-13
2007; 2008	211	111.4%	2013-14
2008; 2009	226		2014-15
2009; 2010	204		2015-16
2010; 2011	174 (218)		2016-17
2011; 2012	127 (159)		2017-18
2012; 2013	145 (181)		2018-19

Applying a ratio of Northfield's kindergarten to the kindergarten pool takes advantage of actual births in the past several years. With district birth data available through September 2013, kindergarten classes can be projected from actual births through 2018-19.

Northfield's kindergarten as percentage of the district pool fluctuates in a fairly wide range even in the past six years. Averaging the percentages is a way to remove some of the annual fluctuations. For example, the average of the past six years is 112.1 percent while the average of the past three years is 112.2 percent. The average of the past two years is 110.0 percent while the average of the past four years is 110.9 percent. While the percentage varies annually, a kindergarten percentage of around 112 percent and one around 110 percent reflect recent history. For kindergarten projections the average of 112.1 percent and the average of 110.0 percent will be used.

RESIDENT BIRTHS RICE COUNTY				
Year	Births			
	Original Projection	Actual	Difference	Adjusted Projection
2005	805	794	-1.4%	
2006	828	842	1.7%	
2007	851	796	-6.5%	
2008	875	794	-9.3%	
2009	898	748	-16.7%	
2010	921	720	-21.8%	
2011	933	733	-21.4%	
2012	946			743
2013	958			752
2014	971			762
2015	983			772
2016	987			775
2017	991			778
2018	995			781

Source: Minnesota Demographic Center

To extend kindergarten projections beyond 2018-19, projected Rice County resident births will be used as a guide. As the above table shows, actual births are much lower than projected births; therefore, the projections will be reduced by 21.5 percent. These reduced projections will be used as a guide for Northfield district births. In the past five years, Northfield district births have been about 29 percent of Rice County births.

The next table shows the district kindergarten pool based on district resident births through 2018-19 and the projected pool based on Rice County resident birth projections for 2019-20 through

PROJECTED DISTRICT KINDERGARTEN POOL	
2014-15	226
2015-16	204
2016-17	218
2017-18	159
2018-19	181
2019-20	218
2020-21	221
2021-22	224
2022-23	225
2023-24	225

2023-24. Note that the kindergarten pool does not return to its 2013-14 level (226) until 2021-22 (224). Unless more preschool children move into the district or more kindergarten students open enroll into the Northfield Public Schools, kindergarten classes will be smaller for a number of years. As the Millennials (Gen Y) move into their prime childbearing years, births should rise and the kindergarten pool will become larger in the 2020s.

Based on history, a 110.0 percent capture rate will be used as the low kindergarten assumption and a 112.1 percent capture rate will be used as a high kindergarten assumption.

KINDERGARTEN ASSUMPTIONS		
Year	@110.0%	@112.1%
2013-14	235	235
2014-15	249	253
2015-16	224	229
2016-17	240	244
2017-18	175	178
2018-19	199	203
2019-20	240	244
2020-21	243	248
2021-22	246	251
2022-23	248	252
2023-24	248	252
Total	2,312	2,354

The low resident kindergarten projection results in 2,312 kindergarten students over ten years while the high projection produces 2,354 kindergarten students in ten years. This compares with 2,602 kindergarten students over the past ten years. The large Gen Y (Millennial) population will begin to enter its prime childbearing years after 2015. When this happens, the kindergarten pool should increase. As the pool increases, so will the size of the kindergarten classes.

Net Migration Assumptions

The method for estimating migration does not distinguish between physical movement across the district’s boundaries and education choices, such as transferring from a nonpublic school to a public school, transferring to a charter school or open enrolling in another public school. Further, students who move into or out of a school district but never enroll in the district’s public schools are not reflected in the migration numbers in this report.

In the past ten years, annual net migration fluctuated from year to year but has always been positive. The next table shows net migration aggregated by the elementary grades (Kindergarten-Grade 5), the middle school grades (Grades 6-8) and the high school grades. Kindergarten to Grade 5 net in migration accounted for a majority of the net in migration in some years while middle school net in migration was larger than elementary net in migration in most years. The high school grades show a net loss most years, which is typical in Minnesota as students leave for alternatives (ALCs) or drop out.

