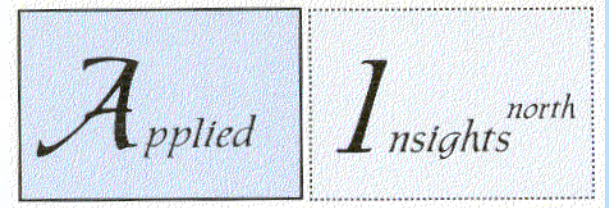




Carlton Public Schools Student Enrollment Projection to 2026/27



Two Projections

Carlton is considering the replacement of its middle/high school with a new facility at South Terrace.

Given the significant impact of open enrollment out of and into the district and the likelihood that a new facility would alter this dynamic, it seems appropriate to provide two enrollment projections.

Projection #1 is the “baseline” built upon current demographic and enrollment factors. It seeks to show future enrollment if no new facility is built.

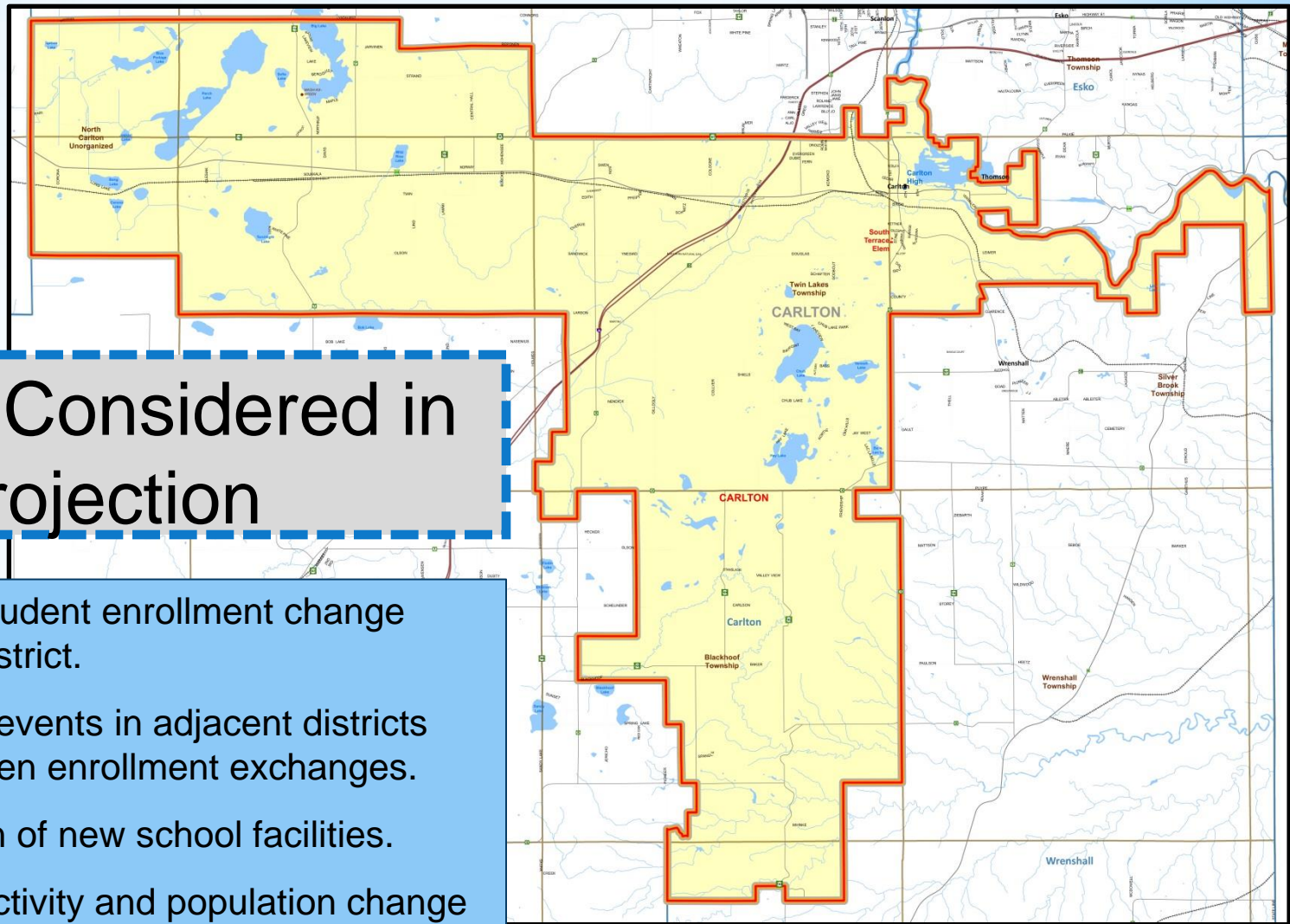
Projection #2 assumes construction of a new facility and attempts to account for potential changes in decision making by parents and students regarding which district they will attend.

The Overview

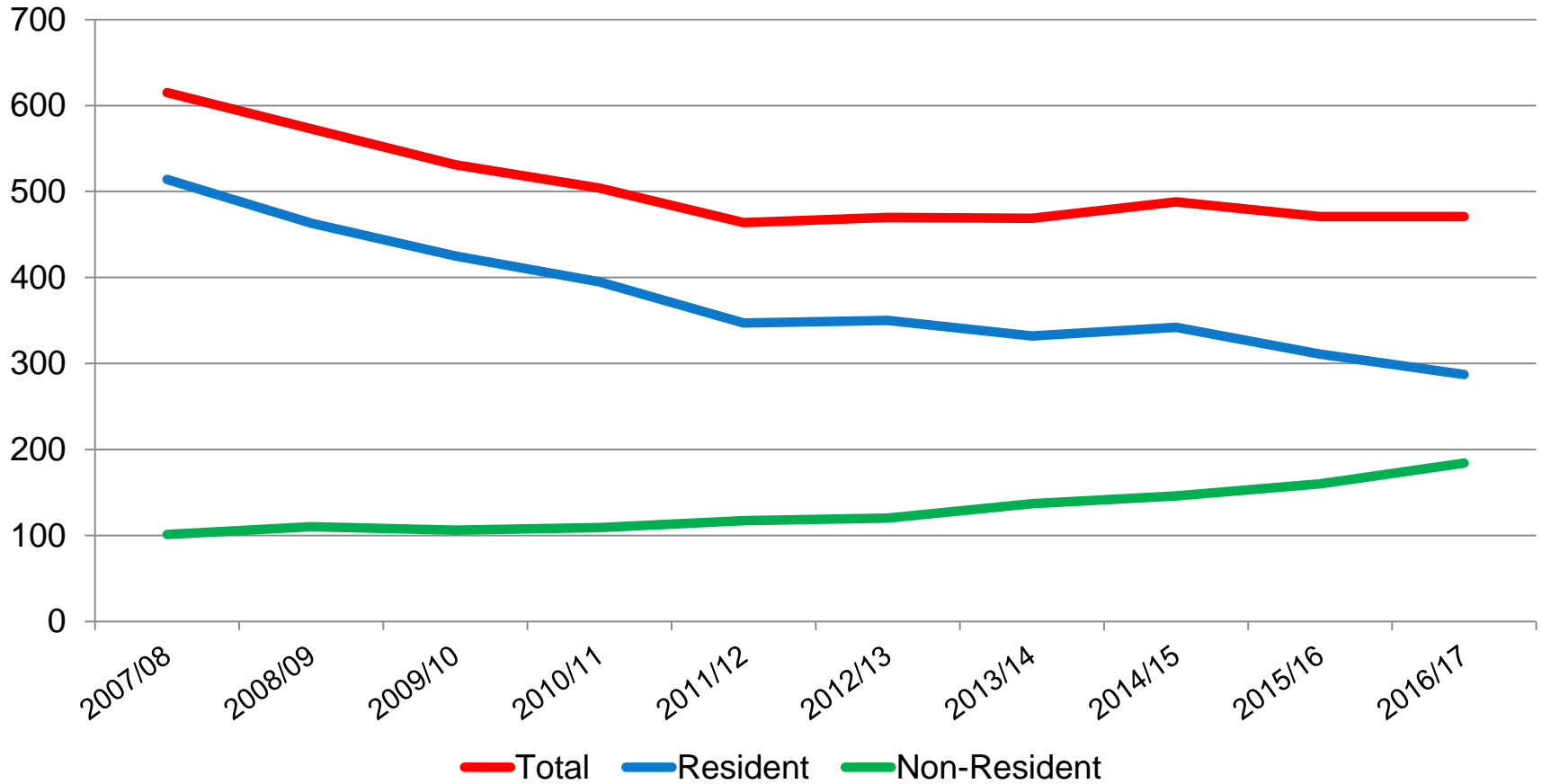
- The number of students living within the district has declined significantly over the past 10 years.
- Carlton's K-12 enrollment has declined over the past 10 years but has been essentially stable in recent years due to students open enrolling into the district.
- The number of resident students attending Carlton has declined dramatically – less than half of resident students now attend Carlton.
- The number of students open enrolling into the district has increased substantially but is still less than the number who leave.
- Under current demographic and enrollment dynamics, and considering the completion of Cloquet's new middle school, Carlton's enrollment will continue to decline.
- Construction of a new facility could stabilize or increase Carlton's enrollment.

Factors Considered in Projection

- Pattern of student enrollment change within the district.
- Trends and events in adjacent districts including open enrollment exchanges.
- Construction of new school facilities.
- Economic activity and population change and development pattern for the area.
- Patterns of births relative to district kindergarten enrollment including projected births.



