Review of Equity and Adequacy of Colorado School Finance System

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Executive Summary

CSFP has regularly promoted principles of a strong state school finance system:

- The system must be "adequate," allowing students, teachers, schools, and districts to meet all state standards;
- A system must be equitable for students and taxpayers;
- A system must be "sustainable," which is defined by consistent and reliable revenue; and
- The system must be adaptable to new statutes and expectations.

In the summer of 2016, the Colorado School Finance Project (CSFP) started a detailed study of Colorado's funding system, including both equity and adequacy research and an evaluation of the structure of the state's current funding formula to contribute to CSFP's ongoing discussion of how Colorado's school funding system measures up to these principles. Augenblick, Palaich and Associates (APA) worked with CSFP to complete the study and this report presents the findings from this work.

Equity

While there are many ways of looking at equity (horizontal, vertical and taxpayer equity), for this report, the equity analysis was more limited in scope and focused on understanding the cost pressures faced by districts due to differences in the types of students they serve (student need), as well as differences in their capacity to raise funds and the burden placed on taxpayers. It is a descriptive analysis of the variation found between the 178 school districts in the state.

The equity study showed that districts face very different cost pressures based on the characteristics of their student populations. They also differ in capacity to both raise funds, and the burden it places on their taxpayers. The current funding structure ensures that communities, and thus taxpayers, pay very different rates to provide: 1) the Total Program identified by the state, 2) override dollars for students, and 3) bond dollars for their communities. When communities do try to raise additional revenues they have widely varying capacity to raise dollars due to large differences in local wealth. The state provides almost no support for the raising of these dollars. In the case of overrides, communities with higher property wealth are more likely to have passed overrides, and these overrides provide a higher rate of additional funds than the districts with less property wealth.

Professional Judgment Approach to Developing a Base Cost

The professional judgment approach (PJ) relies on the expertise of Colorado educators to identify the resources needed in representative schools and districts to ensure all students, teachers, schools, and districts can meet state standards. Panelists were asked to use their education experience and knowledge to work with other educators to identify the types of personnel, programs and interventions needed. Multiple levels of PJ panels were used to identify the resources needed including: three school-level panels based on grade level (elementary, middle, and high school); one district-level panel; one statewide panel and one Chief Financial Officers (CFO) panel. Each panel reviewed the work of preceding panels.

Key Resources Identified

While panels varied in the resources they identified as necessary for an adequate educational program, several key recommendations were common across panels:

- Small class sizes, with student-to-teacher ratios of 15:1 in kindergarten through grade two, 18:1 in grades two and three, and 20:1 in grades four and five, and then 25:1 in secondary grades;
- Time for teacher planning, collaboration, and professional development, both outside of the regular school day and embedded with instructional coaches and education technology specialists in the school;
- Instructional support for students, including teacher tutors/interventionists;
- A comprehensive special education student identification team that includes a special education teacher, occupational therapist, and speech pathologist;
- A high level of student support (counselors, social workers, and behavior specialists);
- Sufficient administrative support in the form of assistant principals to allow for required staff evaluations, and assessment/data coordinators to manage assessment requirements and allow for data-driven decision making;
- Additional programs, including extended day and summer school to fulfill READ Act requirements; homework help and bridge programs for entering students at the secondary level;
- Technology-rich learning environments, including 1:1 student devices in 3rd through 12th grades, and associated IT support; and
- Security personnel to ensure a safe school environment.

Total Base Cost

The study team calculated a single school-level base cost figure by combining a school-level cost of $8,898 across all grade levels and the district-level cost figure of $2,105, for a total base cost of $11,004.