NET MIGRATION SCHOOL YEAR TO SCHOOL YEAR									
	04 to 05	05 to 06	06 to 07	07 to 08	08 to 09	09 to 10	10 to 11	11 to 12	12 to 13
K-5	26	24	29	6	-19	20	56	-6	30
6-8	68	40	24	19	12	23	17	46	35
9-12	-6	-10	-5	-24	20	9	-11	20	-3
Total	88	54	48	1	13	52	62	60	62

NET MIGRATION BY GRADE SCHOOL YEAR TO SCHOOL YEAR									
	04 to 05	05 to 06	06 to 07	07 to 08	08 to 09	09 to 10	10 to 11	11 to 12	12 to 13
K to 1	18	-5	7	0	4	4	9	2	19
1 to 2	-12	8	1	4	-17	7	10	-5	-3
2 to 3	9	14	5	3	-1	-1	13	-7	4
3 to 4	7	0	10	-8	-5	2	10	-1	2
4 to 5	4	7	6	7	0	8	14	5	8
5 to 6	37	43	15	29	25	24	8	33	27
6 to 7	22	-5	5	-8	-11	-9	9	5	8
7 to 8	9	2	4	-2	-2	8	0	8	0
8 to 9	24	8	15	7	12	30	20	22	14
9 to 10	-11	-4	-1	-14	6	-11	-9	-3	-9
10 to 11	8	-8	-10	-9	-7	-13	-16	-6	-11
11 to 12	-27	-6	-9	-8	9	3	-6	7	3
Total	88	54	48	1	13	52	62	60	62
Percent	2.3	1.4	1.3	---	0.3	1.4	1.7	1.6	1.6

In the Northfield Public Schools, net in migration occurs most years between Kindergarten and Grade 1. Net in migration between Kindergarten and Grade 1 is typical in Minnesota's public schools. The progression from grade to grade in the remaining elementary grades fluctuates but is usually positive. Northfield also has relatively large and consistent net in migration from Grade 5 to Grade 6 and again from Grade 8 to Grade 9, when charter school and nonpublic students transfer into the Northfield Public Schools. After Grade 9, the high school grades show losses. This also is typical.

Migration is converted to survival rates for projection purposes. These rates show the percentage change from grade to grade each year. For example, 1.00 indicates no change or 100 percent of the grade progressed to the next highest grade. Any number over 1.00 reflects the percentage increase while a number below 1.00 reflects the percentage decrease. For example, 0.98 indicates a 2 percent decrease.

SURVIVAL RATES SCHOOL YEAR TO SCHOOL YEAR									
	04 to 05	05 to 06	06 to 07	07 to 08	08 to 09	09 to 10	10 to 11	11 to 12	12 to 13
K to 1	1.072	0.980	1.025	1.000	1.016	1.015	1.036	1.008	1.068
1 to 2	0.954	1.030	1.004	1.014	0.938	1.028	1.037	0.981	0.989
2 to 3	1.036	1.056	1.018	1.012	0.997	0.996	1.050	0.975	1.016
3 to 4	1.027	1.000	1.038	0.972	0.980	1.007	1.039	0.996	1.007
4 to 5	1.014	1.026	1.023	1.026	1.000	1.032	1.048	1.019	1.030
5 to 6	1.141	1.149	1.055	1.110	1.089	1.088	1.031	1.108	1.100
6 to 7	1.075	0.983	1.015	0.972	0.963	0.971	1.030	1.019	1.024
7 to 8	1.028	1.006	1.014	0.994	0.993	1.028	1.000	1.026	1.000
8 to 9	1.077	1.024	1.048	1.024	1.036	1.108	1.069	1.074	1.045
9 to 10	0.966	0.988	0.997	0.958	1.020	0.968	0.971	0.990	0.972
10 to 11	1.026	0.974	0.970	0.973	0.978	0.958	0.952	0.980	0.964
11 to 12	0.917	0.981	0.971	0.975	1.028	1.010	0.980	1.022	1.010

One of the advantages of the cohort survival method is that it produces projections for every grade. However, this requires migration assumptions for every grade. At first glance, some of the rates look quite similar. However, the average of survival rates for the past ten years results in a higher

COMPARISON OF SURVIVAL RATES AVERAGED			
Grade	Past 10 years	Past 5 years	Past 3 years
K to 1	1.024	1.029	1.037
1 to 2	0.997	0.995	1.002
2 to 3	1.017	1.007	1.014
3 to 4	1.007	1.006	1.014
4 to 5	1.024	1.026	1.032
5 to 6	1.097	1.083	1.080
6 to 7	1.006	1.001	1.024
7 to 8	1.010	1.009	1.009
8 to 9	1.056	1.066	1.063
9 to 10	0.981	0.984	0.978
10 to 11	0.975	0.966	0.965
11 to 12	0.988	1.010	1.004

projection than the average of the survival rates of the past five years. The average of the survival rates of the past three years results in the highest projection. The three year average will be used for the high migration assumption while the ten year average will be used for the low migration assumption.

