



Saint Paul
PUBLIC SCHOOLS

Envision SPPS: Enrollment & Sustainability

Exploratory Analysis of Class Size Limitations

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Board of Education
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Envision SPPS & Enrollment

“Declining birth rates and increased competition from schools outside of SPPS are among the biggest challenges we are facing. Schools and programs with too few students make it too difficult to provide those students with a well-rounded education.”

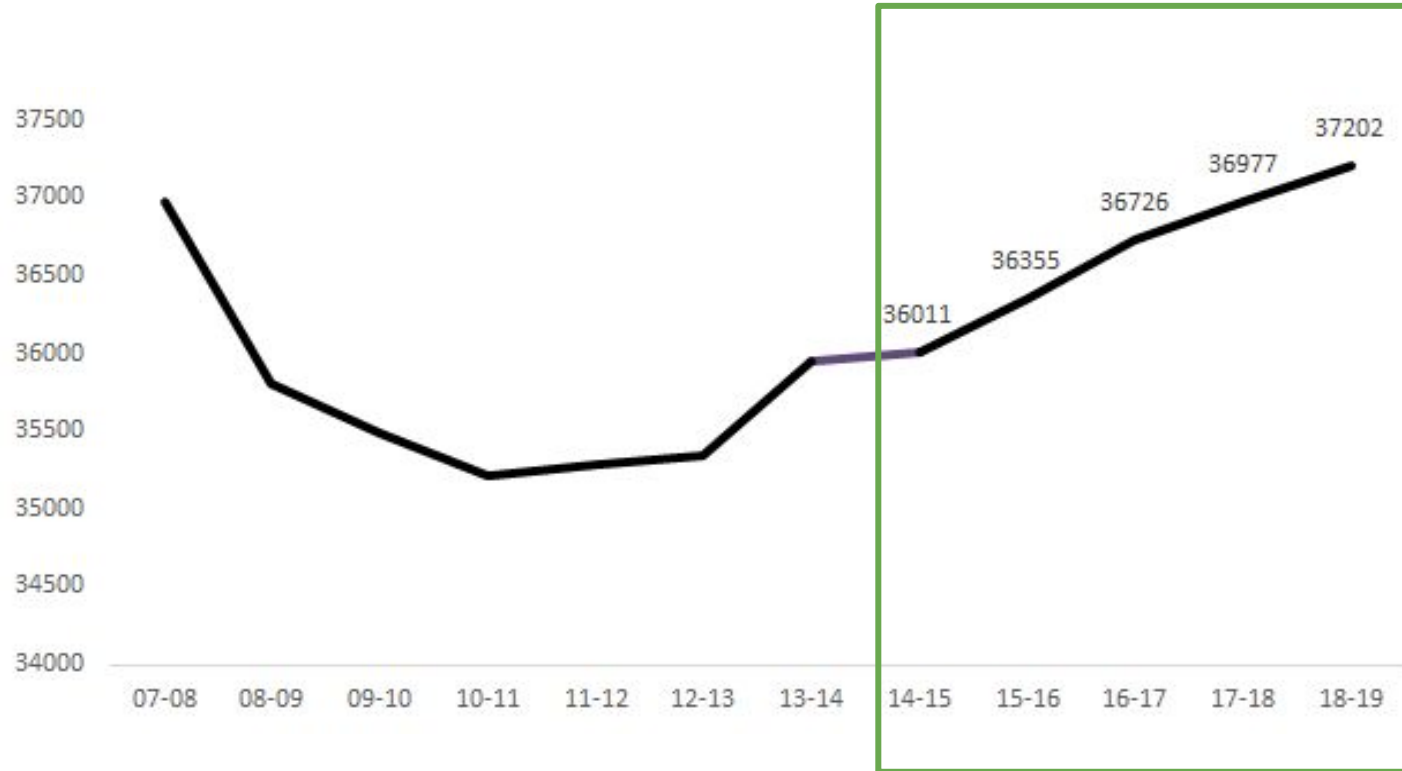
Envision SPPS

Conversely

Schools and programs with
healthy enrollments make it possible to
provide and sustain a well-rounded education

In 2013-14...

Five Year Enrollment Projection Snapshot (2013-14)