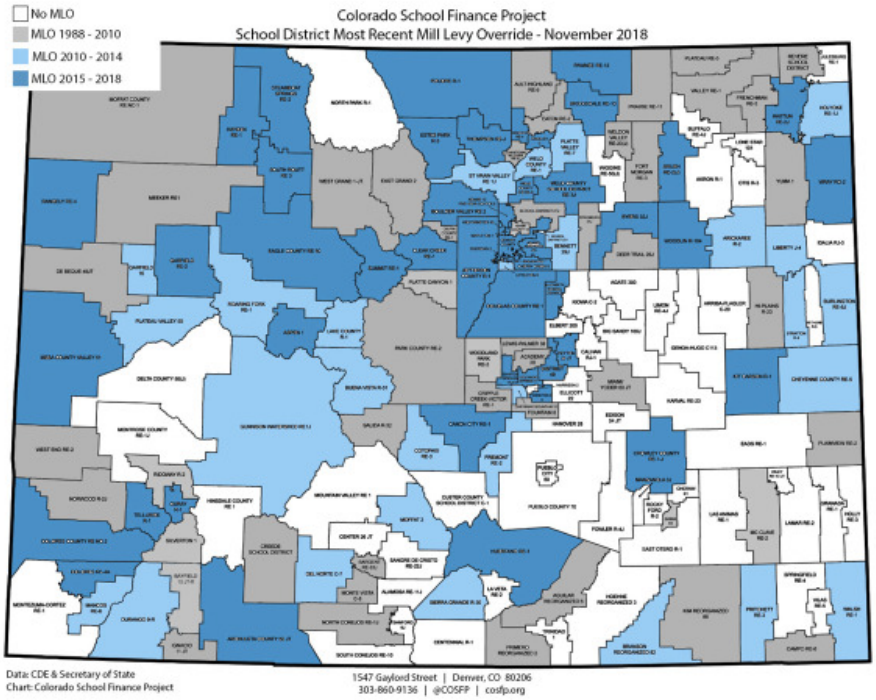
Two adjustments were then made to this figure to account for: 1) the size of the representative schools and district used, and 2) the use of statewide average salaries. The final adjusted figure was therefore $9,202.

Table 3.15

Professional Judgment Total Base Cost

Base	
Raw	$11,004
Adjusted for size and COL	**$9,202**

Comparison to the 2011 Adequacy Study and 2013 Update



well as the 2013 update study. The figures from the 2011 and 2013 work were adjusted by inflation to put them in 2014-15 dollars using the Consumer Price Index for Denver-Boulder-Greeley from the Bureau of Labor and Statistics.

Table 3.16

Professional Judgment Base Cost Comparison

	2011 Study, inflated	2013 Update, inflated	2016 Study
Base Cost	$8,262	$8,675	$9,202

Put in comparable terms, the base costs increased between 2011 and 2016. Differences in costs between the 2011 and 2013 update figures were attributed to new state requirements or increases in clarity that occurred between the two studies, including:

- Passage of the READ Act to replace the Colorado Basic Literacy Act (CBLA);
- Changes to assessments, including methods of administration and number required;
- Increased clarity around SB191;

- Changes in Accountability, specifically related to turnaround schools; and
- Changes to NCLB, specifically the granting of the state waiver.

Further understanding and revisions to expectations then occurred between the 2013 update and the current study, including:

- Greater clarity around the requirements of the READ Act, leading to extended day and summer school for an expected ten percent of elementary school students;
- Statewide use of PARCC and CMAS assessments; lower statewide scores on PARCC caused further concern about students meeting performance expectations, and led panelists to recommend increased instructional support for students;
- The release of graduation guidelines that have prompted the need for additional instructional staffing to offer a robust program;
- The passage of the Every Student Succeeds Act (ESSA), which replaced NCLB; and
- The Claire Davis Safety Act, which makes school districts legally responsible for incidents of school violence. The Claire Davis Safety Act amended the "Colorado Governmental Immunity Act" to recognize that a duty of reasonable care exists with respect to public school districts, charter schools, and their employees to exercise reasonable care to protect students, faculty, staff, and others from harm that is reasonably foreseeable while such students, faculty, staff, and others are within the school facilities or are participating in school-sponsored activities.[1] This led to panelists to recommend increases in both safety personnel, as well as student support staff to identify potential risks.

Special Needs Resources

The PJ approach was used to develop a new base cost; additional adjustments, or weights, were also needed to provide the resources to serve special needs populations. APA considered three sources of information for this examination: (1) results from a district survey regarding needed interventions for at-risk and ELL students; (2) resources identified by panelists to serve special education, at-risk, ELL, and gifted students during the CSFP adequacy update in 2011, the last time resources for special needs populations in Colorado were reviewed; and 3) comparison information from adequacy studies conducted across the country.

The responses from districts in the survey and the resources identified by the panelists were generally consistent. Additionally, the weights derived for the resources identified by the panelists in the 2011 study were generally well within the range identified by other adequacy studies from across the country. Therefore, the study team recommended using the special education, at-risk, and gifted weights from the prior study. The study team also recommended increasing the weight for ELL students to be more in line with national results and to allow for the interventions suggested with the recent survey results.

The student weights recommended by the study team are summarized in Table 4.10 below.