Carlton K-12 Enrollment Trends

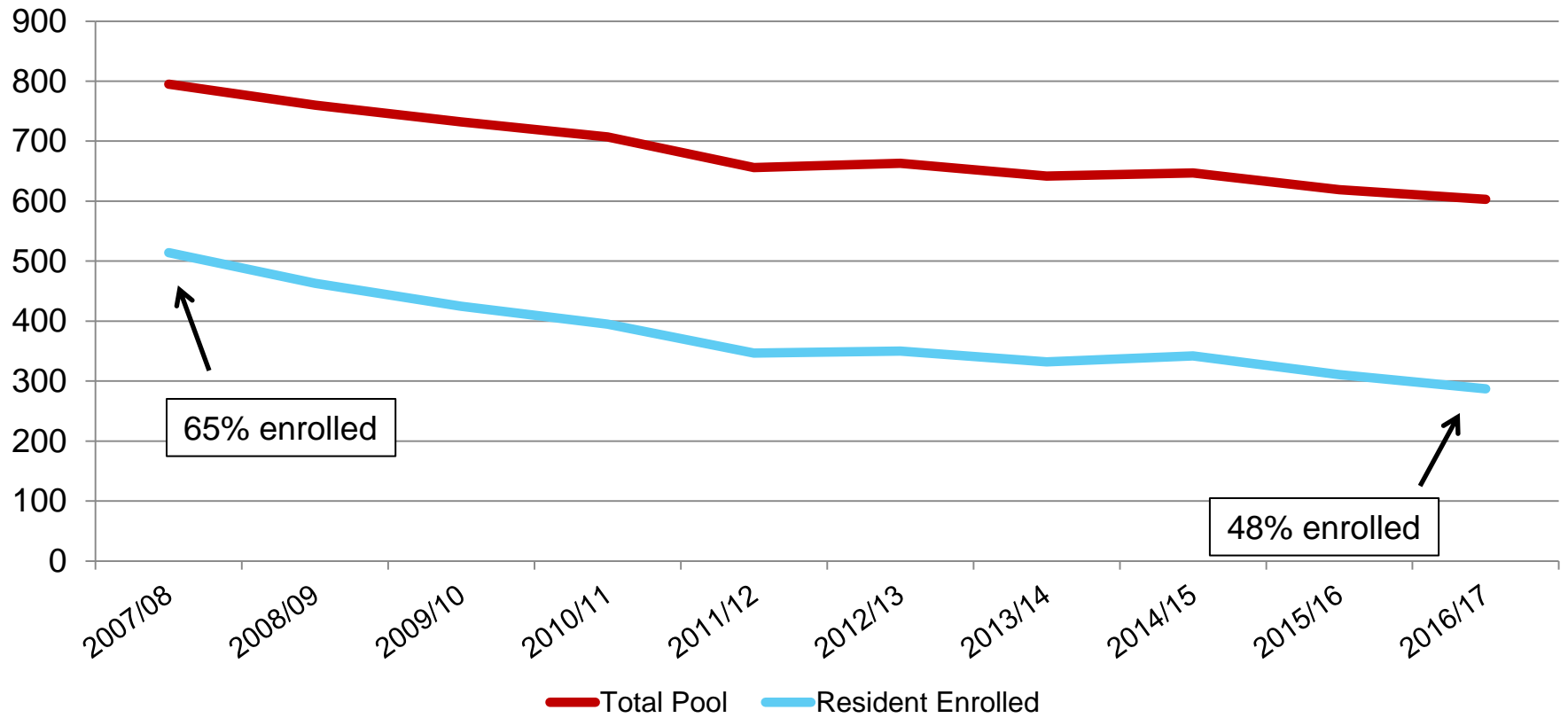


Avg Size	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
K - 6	43	45	43	39	37	37	39	35	33	34
7 - 12	52	43	39	39	34	35	33	41	40	39

Carlton Enrollment, 2007/08 – 2016/17

Grade	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Kg	52	47	37	40	38	39	42	32	39	24
1	43	55	49	30	36	32	34	40	27	39
2	38	47	52	43	32	39	32	33	39	30
3	53	39	42	50	41	29	39	29	34	42
4	40	49	34	37	47	40	32	38	30	35
5	45	39	49	31	35	51	41	30	37	27
6	31	38	35	39	30	30	51	42	27	38
7	54	27	36	34	39	35	30	54	45	28
8	36	49	25	38	32	42	38	32	56	46
9	58	34	47	27	39	35	45	42	27	58
10	45	55	29	47	25	42	35	46	38	26
11	59	48	54	37	42	19	38	35	42	40
12	61	46	42	51	28	37	12	35	30	38
Total Kg - 12	615	573	531	504	464	470	469	488	471	471
K – 6	302	314	298	270	259	260	271	244	233	235
7 - 12	313	259	233	234	205	210	198	244	238	236

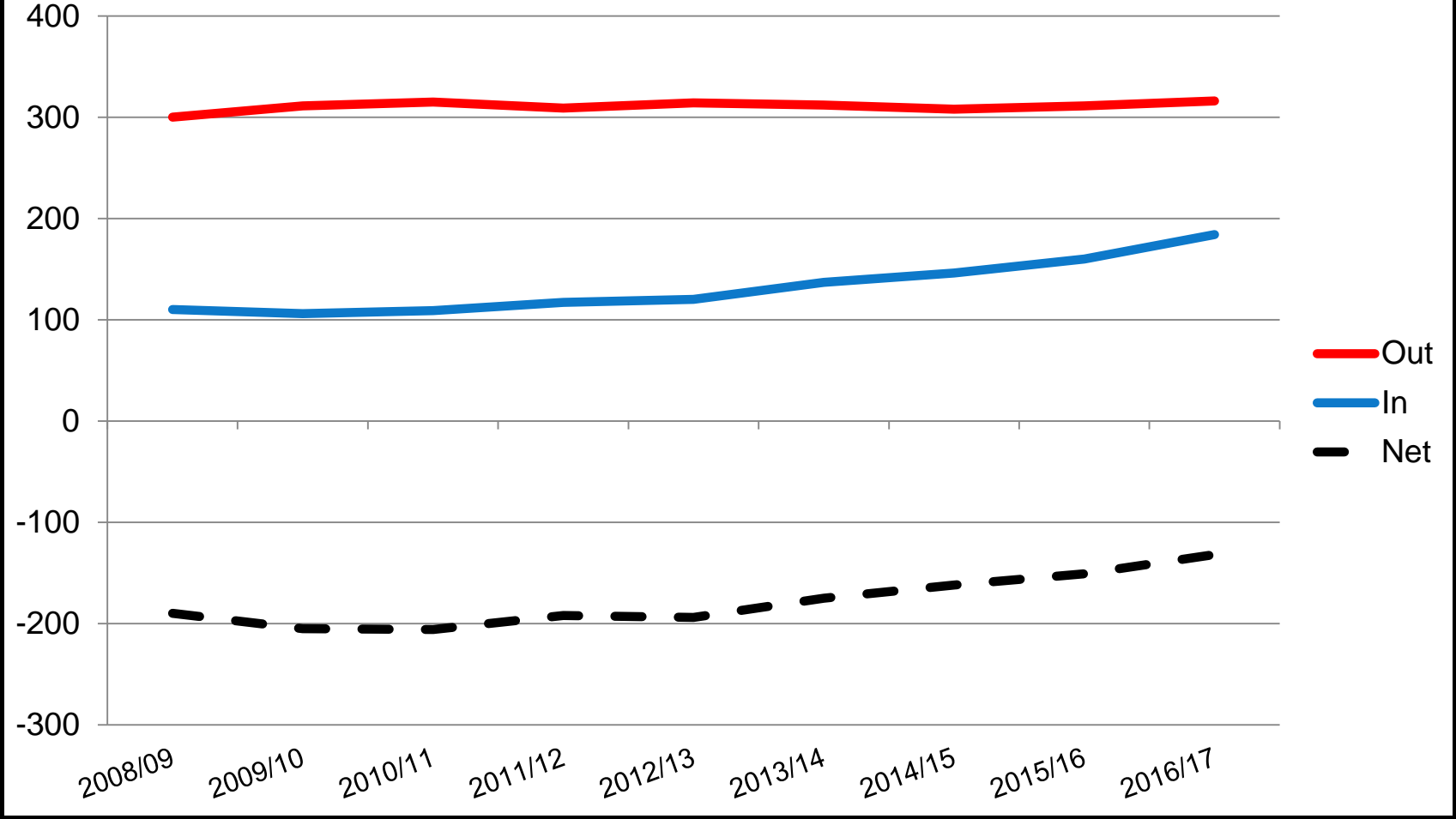
Carlton K-12 Resident Pool vs Resident Students Enrolled



Residents	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Total	795	760	732	707	656	663	642	647	619	603
Enrolled	514	463	425	395	347	350	332	342	311	287

Open Enrollment

Carlton Open Enrollment, 2008/09-2016/17



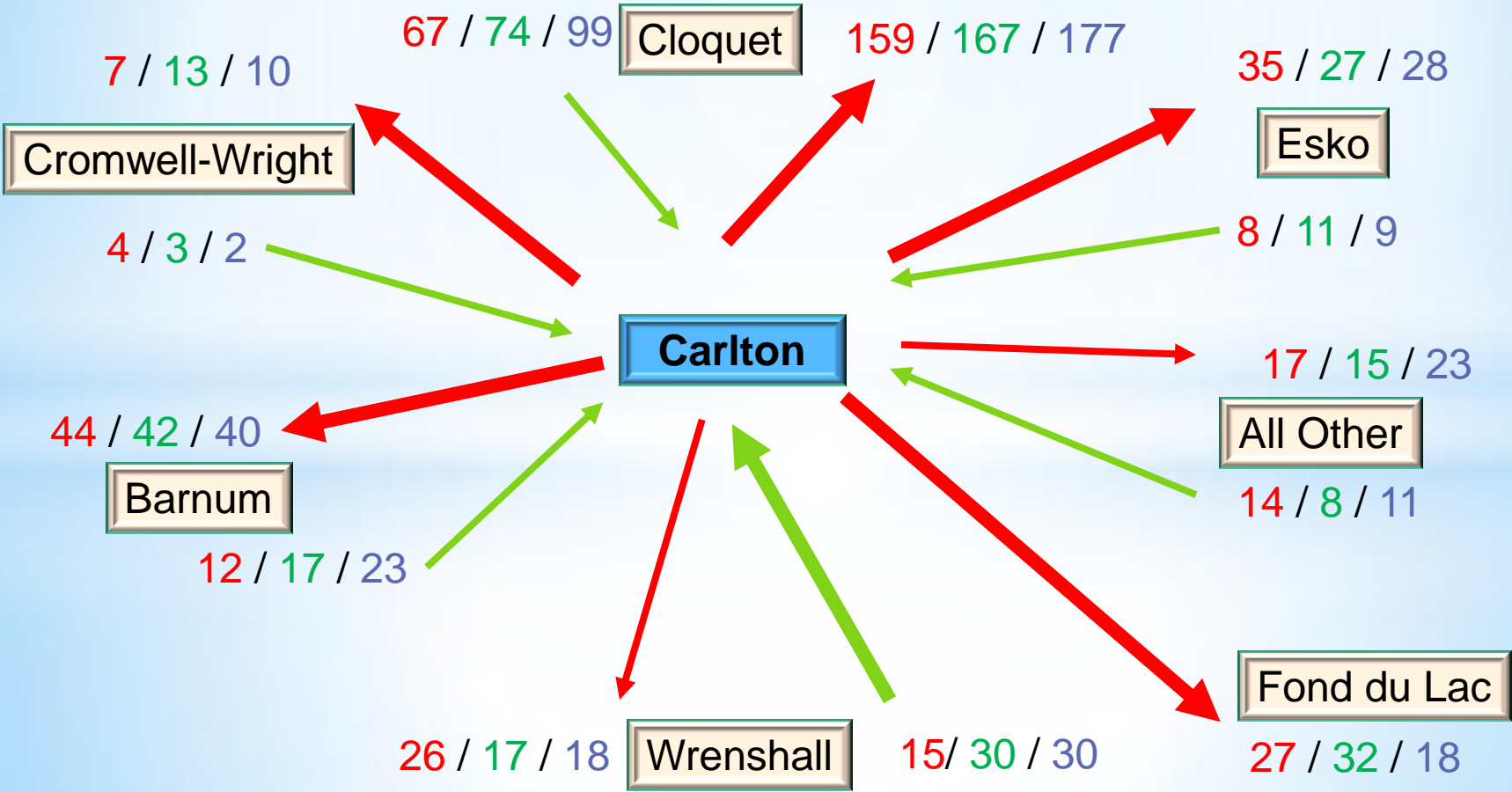
Open Enrollment

	2014/15		2015/16		2016/17	
	In	Out	In	Out	In	Out
Cloquet	82	168	91	177	106	177
Wrenshall	27	18	29	15	31	21
Esko	10	25	9	26	8	30
Barnum	17	38	22	38	23	42
Cromwell-Wright	2	14	2	10	2	9
Fond du Lac	0	31	0	25	0	12
All Other Districts	8	11	7	14	14	19
All Charters	0	3	0	6	0	6
Total	146	308	160	311	184	316
Net Exchange		-162		-151		-132

