

ANALYSIS OF ENROLLMENT PROJECTIONS

FALL 2017

PREPARED FOR:
REED UNION SCHOOL DISTRICT

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REED UNION SCHOOL DISTRICT

EXECUTIVE SUMMARY

ENROLLMENT PROJECTIONS - FALL 2017

DecisionInsite is pleased to present this report of findings to the Board of Education and Executive Staff of Reed Union School District. Both a Conservative and Moderate projection have been generated for the district. Assuming district revenue is generated on a per pupil basis, the Conservative projection is more suitable for budget planning purposes while the Moderate projection is more suitable for facilities planning purposes.

KINDERGARTEN ENROLLMENT

In general, Kindergarten enrollment over the past three years has been somewhat erratic. The data also show that the difference between the graduating cohort and the incoming cohort has been somewhat erratic. Note that both studies project a slight increase at the Kindergarten level.

COHORT PATTERNS

A typical student cohort ages from grade to grade relatively unchanged from the previous year. Historically, only one cohort shows more than a 5% annual change.

NEW HOUSING DEVELOPMENT

No new residential units are projected to be occupied over the next 10 years.

DISTRICT-WIDE ENROLLMENT PROJECTION

Overall the projections forecast a decline across the 10-year period based upon the historical enrollment trends and any projected new residential development.

MORE INFORMATION

A richer and more comprehensive review of both studies is contained in the Final Report accompanying this Executive Summary. A wealth of more detailed information and analysis regarding both studies is also quickly and easily accessible online.

Respectfully Prepared and Submitted by:

The **DecisionInsite** Team

November 30, 2016

REED UNION SCHOOL DISTRICT

DISTRICT ENROLLMENT PROJECTIONS

RECENT CHANGES IN ENROLLMENT

Familiarity with recent historical enrollment patterns and trends establishes the foundation for understanding projected enrollment. Percentages in the table below compare the current year enrollment to that of three years ago.

4 Year History Change								
Kindergarten	69%							
Gr K-5	89%							
Gr 6-8	118%							
District	98%							

[Kindergarten calculation based on a 12-month cohort equivalent.]

FIGURE 1

KINDERGARTEN IMPACT

Kindergarten enrollment is a significant driver of overall future district-wide enrollment. A trend at Kindergarten from year to year, or a trend in the difference between the district's graduating cohort in a given year and the Kindergarten cohort the subsequent year, will eventually be reflected in the total district enrollment count. (Note that these projections reflect changes in age eligibility for California Kindergarten. The result is a diminished Kindergarten cohort in years 2012-2014, with similar reductions in other grade levels as those cohorts age through the system.)

In general, Kindergarten enrollment over the past three years has been somewhat erratic. The data in the table below also show that the difference between the graduating cohort and the incoming cohort has been somewhat erratic.

[More details: Reports > History > District-wide > History Years Enrollment]

Percent Change of Previous Year									
2014 2015 2016									
Kindergarten	75%	85%	108%						
Grade 8 to K	104%	73%	84%						
Total K-8	99%	99%	100%						

[Kindergarten calculations in first two rows based on a 12-month cohort equivalent.]

FIGURE 2

[All data in this report excludes Transition K unless specifically noted. More details: Reports > Projections > District-wide > Transition Kindergarten]

LIVE BIRTH TRENDS

Live birth trends have an impact in large geographies, and on long range projections. However, in smaller areas of study, such as a school district, population mobility is often a mitigating if not an overriding factor, thereby reducing the effectiveness of live births as a predictor of enrollment. Consequently, DecisionInsite has found that recent Kindergarten enrollment trends by sub-geographies to be a better, more reliable predictor of future Kindergarten enrollment.

COHORT IMPACT

A typical student cohort ages from grade to grade relatively unchanged from the previous year. By contrast, the cohort matriculating from Kindergarten to Grade 1 is a common example of a cohort increase, typically attributable to students returning from a private school.

In the following table, cohort changes with more than a 2% variance from static are marked accordingly. Those with more than a 5% changed are marked as 'Significant'.

