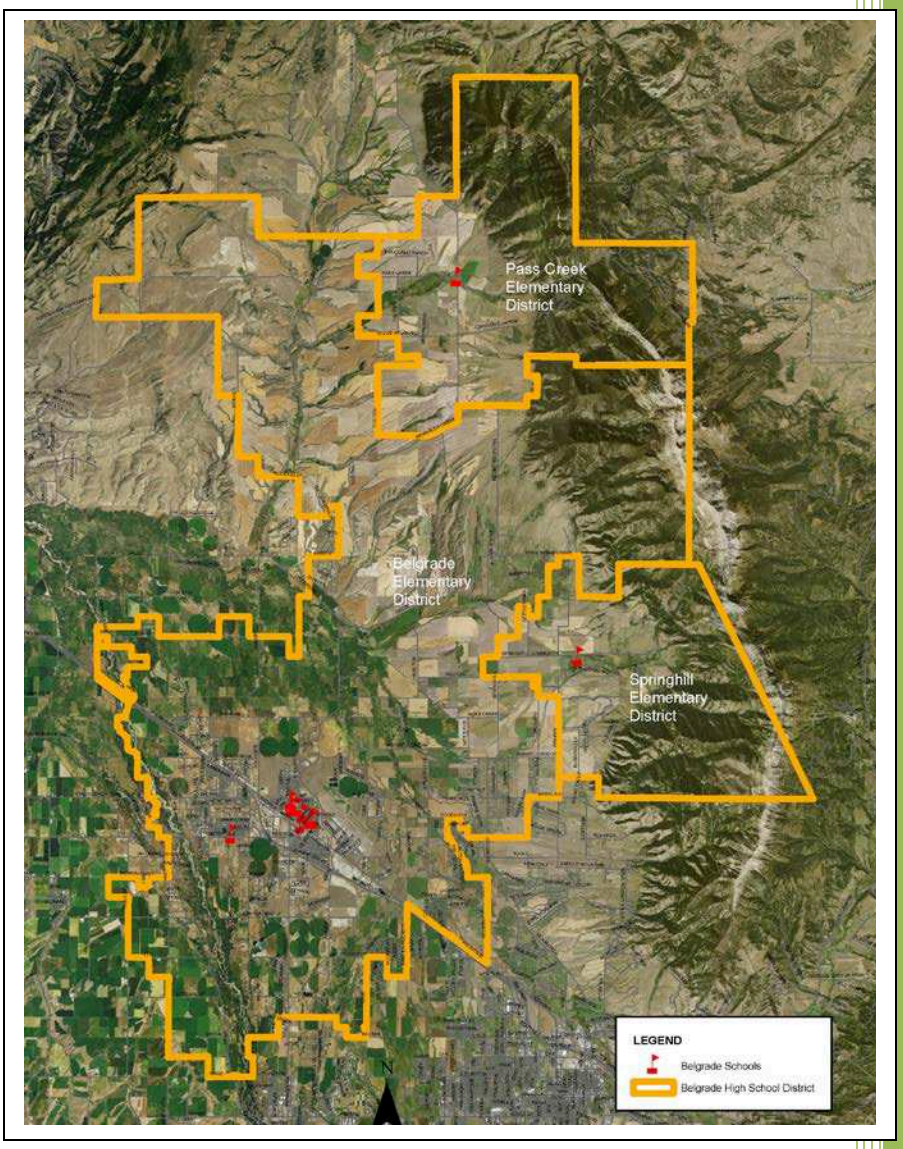
2018

Belgrade Public Schools Demographic Study



K-12 Consultants

Forward

On April 3, 2018 K-12 Consultants of Billings, Montana was asked to prepare a Demographics Study to determine the number of K-12 students that Belgrade Public Schools should be prepared to accommodate in the next 10 to 15 years. This study is an investigation into the factors contributing to a continuing growth of students, including:

- The number of children that should be anticipated and planned for in the near and long-term future determined by established statistical methodologies, and

- The number of children that could result from housing construction in existing, proposed, and potential future residential land subdivisions within the Belgrade School District area,

This report provides conclusions regarding the number of students in grades K -12 that Belgrade Public Schools should plan on accommodating in the near and longer term future. This information will assist the School Board and the local community in determining the extent and timing for improved, expanded or even new educational facilities.

John Eisen, ALEP
K-12 Consultants

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Belgrade Public Schools Demographic Study

Introduction

School enrollment and related space needs are, in part, directly tied to the local and regional economy and residential construction. The Belgrade area, including the area within the Belgrade Elementary and High School Districts, is continuing to grow along with the local construction industry along with a healthy overall regional economy. Population, employment and housing trends all indicate a gradually improving economic environment from the downturn experienced through the recession in 2009. Public water systems within the City of Belgrade service area have been upgraded to serve anticipated needs but sanitary sewer services will need improvements to accommodate a growing population and address issues with aging infrastructure.

Some facts about Belgrade and the Bozeman metro area growth from the Belgrade Long Range Transportation Plan:

- Belgrade is the state's eleventh largest city.
- The Bozeman "Micropolitan" area is the 4th fastest growing such area in the United States and the fastest growing in terms of population gain.

Belgrade is considered a "bedroom community" of the greater Bozeman area. The new Belgrade Long Range Transportation Plan states that "workers in Belgrade have commute times of 17.9 minutes suggesting that most residents are working at jobs outside the Belgrade community, most likely in the Bozeman area."

The Belgrade Area Economy

98% of jobs in Gallatin County are non-farm related employment with an annual increase in employment of 7.5% over the past 35 years. Large employers in Belgrade include the Belgrade School District, Bozeman Yellowstone International Airport, and Bozeman Health Belgrade Clinic. Gallatin County's employment and overall economy is comprised of:

- 6% travel and tourism
- 28% higher education and state government
- 7% federal government
- 19% professional services
- 14% wholesale, retail
- 14% health care
- 14% manufacturing
- 8% construction
- 4% agriculture
- 6%% other

Source: Bureau of Business and Economic Research, University of Montana

Belgrade Public Schools Demographic Study

Between 2002 and 2014, Gallatin County's net migration increased by 35%, compared to:

- Yellowstone County +107%
- Lewis and Clark County +249%
- Butte-Anaconda area +126%
- Missoula County -3%
- Ravalli County -72%
- Flathead County -34%
- Cascade County -70%

  Source: U.S. Census Bureau

Between 2017 and 2020, Gallatin County's economy is projected to grow by 5.8%, compared to:

- Yellowstone County 2.7%
- Lewis and Clark County 1.8%
- Missoula County 3.2%
- Cascade County 2.1%
- Flathead County 3.3%
- Montana 2.9%