Open Enrollment Summary									
	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
In	110	106	109	117	120	137	146	160	184
Out	300	311	315	309	314	312	308	311	316
Net	-190	-205	-206	-192	-194	-175	-162	-151	-132

Carlton Open Enrollment Exchanges Two-Year Averages

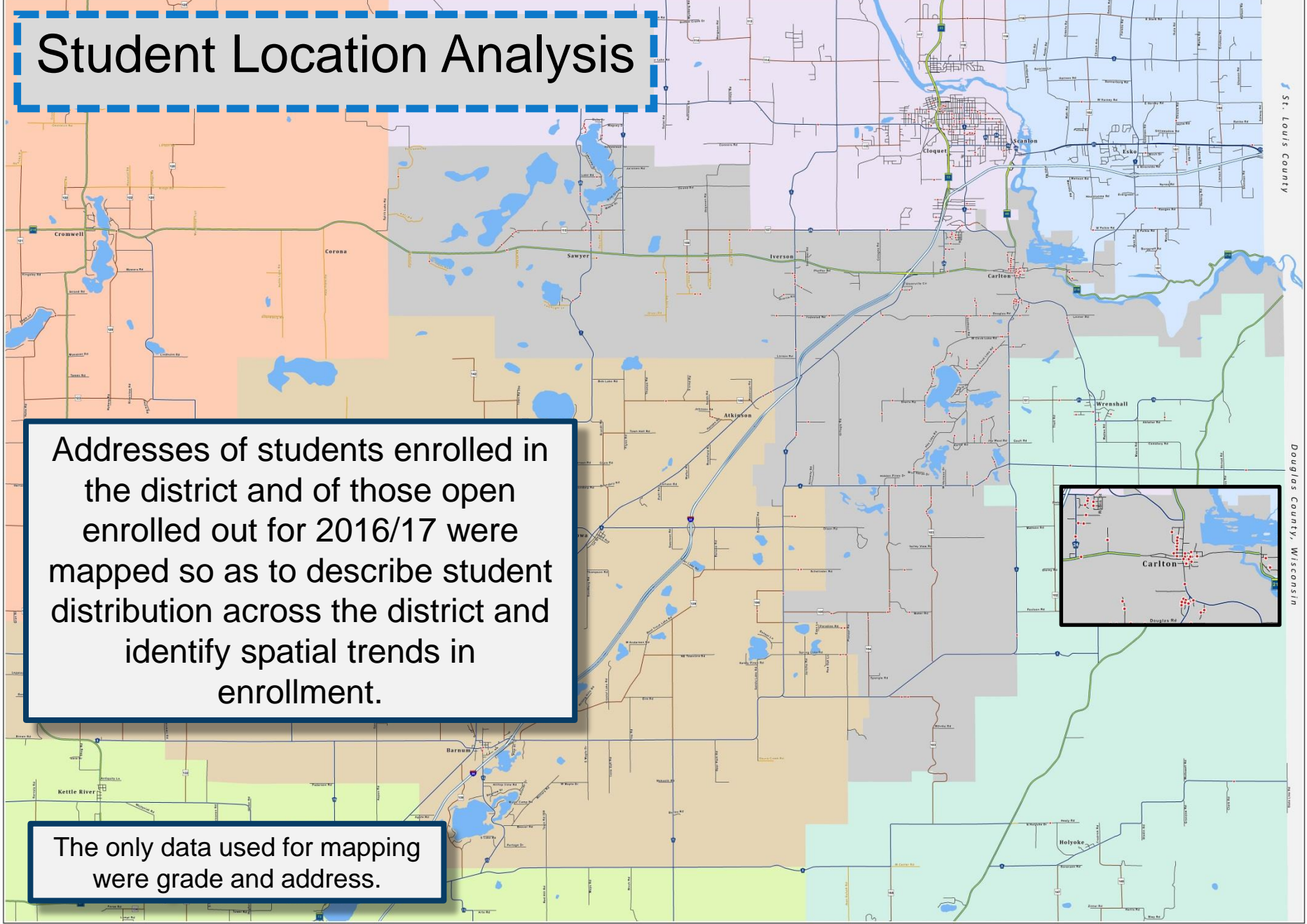
2011/12 – 2012/13 / 2013/14 – 2014/15 / 2015/16 – 2016/17



Student Location Analysis

Addresses of students enrolled in the district and of those open enrolled out for 2016/17 were mapped so as to describe student distribution across the district and identify spatial trends in enrollment.

The only data used for mapping were grade and address.



Student Location and Attendance Analysis

General Location of Resident K-12 Students and Number Who Attend Carlton, 2016/17

Area	Resident Students		Those who Attend Carlton	
	Number	% of Total	Number	Percent
Perch Lake Township	44	7.2%	16	36.4%
Sawyer Township	73	11.9%	36	49.3%
Carlton, city	107	17.5%	71	66.4%
Twin Lakes Township	293	47.9%	140	47.8%
Blackhoof Township	88	14.4%	38	43.2%
Other*	7	0.5%	4	57.1%
Total	612	100.0%	305	49.8%

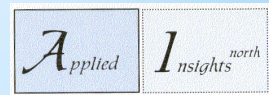
* Progress, Corona and Silver Brook Townships

Student Location and Attendance Analysis

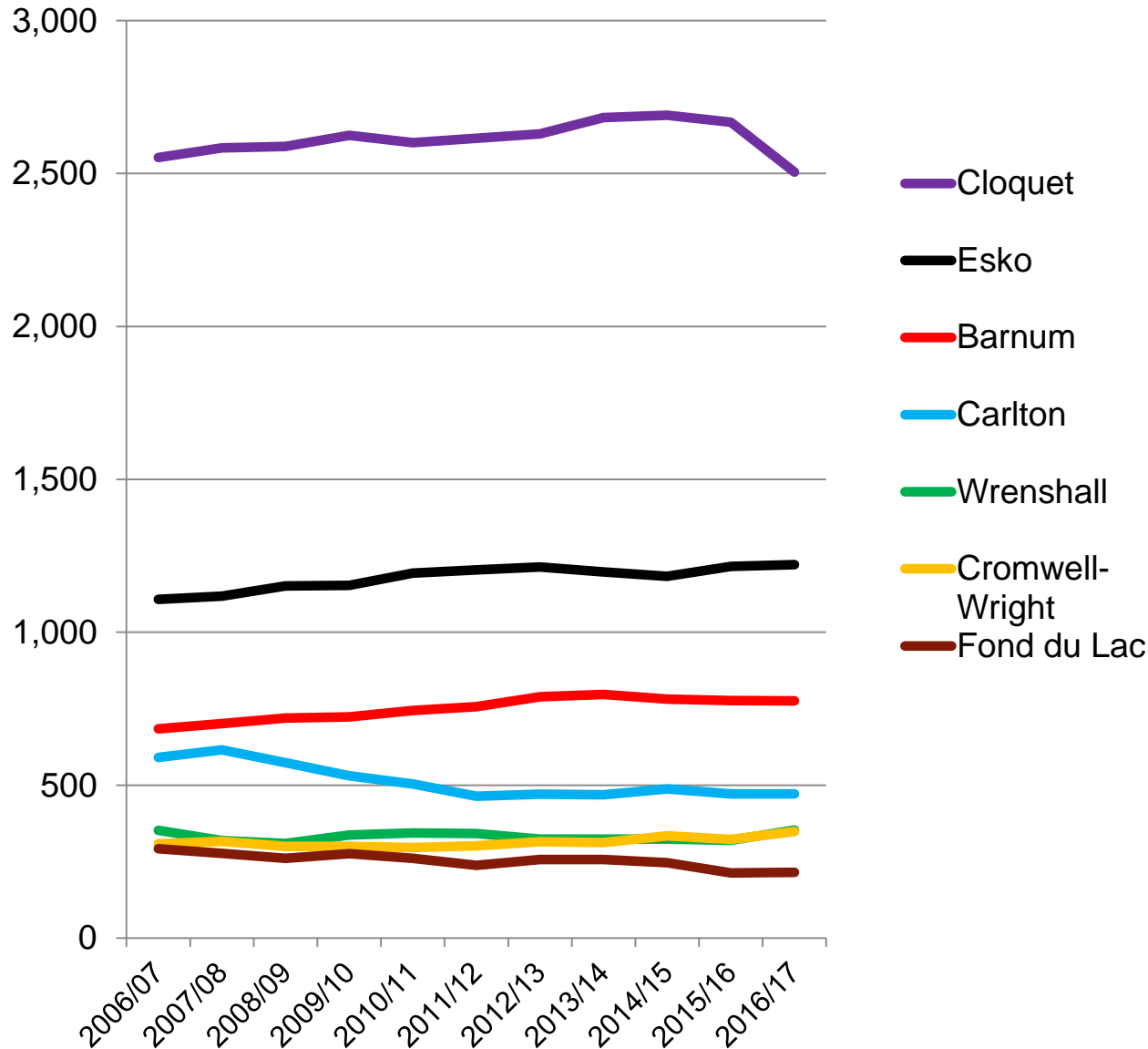
General Location of Resident K-12 Students and District They Attend, 2016/17

Area	Carlton	Cloquet	Wrenshall	Barnum	C-W	FdL	Esko	Other	Total
Perch Lake Twp	16	24				2		2	44
Sawyer Twp	36	19	1		7		1	9	73
Carlton	71	17	4	1		4	8	2	107
Twin Lakes Twp	140	102	7	18		5	13	8	293
Blackhoof Twp	38	10	9	22		1	6	2	88
Other*	4	1			1			1	7
Total	305	173	21	41	8	12	28	24	612
% of Total	49.8%	28.3%	3.4%	6.7%	1.3%	2.0%	4.6%	3.9%	100.0%

* Progress, Corona and Silver Brook Townships



K-12 Enrollment for Adjoining Districts, 2006/07 - 2016/17



Context: Area Schools

Carlton declined by 20%.