Average Cohort Change Past Three Years									
Cohort	Percent	+/-	Significant						
K > 1	103%	++++							
1 > 2	100%								
2 > 3	104%	++++							
3 > 4	101%								
4 > 5	100%								
5 > 6	103%	++++							
6 > 7	100%								
7 > 8	98%								

FIGURE 3

KEY VARIABLES IN PROJECTING DISTRICT ENROLLMENT

Both a Conservative and Moderate projection have been generated for the district. Assuming district revenue is generated on a per pupil basis, the Conservative projection is more suitable for budget planning purposes while the Moderate projection is more suitable for facilities planning purposes.

As a matter of standard practice, DecisionInsite does not typically include specialized schools or programs such as Home and Hospital Programs, Community Day Schools or Independent Study Programs in the Enrollment Projections. Our work is focused on projecting grade level enrollment for typical schools that are reported to the state.

The major variables that distinguish the Conservative projection from the Moderate are described in the table below.

Key Variables Controlling the Projections Algorithm									
Kindergarten Enrollment Change	Applies the lesser or greater of 3-4 year history trend in each studyblock to the appropriate study.								
Cohort Change	Applies the lesser or greater of 3-4 year history trend in each studyblock to the appropriate study.								
K Enrollment Change Cap	Restricts the effect of anomalous spikes in Kindergarten history								
K Enrollment Change Floor	Restricts the effect of anomalous spikes in Kindergarten history								
Incoming Out-of-District Transfers	For each grade level span, applies the lesser or greater of 1-2 year history to the lograde; ages through existing students.								
Dwelling Units	Moderate study assumes developer's phasing calendar. Conservative study shifts the developer's calendar toward the out-years.								
Student Generation Rates	Typical of recent history by product type.								

FIGURE 4

PROJECTED ENROLLMENT CHANGES BY LEVEL

The tables below display the five-year district-wide projections by grade level and allow a comparison to enrollment in the current year.

CONSERVATIVE 5 YEAR DISTRICT-WIDE PROJECTION BY GRADE LEVEL

Grade	2016	2017	2018	2019	2020	2021
К	132	131	133	134	135	134
1	132	138	138	139	140	142
2	142	135	140	140	142	145
3	175	150	143	149	149	152
4	179	178	153	145	152	150
5	205	181	182	155	147	155
6	171	211	189	188	162	152
7	204	173	215	193	191	163
8	181	204	173	215	193	191
Subtotals:	1521	1501	1466	1458	1411	1384
Pct Chg:	-1.4%	-1.3%	-2.3%	-0.5%	-3.2%	-1.9%

FIGURE 5

MODERATE 5 YEAR DISTRICT-WIDE PROJECTION BY GRADE LEVEL

Grade	2016	2017	2018	2019	2020	2021
К	132	135	137	139	140	140
1	132	139	140	143	145	147
2	142	136	142	143	146	149
3	175	150	144	150	152	158
4	179	180	153	147	153	156
5	205	183	183	155	149	156
6	171	212	194	192	165	158
7	204	174	216	198	196	171
8	181	206	174	216	198	200
Subtotals:	1521	1515	1483	1483	1444	1435
Pct Chg:	-1.4%	-0.4%	-2.1%	0.0%	-2.6%	-0.6%

FIGURE 6

As the following graph illustrates, overall the projections forecast a decline across the 10-year period based upon the historical enrollment trends and any projected new residential development.

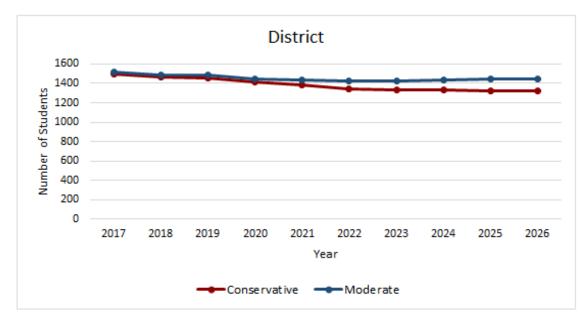


FIGURE 7

The tables below compare the Conservative and Moderate enrollment projections by key grade level groupings. Projected changes in enrollment at Kindergarten or lower grade level groupings will eventually impact total district enrollment.