  Source: Bureau of Business and Economic Research, University of Montana

Its proximity to Bozeman and Montana State University, its central location in Gallatin County, generally lower land costs than in Bozeman, good access with Interstate-90 and Bozeman Yellowstone International Airport, a diversified local economy, good schools, and a generally flat topography and excellent soils for construction enable Belgrade to have a growing, diversified and robust economy. The local economy and its occupational characteristics are comprised of:

- 13.2% Health Care
- 10.4% Education
- 11.8% Accommodation and Food Service
- 11.9% Construction
- 17.7% Retail Trade
- 6.4% Manufacturing
- 7.3% Professional Services
- 7.5% Public
- 2.1% Transportation

- 1.4% Finance
- .8% Wholesale Trade
- 3.1% Other

Source: American Community Survey, U.S. Census Bureau

Paul Polzin, director emeritus of the Montana Bureau of Business and Economic Research states about Belgrade and Gallatin County,

- *"The real estate sector is strengthing."*
- *"Other than Gallatin County is the leader in non-farm income now and projected for at least the next five-years."*
- *"Retail trade is a continuing bright spot on the local economy."*
- *"There is moderate growth in tourism and travel sectors."*
- *"There is high growth in technology manufacturing and services."*
- *"The best construction environment in Montana."*

New Belgrade housing construction

Demographic Study Purpose

This study will analyze and develop an understanding of the population trends within the Belgrade Elementary and High School Districts; both in the 5 to 13 age grouping comprising K-8th elementary and middle school grades and the 14 to 18 age grouping that comprises high school grades 9-12. The intent is to determine the extent and general timing of future student population growth that indicates a need for modifying and/or expanding the existing buildings and also the need for additional educational facilities.

The objectives of this study are to:

A. Prepare short and long term student enrollment projections using a variety of statistical analysis methodologies.

B. Estimate the number of students resulting from new residential construction that are likely to attend Belgrade Schools within short and longer range time periods.

The general methodology for this study is to:

- Prepare enrollment projections using birth rates to determine future kindergarten class sizes and develop forecasts of future student numbers utilizing past enrollment information and a Cohort Survival methodology.
- Discuss with City of Belgrade and Gallatin County planning representatives any known or anticipated land development or growth plans and the location and character of all known or potential land development projects within the school district.
- Discuss with the Belgrade Public Works department the availability and capacity of public water and sewer to land within the school district.
- Determine the likely utilization of undeveloped land within the district and determine the potential number of future students that may be generated with full build-out of all identified land development projects.

Local Area Population Trends

Both Gallatin County and the City of Belgrade have enjoyed a fairly consistent and ongoing growth in population for many years, averaging 1.51% and .45% respectively since 2006. Belgrade over the past 10-years has experienced a modest 3.2% growth in population compared to the 15.9% seen overall in Gallatin County.

- Of particular note is that the overall total population within the Belgrade School District has grown at a rate over four times that of the Belgrade School District student enrollment.

Table 1
Local Population Trends 2000 - 2016

Year	Gallatin County Population	% Change	Belgrade Population	% Change	Belgrade School District Area Population	% Change	Belgrade School District K-12 Enrollment	% Change
2006	84,498		7,632		15,016		2,893	
2007	87,300	3.3%	8,025	5.1%	16,211	7.8%	2,932	1.3%
2008	89,812	2.9%	8,169	1.8%	16,668	2.8%	2,982	1.7%
2009	86,532	-3.7%	7,872	-3.6%	16,763	.57%	2,995	.44%
2010	87,676	1.3%	7,281	-7.5%	20,127	20%	3,090	3.2%
2011	89,146	1.7%	7,380	1.4%	20,512	1.9%	3,080	-.3%
2012	90,339	1.3%	7,439	.80%	20,790	1.4%	3,136	1.8%
2013	91,499	1.3%	7,491	.70%	21,259	3.6%	3,148	.4%
2014	93,108	1.8%	7,625	2.5%	21,840	2.7%	3,203	1.7%
2015	95,958	3.1%	7,738	1.5%	22,610	3.5%	3,202	0%
2016	97,958	2.1%	7,874	1.8%	23,454	3.7%	3,252	1.6%
Average		**1.51%**		**.45%%**		**4.80%**		**1.2%**
Change 2006-2016	**+13,460**	**+15.9%**	**+242**	**+3.2%**	**+8,438**	**56.2%**	**+359**	**12.4%**

Sources: Annual Estimates of the Resident Population for Incorporated Places in Montana, 2006-2016, U.S. Census Bureau, Population Division
U.S. Census Bureau, 2006-2010 American Community Survey 5-Year Estimates
Belgrade School District enrollment records

Belgrade School District Growth Trends

Belgrade enrollments are growing. Data from the Montana Office of Public Instruction (Tables 2 and 3) indicates that Belgrade K-8 schools have increased in students along with most other schools in Gallatin County but at a smaller rate than the other larger school districts in the area. Belgrade High School has also grown but at a smaller rate than Bozeman, Manhattan or Three Forks.

Table 2
Local Area Schools K-8 Enrollments 2007 to 2017

School District	2007 Enrollment	2017 Enrollment	Enrollment Change 2007-2017	Rate of Change 2007-2017
Belgrade	**2,074**	**2,443**	**+369**	**17.8%**
Bozeman	3,488	4,705	1,217	34.9%
Manhattan	337	452	115	34.1%
Three Forks	396	494	98	24.7%
West Yellowstone	141	207	66	46.8%
Livingston	876	1,000	124	14.2%

Source: Montana Office of Public Instruction

Table 3
Local Area Schools 9-12 Enrollments 2007 to 2017

School District	2007 Enrollment	2017 Enrollment	Enrollment Change 2000-2017	Rate of Change 2000-2017
Belgrade	**858**	**900**	**+42**	**4.9%**
Bozeman	1,907	2,157	250	13.1%
Manhattan	223	256	33	14.8%
Three Forks	184	195	11	6.0%
West Yellowstone	65	67	2	3.1%
Livingston	528	447	-81	-15.3%

Source: Montana Office of Public Instruction

Belgrade School Enrollment Projections

Belgrade K-12 Schools have experienced a gradual increase in enrollments and the current total is 411 students more than 10-years ago, a 14% increase. As student growth occurs there are important questions to ask that pertain to maintaining adequate educational facilities and a quality student learning environment.

- Will the growth of the last 10 years repeat itself?
- Will growth be more or less than past years?
- How many students should the school district be planning for in the future – both in its elementary schools, middle school and high school?