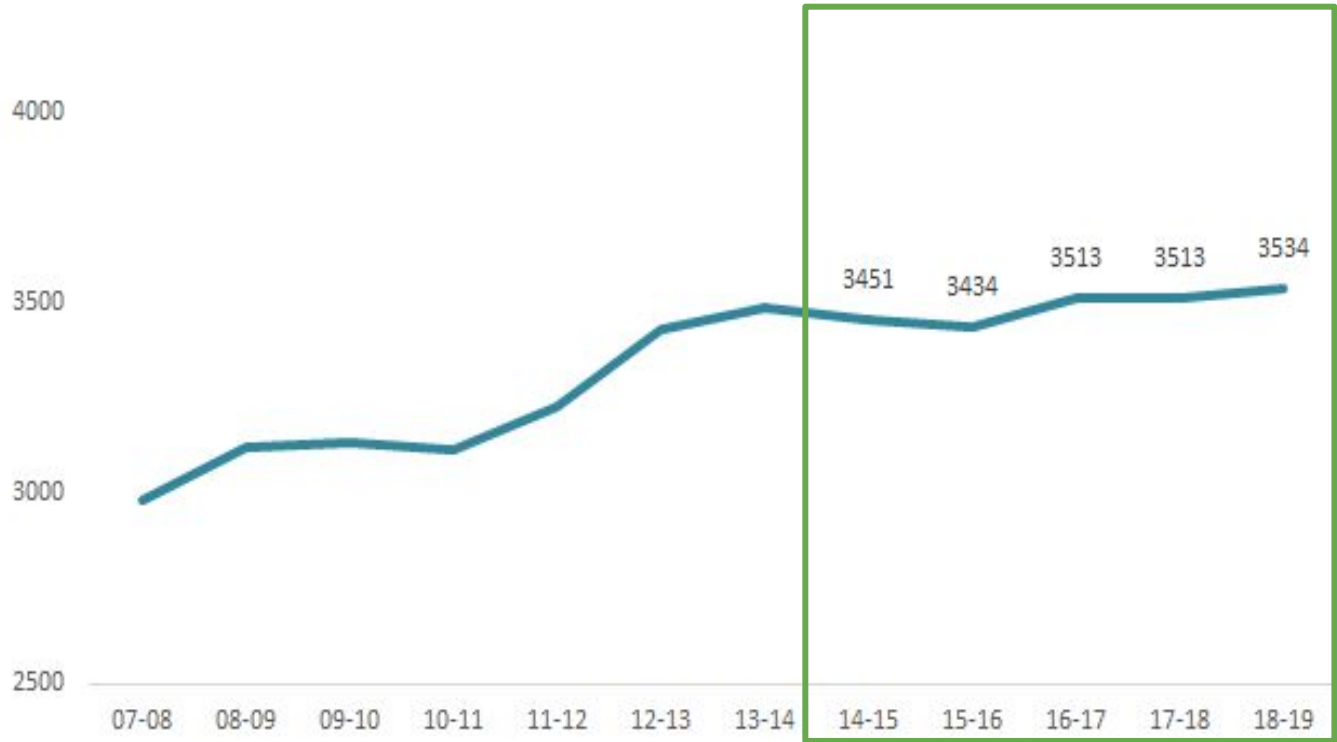
REA produced a 5-year enrollment projection 2014-15, 2015-16, 2016-17, 2017-18, 2018-19

Snapshot predicted incremental increases

Validated by external consultant and former state demographer, specializing in educational institutions and enrollment projections

Kindergarten “Pacesetter”

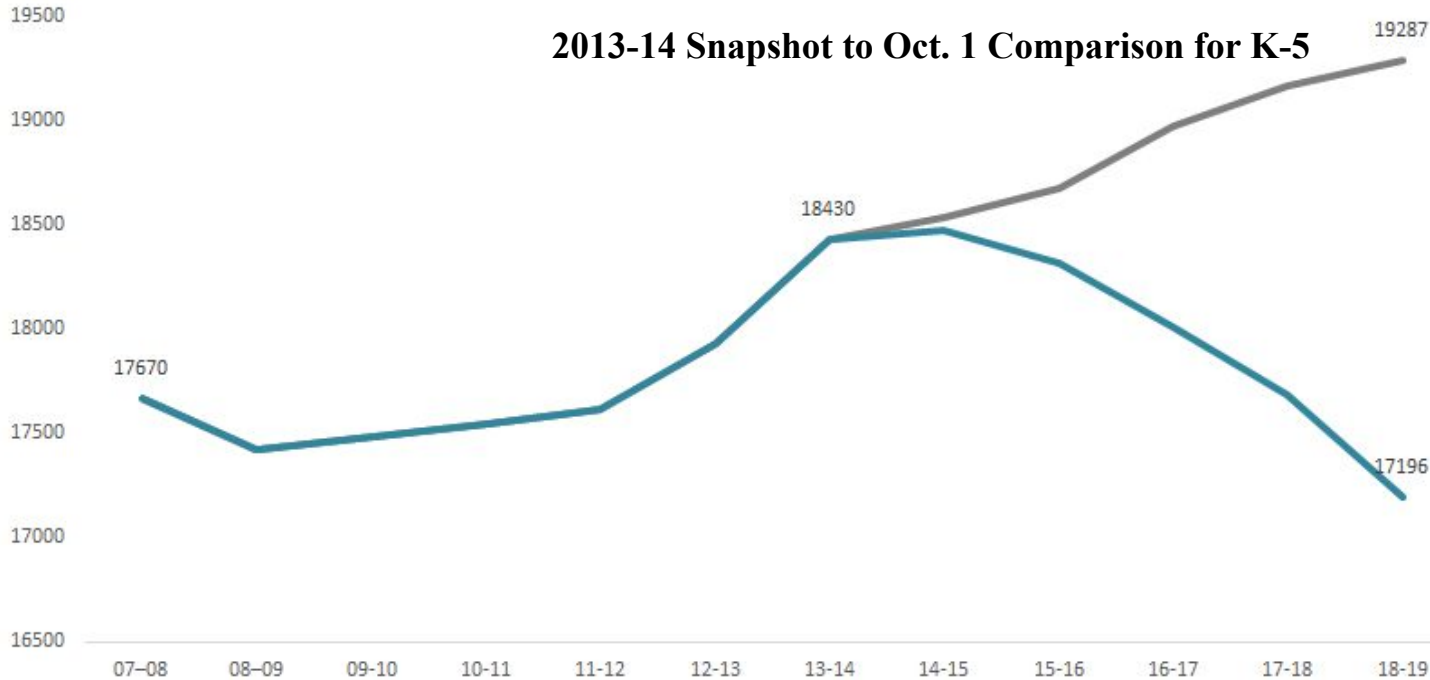
Five Year Enrollment Projection for Kindergarten 2013-14 Snapshot



Trend predicted very slight dip in 2015-16 then slight increases until 18-19

Two Roads...