5 YEAR ENROLLMENT TRENDS: MODERATE AND CONSERVATIVE COMPARED

Change by Level	Cnsv	Mod
Kindergarten	134	140
Change	102%	106%
Gr K-5	878	906
Change	91%	94%
Gr 6-8	506	529
Change	91%	95%
District	1384	1435
Change	91%	94%

FIGURE 8

Note that an averaging of both studies project a slight increase at the Kindergarten level.

The table below compares the ten year projections. In the 10-year future at Kindergarten, both studies, averaged together, project a relatively stable trend.

10 YEAR ENROLLMENT TRENDS: MODERATE AND CONSERVATIVE COMPARED

Change by Level	Cnsv	Mod
Kindergarten	128	140
Change	97%	106%
Gr K-5	843	929
Change	87%	96%
Gr 6-8	477	521
Change	86%	94%
District	1320	1450
Change	87%	95%

FIGURE 9

The graphs below compare the Conservative and Moderate enrollment projections by key grade level groupings.

ELEMENTARY SCHOOL LEVEL

The projected elementary school enrollment shows a decline.

[More details: Reports > Projections > Individual Schools > Projections > All Elementary Schools]

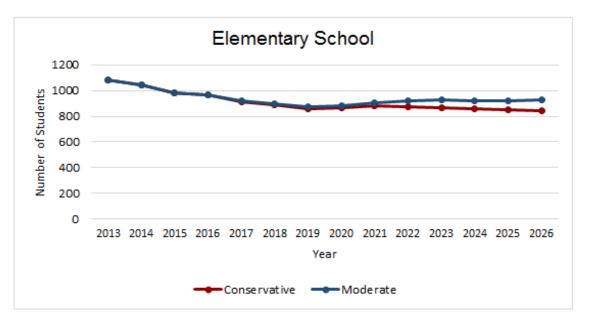


FIGURE 10

MIDDLE SCHOOL LEVEL

The projected middle school enrollment shows a significant decline.

[More details: Reports > Projections > Selected Schools > All Middle Schools]

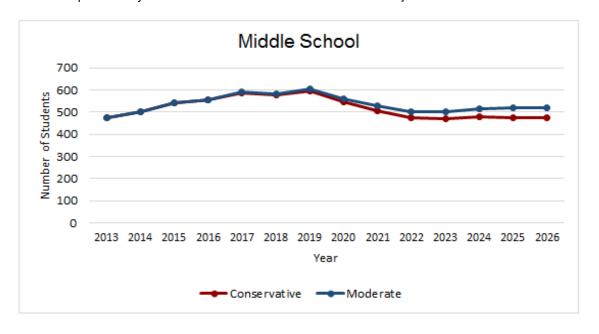


FIGURE 11

SUMMARY OF DISTRICT PROJECTIONS BY YEAR

The complete district-wide projection table for each study is available online. Corresponding sets of individual School Projections are available online as well.

The tables below present a more detailed annual view of projected changes by grade level clusters for both projections. The "Pct Previous Year" row represents the percent of the previous year's enrollment in each grade cluster that is projected in the subsequent year. The "Five Year Change" row represents the percent change projected over the enrollment five years prior.

CONSERVATIVE PROJECTION

Change by Level	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Kindergarten	132	131	133	134	135	134	133	131	130	129	128
Pct Prev Yr	108%	99%	102%	101%	101%	99%	99%	98%	99%	99%	99%
5-Yr Change						102%					96%
Gr K-5	965	913	889	862	865	878	872	867	859	852	843
Pct Prev Yr	98%	95%	97%	97%	100%	102%	99%	99%	99%	99%	99%
5-Yr Change						91%					96%
Gr 6-8	556	588	577	596	546	506	476	471	479	476	477
Pct Prev Yr	102%	106%	98%	103%	92%	93%	94%	99%	102%	99%	100%
5-Yr Change						91%					94%
District	1521	1501	1466	1458	1411	1384	1348	1338	1338	1328	1320
Pct Prev Yr	100%	99%	98%	99%	97%	98%	97%	99%	100%	99%	99%
5-Yr Change						91%					95%

NOTE: Gray column most recent history year.