To address this question, K-12 Consultants has utilized two methodologies to estimate future student growth.

- Method #1 utilizes two different statistical approaches to calculating the number of future students.
- Method #2 utilizes the analysis of potential new housing construction to estimate the number of possible future students.

Method #1 – Student Enrollment Projections

This methodology is a compilation of two projection models:

- The first model uses historic enrollment data over the past 10 years to develop trends which are then utilized to calculate estimates of future students. This method assumes that historic student growth rates will re-occur in future years.
- The second model uses Gallatin County birth rates and exponential regression modeling to estimate future kindergarten class sizes. With this data, estimates of future students were determined utilizing a Cohort Survival calculation.

Overview

Enrollment projections have been calculated in four steps.

Step 1: Based on actual enrollments from 2007 to 2017, enrollment trends were developed. Using this data, enrollment projections were developed for school years 2018-19 to 2027-28.

Step 2: Live births were projected out to 2027 using Gallatin County live birth records from 2004 to 2017 provided by the State of Montana Vital Statistics Division and then utilizing exponential regression modeling. This process is used to project future kindergarten class sizes.

Step 3: Kindergarten class sizes were projected out to 2032 using a calculated birth rate retention of .2384.

Step 4: Student enrollments were projected out to 2032 by incorporating kindergarten populations from Step 3 into Cohort Survival calculations for grades K-12. These projections are presented in 10 and 15 year totals.

Results of these two methodologies vary but are good indicators that substantial growth in grades K-12 student population should be anticipated through at least to school year 2032-33, the limit of this analysis.

These projection methodologies are excellent ***indicators*** of potential future student numbers. They are time-tested techniques of forecasting future student enrollments. However, the two methodologies used are both based on past occurrences to develop trends which are then used to forecast future numbers of students. There is an inherent risk in relying on historic trends to forecast possible futures; past trends are not necessarily destiny.

To solely utilize past student enrollment numbers to develop trends for forecasting future student numbers assumes the past will repeat itself. Will past trends be repeated? Perhaps, but not likely. Many events can happen that could change predictions such as another recession, recruitment of a major employer, loss of a major employer, increased economic growth and increased housing construction. The result of each projection method is listed in Table 4.

Table 4
Potential New Students in 10 and 15 Years

Methodology	K-4	5-8	9-12	K-12
Forecasting 10-year future student numbers based on past enrollment trends	**10 Years** 1,563 total students 191 more students 14% increase	**10 Years** 1,328 total students 257 more students 24% increase	**10 Years** 951 total students 51 more students 6% increase	**10 Years** 3,842 total students 499 more students 15% increase
Forecasting 10 and 15 future student numbers based on birthrate trends and a Cohort Survival calculation	**10 Years:** 1,685 total students 313 more students 23% increase **15 years** 2,048 total students 676 more students 49% increase	**10 Years:** 1,113 total students 42 more students 4% increase **15 years** 1,338 total students 267 more students 25% increase	**10 Years:** 993 total students 93 more students 10% increase **15 years** 1,088 total students 188 more students 21% increase	**10 Years:** 3,791 total students 448 more students 13% increase **15 years** 4,474 total students 1,131 more students 34% increase

Refer to the following tables for details and yearly totals.

Belgrade Public Schools Historic Enrollments
Grades K-12
K-12 Consultants
April 2018

Year	Grade													Total				
	K	1	2	3	4	5	6	7	8	9	10	11	12	K-12 Total	K total	K-4 total	5-8 total	9-12 total
2007-08	253	233	245	240	235	233	219	239	177	247	201	205	205	**2,932**	253	1206	868	858
2008-09	268	266	226	237	232	235	231	227	232	189	242	190	207	**2,982**	268	1229	925	828
2009-10	281	265	249	226	233	237	225	227	222	236	182	229	183	**2,995**	281	1254	911	830
2010-11	270	299	260	233	218	233	245	224	221	228	244	193	222	**3,090**	270	1280	923	887
2011-12	284	263	294	260	238	219	223	244	221	219	212	226	177	**3,080**	284	1339	907	834
2012-13	271	279	262	291	245	246	234	213	246	221	220	200	208	**3,136**	271	1348	939	849
2013-14	291	282	268	257	283	245	240	213	215	234	219	210	191	**3,148**	291	1381	913	854
2014-15	274	296	270	267	266	289	242	228	214	210	222	216	209	**3,203**	274	1373	973	857
2015-16	251	274	290	273	260	265	276	251	236	208	206	211	201	**3,202**	251	1348	1028	826
2016-17	276	263	264	284	275	264	256	268	243	248	201	211	199	**3,252**	276	1362	1031	859
2017-18	270	280	270	270	282	275	277	250	269	245	246	209	200	**3,343**	270	1372	1071	900
10-Year Change	**17**	**47**	**25**	**30**	**47**	**42**	**58**	**11**	**92**	**-2**	**45**	**4**	**-5**	**411**				
10-Year Average	**272**	**273**	**263**	**258**	**252**	**249**	**243**	**235**	**227**	**226**	**240**	**230**	**220**	**3,124**				

Grades K-12 historic enrollment data provided by Belgrade Public Schools, count as of February 5th of each year.

Grade Grouping Historic Enrollments					
Time Frame	**K**	**K-4 Elem**	**5-8 MS**	**9-12 HS**	**K-12**
Existing Students 2007	253	1206	868	858	2932
Existing Students 2017	**270**	**1372**	**1071**	**900**	**3,343**
10-Year Change	17	166	203	42	411
10-Year Average	272	1046	954	853	3,124

Belgrade Public Schools Enrollment Projections
Based on Past Enrollment Counts
K-12 Consultants
April 2018

A. Kindergarten enrollment change rate based on an average annual enrollment increase between 2007 and 2017 of .84%
B. K-4 enrollment change rate based on an average annual enrollment increase between 2007 and 2017 of 1.31%
C. 5-8 enrollment change rate based on an average annual enrollment increase between 2007 and 2017 of 2.18%
D. 9-12 enrollment change rate based on an average annual enrollment increase between 2007 and 2017 of .55%
E. K-12 enrollment change rate based on an average annual enrollment increase between 2007 and 2017 of 1.40%
E. Known values in yellow
F. Predicted values in blue