2013-14 Snapshot to Oct. 1 Comparison for K-5



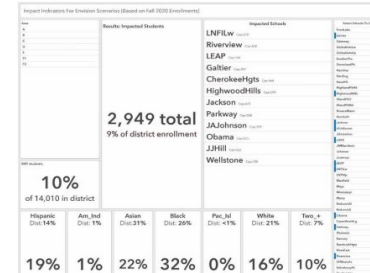
Considerable difference between snapshot and Oct. 1

Divergence begins SY 2014-15

Difference of 2091 K-5 students

Total Systemic Impact -

If all the scenarios are carried forward



Influences

Although there have been numerous decisions that *may have* contributed to the current enrollment situation, one of the most controversial and contested decisions is the implementation of class size limitations (CSL).

2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<p>Completion of the first phase of Strong Schools, Strong Communities</p> <p>Class size limitations (range)</p> <p>Racial equity policy</p>	<p>SPED level 3 inclusion</p> <p>Strong Schools, Strong Communities 2.0</p> <p>Class size limitations High / Low Poverty (range)</p> <p>1:1 iPad</p>	<p>School Improvement Grants Awarded</p> <p>Valeria Silva resigned as Superintendent</p>	<p>Voluntary Pre-K</p> <p>Dr. Thein hired as Interim Superintendent</p>	<p>Dr. Gothard hired as Superintendent</p>	<p>SPPS Achieves Office of Digital and Alternative Education</p> <p>Class size limitations (cap)</p>	<p>Changes in school start times</p> <p>SPFE strike</p> <p>COVID-19 Distance Learning</p>

Class Size Limitation Background

	Contract 2011-13	Contract 2013-15		Contract 2015-17	Contract 2017-19							
	... by the start of the 2013-2014 school year, class sizes will, on average, be equal to the lowest number of the class size range	Beginning in 2014-2015 class sizes in elementary will, on average, per grade level in each school, be within the class size range		Beginning in 2015-16, the class size range for higher-poverty elementary kindergarten will be 20-24	In 2018-19 class sizes in elementary will, on average, per grade level in each school be within the class size range indicated below and will not, in any individual classroom, exceed the cap							
		High Poverty	Low Poverty		2017-2018				2018-19			
				High Poverty		Low Poverty		High Poverty		Low Poverty		
				Average/Teacher	Cap	Average/Teacher	Cap	Average/Teacher	Cap	Average/Teacher	Cap	
Prek	20 or less	20 or less	20 or less		20	20	20	20	20	20	20	20
K	22-18	20 – 25	22 - 26	20-24	24	25	26	27	24	25	26	27
1	22-18	22 – 25	22 - 27		25	26	27	28	25	26	27	28
2	22-18	22 – 25	22 - 27		25	26	27	28	25	26	27	28
3	22-18	22 – 25	22 - 27		25	26	27	28	25	26	27	28
4	25 – 30	25 – 28	25 - 29		28	30	29	31	28	30	29	31
5	25 – 30	25 – 28	25 - 29		28	30	29	31	28	30	29	31

Design

Causal-Comparative research design to explore *possible* relationship between CSL and enrollment

Data

SPPS. Research, Evaluation and Assessment. Enrollment and Projections

Questions

1. In what ways could CSL impact school enrollment?
2. Does the yearly change in grades differ before CSL from after CSL?
3. Does the change in a K-5 cohort differ before CSL and after CSL?
4. How does the actual enrollment compare to the projected enrollment snapshot from 2013-14?

Limitations

- Inquiry is after the fact “ex post facto”
- No certainty of causation
- There was no opportunity to control any of the variables. No way to discern interplay among multiple possible factors, one factor at one time, another factor at another time or individual school factors

Analysis 1

In what ways could CSL impact school enrollments?

Comparison of enrollment models

1. Most K-5 schools across the district were organized into categories based on prior enrollment trends (increasing, declining)
2. Immersion K-5 schools across the district were grouped
3. Statistical modeling to “predict” future enrollment for schools with increasing enrollment trends based on CSL (no limits, limits)
4. Statistical modeling to “predict” future enrollment for schools with declining enrollment trends based on CSL (no limits, limits)
K size (stable grade K enrollment, declining grade K enrollment)

Comparison of enrollment models

School modeling by enrollment trends

Increasing Enrollment



School with increasing enrollment trend before CSL predicted to have continual increase in enrollment before plateau

Declining Enrollment



School with declining enrollment trend before CSL predicted to have continual decrease in enrollment before plateau