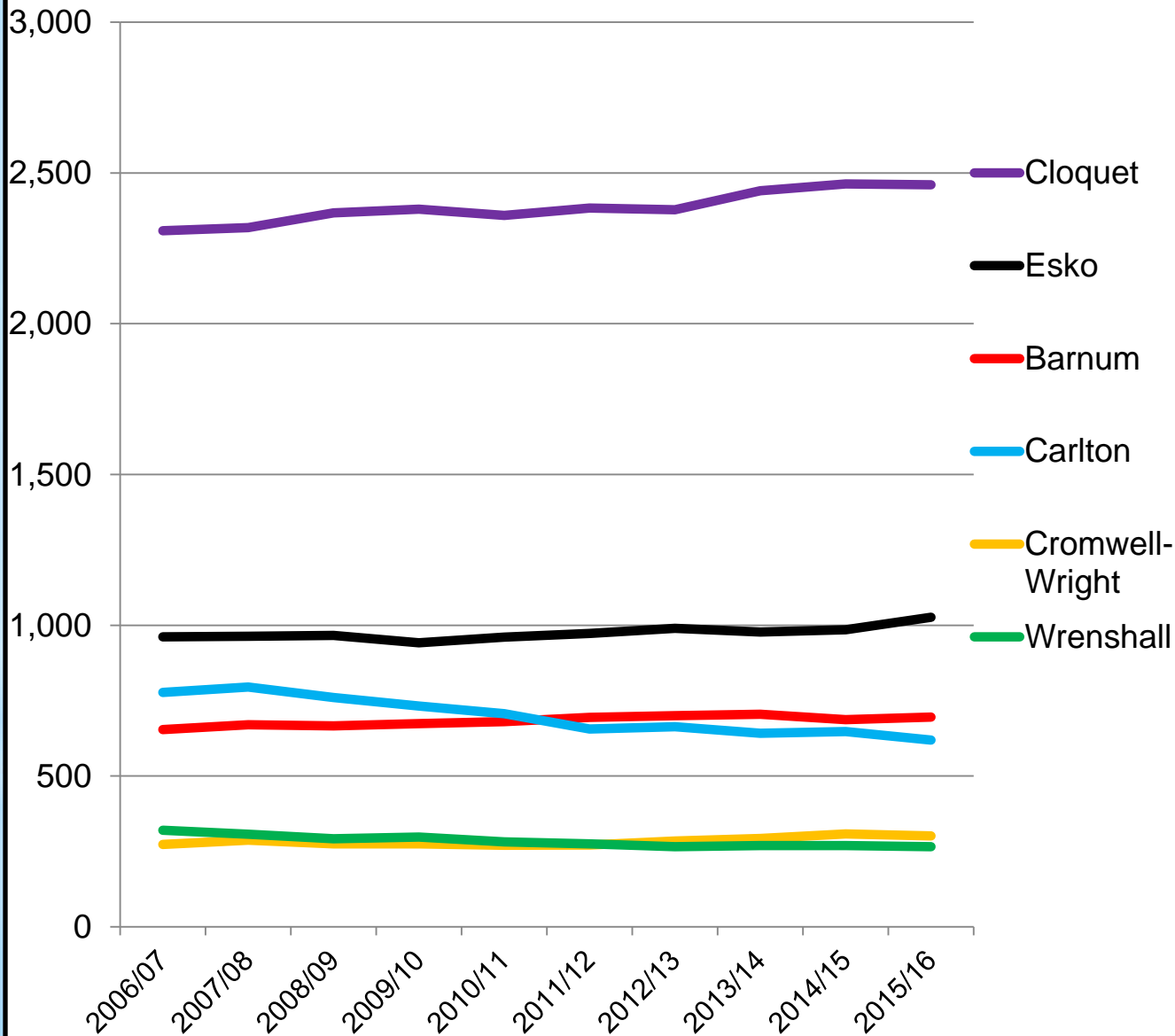
Fond du Lac had the largest loss at -26%.

Cloquet had grown but experienced a sudden drop in 2016/17.

All other districts gained by 10-14%. Wrenshall had been stable for nine years until gaining over 30 students in 2016/17.

Source: MDE, districts

Resident K-12 Students Regardless of Where Enrolled, 2006/07 - 2015/16



Resident Student Base

These charts show the number of resident students living within each district regardless of where they actually were enrolled. This removes the distortion caused by open enrollment and shows each district's "pool" of students.

Carlton's "pool" declined by 20% (158 students).

Wrenshall's pool dropped by 17% (54 students).

All other districts grew with Cloquet gaining the most at 153 students.

Source: MDE

Analyze 2000-2010 trends:
Changes in age groups
Births per year

Add in estimates & projections by
State Demographic Center

**Future:
Estimating
Births and
Kindergarteners**

Key factor is women age 15-44

Evaluate optional
fertility rates

Sources: US Census
State projections
State Department of Health.

Population Review

	1970	1980	1990	2000	2010	2015	2020	2025
Carlton County	28,072	29,936	29,259	31,671	35,386	35,569	38,596	39,399
Change		6.6%	-2.3%	8.2%	11.7%	0.5%	8.5%	2.1%

Carlton County has gained population through 2015 but not at the pace projected by the State Demographic Center.

A rough analysis of change within the Carlton school district suggests the district has grown in population at a rate just slightly less than that for the county as a whole.

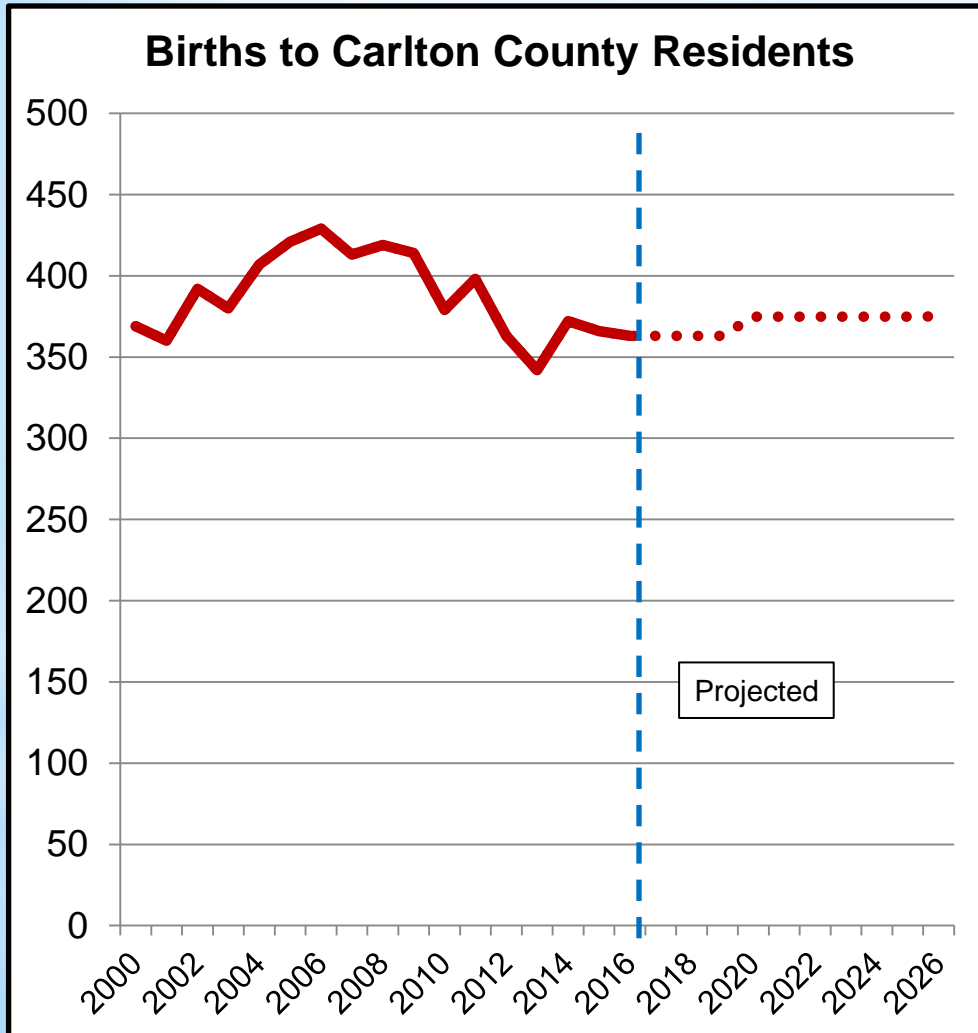
The number of women ages 15-44 (primary childbearing years) will be steady to slightly growing through 2020.

Population Review

Observations on Regional Economy

- Most local workers commute to Cloquet and Duluth-Superior for jobs; Black Bear Casino complex is located within the district.
- Owner of 160 acres within Carlton has plans to create subdivision with 20-25 homes.
- The “Highway 210 Corridor” project seeks to extend public water service west from Carlton to foster a mix of industrial, commercial and residential uses but no firm date for construction has been set.
- Kwik Trip is developing a major facility at I-35/Hwy 210 interchange that will include an enhanced store and distribution operation for regional stores.
- Fond du Lac Band housing development and shift of Big Lake Sanitary District to WLSSD could spur limited growth.
- Probable redevelopment of the old Black Bear Casino hotel could generate new employment.
- An \$8.2 million project to provide broadband internet service to the southern portion of the Reservation has potential to spur residential and commercial activity in a currently unserved area.

Estimating Future Births and Kindergarteners



Data sources: State Department of Health; Applied Insights North (projections)

Births peaked in 2006 at 429 then declined to an average of 368/year. Future births are expected to remain near that level and then rise slightly. Over the past three years an estimated 11% of county births have been to women living in the school district.

Caveat

By necessity the projection uses average figures for annual births producing a smooth trend line. In reality, annual births can vary dramatically:

- (1) Over the past 10 years the year-to-year change in total births has ranged from 30 to -35.
- (2) The number of those births occurring to school district residents averaged 13% with highest rate being 19% and lowest 9%.

While expected, these year-to-year swings cannot be predicted.