Year	Kindergarten			K-4			5-8			9-12			K-12		
	Enrollment	change	% change	Enrollment	change	% change	Enrollment	change	% change	Enrollment	change	% change	Enrollment	change	% change
2007-08	**253**			**1,206**			**868**			**858**			**2,932**		
2008-09	**268**	**15**	5.9%	**1,229**	**23**	1.9%	**925**	**57**	6.6%	**828**	**-30**	-3.5%	**2,982**	**50**	1.7%
2009-10	**281**	**13**	4.9%	**1,254**	**25**	2.0%	**911**	**-14**	-1.5%	**830**	**2**	0.2%	**2,995**	**13**	0.4%
2010-11	**270**	**-11**	-3.9%	**1,280**	**26**	2.1%	**923**	**12**	1.3%	**887**	**57**	6.9%	**3,090**	**95**	3.2%
2011-12	**284**	**14**	5.2%	**1,339**	**59**	4.6%	**907**	**-16**	-1.7%	**834**	**-53**	-6.0%	**3,080**	**-10**	-0.3%
2012-13	**271**	**-13**	-4.6%	**1,348**	**9**	0.7%	**939**	**32**	3.5%	**849**	**15**	1.8%	**3,136**	**56**	1.8%
2013-14	**291**	**20**	7.4%	**1,381**	**33**	2.4%	**913**	**-26**	-2.8%	**854**	**5**	0.6%	**3,148**	**12**	0.4%
2014-15	**274**	**-17**	-5.8%	**1,373**	**-8**	-0.6%	**973**	**60**	6.6%	**857**	**3**	0.4%	**3,203**	**55**	1.7%
2015-16	**251**	**-23**	-8.4%	**1,348**	**-25**	-1.8%	**1,028**	**55**	5.7%	**826**	**-31**	-3.6%	**3,202**	**-1**	0.0%
2016-17	**276**	**25**	10.0%	**1,362**	**14**	1.0%	**1,037**	**9**	0.9%	**859**	**33**	4.0%	**3,258**	**56**	1.7%
2017-18	**270**	**-6**	-2.2%	**1,372**	**10**	0.7%	**1,071**	**34**	3.3%	**900**	**41**	4.8%	**3,343**	**85**	2.6%
2018-19	**272**	**2**	0.84%	**1,390**	**18**	1.31%	**1,094**	**23**	2.18%	**905**	**5**	0.55%	**3,389**	**46**	1.38%
2019-20	**275**	**2**	0.84%	**1,408**	**18**	1.31%	**1,118**	**24**	2.18%	**910**	**5**	0.55%	**3,436**	**47**	1.39%
2020-21	**277**	**2**	0.84%	**1,427**	**18**	1.31%	**1,142**	**24**	2.18%	**915**	**5**	0.55%	**3,484**	**48**	1.39%
2021-22	**279**	**2**	0.84%	**1,445**	**19**	1.31%	**1,167**	**25**	2.18%	**920**	**5**	0.55%	**3,533**	**49**	1.40%
2022-23	**282**	**2**	0.84%	**1,464**	**19**	1.31%	**1,193**	**25**	2.18%	**925**	**5**	0.55%	**3,582**	**49**	1.40%
2023-24	**284**	**2**	0.84%	**1,484**	**19**	1.31%	**1,219**	**26**	2.18%	**930**	**5**	0.55%	**3,633**	**50**	1.40%
2024-25	**286**	**2**	0.84%	**1,503**	**19**	1.31%	**1,245**	**27**	2.18%	**935**	**-4**	0.55%	**3,684**	**51**	1.41%
2025-26	**289**	**2**	0.84%	**1,523**	**20**	1.31%	**1,272**	**27**	2.18%	**941**	**5**	0.55%	**3,736**	**52**	1.41%
2026-27	**291**	**2**	0.84%	**1,543**	**20**	1.31%	**1,300**	**28**	2.18%	**946**	**5**	0.55%	**3,789**	**53**	1.42%
2027-28	**294**	**2**	0.84%	**1,563**	**20**	1.31%	**1,328**	**28**	2.18%	**951**	**5**	0.55%	**3,842**	**54**	1.42%
TOTAL 10-YEAR STUDENT CHANGE		**24**	**9%**		**191**	**14%**		**257**	**24%**		**51**	**6%**		**499**	**15%**

Past 10 Years Enrollment Trends:

Kindergarten has increased by 17 students, a 7% growth
K-4 has increased by 166 students, a 14% growth
5-8 has increased by 203 students, a 23% growth
9-12 has increased by 42 students, a 5% growth
K-12 overall has increased by 428 students, a 13% growth

Next 10 Years Projected Enrollment:

Kindergarten may increase by 24 students, a 9% growth
K-4 may increase by 191 students, a 14% growth
5-8 may increase by 257 students, an 24% growth
9-12 may increase by 51 students, a 6% growth
K-12 overall may increase by 499 students, a 15% growth

Belgrade Public Schools Kindergarten Enrollment Projections
This projection uses the past 10 years of actual birth rates to determine future kindergarten class sizes.
K-12 Consultants
April 2018

A. Live births projected using exponential regression model with change coefficient of 1.05
A. Kindergarten projected class size based on average birth rate retention of 23.84%
B. Known values in yellow
C. Predicted values in blue

Year	Gallatin County Live Births	Change From Previous Years	Year of Kindergarten Enrollment	Kindergarten Class Size	Change From Previous Years	% of Gallatin County Births as Kindergarten Students
2004	985					
2005	1072	87	2010-11	270		25.19%
2006	1214	142	2011-12	284	14	23.39%
2007	1238	24	2012-13	271	-13	21.89%
2008	1256	18	2013-14	291	20	23.17%
2009	1144	-112	2014-15	274	-17	23.95%
2010	1072	-72	2015-16	251	-23	23.41%
2011	1079	7	2016-17	276	25	25.58%
2012	1117	38	2017-18	270	-6	24.17%
2013	1133	16	2018-19	270	0	23.84%
2014	1168	35	2019-20	278	8	23.84%
2015	1200	32	2020-21	286	1	23.84%
2016	1254	54	2021-22	299	-9	23.84%
2017	1227	-27	2022-23	293	-2	23.84%
2018	1288	61	2023-24	307	8	23.84%
2019	1353	64	2024-25	322	8	23.84%
2020	1420	68	2025-26	339	9	23.84%
2021	1491	71	2026-27	356	9	23.84%
2022	1566	75	2027-28	373	10	23.84%
2023	1644	78	2028-29	392	10	23.84%
2024	1727	82	2029-30	412	10	23.84%
2025	1813	86	2030-31	432	11	23.84%
2026	1903	91	2031-32	454	12	23.84%
2027	1999	95	2032-33	476	12	23.84%

Source of birth rate information: State of Montana Vital Statistics Division

Conclusions -
Based on Gallatin County birth rate trends over the past 14 years and projected future birth rates, kindergarten enrollment is anticipated to gradually increase.