Comparison of enrollment models

School with increasing enrollment modeled using CSL factor

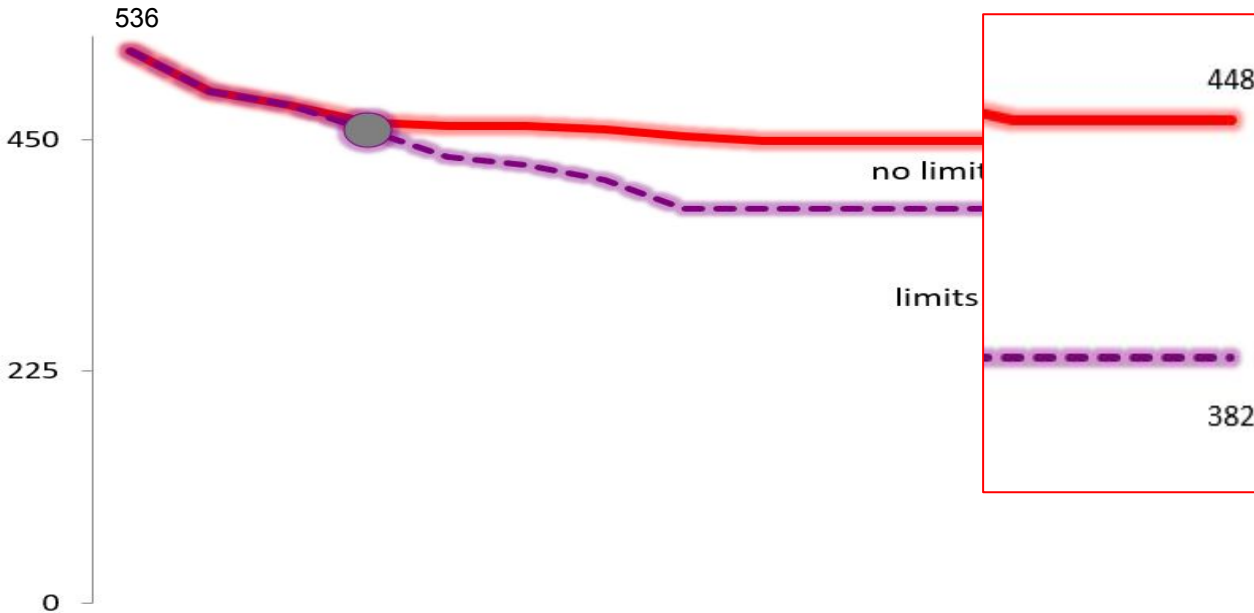


School with increasing enrollment before CSL

- see **incremental increase when CSL are applied (n=408)**
- over time the difference in school enrollment is 47 students

Comparison of enrollment models

School with declining enrollment modeled using CSL factor

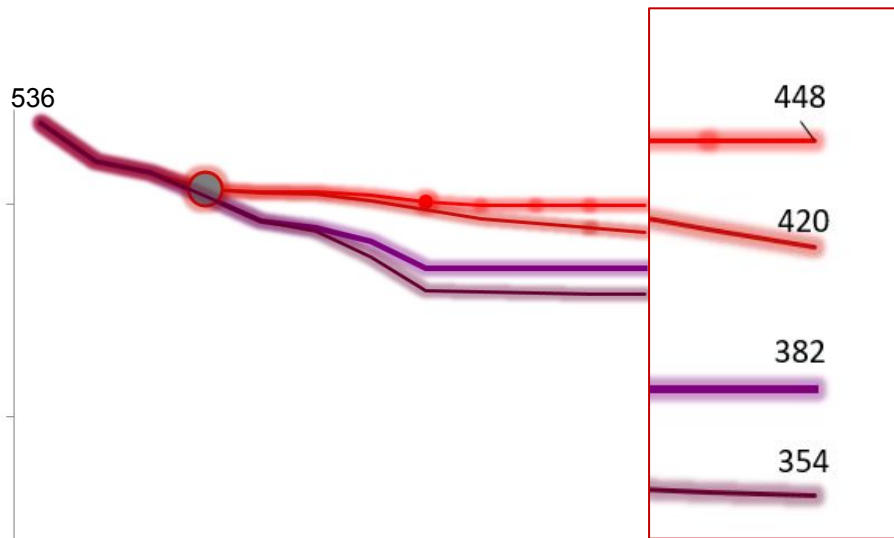


School with declining enrollment before CSL

- sharper declines when modeled **with CSL (n=382)**
- **with CSL** the declines are noticeable; a difference in school enrollment is 66 students