[1] SB 15-213 Summary

Table 4.10
Special Needs Weights by Size

District Size	Special Education, Mild	Special Education, Moderate	Special Education, Severe	At-Risk	ELL	Gifted
156	1.24	2.37	6.96	0.35	0.60	0.30
495	1.08	2.15	6.61	0.35	0.60	0.30
1,790	0.93	1.93	5.2	0.35	0.50	0.25
5,050	0.82	1.77	5.2	0.35	0.50	0.25
13,275	0.73	1.69	5.2	0.35	0.50	0.25
43,865	0.73	1.69	5.2	0.35	0.50	0.25

Implementing a Funding Formula

Often in adequacy study reports, comparisons are made between the current funding/expenditure levels and the adequacy estimates. The CSFP and APA feel that given other work being done around the state, that approach is not appropriate at this time. Instead, this chapter describes the various decisions that need to be made in order to design a comprehensive student-based school funding system. For each decision, the report discusses recommendations based on the experience of the study team and input from the PJ panelists

Below we discuss the dynamics of a school funding system with a focus on the funding that goes through a state's funding formula. Other aspects of a funding system would include categorical funding including transportation, capital funding, and overrides. This section only examines override funding but does not address the other areas.

A school finance formula can be thought of as a two-stage system. The first stage determines the amount of dollars needed for each district to ensure students can meet all state standards. The second stage determines the state and local share of dollars required for each district to raise the needed funding. The rest of this section discusses the decisions that need to be made to design a system based on the information in this study, focusing on factors that likely impact district costs but are outside of the control of the district.

Determining Needed Student Funding for Districts

As has been mentioned previously, Colorado's current funding formula creates a Total Program Funding amount for each district by considering student count, at-risk students, size, and cost of living. Additional funding is provided for special education, ELL, and gifted and talented through categorical programs. This study examined the resources needed for all of the student needs currently funded either through the formula or categoricals. In order to utilize the figures in this report the student count needs to be determined and applied to each figure.

Student Characteristic Differences

Student Counts

Student Count – Base Cost

Colorado currently uses a single day count held on the first day of October to identify the funded students for each district. The count is then applied in a number of different ways within the funding formula, each of which needs to be considered in the design of a new formula.

Declining Enrollment

Currently districts with shrinking enrollments receive a declining enrollment adjustment. The districts with declining enrollments are funded at a figure that takes into account student counts of past years, averaging student counts to allow for a smoother funding transition. Declining enrollment adjustments work to lessen the impact of student changes since it can be difficult for schools to eliminate costs at the same rate as student decline. This study would encourage continued use of a declining enrollment adjustment in some form.

Online and ASCENT Students

Currently, online and ASCENT students are funded at a fixed per student amount across the state and do not receive the adjusted funding provided for size or cost of living. The figure is higher than the base cost figure but lower than districts adjusted per student amounts. A new formula will need to determine how to fund the online and ASCENT students. This study did not examine these costs specifically.

Kindergarten

Presently, Colorado kindergarten students identified in the October count are considered only .58 FTE. The panelists throughout the adequacy study identified the need for full-day kindergarten and this study would recommend fully funding these students as whole 1.0 FTEs.

Special Needs Adjustments

At-Risk – .35 Adjustment

Currently, Colorado estimates at-risk counts for school districts by the count of students eligible for free-priced lunch and the addition of a limited number of ELL students. The panelists suggested using students eligible for both free- and reduced-price lunch for funding. This would be consistent with many other states and is recommended by this study. With the addition of an ELL weight in the formula, the small number of ELL students in the current count could be excluded from the at-risk funding formula.

The funding for at-risk students is currently set at .12 for most at-risk students, with the weight applied to a district's cost of living and size adjusted per student funding amount. Districts with above average

percentages of free-priced lunch students receive additional funding for those students above the statewide average. The weight developed in this study would be applied to a common base cost amount for each district, i.e. each at-risk student would generate the same funding amount. The study does not recommend a concentration adjustment.

Special Education – range of weights by size and service level, see Table 4.10

Special education students are currently funded through categorical funding from the state. This study recommends that funding be included in the funding formula. The weights for funding special education students could be differentiated based on service level. For this study the levels are mild, moderate, and severe. Results from the study also suggest funding may need to be higher for smaller districts, therefore differentiated weights by district size may be needed. Weights would be applied to the same common base figure.