FIGURE 12

MODERATE PROJECTION

Change by Level	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Kindergarten	132	135	137	139	140	140	140	140	140	140	140
Pct Prev Yr	65%	102%	101%	101%	101%	100%	100%	100%	100%	100%	100%
5-Yr Change						106%					100%
Gr K-5	965	923	899	877	885	906	922	925	922	924	929
Pct Prev Yr	98%	96%	97%	98%	101%	102%	102%	100%	100%	100%	101%
5-Yr Change						94%					103%
	-	_	-	-	-	_	-	_	-	_	
Gr 6-8	556	592	584	606	559	529	500	501	514	521	521
Pct Prev Yr	102%	106%	99%	104%	92%	95%	95%	100%	103%	101%	100%
5-Yr Change						95%					98%
District	1521	1515	1483	1483	1444	1435	1422	1426	1436	1445	1450
Pct Prev Yr	100%	100%	98%	100%	97%	99%	99%	100%	101%	101%	100%
5-Yr Change						94%					101%

NOTE: Gray column most recent history year.

FIGURE 13

GRADE LEVEL PROFILE COMPARISON

Another view of grade level enrollment can be seen in the chart below. The current grade level enrollment profile is compared with the projected grade level profile in the five and ten-year future.

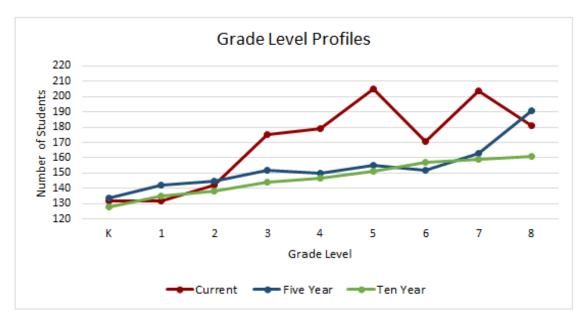


FIGURE 14

PROJECTING SCHOOL ENROLLMENT

School projections are primarily a function of the proportion of district students who enroll at a given school, modified by intra-district transfers within a given school level that may occur subsequent to initial enrollment, and augmented by inter-district transfer students.

SCHOOL DRAW IMPACT

A draw rate is the percentage of students who enroll at a particular grade level in a given school from a specified geographic area. Open enrollment among district schools is projected using this concept. Except for changes in school boundaries or other changes in policy, historical draw rates from a given geographic area to a specific school (including out-of-district students) are assumed in the projections.

INTRA-DISTRICT TRANSFERS

Transfers within the district are incorporated into the projections in order to anticipate the movement of students from one district school to another within the same level, e.g., transfer from a neighborhood school to a special school. Recent historical transfer patterns are typically assumed in the projections.

[More details: Reports > History > All Schools > Open Enrollment]

INTER-DISTRICT TRANSFERS

Transfers into the district by out-of-district students, sometimes referred to as 'permit students', are an integral part of the district and school projections. Recent historical transfer patterns are typically assumed in the projections.

[More details: Reports > History > District-wide > Out of District]

INDIVIDUAL SCHOOL PROJECTION TABLES

The complete set of individual school projection tables for each study is available online.

[More details: Reports > Projections > All Schools > Projections]

MySchoolLocator

MySchoolLocator is a web-based service accessible to DecisionInsite clients. This service allows Internet users to enter a residential address, and find out which district schools are assigned to serve them. Public access to MySchoolLocator is via a unique URL on the District's web site. The URL for integration into your district's website can be found by opening the appropriate Locator study from within the DI system. Once open, select "Run MySchoolLocator" from the District Admin menu. The MySchoolLocator app will open in a new browser window and the link can be copied from the address bar in the browser. Specialized district users have access to customize the messages seen by those using MySchoolLocator.

IMPACT OF THE PROJECTIONS ON SCHOOL CAPACITY

Facility challenges, if any, may exist if projected numbers exceed the current school capacity data. These challenges may also manifest differently in a Moderate or Conservative projection. Because school capacity data has not yet been entered into the system, all schools are shown as exceeding capacity.

[More details: Reports > Projections > All Schools > Over Capacity]

The table below lists up to five schools that are projected to experience the most change in enrollment in the 5-year future based on the Conservative projection.