Comparison of enrollment models

School with decreasing enrollment model with CSL and grade K size



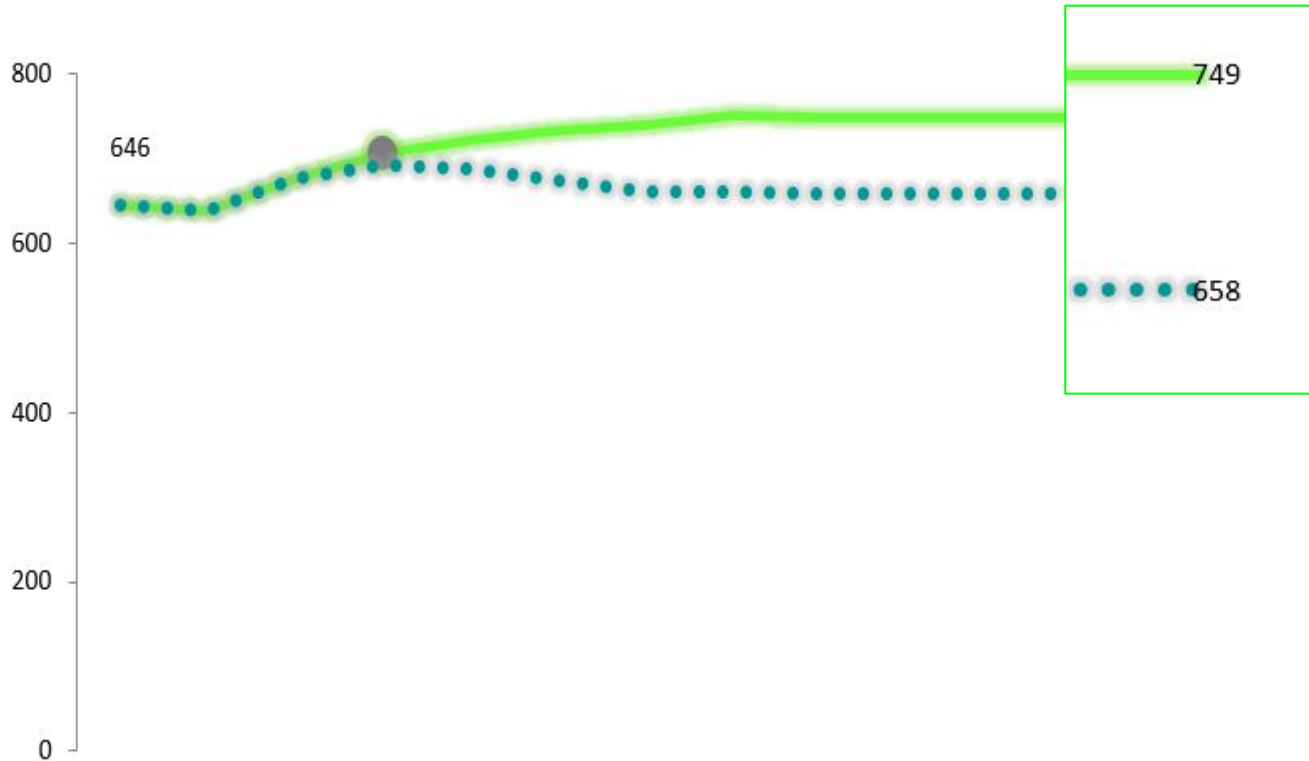
School with declining enrollment before CSL

increasingly dramatic decline based on factors in the model -

declining K without CSL (420)
steady K and CSL (382), then
declining K and CSL (354)

Comparison of enrollment models

One Way Immersion school with increasing enrollment model



One way immersion school

- continue to increase slowly with **no CSL (n=749)** and plateau **with CSL (n=658)**
- over time the difference in school enrollment is 91 students

Analysis 2

Does the average change in grades differ before CSL and after CSL?

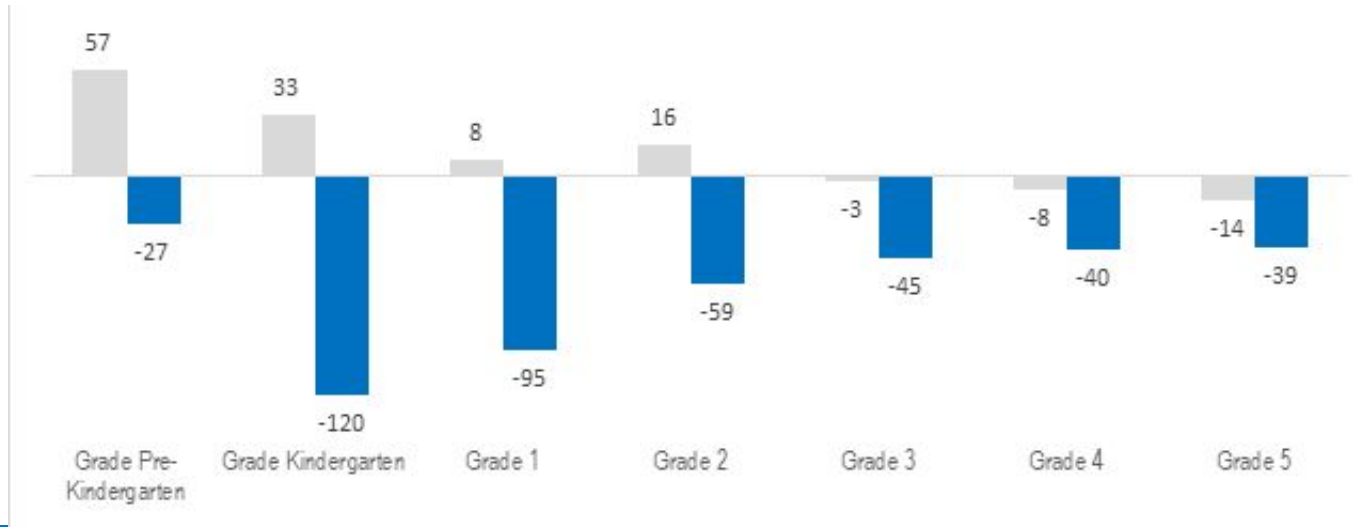
Average year to year change by grade

1. October 1 enrollment was divided into two categories
 - Before CSL (2007-08 to 2012-13)
 - After CSL (2013-14 to 2019-20)
2. Within each category, the year to year change was calculated
3. The year to year changes were averaged

Average year to year change by grade

Average change by grade level

- Prior to CSL, average change was positive at early elementary grades
- Prior to CSL upper elementary grades on average declined by 20 students a year
- After CSL all grades saw decreases
- Larger average decreases from year to year after CSL for all elementary grades; the largest difference observed at K



Analysis 3

Does the change in a K-5 cohort differ before CSL and after CSL?