Because net migration will be projected based on survival rates by grade, the percentage change will be the same each year while the actual number of students added or subtracted by grade may change from year to year.

PROJECTED SURVIVAL RATES		
Grade	Low (Past 10 Years)	High (Past 3 Years)
K to 1	1.024	1.037
1 to 2	0.997	1.002
2 to 3	1.017	1.014
3 to 4	1.007	1.014
4 to 5	1.024	1.032
5 to 6	1.097	1.080
6 to 7	1.006	1.024
7 to 8	1.010	1.009
8 to 9	1.056	1.063
9 to 10	0.981	0.978
10 to 11	0.975	0.965
11 to 12	0.988	1.004

Projection Results

The kindergarten and net migration assumptions are trend lines, which remove annual fluctuations. However, the future, like the past, will be characterized by annual fluctuation, sometimes large. Because there is no reasonable way to forecast when fluctuations around trend lines will occur, it is arbitrary to project them. Furthermore, long-term projections are designed to approximate a future point in time not to yield the best projection for each intervening year between the present and the projection end date. For this reason, long-term projections should not be used for annual budgeting purposes. The district should continue to use its version of the cohort survival methodology for annual enrollment projections.

Four cohort projections are shown in the next table. In ten years, there is a 123 student difference between the lowest projection and the highest projection. This difference results from different assumptions. The kindergarten assumptions result in a 46-47 student difference over the ten years, while the migration assumptions result in a 76-77 student difference in those same years. As these projections show, the migration assumptions have a larger effect on the outcome than the kindergarten assumptions. Of course, assumptions different from these would result in still different projections.

The lowest projection is based on the low kindergarten and low migration assumptions. In this projection, enrollment decreases by -131 students by 2018-19 and continues to decrease so that in 2023-24, enrollment is -259 students lower than in 2013-14. This projection is probably the worst case scenario.

The highest projection, based on the high kindergarten and high migration assumptions, shows an enrollment decrease of -65 students or -1.7 percent between 2013-14 and 2018-19. Enrollment continues to decrease and in 2023-24, enrollment is -136 students lower than in 2013-14.

In between the highest and lowest projections are two other projections that differ by 30 students in ten years. Both of these projections show enrollment decreasing throughout the ten year projection period as well.

Projected enrollment decline results from the recent decline in births and larger grades “aging out” of the elementary schools. Other education options could also play a role in future enrollment depending on the robustness of these options.

ENROLLMENT PROJECTIONS				
Year	Low K Low Mig	High K Low Mig	Low K High Mig	High K High Mig
2013-14	3,753	3,753	3,753	3,753
2014-15	3,754	3,758	3,765	3,769
2015-16	3,739	3,748	3,756	3,766
2016-17	3,728	3,741	3,755	3,769
2017-18	3,642	3,658	3,679	3,696
2018-19	3,622	3,643	3,668	3,688
2019-20	3,557	3,582	3,611	3,636
2020-21	3,546	3,576	3,603	3,634
2021-22	3,528	3,564	3,595	3,632
2022-23	3,501	3,542	3,573	3,615
2023-24	3,494	3,540	3,570	3,617

Excludes Early Childhood and ALC

Looking at the projections based on the elementary, middle school and high school grades is instructive. For the first five projection years, K-5 enrollment is 200 to 244 students lower than it is today as a result of the recent low number of births and larger classes “aging out.” Even in 2023-24, K-5 enrollment is lower than it is today.

ENROLLMENT PROJECTIONS				
	K-5	6-8	9-12	Total
2013-14	1,612	912	1,229	3,753
2018-19				
Low K/Low Mig	1,368	945	1,310	3,622
High K/Low Mig	1,388	945	1,310	3,643
Low K/High Mig	1,391	954	1,322	3,668
High K/High Mig	1,412	954	1,322	3,688
2023-24				
Low K/Low Mig	1,469	756	1,268	3,494
High K/Low Mig	1,496	771	1,273	3,540
Low K/High Mig	1,493	777	1,301	3,570
High K/High Mig	1,520	791	1,306	3,617

Excludes Early Childhood and ALC

In the first five projection years, middle school enrollment is 33-42 students larger than today. In 2018-19, grades resulting from the kindergarten assumptions have not yet reached the middle school so we see the effects of the migration assumptions only. By 2023-24, the kindergarten assumptions effect the middle school population and middle school enrollment falls.

All four projections show high school enrollment exceeding its current level throughout the ten projection years.

In 2023-24, the 2013-14 kindergarten class will be in Grade 10, which means that all the grades below Grade 10 are products of the projection assumptions. Detailed grade by year projections are at the end of this report.