In 10 years there may be 373 kindergarten students, an increase of 103 over current enrollment, a 38% increase.
In 15 years there may be 476 kindergarten students, an increase of 206 over current enrollment, a 76% increase.

Belgrade Public Schools Enrollment Projections
This projection uses a Cohort Survival methodology
K-12 Consultants
April 2018

A. 2017-18 are current year actual enrollment numbers for grades K-12
B. Known values in yellow, predicted values in blue

Year	Grade													Total
	K	1	2	3	4	5	6	7	8	9	10	11	12	K-12 Total
2017-18	270	280	270	270	282	275	277	250	269	245	246	209	200	**3343**
2018-19	270	275	273	267	266	285	273	272	248	271	240	241	200	3381
2019-20	278	275	268	270	263	268	283	268	270	250	265	235	230	3423
2020-21	286	283	268	265	266	265	266	278	266	272	245	259	224	3443
2021-22	299	291	276	265	261	268	263	261	276	268	266	240	247	3481
2022-23	293	304	284	273	261	263	266	258	259	278	262	260	229	3490
2023-24	307	298	297	281	269	263	261	261	256	261	272	256	248	3530
2024-25	322	313	291	294	277	271	261	256	259	258	256	266	245	3569
2025-26	339	328	305	288	290	280	269	256	254	261	253	250	254	3627
2026-27	356	345	320	301	284	293	278	264	254	256	256	247	239	3693
2027-28	**373**	**362**	**337**	**316**	**297**	**287**	**291**	**273**	**262**	**256**	**251**	**250**	**236**	**3791**
2028-29	392	380	353	333	312	300	285	285	271	264	251	245	239	3910
2029-30	412	399	371	349	328	315	298	280	283	273	258	245	234	4045
2030-31	432	419	389	367	344	331	313	292	278	285	267	252	234	4203
2031-32	354	440	409	384	362	347	329	307	290	280	279	261	241	4283
2032-33	**476**	**360**	**429**	**404**	**379**	**365**	**345**	**323**	**305**	**292**	**274**	**273**	**249**	**4474**
10-Year Change	103	82	67	46	15	12	14	23	-7	11	5	41	36	448
15-Year Change	206	80	159	134	97	90	68	73	36	47	28	64	49	1131

Grade Grouping Enrollment Projections					
Time Frame	**Kindergarten**	**K-4**	**5-8**	**9-12**	**K-12**
Existing Students	270	1372	1071	900	3343
Students In 10 Years	373	1685	1113	993	3791
10-Year Change	103	313	42	93	448
Students in 15 Years	476	2048	1338	1088	4474
15-Year Change	206	676	267	188	1131

Method #2 – Students Resulting from New Residential Construction.

This methodology identifies land with a good potential for residential development and calculates the number of school age children that will likely result from new housing construction. The subdivision process is complex and costly and there are numerous issues that have a direct impact on the amount of land that is changed from vacant or farming to housing.

Belgrade School District Land Use

Belgrade schools are comprised of an elementary district and a high school district. Together they include a very large land area at over 154,705 acres or nearly 242 square miles. Of the school district's total land area, a little over 73% is classified as "agricultural" by the Montana Department of Revenue. This means that about 113,247 acres of the land within the school district is "undeveloped" and potentially available for some sort of development, either residential, commercial or some type of industrial use. In reality, of this large total land area, only a fairly small geographic zone that is generally situated around Belgrade to approximately the airport with availability to public water and sewer services can realistically be considered to have potential for development into residential uses.

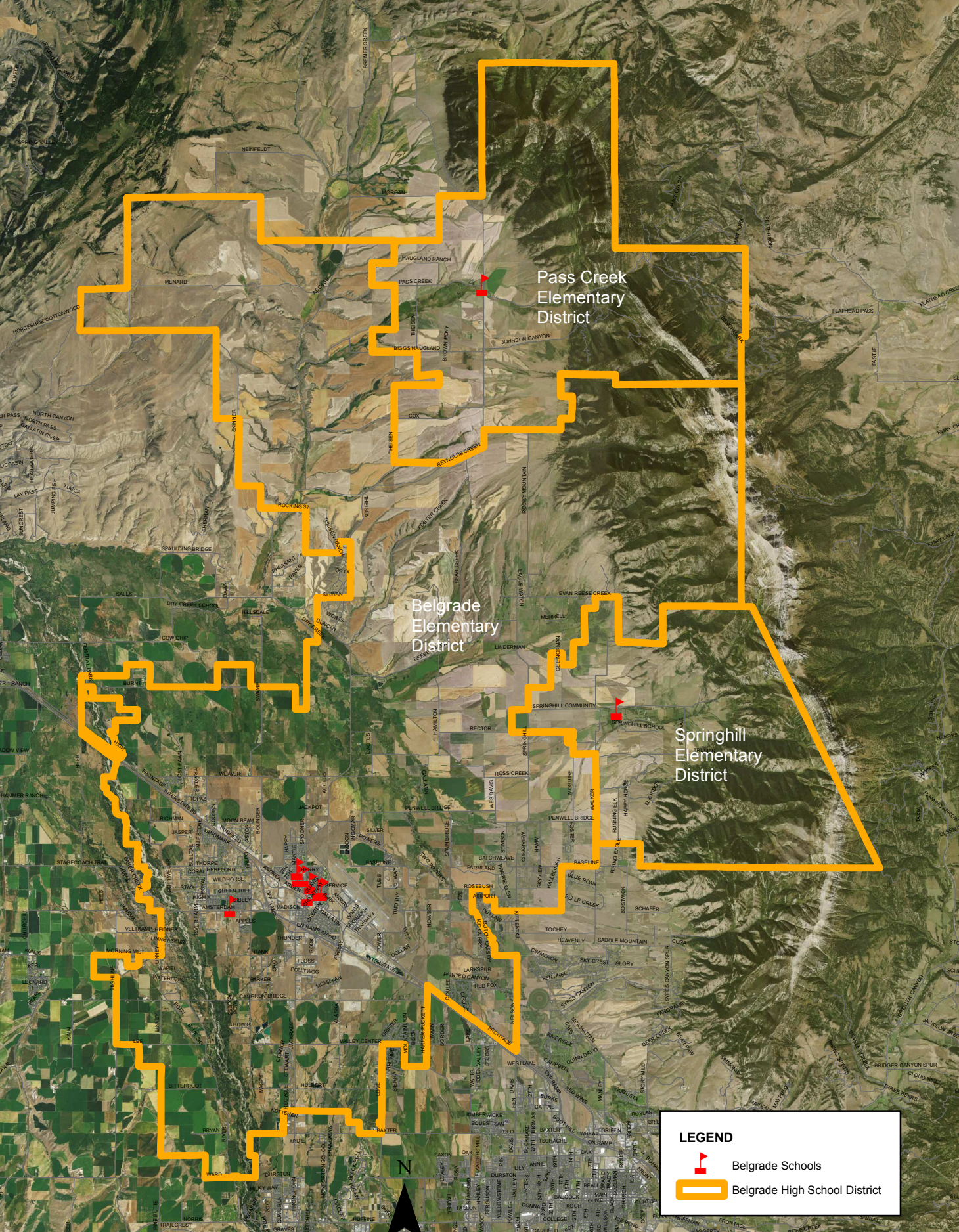
Land use within the school district area includes (see note below):