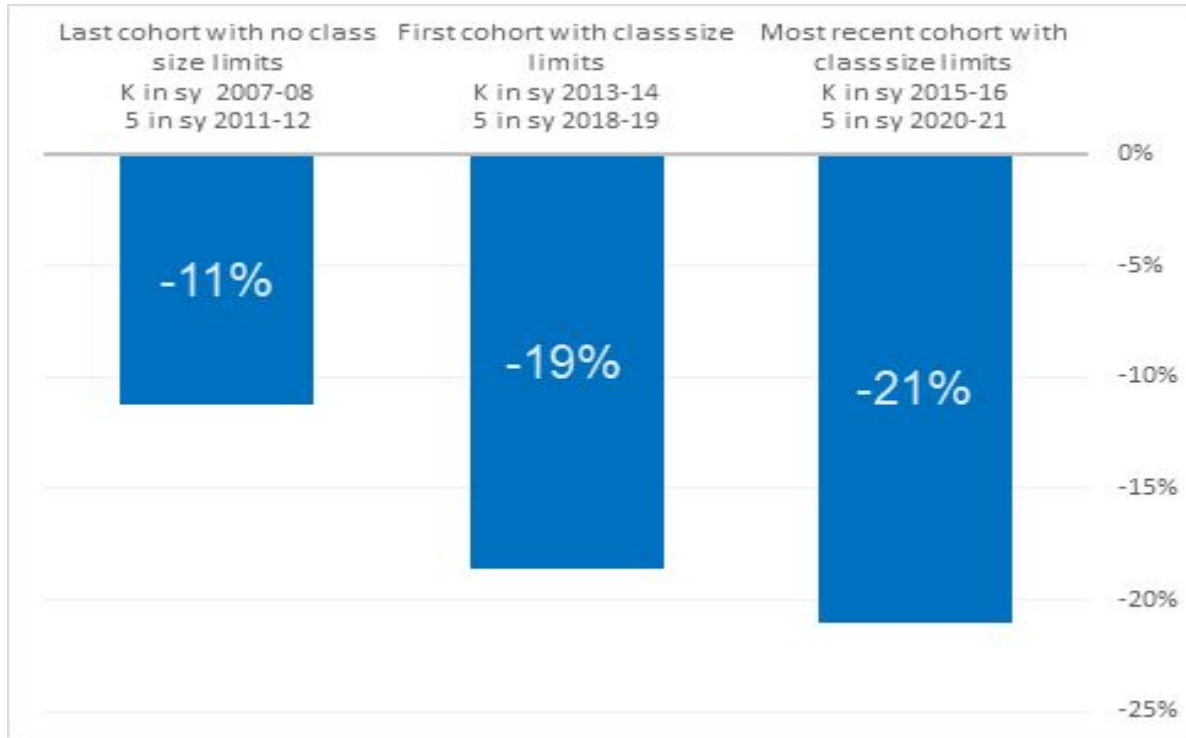
Comparison of K-5 cohort changes before and after CSL

1. A cohort was defined by students that entered Kindergarten and stayed to complete grade 5 for each of the following windows of time
 - Last cohort prior to CSL (K in 2007-08; 5th in 2011-12)
 - First cohort after CSL (K in 2013-14; 5th in 2018-19)
 - Most recent cohort (K in 2015-16; 5th in 2020-21)
2. The change in enrollment from K to 5 was calculated

Comparison of K-5 cohort changes before and after CSL

Comparison of K-5 cohort changes before and after CSL

- All cohorts lose students between grades K and 5
- Larger decrease from year to year after CSL; most recent cohort has largest decrease



Comparison of K-5 cohort changes before and after CSL

Comparison of K-5 cohort changes by student racial/ethnic groups

	Last cohort with no class size limits K in sy 2007-08 5 in sy 2011-12	First Cohort with class size limits K in sy 2013-14 5 in sy 2018-19	Most recent cohort with class size limits K in sy 2015-16 5 in sy 2020-21
ALL	-11%	-19%	-21%
AI	-9%	-13%	-7%
AS	3%	-18%	-22%
HS	-19%	-20%	-24%
BK	-11%	-11%	-15%
WT	-20%	-28%	-25%

- Across student racial groups, Asian students saw the most decrease
- American Indian and White students saw dips then improvement

Comparison of K-5 cohort changes before and after CSL

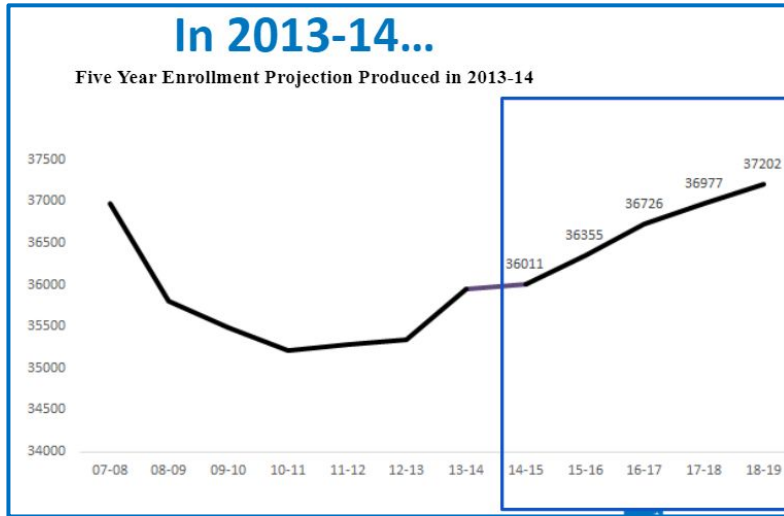
Comparison of K-5 cohort changes by student groups