Housing Unit Method

The housing unit method provides another way of projecting population and school enrollment. While the number of dwelling units (housing units) is related to the number of school age children, dwelling units alone do not determine the number of school age children. The number of school age children per unit is also a key variable in the projection equation.

The chief reason to use the housing unit method is to understand the effect of additional housing units on enrollment. It could be said that housing stock is like DNA. It determines the size and characteristics of the resident school age population.

The most important dwelling unit characteristics after unit type are the year built and the market value. Year built reflects how families lived in a particular era and is a proxy for square feet and characteristics such as number of bedrooms, number of bathrooms and number of garage spaces. The presence of a master suite, walk-in closets, etc. can also be inferred from year built. Value implies some of these same characteristics plus lot size, location and interior amenities such as kitchen and bathroom appointments and finishes.

The relationship between housing unit characteristics and student numbers and characteristics has been established by work in three states. Findings based on school districts in three states follow.

- Dwelling unit type affects the school age child per unit yield. Single-family detached units have the highest school age child per unit yield. Single-family attached, such as townhouses, have significantly fewer children per unit than single-family detached units while apartment units have even fewer school age children per unit, although there are some local exceptions. In most districts, the change in single-family detached housing units is what affects the number of school age children in a district.

Eighty-three (83) percent of Northfield Public School resident students come from the district's single-family detached units. This is a relatively high percentage.

NORTHFIELD PUBLIC SCHOOLS HOUSING TYPE BY STUDENT YIELD			
Housing Type	Units	K-12 Students	K-12 Yield
Single-Family Detached	6,804	2,962	0.44
Single-Family Attached*	108	14	0.13
Apartments	n.a.	372	n.a.
Mobile Homes	n.a.	194	n.a.
Duplex/Triplex/Twin units	217	32	0.15
Total		3,574	

*Townhomes

Source: Dakota and Rice County Geographic Information Systems and Student Information System

NORTHFIELD PUBLIC SCHOOLS STUDENT YIELD BY MINOR CIVIL DIVISION				
Minor Civil Division	Single-Family Detached Homes	Median Value of Single-Family Detached Homes	K-12 Students	K-12 Student Yield
Northfield	4,163	\$166,400	1,929	0.46
Dundas	371	\$142,300	253	0.53

Source: Dakota and Rice County Geographic Information Systems and Student Information System

- Newer single-family detached units yield more students per unit than older single-family detached units. For Northfield, student yield is higher in units built in 2000 or later. Single-family detached units built pre 1960 have the lowest yields; therefore, age of unit makes a difference in student yield for the Northfield Public Schools.

NORTHFIELD PUBLIC SCHOOLS SINGLE-FAMILY DETACHED RESIDENT STUDENT YIELD BY YEAR BUILT			
Era Built	Units	Resident K-12	
		#	Yield
2000 or later	1,586	1,052	0.66
1980-99	1,871	763	0.41
1960-79	1,451	535	0.37
Pre 1960	1,896	612	0.32
Total	6,804	2,962	0.44

Source: Dakota and Rice County Geographic Information Systems and Student Information System

- As single-family detached units sell (turnover), the student yield often increases, especially in the newer units.

In the Northfield School District, K-12 yield is lower in units that were sold. Therefore, the sale of single-family detached units has a slightly negative affect on the number of public school students.

NORTHFIELD PUBLIC SCHOOLS SINGLE-FAMILY DETACHED UNITS BY SALES STATUS (2011-2013)		
Status	Units	K-12 Yield
New (Built 2011-13)	82	0.77
Existing (Pre 2011)		
Not Sold	5,567	0.44
Sold	1,155	0.38
Total	6,804	0.44

Source: Dakota and Rice County Geographic Information Systems and Student Information System

- The market value of single-family detached units affects the school age child per unit yield. Moderately priced to higher priced units yield more school age children than the lowest priced units.

In the Northfield School District, market value affects the yield of public school students. The most expensive units yield the most students per unit.

NORTHFIELD PUBLIC SCHOOLS SINGLE-FAMILY DETACHED RESIDENT STUDENT YIELD BY MARKET VALUE			
Estimated Market Value	Single-Family Units	Resident K-12	
		#	Yield
\$149,000 or less	2,007	636	0.32
\$150,000 - \$249,999	3,136	1,404	0.45
\$250,000+	1,661	922	0.56
Total	6,804	2,962	0.44

Source: Dakota and Rice County Geographic Information Systems and Student Information System

- Different racial/ethnic groups and/or major language groups have different housing patterns by unit type.
- As the population ages, more dwelling units are being built for mature adults (55+ years) and for seniors. These units will have zero school age children per unit.