Projection #1: The Baseline

Assumptions

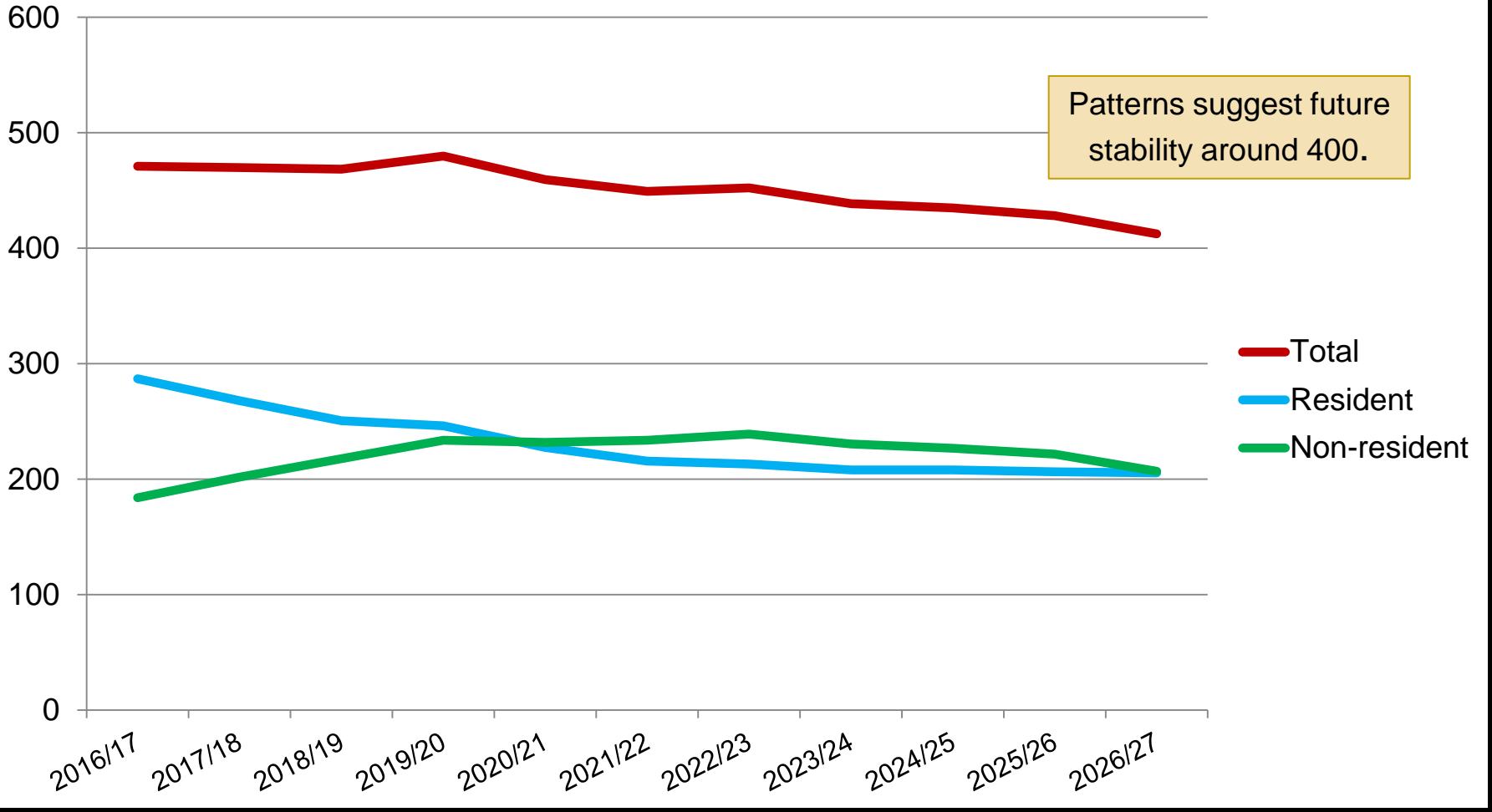
- No change in school district boundary.
- Current open enrollment dynamic continues except that beginning in 2019/20 the number of students in grades 5-7 open enrolling into Carlton is decreased to account for new Cloquet middle school.
- District population is likely to grow somewhat slower than the county's overall pace.
- Incoming kindergarten classes reflect a generally sustained level of births with the likelihood that the percent of these births to women living within the district will be the average of the past three years.

Projection #1: The Baseline

Carlton ISD #93 K-12 Enrollment Projection to 2026/27

Grade	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
Kg	24	32	30	33	32	32	33	33	33	34	34
1	39	22	30	27	31	30	29	31	31	31	32
2	30	40	24	31	29	32	31	30	32	32	32
3	42	30	40	24	31	29	32	31	30	32	32
4	35	42	30	41	24	31	29	32	31	30	32
5	27	33	40	27	37	21	27	27	29	28	28
6	38	29	34	39	25	36	20	27	27	29	28
7	28	43	33	38	44	25	38	22	29	30	32
8	46	30	47	37	42	49	27	42	24	32	33
9	58	47	31	49	39	43	52	27	43	25	33
10	26	56	46	30	48	38	42	51	26	42	24
11	40	27	57	48	31	52	42	45	56	27	45
12	38	39	27	56	47	31	51	42	44	56	27
Total Kg - 12	471	470	468	480	459	449	452	439	435	428	412
K – 6	235	228	228	223	209	211	201	210	213	216	218
7 - 12	236	242	241	257	250	239	251	228	222	212	194

Projection #1: Baseline Carlton K-12 Projection to 2026/27



Average Class Size by Grade Group

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
K – 6	34	33	33	32	30	30	29	30	30	31	31
7- 12	39	40	40	43	42	40	42	38	37	35	32

Projection #2: Impact of a New Facility

Assumptions

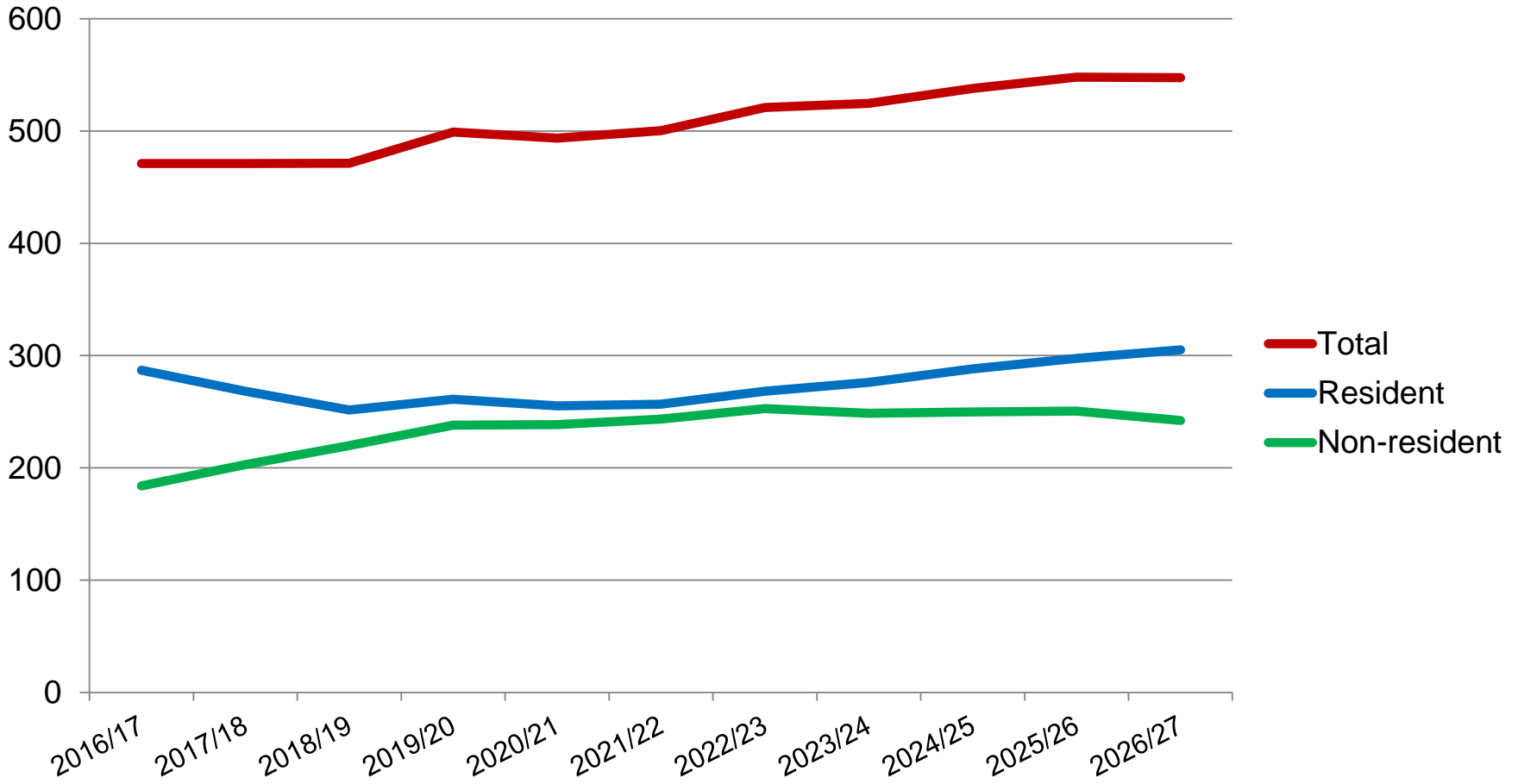
- No change in school district boundary.
- Current open enrollment dynamics changed to: beginning in 2019/20 the number of students in grades 5-7 open enrolling into Carlton is decreased to account for new Cloquet middle school; more resident kindergarteners attend Carlton; and more elementary and middle school resident students attend Carlton.
- District population is likely to grow somewhat slower than the county's overall pace.
- Incoming kindergarten classes reflect a generally sustained level of births with the likelihood that the percent of these births to women living within the district will be the average of the past three years.