	Last cohort with no class size limits K in sy 2007-08 5 in sy 2011-12	First Cohort with class size limits K in sy 2013-14 5 in sy 2018-19	Most recent cohort with class size limits K in sy 2015-16 5 in sy 2020-21
Not SPED	-20%	-22%	-24%
SPED	68%	14%	5%
Not FRL	-29%	-2%	-15%
FRL	-3%	-25%	-24%
Female	-12%	-18%	-19%
Male	-10%	-20%	-23%
Not EL	14%	3%	-1%
EL	-45%	-51%	-52%

- Across student groups, students receiving free/reduced meals, males, and EL students saw the most negative change
- Most severe is the most recent EL cohort which decreases by 52% of students between K and 5

Analysis 4

How does the actual enrollment compare to the projected enrollment snapshot from 2013-14? **2013-14 Snapshot to October 1 Comparison**

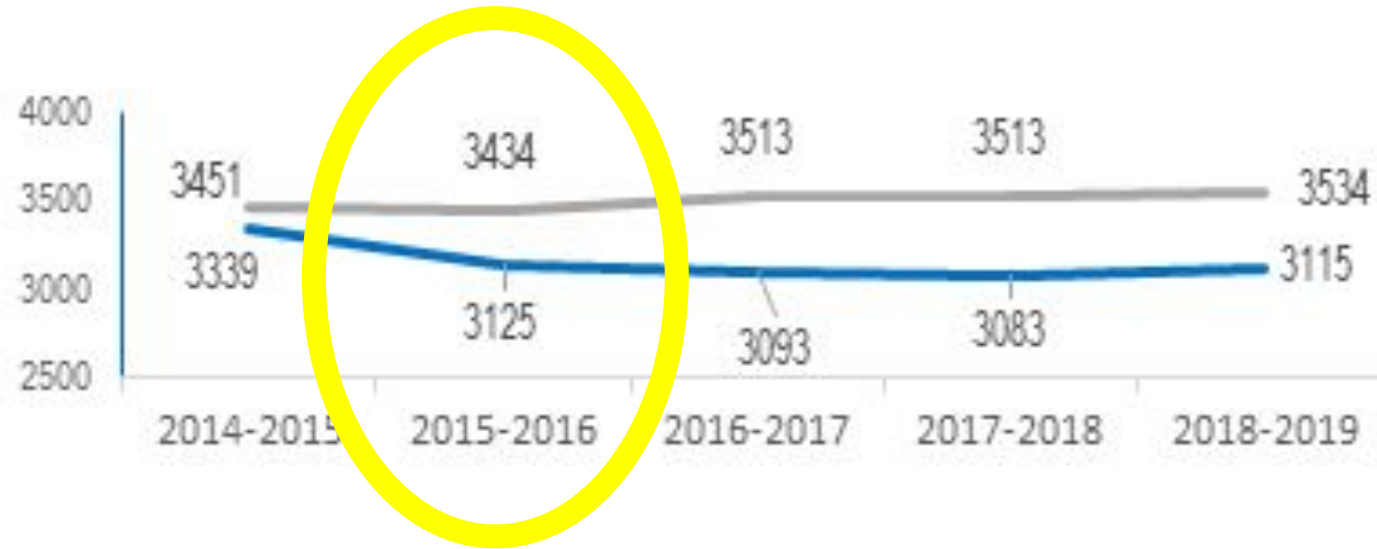


1. In school year 2013-14, REA produced a 5-year enrollment projection
 - a. 2014-15, 2015-16, 2016-17, 2017-18, 2018-19
 - b. Snapshot predicted incremental increase
 - c. Validated by external consultant and former state demographer specializing in educational institutions and enrollment projections
2. 2013-14 snapshot used as a baseline to compare the actual October 1 enrollment

2013-14 5-Year Trend to October 1 Comparison

2013-14 5-Year Trend to October 1 Comparison for Grade K

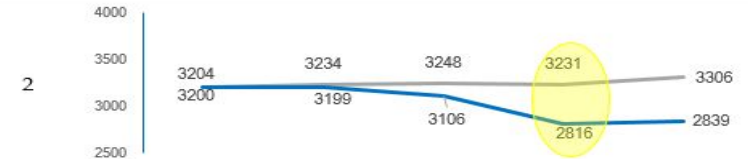
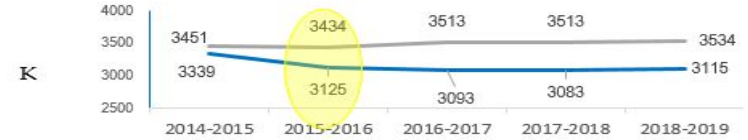
- Oct 1 for K is noticeably lower than snapshot within two school years of CSL
- Once introduced; the gap between the snapshot and Oct 1 remains across subsequent years



2013-14 5-Year Trend to October 1 Comparison

2013-14 5-Year Trend to October 1 Comparison by Grade

Once the Oct 1 enrollment for K deviates from snapshot, it matriculates through grades levels