Currently, 47 percent of the district’s single-family detached units contain at least one person age 55+, while 23 percent of single-family detached units contain a Northfield Public Schools student. The percentage of 55+ population is high in the Northfield School District.

NORTHFIELD SCHOOL DISTRICT SINGLE-FAMILY DETACHED HOMES WITH NORTHFIELD PUBLIC SCHOOL K-12 STUDENTS OR REGISTERED VOTERS AGE 55+					
Attendance Area	Single-Family Detached	With K-12 Northfield Public School Students	Percentage with K-12 Northfield Public School Students	With Registered Voter 55+	Percentage with Registered Voter 55+
District wide	6,804	1,601	23%	3,236	47%

Source: Dakota and Rice County Geographic Information Systems and Student Information System

Versions of the Housing Unit Method

The Housing Unit Method has two versions. One version is based on adding the projected number of dwelling units to the existing stock and then applying a child per dwelling unit estimate to the total dwelling unit count. The other version, the housing starts method, is based on estimating the school age children per new unit and adding these students to the student population from existing units. Both versions of the Housing Unit Method face some of the same challenges. Historically, the weakness of both versions was the difficulty in quantifying the effect of housing turnover and the demographic change that occurs when existing housing units are sold. Some of these weaknesses are overcome with data from the Enrollment and Housing Study. Yet, the method doesn't reflect changes in grade size or in births because the yields per unit remain the same throughout the projection period.

Projections

Dwelling Unit Growth

In 2013, the Northfield School District is estimated to have more than 10,000 dwelling units of which the majority are single-family detached units. Some dwelling units may be vacant, but for the purposes of this report, all dwelling units will be treated as occupied.

The next table shows projected development for the next two years. As the numbers show, new residential development is modest.

PROJECTED DEVELOPMENT FOR NEXT TWO YEARS			
City	Single-Family Detached	Townhomes	Condos
Northfield	88	0	0
Dundas	0	0	0
Total	88	0	0

Projections based on the housing unit method are in Chapter 2, which focuses on resident K-5 projections by attendance area.

CHAPTER 2

ENROLLMENT PROJECTIONS BY ELEMENTARY SCHOOLS AND ELEMENTARY ATTENDANCE AREAS

Projecting K-5 enrollment by school or attendance area is fraught with potential errors because the enrollment at any one school or in any one attendance area is small, which magnifies annual fluctuations. For this reason along with the short time that existing students are part of the K-5 student body, projections will be made for five years rather than ten years. This chapter focuses on the three Northfield elementary schools and the district's three elementary attendance areas.

Past Trends

The following three tables show a five year history of K-5 enrollment by school, kindergarten enrollment by school, and net migration by school. Since 2009-10, K-5 enrollment increased by 26 students or 1.6 percent. K-5 enrollment is shifting within the district. Sibley Elementary School increased by 104 students in the past five years while Bridgewater and Greenvale Park elementary schools both saw enrollment declines.

ENROLLMENT GRADES K-5					
School	2009-10	2010-11	2011-12	2012-13	2013-14
Bridgewater	599	544	574	548	556
Greenvale Park	509	486	503	502	474
Sibley	478	550	570	566	582
Total	1,586	1,580	1,647	1,616	1,612

District wide, the 2013-14 kindergarten was -34 students lower than the 2009-10 kindergarten. The largest decrease occurred at Bridgewater.

KINDERGARTEN					
School	2009-10	2010-11	2011-12	2012-13	2013-14
Bridgewater	103	96	94	99	81
Greenvale Park	81	79	87	92	79
Sibley	85	72	86	90	75
Total	269	247	267	281	235

K-5 net migration has been positive every year beginning in 2009-10. Years of high net in migration alternate with years of smaller net in migration. Sibley Elementary School has the highest net in migration, although the numbers suggest some boundary adjustments.

NET MIGRATION GRADES K-5				
School	2009-10 to 2010-11	2010-11 to 2011-12	2011-12 to 2012-13	2012-13 to 2013-14
Bridgewater	-49	18	-23	14
Greenvale Park	-7	17	2	-25
Sibley	76	21	15	41
Total	20	56	-6	30

K-5 Projections

Individual Elementary Schools

Individual school projections will be made using the cohort survival method. The advantage of this method is that it begins by aging the student population. Therefore, any differences in grade sizes are reflected in the projections when these classes leave elementary school. Further, this method is sensitive to the number of births in the immediate past. However, with the cohort survival method, it is very difficult to calibrate migration rates to reflect new housing units, which is a disadvantage. Therefore, the method is weak in anticipating enrollment growth as the result of additional housing units.

Kindergarten

The next table shows births by attendance area. Resident births are declining in all three attendance areas with large decreases in the Bridgewater and Greenvale Park attendance areas.