[More details: Reports > Projections > All Schools > Ten Percent Change]

School	5-Yr Pct Change	10-Yr Pct Change
Bel Aire School	-18%	-21%
Del Mar Middle School	-9%	-14%

FIGURE 15

IMPACT OF SDC STUDENTS ON CAPACITY

Relative to the impact of SDC students on school capacity, note that SDC students are not included in the grade level counts, but are included in the capacity calculation as taking up one seat each.

ANALYZING/STUDYING/REVIEWING THE ENROLLMENT PROJECTIONS

The projections of district and school enrollment are based on a complex mix of historical data, the projection of recent trends, and specific assumptions regarding the future. At DecisionInsite, we strongly encourage our clients to actively engage with the data with the aim of better understanding, further refining, and using the results to inform decisions about to be made. We believe increased effectiveness for both the district and DecisionInsite comes with increased and welcome dialogue.

Graphs or tables may be copied from the PDF version of this document using the Snapshot Tool inside PDF Reader.

Please do not hesitate to contact DecisionInsite regarding any questions or suggestions that may arise regarding these studies.

Respectfully Prepared and Submitted by:

The **DecisionInsite** Team

November 30, 2016

APPENDIX

ASSUMPTIONS AND METHODOLOGY

All projections are based on assumptions, and when read or shared are best prefaced with the phrase, "Based on these assumptions...", or "Based on these historical trends...". Particularly for projections more than 5 years out, "Enrollment Trend" is a far more accurate descriptor.

Three major factors drive district-wide student enrollment projections. These include:

- 1. recent kindergarten enrollment trends, modified by live birth data, if applicable,
- 2. changes in the grade level cohorts of students served as they age through, and
- 3. changes in the number of residential units within the district.

District-wide projections are disaggregated to school projections based on the historical patterns of:

- 1. the rates at which each school draws enrollment from various sections of the district, and
- 2. the pattern of transfers within the district at a given level from one school to another.

DISTRICT PROJECTIONS

Studyblocks

For enrollment projections the district is divided into studyblocks. A studyblock is a custom unit of geography created by DecisionInsite for the purpose of generating reliable projections. They are generally based on elementary boundaries or some portion thereof. A studyblock serves as the basis for the analysis of students served by the district and by schools. The objective is to do analysis with a small enough geographic unit to sense small area changes but large enough to allow for reliable projection. Studyblocks typically encompass 500–1000 students.

Kindergarten Enrollment

The projected Kindergarten enrollment is a key variable in projecting K–12 enrollment. The base Kindergarten projection is determined by the trend of Kindergartners served in each studyblock in the previous 3 or 4 years. Depending on the circumstances, a growth trend in Kindergarten enrollment may be capped. Steep straight-line trends are mathematically moderated to avoid unrealistic results.

School Capacities

School capacities provided by the district are compared to projected enrollments. Districts are invited to calculate school capacities in a manner that best serves the enrollment projection environment, and enter them into the DI System.

A Special Day Class (SDC) student at the elementary level is calculated by default as requiring 1 seat. This value, at district option, may be changed to 3, on the assumption that a class of 10 SDC students will occupy a typical classroom.

Students in the Projections

Enrollment projections are limited to typical K–12 students. SDC students are projected as a stable percentage of the typical population unless all SDC students are mainstreamed. Excluded from the projections are students enrolled in Non-Public School (NPS), Adult High School, Home School, Adult Ed, Independent Study programs and other special schools.

Attendance Boundaries

Attendance boundaries are assumed to remain constant, unless otherwise noted by the district.

Closed Schools

Opportunities for open enrollment (intra-district) are assumed to remain unchanged, unless otherwise noted by the district.

Inter-district Enrollment

Students enrolled from other school districts are treated in aggregate in separate studyblocks. Students in Kindergarten and the initial grade at each level are projected only to the extent they exist in recent years. Students enrolled in other grade level cohorts are aged through to the highest grade at each level. These defaults may be modified at district request.

Cohort Percent Change

Cohort percentage changes are calculated in order to assure sensitivity to perennial changes in students served by the district as they age from one grade level to the next. If every cohort were stable as it ages, the cohort percent change, from one grade to the next in each studyblock, would be calculated as 100%. For each studyblock, a cohort weighted average percent change over a defined number of years is calculated based on the change in the enrollment served as it ages from the previous grade level.