Results Summary

<p>In what ways could CSL impact school enrollments?</p>	<ul style="list-style-type: none">-Schools with increasing enrollment trend would see less potential to grow with CSL-Schools with declining enrollment trend would experience expedited declines particularly when the size of the incoming K cohort decreases-Immersion schools would experience noticeable interruption of increasing enrollment
<p>Does the average change in grades differ before CSL and after CSL?</p>	<p>The average changes differ substantially for early elementary grades; K is observed as the most extreme difference</p>
<p>Does the change in a K-5 cohort differ before CSL and after CSL?</p>	<p>Although K-5 cohorts decrease for all cohorts, larger decreases are observed after CSL and more substantial decreases are observed for Asian, Hispanic, White, SPED, EL and FRL</p>
<p>How does the actual enrollment compare to the projected enrollment snapshot</p>	<p>A noticeable decrease from snapshot within 2 years of CSL at K that persist both horizontally across subsequent K cohorts as well as through higher grade levels</p>

Conclusion

Conclusion

- All analyses yield results that associate CSL with the subsequent enrollment deviation (decline) beginning 2013-14
- Results suggest continual declines
- Results suggest the association with CSL and enrollment decline is stronger for high needs schools and high needs students
- The combination of smaller birth rates, thus smaller K cohorts with continual declines associated with CSL is a risk to sustainability

Limitations and caution for interpretation

- Inquiry is after the fact “ex post facto”; here was no opportunity to control any of the variables
- No certainty of causation
- No way to discern interplay among multiple possible factors, one factor at one time, another factor at another time or individual school factors

How Does It Happen?



An Example: Three Schools



School

A

Neighborhood

Increasing enrollment trend

85% of students return in fall

SY 2013-14 enrollment = 476

SY 2020-21 enrollment = 532

Net gain of 56 students

+ 8% change



School

B

Neighborhood

Declining enrollment trend

60% of students return in fall

SY 2013-14 enrollment = 527

SY 2020-21 enrollment = 387

Net loss of 140 students

-27% change



School

C

One Way Immersion

Increasing enrollment trend

70% of students return in fall

SY 2013-14 enrollment = 609

SY 2020-21 enrollment = 419

Net loss of 190 students

-31% change



School A

K-5 neighborhood
Increasing enrollment pattern
SY 2013-14 enrollment = 476

SY 2014-15	1	2	3	4	5	6	Projection is higher than previous year Oct. 1 Oct. 1 is higher than projection Four grades accept three students over CSL for each section (+12)	
	7	8	9	10	11	12		
	13	14	15	16	17	18		
	19							

SY 2015-16							Projection is higher than previous year Oct. 1 Four grades accept three students over CSL for each section (+12)	School increases by one section
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SY 2016-17	1	2	3	4	5	6	Projection is higher than previous year Oct. 1	
	7	8	9	10	11	12		
	13	14	15	16	17	18		
	19	20						

SY 2017-18							Projection is higher than previous year Oct. 1 Three grades accept three students over CSL for each section (+9)	School increases by one section
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SY 2018-19	1	2	3	4	5	6	Projection is higher than previous year Oct. 1	
	7	8	9	10	11	12		
	13	14	15	16	17	18		
	19	20	21					

SY 2019-20							Projection is higher than previous year Oct. 1 Three grades accept three students over CSL for each section (+9)	School increases by one section
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	1	2	3	4	5	6	SY 2020-21 enrollment = 532 Net gain of 56 students +8% change	
	7	8	9	10	11	12		
	13	14	15	16	17	18		
	19	20	21	22				



School B

K-5 neighborhood
Declining enrollment pattern
SY 2013-14 enrollment = 527

SY 2014-15

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21			

Projection is lower than previous year Oct. 1 but not substantial
Enrollment is kept at CSL; additional applicants not accepted

SY 2015-16

Projection is lower than previous year Oct. 1
Enrollment is kept at CSL; additional applicants not accepted

School eliminates one section

SY 2016-17

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20				

Projection is lower than previous year Oct. 1
3rd year of resources loss
3rd year of Oct. 1 under school projection

School eliminates one section

SY 2017-18

Projection is lower than previous year Oct. 1
4th year of resource loss
Enrollment is kept at CSL; additional applicants not accepted

School eliminates one section

SY 2018-19

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18

Projection is lower than previous year Oct. 1
Enrollment is kept at CSL; additional applicants not accepted

School eliminates one section

SY 2019-20

Projection is lower than previous year Oct. 1
Enrollment is kept at CSL; additional applicants not accepted

School eliminates one section

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16		

SY 2020-21 enrollment = 387
Net loss of 140 students
-27% change



School C

K-5 One Way Immersion
SY 2013-14 enrollment = 609

SY 2014-15

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24

Projection is lower than previous year Oct. 1 but not substantial
Natural attrition at upper grades from 3 to 4

School eliminates one section

SY 2015-16

Projection is lower than previous year Oct. 1
Enrollment is kept at CSL; additional applicants not accepted

School eliminates one section

SY 2016-17

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22		

Projection is lower than previous year Oct. 1

School eliminates one section

SY 2017-18

Projection is lower than previous year Oct. 1
Enrollment is kept at CSL; additional applicants not accepted

School eliminates two sections

SY 2018-19

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19					

Projection is lower than previous year Oct. 1

School eliminates one section

SY 2019-20

Projection is lower than previous year Oct. 1
Enrollment is kept at CSL; additional applicants not accepted

School eliminates one section

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	

SY 2020-21 enrollment = 419
Net loss of 190 students
-31% change

**Schools and programs with
healthy enrollments
make it possible to provide and sustain a
well-rounded education**



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Questions