RESIDENT BIRTHS BY ATTENDANCE AREAS (September 1 to August 31)			
School Year	Bridgewater	Greenvale Park	Sibley
2004-05	73	86	72
2005-06	69	84	76
2006-07	75	117	67
2007-08	69	89	53
2008-09	64	84	78
2009-10	56	91	57
2010-11	49	73	52
2011-12	38	49	40
2012-13	35	55	55

Kindergarten projections will be based on the district wide kindergarten projections.

PERCENT OF KINDERGARTEN AT EACH SCHOOL							
School	2009-10	2010-11	2011-12	2012-13	2013-14	Past 2 yr. avg.	Projection
Bridgewater	38.3%	38.9%	35.2%	35.2%	34.5%	34.8%	34.8%
Greenvale Park	30.1%	32.0%	32.6%	32.8%	33.6%	33.2%	33.2%
Sibley	31.6%	29.1%	32.2%	32.0%	31.9%	32.0%	32.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

KINDERGARTEN PROJECTIONS BY SCHOOL						
School	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Bridgewater	81	88	80	85	62	71
Greenvale Park	79	84	76	81	59	67
Sibley	75	81	73	78	57	65
Total	235	253	229	244	178	203

Migration

Averaging survival rates removes some of the year to year fluctuations, although the average may not be the actual rate in any future year. The average of the past three years is shown below and was used in the projections

PROJECTED SURVIVAL RATES					
	K to 1	1 to 2	2 to 3	3 to 4	4 to 5
Bridgewater	1.016	0.978	1.018	0.996	1.026
Greenvale Park	0.957	1.021	0.979	1.021	1.007
Sibley	1.145	1.014	1.042	1.027	1.059

Projection Results

Resident enrollment projections by school will extend only five years into the future. The 2013-14 kindergarten will be in Grade 5 in 2018-19. Therefore, enrollment in the last couple projection years is largely derived from the assumptions. A summary of the cohort survival projections by school is shown in the next table and annual projections are in a following table. (Background data are in the Appendix.)

COHORT SURVIVAL METHOD PROJECTION BY SCHOOL				
GRADES K-5				
HIGH/HIGH				
School	2013-14	2018-19	Change	
			#	%
Bridgewater	556	472	-84	-15.1
Greenvale Park	474	435	-39	-8.2
Sibley	582	508	-74	-12.7
Total	1,612	1,415	-197	-12.2
District wide	1,612	1,412	-200	-12.4

With the high migration assumption, K-5 enrollment is -200 students lower in 2018-19 than in 2013-14. The sum of the individual school projections is only 3 students higher than the district wide projection (high kindergarten and high migration projection), which means the individual school projections are a good fit with the district wide projections. All three elementary schools show declining enrollment with the largest decrease at Bridgewater. The smaller kindergarten pools due to the recent lower number of births are depressing elementary enrollment.

COHORT SURVIVAL METHOD PROJECTIONS BY SCHOOL BY YEAR						
GRADES K-5						
HIGH/HIGH						
School	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Bridgewater	556	562	544	528	505	472
Greenvale Park	474	477	471	483	457	435
Sibley	582	575	567	576	547	508
Sum	1,612	1,614	1,582	1,587	1,509	1,415
District wide	1,612	1,612	1,581	1,583	1,506	1,412
Difference	0	+2	+1	+5	+3	+3

Attendance Area Projections

Attendance area projections will be made using the housing starts method. These projections show the potential of each attendance area to produce resident K-5 students. The housing starts method shows the effect of new housing units and the sale of existing units. The method's weakness is that it doesn't reflect changes in grade size or in births because the yields per unit remain at today's level throughout the projection period.

Method

The Housing Occupancy and Enrollment Study for the Northfield School District provides resident K-5 yields for existing units and new units. Yield data for existing units are specific for recently sold units and units that did not turnover. The housing starts method will be calculated as follows:

New Single-Family Detached Units X K-5 yield = Projected students (A)

Existing Single-Family Detached Units X Percent Sold Annually = Units with movers (new residents) and units with non-movers (no change)

--Existing Single-Family Detached Units (not sold) X K-5 yield = Projected students (B)

--Existing Single-Family Detached Units (sold) X K-5 yield = Projected students (C)

Add Projected Students from A, B and C = Projected students from Single-Family Detached Units

Add Projected Students from Single-Family Detached Units to Projected Students from Non Single-Family Detached Units = K-5 Resident Students by Attendance Area

Only 88 new single-family detached housing units are projected over the next two years. When compared to the total number of single-family detached units, this is a small increase.