Projection #2: Impact of New Facility

Carlton ISD #93 K-12 Enrollment Projection to 2026/27

Grade	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
Kg	24	32	31	41	42	41	43	43	43	45	45
1	39	23	31	31	41	41	41	42	42	42	44
2	30	40	24	33	32	42	43	42	44	44	44
3	42	30	40	25	33	33	43	43	43	45	45
4	35	42	30	41	25	33	33	43	44	43	45
5	27	33	41	29	38	22	31	31	41	42	41
6	38	29	34	43	29	40	23	33	34	44	44
7	28	42	33	37	47	29	42	25	35	37	47
8	46	30	46	38	42	54	31	46	29	40	42
9	58	47	31	48	40	44	56	31	48	30	41
10	26	56	45	30	47	40	43	55	30	46	29
11	40	27	57	47	32	51	43	46	59	31	49
12	38	39	26	56	46	31	50	43	45	59	30
Total Kg - 12	471	471	471	499	494	500	521	525	538	548	547
K – 6	235	230	232	242	239	253	256	278	291	305	309
7 - 12	236	241	239	257	255	248	265	246	247	243	238

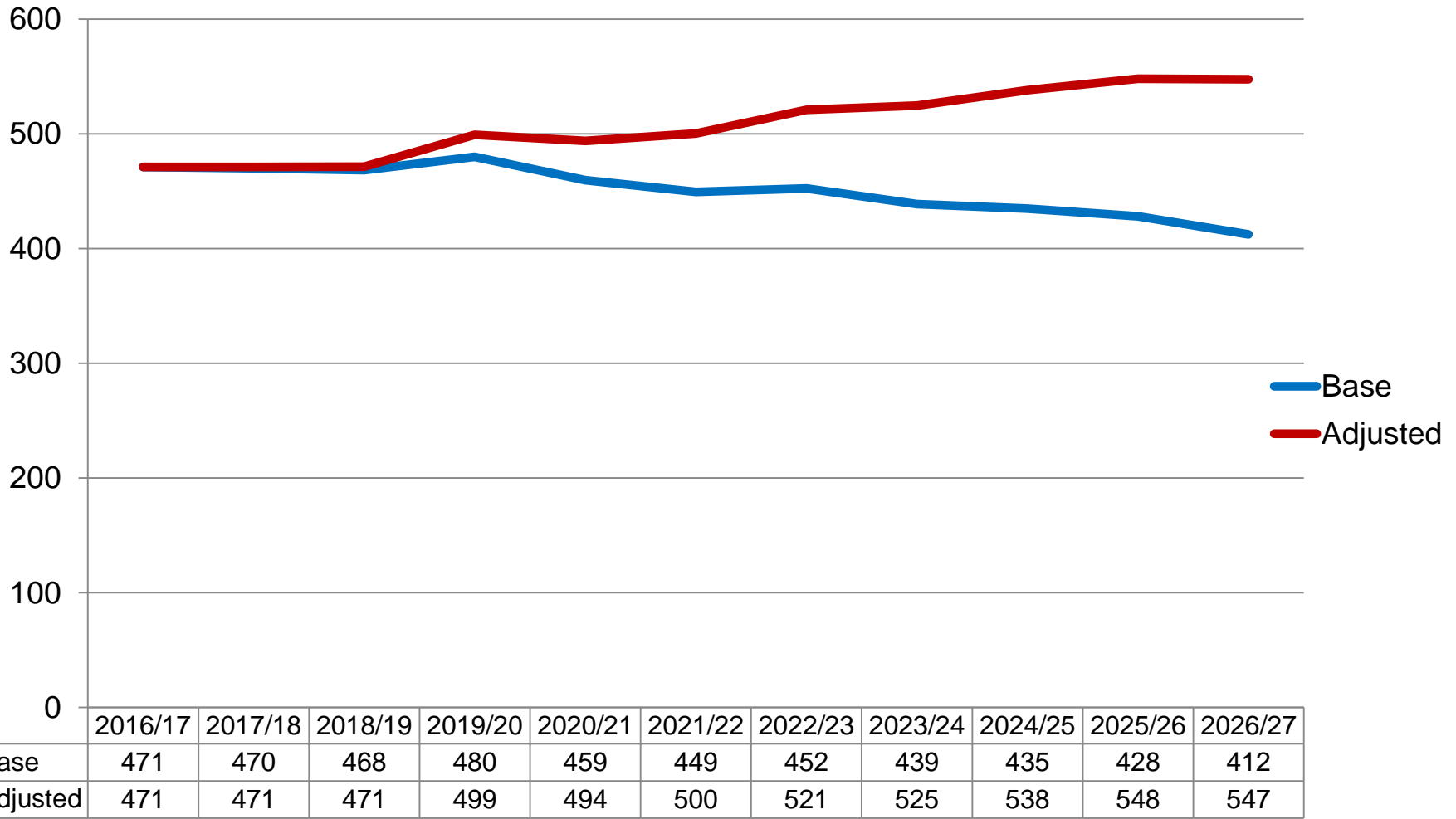
Projection #2: New Facility Impact: Carlton K-12 Enrollment to 2026/27



Average Class Size by Grade Group

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
K – 6	34	33	33	35	34	36	37	40	42	44	44
7- 12	39	40	40	43	42	41	44	41	41	40	40

Comparison of Two Projections of K-12 Enrollment for Carlton to 2026/27



Using the Projections

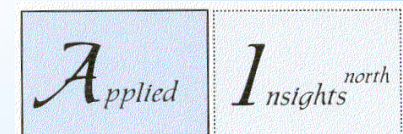
- These projections are not predictions. They are built on assumptions regarding the best understanding of district dynamics such as open enrollment and future births.
- The projections produce relatively smooth trend lines because they use averages and constants. The reality is there will be annual fluctuations especially in such things as incoming kindergarten classes.
- Do not be concerned when actual numbers vary in a given year from a projection. Each year:
 - Check to see if the TREND and the MAGNITUDE of the projection align with the unfolding actual numbers. Evaluate deviations to determine the likely reason.
 - Monitor annual births (state health department data) to see if there are significant deviations from what is assumed in the projection.

Carlton Public Schools Student Enrollment Projection to 2026/27



Highlights

- Baseline Projection, based on current dynamics plus accounting for new Cloquet middle school, sees K-12 enrollment declining from 471 to around 410. Likely future stable level at or just above 400.
- Projection based on a new Carlton facility has K-12 enrollment increasing to around 550. Growth is driven by an increase in number of resident students attending Carlton. Non-resident enrollment will flatten.



Appendix

And now the question everyone asks:



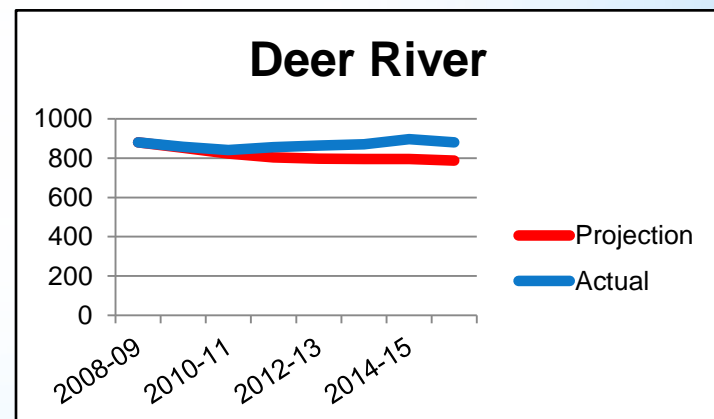
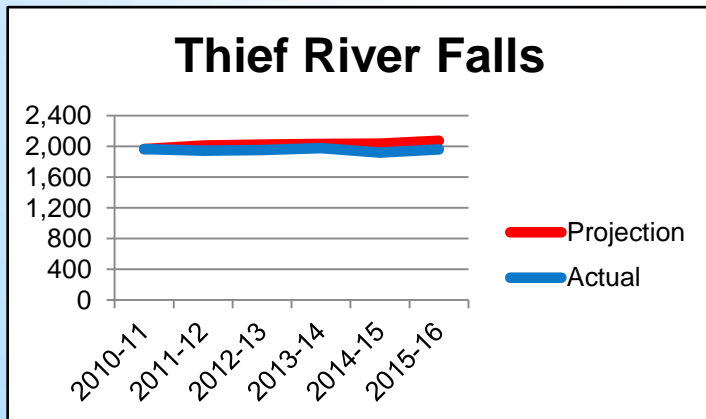
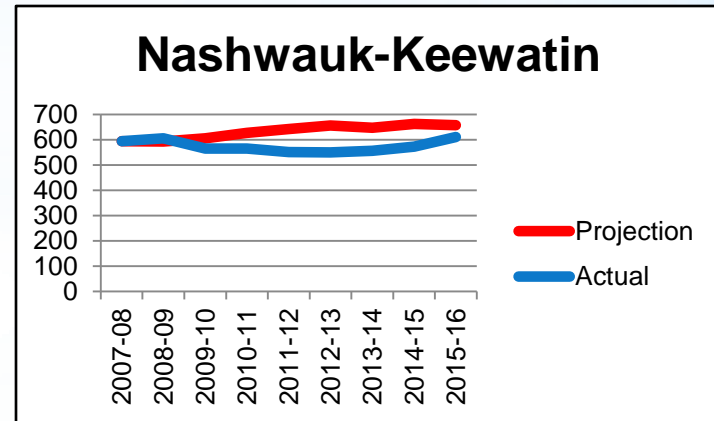
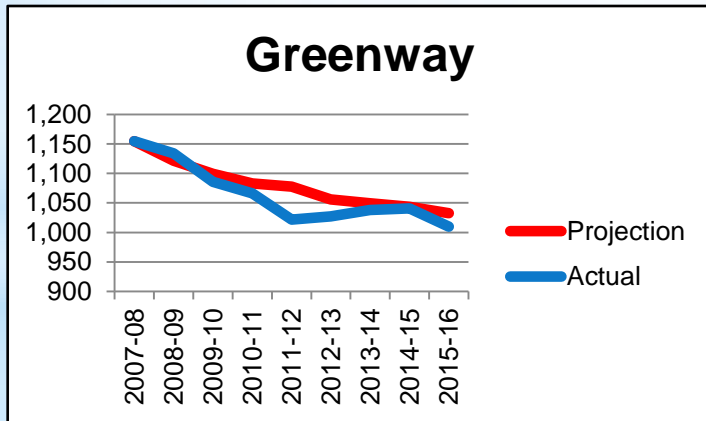
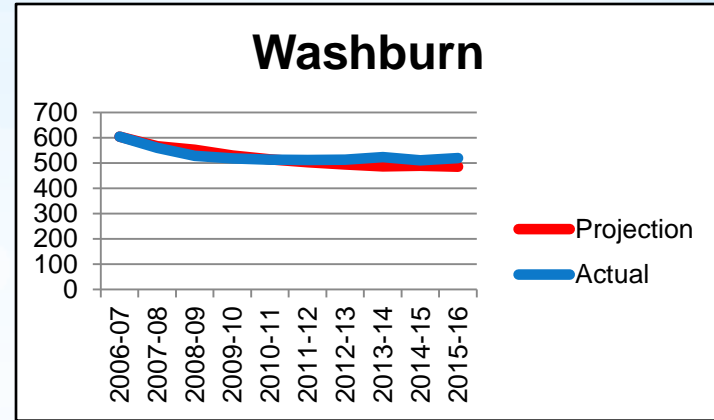
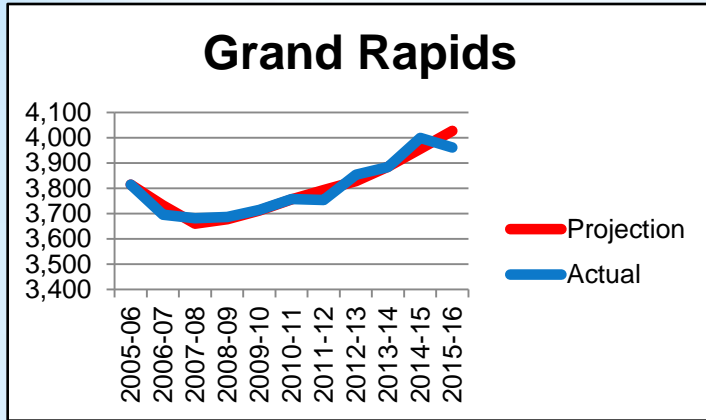
Enrollment Projections:
How Accurate are They?