- 9,915 residential structures (single family, mobile homes and apartments)
- 1,192 commercial or industrial structures (storage, warehouses, offices, shops, barns)
- 113,247 acres of "Agriculture" land (irrigated and dry land farming)

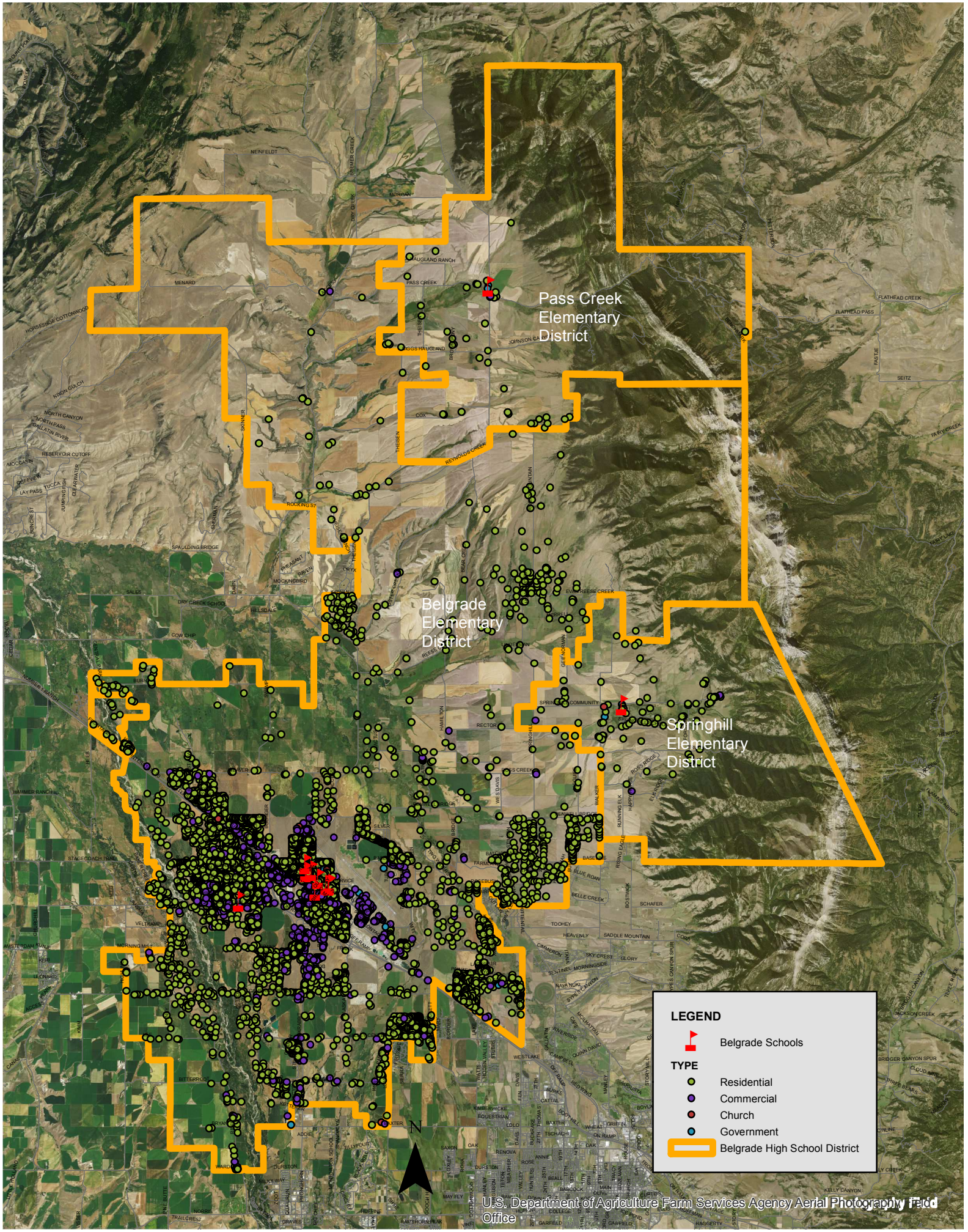
Source: Montana Department of Revenue and Gallatin County GIS Department

Refer to the following graphics that illustrate land utilization characteristics throughout the school district:

- Aerial Photograph with Elementary and High School District Boundary.
- Belgrade School District with Structures – locates existing residential and commercial/industrial structures within the school district; green indicates residential structures, purple indicates commercial or industrial structures.


Pass Creek
Elementary
District
Belgrade
Elementary
District
Springhill
Elementary
District
LEGEND
Belgrade Schools
Belgrade High School District
N

BELGRADE HIGH SCHOOL DISTRICT



Development Potential within the Belgrade School District

There is a considerable amount of land within the school district that is vacant or used for agricultural purposes but much of this land also has a good potential for gradual conversion to residential uses that will generate future students for the schools. There are many factors that directly influence how a parcel of land is developed. These include local and regional economy, developer financing, market demand and extension of water and sewer services. All of these factors with the exception water and sewer services are decisions made by a developer, but the decision to provide public water and sewer into an unserved area is an agreement between a developer and the City of Belgrade or with the Four Corners Water and Sewer District.

The conversion of vacant, agricultural or other undeveloped land to residential neighborhoods and the construction of new homes has had a direct impact on Belgrade Schools. Between 1990 and 2010, the City of Belgrade has had an increase of nearly 1,900 housing units. This is likely due to Belgrade's convenient commuting distance to Bozeman and generally lower housing costs.

Additional Students Resulting From New Housing Construction

Potential Land Development and Residential Construction

Information obtained from the City of Belgrade Planning Department brought forward 10 land development projects totaling 1,960 acres. Six parcels totaling 1,110 acres are either approved subdivisions or projects that are well along in the approval process and construction is expected to take place this year. Four other parcels have been identified to have good potential for housing development and may have at some point been in discussion with the City of Belgrade regarding future subdivision and housing construction.