PROJECTED NEW SINGLE-FAMILY DETACHED UNITS						
Attendance Area	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Bridgewater	0	0	0	0	0	0
Greenvale Park	4	0	0	0	0	4
Sibley	61	23	0	0	0	84
District	65	23	0	0	0	88

The next two tables show estimated annual single-family detached unit sales and the K-5 Northfield Public School yields by attendance area. The sales data are based on sales from January 1, 2011 through December 31, 2013.

The annual rate of sales differs by attendance area but is very high. The Sibley attendance area has the highest rate of sales annually while Greenvale Park has the lowest rate of sales annually. Areas where annual sales exceed 4 percent a year should be thought of as having high annual sales.

PERCENT OF EXISTING SINGLE-FAMILY DETACHED UNITS WITH TURNOVER ANNUALLY (2011-2013)	
Attendance Area	%
Bridgewater	7.0%
Greenvale Park	4.7%
Sibley	8.7%

K-5 RESIDENT STUDENT YIELD FROM SINGLE-FAMILY UNITS						
Attendance Area	Existing Units (pre 2011)				New Units (2011-2013)	
	Non Movers		Movers (New Residents)			
	#	Yield	#	Yield	#	Yield
Bridgewater	1,520	0.20	388	0.23	36	0.41
Greenvale Park	1,927	0.14	311	0.14	17	0.23
Sibley	2,120	0.18	456	0.19	29	0.37
Total	5,567	0.17	1,155	0.19	82	0.36

The student yield in single-family detached units is low for units that did not turnover and the sale of single-family units barely increases the yield of K-5 students. Further, the number of new units was modest, although yields in new units was higher than in existing units in every attendance area.

Students also reside in non-single-family detached units. The resident K-5 yield is lower in single-family attached units (townhomes, etc.) compared to single-family detached units. The next table dramatically illustrates this difference in the Northfield School District. Townhomes yield very few K-5 students.

RESIDENT STUDENT YIELD BY DWELLING UNIT TYPE				
Dwelling Type	Number	K-5 Yield	6-9 Yield	9-12 Yield
Single-Family Detached	6,804	0.18	0.10	0.15
Townhomes	108	0.04	0.04	0.05
Duplex/Triplex	217	0.07	0.03	0.05

About 9 percent (9.2) of K-5 students do not reside in single-family detached units. This is a low percentage and rather than trying to project resident students from non-single family detached units, the 2013-14 student numbers will be used throughout the projection period. This assumption has some weaknesses, but overall is less problematic than trying to project students in these units.

STUDENTS FROM OTHER DWELLING UNIT TYPES* 2013-14	
Attendance Area	K-5 Resident Students
Bridgewater	114
Greenvale Park	185
Sibley	29
Total	328

*Townhomes, Condos, Twin Homes, Quad Homes and Apartments

The housing unit method projections show the K-5 resident potential of current and projected new units. With this method, the district total is the sum of the attendance area projections. In 2013-14, there were 1,220 resident K-5 students residing in single-family detached units with another 328 resident K-5 students living in other unit types for a total of 1,548 resident K-5 students.

Projections from the housing starts method show 1,576 resident K-5 students residing in single-family detached units by 2015-16. Over the two years, resident K-5 students residing in single-family detached units increase by 28 students or 1.8 percent.

HOUSING UNIT METHOD PROJECTIONS RESIDENT K-5 NORTHFIELD PUBLIC SCHOOL STUDENTS BY ATTENDANCE AREA 2015-16			
Attendance Area	Resident K-5 Students		
	Single-Family Units	All Other Units	Total
Bridgewater	414	114	528
Greenvale Park	320	185	505
Sibley	514	29	543
Total	1,248	328	1,576

The attendance area projections reflect attendance area specific new unit yields as well as attendance area specific turnover rates and yields.

HOUSING UNIT METHOD RESIDENT K-5 NORTHFIELD PUBLIC SCHOOL STUDENTS BY ATTENDANCE AREA 2013-14 AND 2015-16				
Attendance Area	2013-14		2015-16	
	Single-Family	Total	Single-Family	Total
Bridgewater	405	519	414	528
Greenvale Park	319	504	320	505
Sibley	496	525	514	543
Total	1,220	1,548	1,248	1,576

School and Attendance Area Projections

The individual school cohort projections differ from the attendance area projections and direct comparisons are difficult. Individual school projections include nonresidents while the attendance area projections do not. Further, the attendance area projections reflect all resident students residing in an attendance area regardless of which school they attend. As the next table shows, the percentage of students who attend their neighborhood K-5 school varies.