The objective is to correctly identify the trend and magnitude of change of future enrollment.

In most cases, this occurs. When it doesn't, reviews identifying the likely causes are used to improve the validity of future projections.

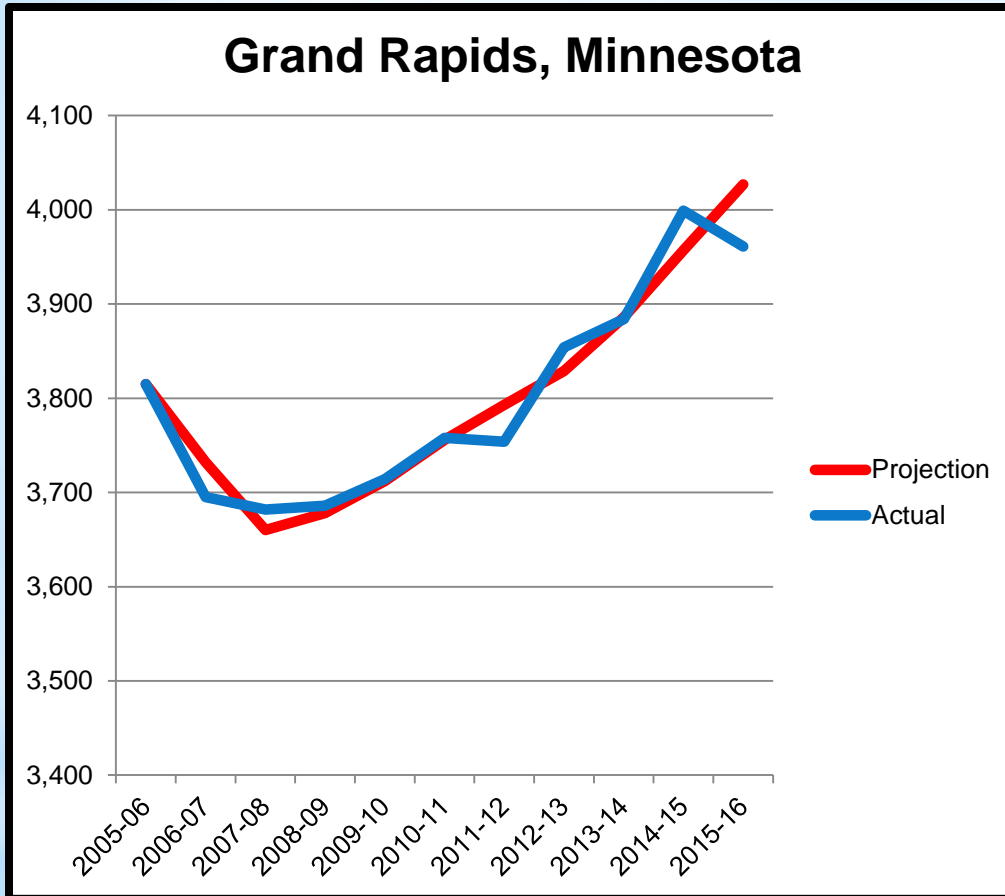
Here is a review of six recent projections.

Six Projections: A Review



Six Projections: A Review

Getting it Right

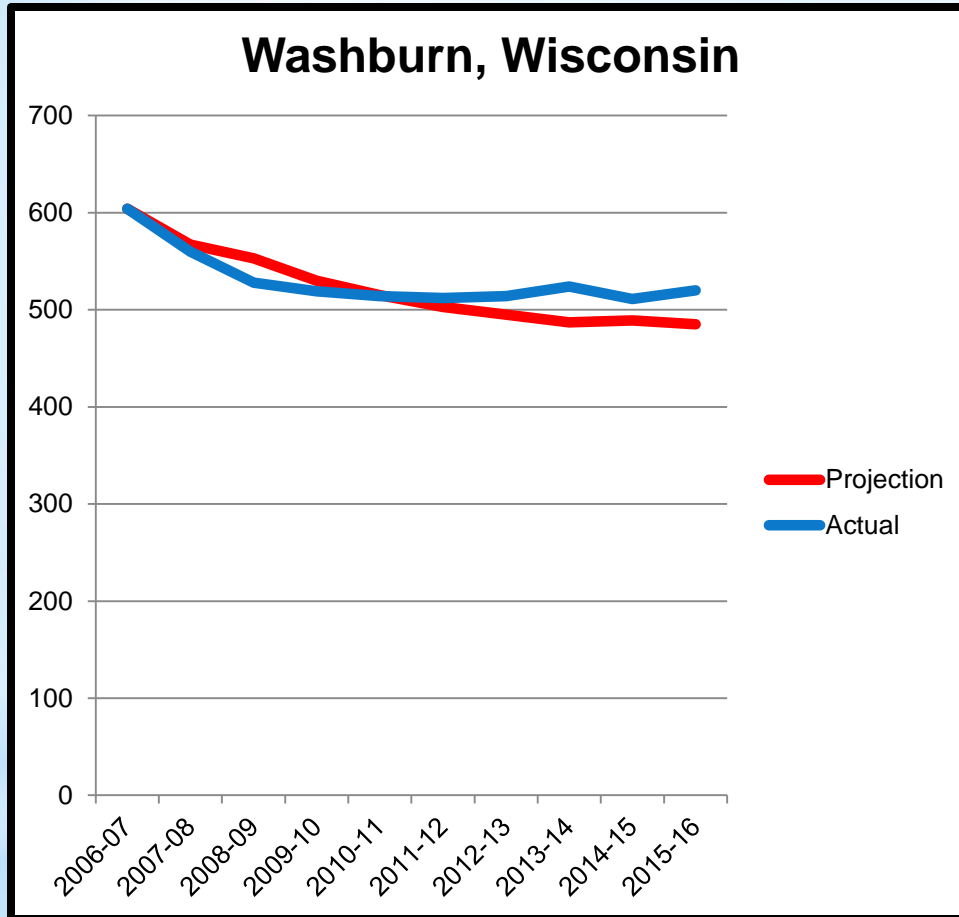


Projection made: 2006
No. of years in review: 10

Projected trend vs actual:
Nearly an exact alignment.

Observations:
Trend lines closely align with variation due to projection “smoothing” vs “zig/zag” of the actual numbers. At end of time period projection varies from actual by 66 students (1.6%).

Six Projections: A Review



Getting it Right

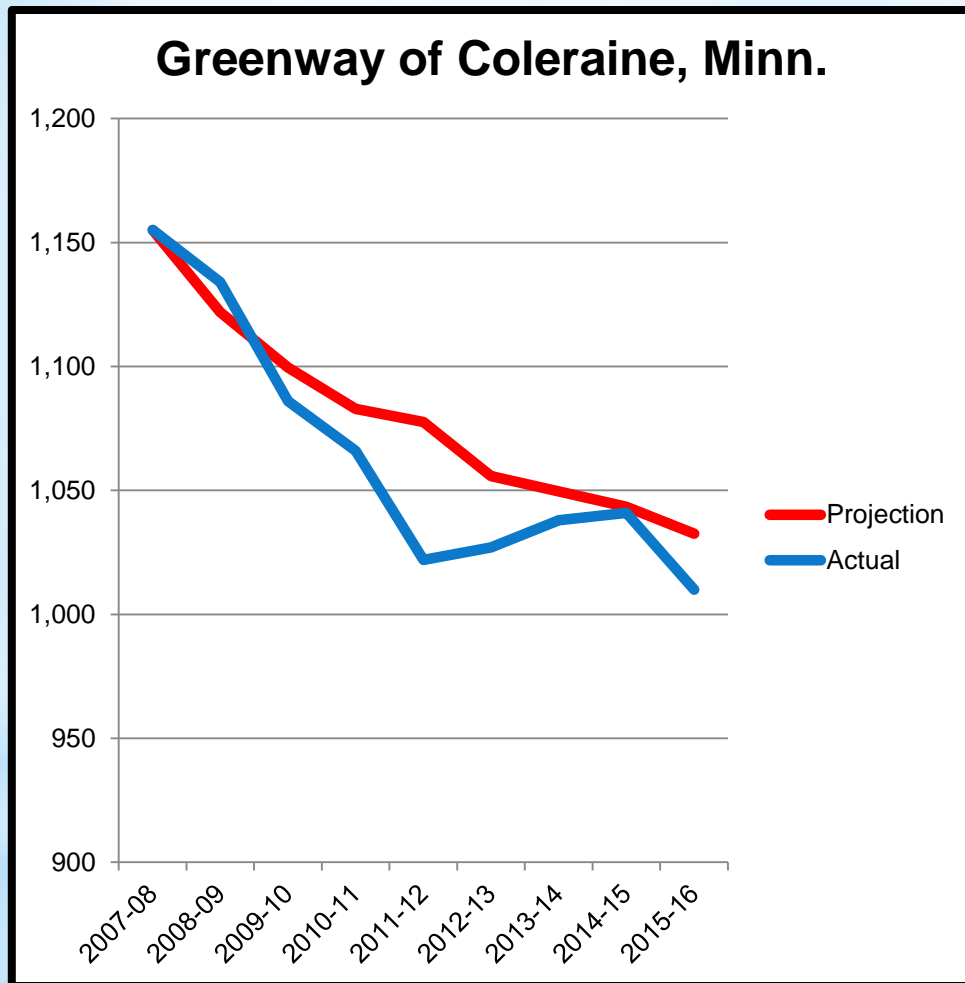
Projection made: 2007
No. of years in review: 9

Projected trend vs actual:
Nearly an exact alignment.

Observations:
Trend lines closely align with variation due to projection “smoothing” vs “zig/zag” of the actual numbers. At end of time period the projection under estimated the number of students by 35 (7.2%).