Average cohort percentages above 100% might, for example, reflect students returning from private schools. Cohort percentages below 100% might reflect drop-outs.

Growth studyblocks are those showing unusually high increases in enrollment and/or cohort percent change in recent years—due, typically, to new housing development. Once growth studyblocks are identified, their default cohort percent change rate is set to 100% so as not to over-project new residential growth. By default, growth is not predicted to continue unless new occupied dwelling units are projected.

Dwelling Unit Impact

The predicted impact of new dwelling units on school enrollment is based on three factors: 1) new dwelling units, 2) the student generation rate for each unit type, and 3) the grade level distribution of newly generated students.

1. Dwelling Units

New dwelling units are categorized into 3 housing types: Single Family Detached, Single Family Attached, and Multifamily. Developers and builders are contacted for information relative to their plans for occupancy of new dwelling units.

2. Student Generation

Student generation rates are determined for each product type for each level: elementary, middle school and high school. Student generation rates are based on similar products types where such exist; otherwise, a default generation rate is used.

3. Grade Level Distribution

For each level, students generated by new dwelling units are distributed across grade levels. These percentages are based on historical patterns where they exist; otherwise, default percentages are used.

SCHOOL PROJECTIONS

Projecting enrollment at the school level is based on the concept of a school draw rate, i.e., the percent of students from a given studyblock who enroll in a given school at its lowest grade. Draw rates reflect the impact of open enrollment within a district. For example, if one-half the sixth-graders from a given studyblock enroll in a particular 6–8 middle school, that school has a draw rate of 50% from that studyblock.

The draw rate for the most recent year is applied by default to the projected district enrollment for that grade from a given studyblock. The draw rate ages with the cohort. In this way, if the underlying cohort changes, the number of students enrolled at the school will change accordingly.

Draw rates can be adjusted if necessary. Manipulation of draw rates is used, for example, to project the impact of changes in attendance boundaries, or the impact of closing a school to open enrollment.

Intra-district Transfers

Grade-level transfers within or across schools are included in the projections to accommodate fluctuations like retention, transfer to continuation school, or any other special programs a district may offer that result in students changing schools at other than the typical grade configuration shifts. Transfers are calculated by applying the percent of a grade level population at one school that is transferred in the following year to another school, or continued at the same grade level at a given school in the following year.

CAVEATS ON PROJECTIONS AND METHODOLOGY

On Projections

Enrollment projections are based upon two critical factors: the student and school data from the school district and the mathematical formulas that are applied to those data. Projections fundamentally look at recent history as reflected in the student data and assume that past patterns and trends will continue into the future. The calculations assume that the historical data provided is at one year intervals based on enrollment at the beginning of each school year.

DecisionInsite takes great care in preparing a district's projections. A range of unpredicted anomalies, however, can cause reality to vary from the historical patterns. These include, but are not limited to, rapid changes in the economy, mortgage interest rates, the housing market, the job market, residential development plans, rental rates, etc. Anomalous changes that occur between the last set of student data and the first projection are not reflected in the projections unless the district works with DecisionInsite to amend the projections.

In the projections, calculations are mathematically precise. Each result is rounded to a whole number for ease of reading. This rounding sometimes results in the displayed whole numbers in a column not adding exactly to the displayed total of the column. This phenomenon, which is a result of rounding and not of any inaccuracy in the calculations, occurs both in the enrollment projections and in the community demographics.

On Student Data

DecisionInsite obtains historical student data files from the district. To the extent that the student data files are internally inconsistent from year to year, or the count of students in the files does not reflect the count of actual enrollees, errors are introduced to the projection calculations. For optimum results, the student data files must also consistently capture the same categories of students annually.

The calculations assume that the historical data provided is at one year intervals based on enrollment at the beginning of each school year. It is important that the student files obtained from the district are close to a common date each year, typically near the beginning of the school year. The snapshot of historical data near the beginning of the school year is best suited to our goal of projecting enrollment for the beginning of subsequent school years. To the extent the historical student data provided is not at one year intervals, or is not at a common date near the beginning of the school year, projections may reflect monthly fluctuations in enrollment that will diminish the accuracy of the projections.



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