NORTHFIELD AREA SCHOOLS K-5 STUDENTS BY ATTENDANCE AREA AND BY SCHOOL ATTENDED			
School	Attendance Area		
	Bridgewater	Greenvale Park	Sibley
Bridgewater	446	35	45
Greenvale Park	31	413	20
Sibley	42	56	460
Total	519	504	525

When factoring in the number of nonresidents, the housing unit method projections are higher than the cohort projections. These projections illustrate the complexity of the interaction among the many factors that affect future enrollment. The cohort projections reflect the recent decline in births, the difference in the size of grades, and the growing number of students selecting other public options. However, the cohort method does not account for the increase in residential units or the effect of turnover.

In conclusion, the housing starts method projection probably over projects enrollment at Greenvale Park and under projects enrollment at Sibley.

K-5 ENROLLMENT PROJECTIONS 2015-16		
School	School (Sum)	Attendance Area*
Bridgewater	544	528
Greenvale Park	471	505
Sibley	567	543
Total	1,582	1,576

*Resident only

APPENDIX

NORTHFIELD BRIDGEWATER ELEMENTARY SCHOOL

ENROLLMENT HISTORY					
Grade	2009-10	2010-11	2011-12	2012-13	2013-14
K	103	96	94	99	81
1	90	99	99	90	105
2	100	84	105	92	85
3	118	86	86	98	101
4	86	97	88	82	99
5	102	82	102	87	85
Total	599	544	574	548	556

NET MIGRATION (GRADES K to 5)				
	2009-10 to 2010-11	2010-11 to 2011-12	2011-12 to 2012-13	2012-13 to 2013-14
K to 1	-4	3	-4	6
1 to 2	-6	6	-7	-5
2 to 3	-14	2	-7	9
3 to 4	-21	2	-4	1
4 to 5	-4	5	-1	3
Total	-49	18	-23	14

SURVIVAL RATES				
	2009-10 to 2010-11	2010-11 to 2011-12	2011-12 to 2012-13	2012-13 to 2013-14
K to 1	0.961	1.031	0.957	1.061
1 to 2	0.933	1.061	0.929	0.944
2 to 3	0.860	1.024	0.933	1.098
3 to 4	0.822	1.023	0.954	1.010
4 to 5	0.954	1.052	0.989	1.037

**NORTHFIELD
GREENVALE PARK ELEMENTARY SCHOOL**

ENROLLMENT HISTORY					
Grade	2009-10	2010-11	2011-12	2012-13	2013-14
K	81	79	87	92	79
1	76	78	73	88	86
2	80	77	82	78	83
3	92	73	84	81	67
4	85	92	82	81	79
5	95	87	95	82	80
Total	509	486	503	502	474

NET MIGRATION (GRADES K to 5)				
	2009-10 to 2010-11	2010-11 to 2011-12	2011-12 to 2012-13	2012-13 to 2013-14
K to 1	-3	-6	1	-6
1 to 2	1	4	5	-5
2 to 3	-7	7	-1	-11
3 to 4	0	9	-3	-2
4 to 5	2	3	0	-1
Total	-7	17	2	-25

SURVIVAL RATES				
	2009-10 to 2010-11	2010-11 to 2011-12	2011-12 to 2012-13	2012-13 to 2013-14
K to 1	0.963	0.924	1.012	0.935
1 to 2	1.013	1.051	1.069	0.943
2 to 3	0.913	1.091	0.988	0.859
3 to 4	1.000	1.123	0.964	0.975
4 to 5	1.024	1.033	1.000	0.988

**NORTHFIELD
SIBLEY ELEMENTARY SCHOOL**

ENROLLMENT HISTORY					
Grade	2009-10	2010-11	2011-12	2012-13	2013-14
K	85	72	86	90	75
1	85	96	84	91	109
2	75	97	96	81	98
3	80	95	101	97	87
4	77	103	94	107	100
5	76	87	109	100	113
Total	478	550	570	566	582

NET MIGRATION (GRADES K to 5)				
	2009-10 to 2010-11	2010-11 to 2011-12	2011-12 to 2012-13	2012-13 to 2013-14
K to 1	11	12	5	19
1 to 2	12	0	-3	7
2 to 3	20	4	1	6
3 to 4	23	-1	6	3
4 to 5	10	6	6	6
Total	76	21	15	41

SURVIVAL RATES				
	2009-10 to 2010-11	2010-11 to 2011-12	2011-12 to 2012-13	2012-13 to 2013-14
K to 1	1.129	1.167	1.058	1.211
1 to 2	1.141	1.000	0.964	1.077
2 to 3	1.267	1.041	1.010	1.074
3 to 4	1.288	0.990	1.059	1.031
4 to 5	1.130	1.058	1.064	1.056