Six Projections: A Review

Getting it Right: With a Twist



Projection made: 2008
No. of years in review: 8

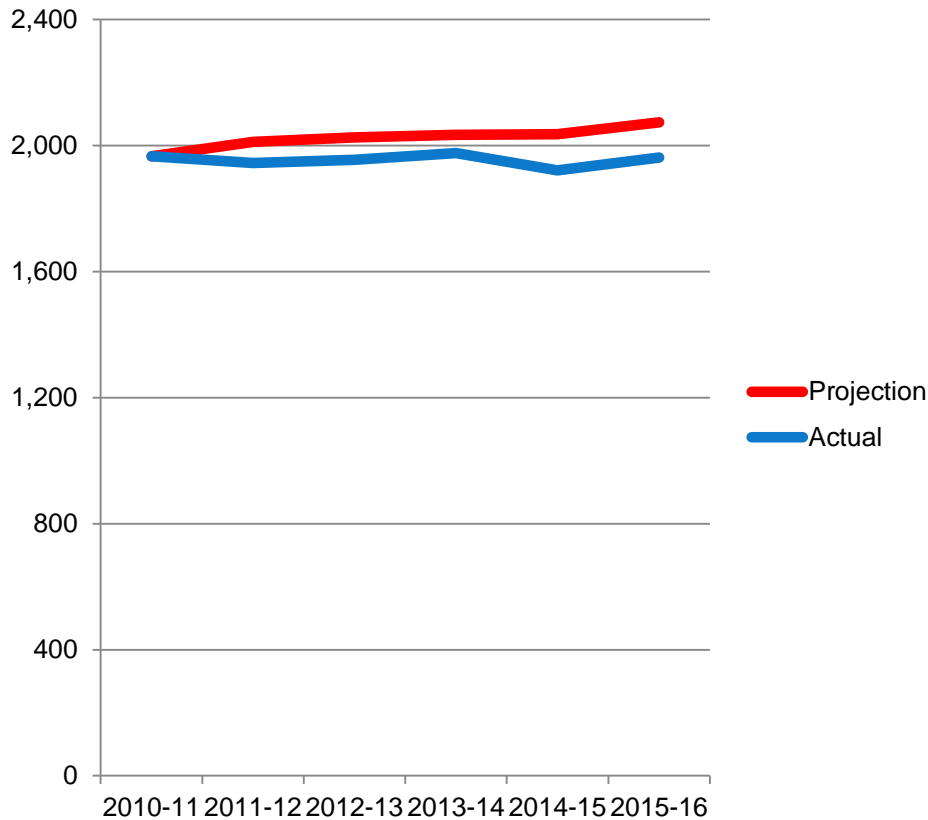
Projected trend vs actual:
Direction and magnitude of change aligned.

Observations:
“Smoothing” effect of projection masked actual variations year-to-year change and may have understated impact of the Recession. Seven years out the two converged; in the past year actual enrollment declined – variation of 23 students (2.2%).

Six Projections: A Review

Power of Grade Retention Rates

Thief River Falls, Minnesota



Projection made: 2011
No. of years in review: 5

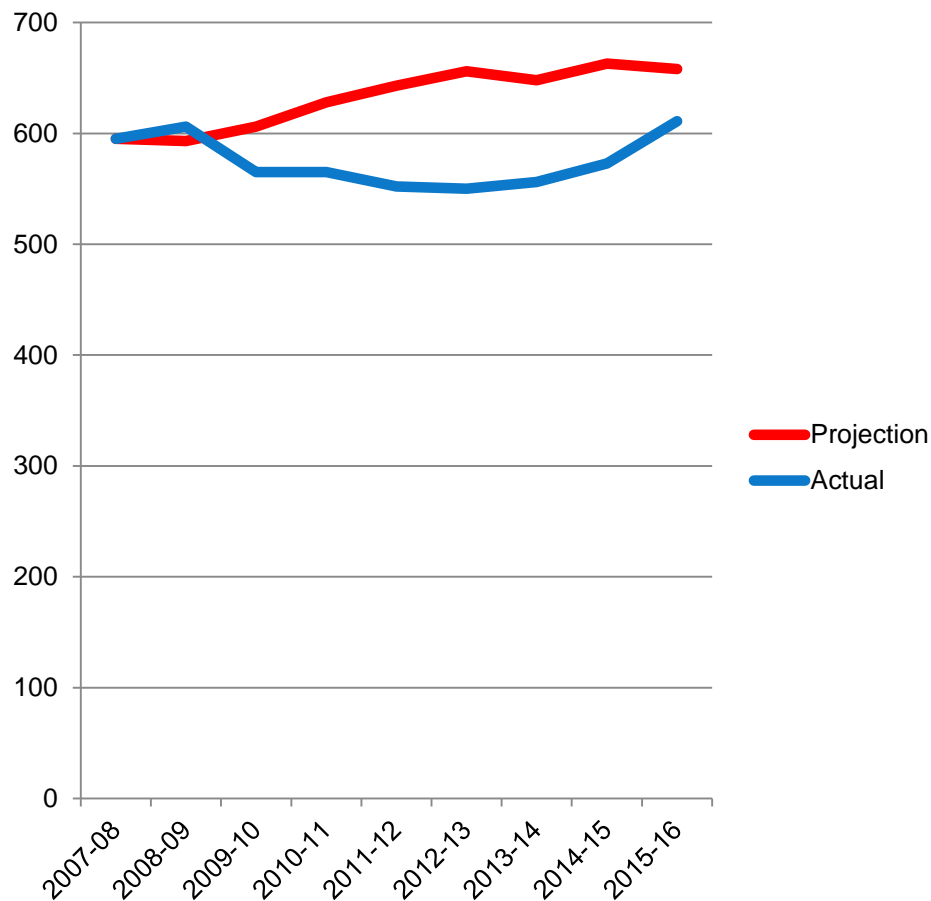
Projected trend vs actual:
Modest projected growth (+5.5%) compared to actual figure that is essentially unchanged (-0.2%).

Observations:
Almost all variation is explained by the use of a faulty class retention rate for the Kg-to-Grade 1 shift. Consultant and superintendent agreed historic trends suggested there should be a gain of 6% each year. Actual results were an unanticipated loss of students. As a result, by is off by 112 students (5.4%).

Six Projections: A Review

Power of Regional Development

Nashwauk-Keewatin, Minnesota



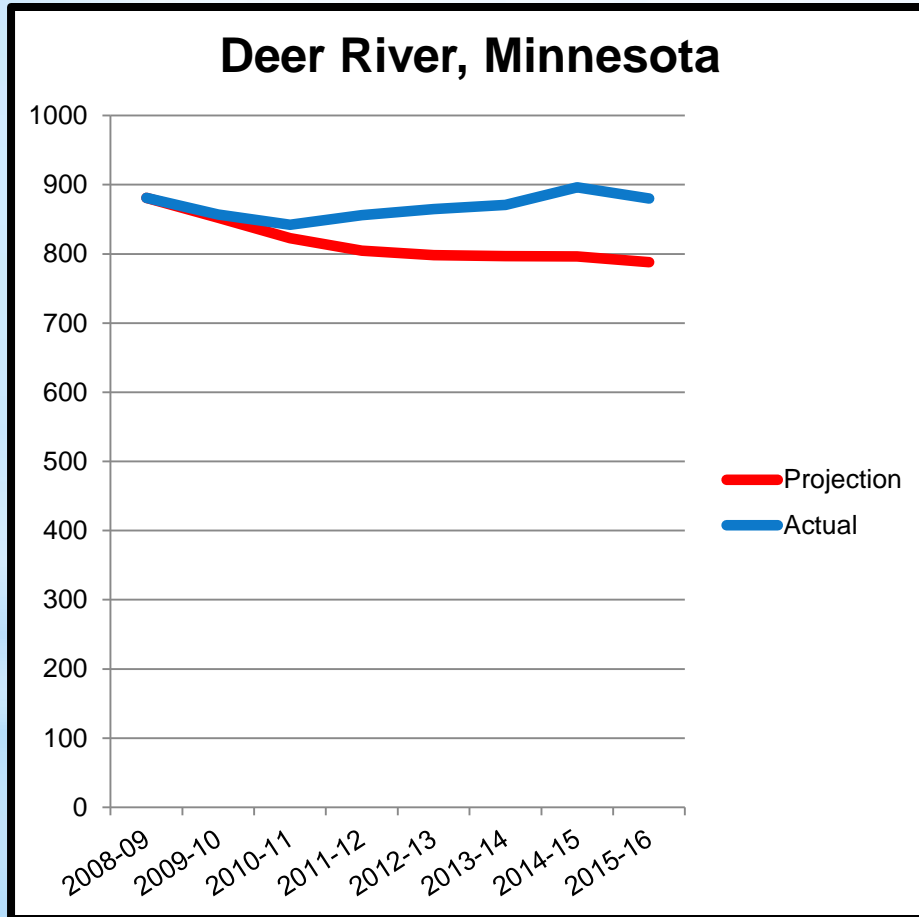
Projection made: 2008
No. of years in review: 8

Projected trend vs actual:
Steady projected growth (+10.6%) compared to actual growth of (2.7%).

Observations:
Projection assumed moderate area growth due to expansion of mining industry. Actual pace of development was much slower with smaller impact on population. As a result, by 2015/16 the projection was off by 47 students (7.1%).

Six Projections: A Review

The Art of Projecting Kindergarten Classes



Projection made: 2009
No. of years in review: 7

Projected trend vs actual:
*Steady projected decline (-10.5%)
compared to actual figure that is
essentially unchanged (-0.1%).*

Observations:

Difference centers on estimated kindergarten classes. Projected and actual births were close (474/yr. vs 470/yr.). But: projected high/low range was 45 vs astounding 106 actual; projection used district's historic "capture" rate of 13.7% but actual rate was 16.7% which was higher than any prior rate. The extra 3% grabbed 14 more students each year. As a result, by 2015/16 the projection was off by 92 students (11.7%).

The Takeaway

- These are projections not predictions.
- They rely on assumptions regarding the best understanding of district dynamics such as open enrollment and future births.
- In most cases the projections get the trend and magnitude of change right. But the unexpected can happen.



This enrollment projection was prepared for
Ingensa, Inc. by
Applied Insights^{north}
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djpowers@cpinternet.com

January 4, 2017

Previous enrollment projections and education projects by Applied Insights^{north}:

Enrollment projections:

Minnesota: Greenway, Nashwauk-Keewatin, Mora, Grand Rapids/Bigfork, Thief River Falls,
Deer River, St. Louis County, Mountain Lake, Hermantown, Fosston, Northland (Remer),
Nevis, Wheaton, Melrose, Red Lake Falls, Sebeka, Aitkin, Mahnomen, Eveleth-Gilbert,
Menahga, Hill City, Hinckley-Finlayson, Staples-Motley, Fertile-Beltrami
North Dakota: Grafton, Minto, Park River, North Border, Carrington, Thompson
South Dakota: Groton, Lead-Deadwood
Wisconsin: Northwestern (Maple, WI), Washburn, Ashland

Itasca Area Schools Collaborative

Red Lake College Enrollment Assessment

Iron Range Higher Education Committee

Northeast Higher Education District (Minnesota State College and University system)

St. Louis County Schools long-range facilities plan