Impacts of Housing Construction on Student Enrollment

There will be new K-12 students resulting from the construction of new housing. The actual timing of this housing construction cannot realistically be estimated as it is fully the decision of the land owner. Individual economic situations and the local economy have a significant role in when and how vacant land transitions to residential development. We foresee this growth to be gradual, starting with the completion of existing subdivisions and the approval and start of construction of new subdivisions currently in the preliminary or final approval process, and a gradual transition from vacant or farm land to housing on parcels to the west, north, south and east of the City of Belgrade.

School Impacts:

- 518 students resulting from six new subdivisions with 2018 construction plans,
- 448 students resulting from future phases of current subdivisions.
  - → There is a potential for a total of 966 more students resulting from the buildout of land that has been approved for residential development. Using current school district student breakdowns this would result in approximately:
    - ✓ K-4 - 396 new elementary school students
    - ✓ 5-8 - 309 new middle school students
    - ✓ 9-12 - 261 new high school students

Anticipated students from known housing developments are shown on Table 5.

Table 5
Students From Known Housing Development Projects

Refer to Potential Residential Development Map for Locations

Map Location	Parcel	Anticipated Land Utilization	Completed Units	Additional Units	Current Phase K-12 Students	Future Phases K-12 Students	Total Additional K-12 Students
A	Prescott Property 280 Acres	94 AC SF Residential 93 AC Town House 93 AC Apartments	0	1,600	595 DU 197 Students	1,005 DU 333 Students	530
B	Henson Subdivision 60 Acres	18 AC SF Residential 30 AC Town House 12 AC Apartments	0	311	218 DU 71 Students	93 DU 31 Students	102
C	Ryen Glen 170 Acres	170 AC SF Residential	200	157	157 DU 77 Students	0	77
D	Meadow Lark Ranch 100 Acres	100 AC SF Residential	170	200	30 DU 15 Students	170 DU 84 Students	99
E	R Bar N Subdivision 200 Acres	200 AC SF Residential	0	170	170 DU 84 Students	0	84
F	Gallatin Heights 300 Acres	300 AC SF Residential	150	150	150 DU 74 Students	0	74
Total	**1,110 Acres**	**882 AC SF Residential 123 AC Town House 105 AC Apartments**	**670**	**3,258**	**518 Students**	**448 Students**	**966 Students**

Notes:

1. Listed parcels are approved subdivisions or subdivisions in the approval process.
2. This list of likely housing construction is a result of research into possible land development and residential construction in the Belgrade area and input from the Belgrade City Planner Jason Karp.
3. Approximately .49 child per single family residential unit (Source: U.S. Census Bureau, American Fact Finder)
4. Approximately .25 child per multi-family unit (From research into similar apartment and townhouse developments.)

Impacts of Potential Future Land Development on Belgrade Schools

Of the 113,246 acres of "agricultural" land with the Belgrade School District, four parcels totaling 850 acres have been identified to have particular potential for future residential development. For any of these properties to achieve typical residential densities, water and sewer services must be obtained either from the City of Belgrade, the Four Corners Water and Sewer District of some type of approved private system.

There is a potential for approximately 436 students to attend Belgrade schools if and when these land parcels are developed. There are no development proposals underway for any of these parcels.

These land parcels are summarized on Table 6, Students from Potential Housing Development Projects and located on the following Potential Residential Development map.

Table 6
Students From Potential Housing Development Projects

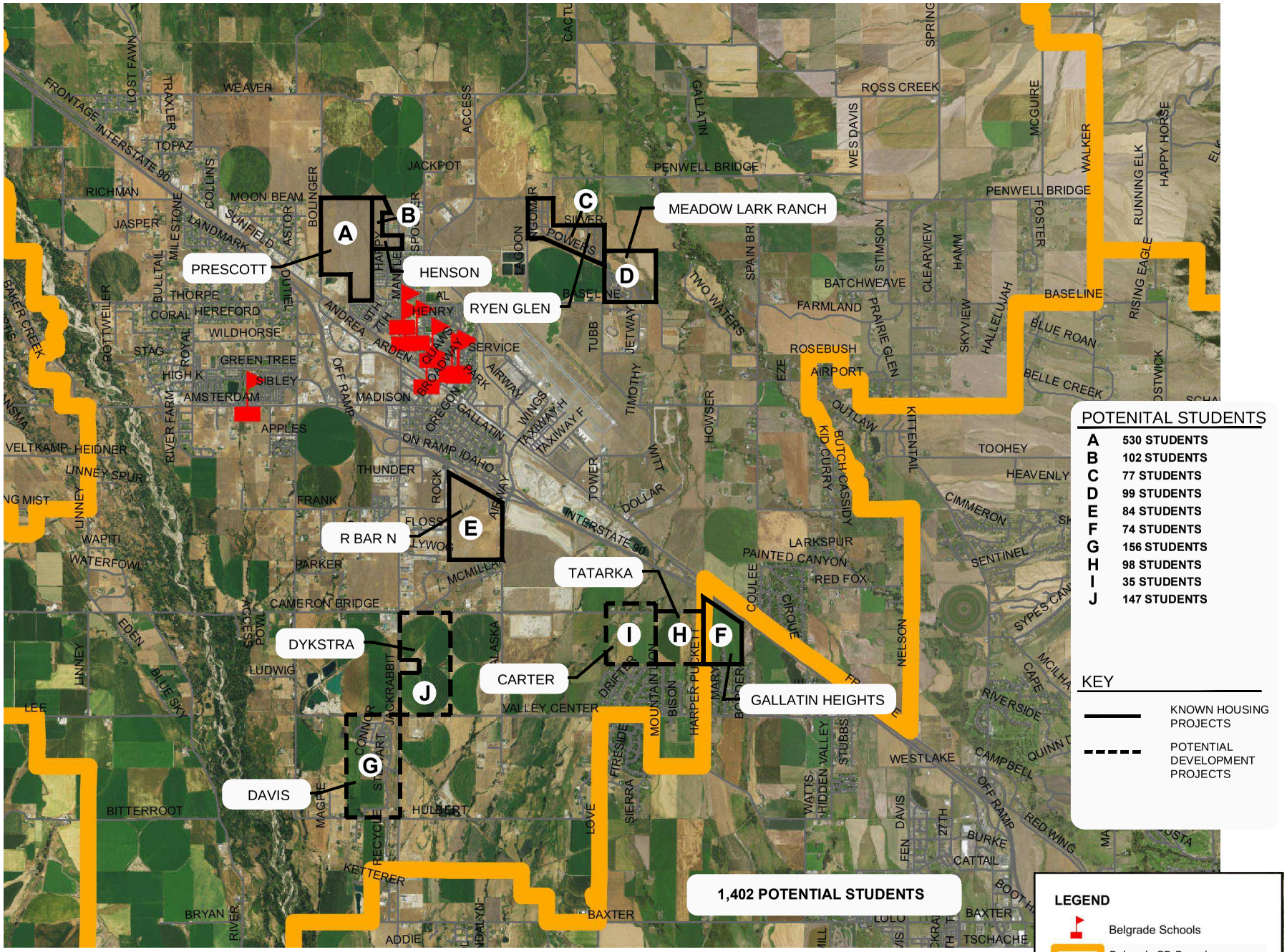
Refer to Potential Residential Development Map for Locations

Map Location	Parcel	Potential Land Utilization	Estimated Housing Mix	Potential Housing Units	Potential K-12 Students
G	Davis Property 250 Acres	150 AC Commercial 100 AC Residential	125 Single Family 375 Multi Family	500	156
H	Tatarka Property 160 Acres	160 AC Residential	200 Single Family	200	98
I	Carter Property 160 Acres	160 AC Residential	70 Single Family	70	35
J	Dykstra Property 280 Acres	280 AC Residential	300 Single Family	300 SF	147
Total	**850 Acres**	**150 AC Commercial** **700 AC Residential**	**695 Single Family** **375 Multi Family**	**1,070**	**436**

Note:
None of these land parcels are subdivided or have any approved concept for development. The land utilization illustrated is a result of discussions with Belgrade City Planner Jason Karp and any discussions he has had with landowners.

The following assumptions were made to develop data in the table where development specific resident information was not available.

1. .49 child per single family residential lot
2. .25 child per multi-family unit



POTENTIAL RESIDENTIAL DEVELOPMENT

BELGRADE PUBLIC SCHOOLS
BELGRADE, MONTANA

NOT TO SCALE
APRIL 2018

K-12 CONSULTANTS

BELGRADE SCHOOLS STUDENT ENROLLMENT CONCLUSIONS

It is challenging to predict how many students Belgrade schools will have over the next 10 to 15 years as this is reliant on the local and regional economy and the construction of new homes. It is very clear however, that student growth is occurring.

K-12 Consultants has utilized two methodologies to predict student growth. Method #1 utilizes statistical enrollment projections and Method #2 utilizes the number of students that could reasonably be expected from the construction of new housing. These different approaches provide comprehensive insights into the extent and what is driving enrollment growth.

Table 7 summarizes future student enrollments.

Table 7
Future Student Enrollment Conclusions

Methodology	K-4	5-8	9-12	K-12
Forecasting 10-year future student numbers based on past enrollment trends.	**10 Years** 1,563 total students 191 more students 14% increase	**10 Years** 1,328 total students 257 more students 24% increase	**10 Years** 951 total students 51 more students 6% increase	**10 Years** 3,842 total students 499 more students 15% increase
Forecasting future students based on birthrate trends, Cohort Survival calculation and children from proposed, new housing construction.	**Current Phase (1)** 1,897 total students 525 more students 38% increase **Future Phases (2)** 2,230 total students 858 more students 63% increase	**Current Phase (1)** 1,279 total students 208 more students 20% increase **Future Phases (2)** 1,741 total students 670 more students 63% increase	**Current Phase (1)** 1,133 total students 233 more students 26% increase **Future Phases (2)** 1,469 total students 569 more students 63% increase	**Current Phase (1)** 4,309 total students 966 more students 29% increase **Future Phases (2)** 5,440 total students 2,097 more students 63% increase

Note:

1. Current Phase includes 10-year cohort survival calculations and current phases of known residential development projects from Table 5.
2. Future Phase includes 15-year cohort survival calculations and all proposed future phases of known residential development projects from Table 5.

Short Term Student Enrollment Estimates

Conclusion Scenario #1 - *A Continuation of Past Growth Trends could result in 499 additional K-12 Students within 10 Years.*

Over the past 10 years Belgrade Schools have experienced an average annual growth rate of 1.4%. With the continuation of this growth rate for the next 10 years, there could be 499 additional students for a total K-12 enrollment of 3,842 students, a 15 increase from current enrollments.

- ✓ K-4 could have a total of 1,563 students, an increase of 191 over current enrollment.
- ✓ 5-8 could have a total of 1,328 students, an increase of 257 over current enrollment.
- ✓ 9-12 could have a total of 951 students, an increase of 51 over current enrollment.
- ✓ K-12 could have a total of 3,842 students, an increase of 499 over current enrollment. This is a significant 15% growth but it is very comparable to the 13% experienced in the past 10 years.

Conclusion Scenario #2 - *Birth Rates, Cohort Survival Calculations and New Housing Construction could result in 966 additional students within about 5 to 10 years*

Combining the estimated birth of children and the construction of new housing within the school district could result in 966 additional students for a total K-12 enrollment of 4,309 students, a 29% increase from current enrollments. Anticipated new residential developments are itemized on Table 5 and are the basis for future housing assumptions.

- ✓ ***966 additional students within about 5 to 10 years*** can be defended by the assumption that it is reasonable to expect past birth rates to continue which will provide about 448 new students and that housing construction now underway in the initial phases of existing or soon to be approved subdivisions will be completed to provide an additional 518 students.
- ✓ ***2,097 additional students within about 10 to 15 years*** can be defended by the assumption of a continuation of current birth rates which will provide about 1,131 new students and that all phases of existing or soon to be approved subdivisions will be completed to provide an additional 966 students.

Long Term Student Impact on Belgrade Schools

There is a Possibility of 436 Additional Students from Identified Potential Future Residential Land Development.

Beyond the construction of the six known development projects as outlined in Table 5, there are four additional land development projects identified with potential for some type of residential construction (Table 6). These projects total approximately 1,070 housing units and could result in an additional 436 students. There are no plans or time frame in place for the development of this land but it is prudent to be aware of the possibility of housing to be constructed.

- ✓ There is potential for gradual construction of housing on Parcels G, H, I, and J, which potentially could provide about 436 new students. The time frame for when the school should anticipate these new students cannot be estimated as the configuration, pace and timing of this construction activity is fully dependent on the desire of the land owner to sell to a developer or subdivide and construct housing, the availability of public water and sewer, the local and regional economy, and housing demand.

K-12 Consultants
3209 Leeann Blvd
Billings, Montana 59102

406-855-9461
eisenj@msn.com