ELL – .50 or .60 adjustment

ELL students are currently funded through categorical funding from the state. Students are eligible for funding based on identification of need through state tests, though students are limited in the number of years they can receive funding. Panelists identified the need for funding for all special need students served and felt funding should be within the formula at the weights described earlier.

Gifted and Talented – .25 or .30 adjustment

Gifted students are currently funded through categorical funding. This study identified a weight for gifted students that would be included in the formula. Currently, gifted student counts are self-reported by the districts based upon district-administered assessments.

District Characteristic Differences

District Size

Currently Colorado adjusts funding based on the size of a district. The funding adjustments range from slightly more than 1.0 to more than 2.0. District size adjustments are made to take into consideration the economies-of-scale issues smaller districts face in providing the needed educational program to students. Panelists believed that a district size adjustment is still a necessary component of a state funding system and the study recommends keeping such an adjustment.

Cost of Living

Currently, Colorado adjusts cost of living for most districts. The adjustment is designed to take into account the cost differences districts face based on location. Personnel costs are the underlying cost driver of the adjustment and the formula only applies the adjustment to the amount of base funding determined to be associated with personnel for each district. This factor is called the personnel cost factor (PCF). The adjustment is only applied to districts with higher than average cost-of-living factors. It is not applied to lower funding for lower cost districts. Panelists tended to believe that districts did experience cost-of-living differences, but were not sure the current approach was the best measure of

these cost differences. This was in part because the current approach did not take into account the difficulty of attracting and retaining personnel to certain communities. Some states with adjustments have begun to consider different factors, such as the relative cost of attracting similar personnel to a location for cost-of-living adjustments. The study recommends keeping a cost-of-living adjustment in some form.

Applying the base and weights to the student counts described above and then adjusting for district characteristic differences provides the targeted funding levels for each district. The next section examines how the state and local share is determined.

Determining State and Local Share

As has been described earlier in the report, Colorado's current funding system was designed in 1994. At the time, the system was designed to split the cost of the funding formula 50/50 between the state and local level. To do this, the formula required each district to levy 40 mills or at least enough mills to cover 90 percent of formula funding. Today, that split is tilted much heavier toward the state and mill rates for the formula range from 1.68 to 27.00. Policy around the proposed state and local share split would impact the tax rate that might be required for local districts to meet the local contribution level.

Wealth Calculation

Tax rates are applied to a wealth base. Currently, Colorado measures wealth purely on the assessed value of districts. Some states have started to move to including income in the calculation of local wealth. The change attempts to recognize that taxes are paid with personal income. The belief is that including some type of income measure helps to better determine the ability of each community to pay.

Equalization

In addition to the mills for total program, Colorado allows local districts to levy additional mill levy overrides to pay for additional operating costs. The current approach provides no state equalization dollars for districts that enact these overrides and limits the additional funds raised to 25 percent of total program for most districts, and 30 percent for the smallest districts. Looking at the variation in wealth across districts, it is clear that without any type of equalization many districts will struggle to pass overrides, and even if they do pass, they will generate very limited funds. Equalization could be included for mill levy overrides. One approach that can be used is power equalization.

Power equalization provides dollars to districts in a manner that guarantees raising dollars at a determined level. For example, if the state sets the power equalization rate at the 70th percentile of wealth and the district at the 70th percentile of wealth can raise $1,000 per student per mill, then any district below the 70th percentile would be guaranteed to raise $1,000 per student per mill if voters approve the mill. A district that can only raise $500 per student per mill would receive $500 per student in state funding in the power equalization system.

Conclusion

The information above provides details on parameters that could be used in developing a new state funding system in Colorado. This study recommends that a new system be student centric, and, as such, suggests that the majority of student funding be distributed within an equalized formula. Additionally, the formula should take into account the ability of each district to pay. The CSFP and APA understand that many more decisions would need to be made in order to develop a full school finance system.

When developing a new formula, a set of principles should be established before any work is done in fully fleshing out the system. This includes identifying the types of differences districts face that they do not control. These differences could include many of the items discussed above, such as student need differences, size, and cost of living. Any new system should keep equity in sight during the development of the system. This includes looking at how well similar students are treated, how well the system addresses differences in student need, how equally taxpayers are treated, and ensuring that where a student lives does not determine the amount of resources available for their education.

Colorado school districts are diverse in size, setting, student demographics, and wealth. The creation of a new finance system needs to take into account all of the differences and their impact on each child's ability to meet the standards developed by the state.

I. Introduction

In the summer of 2016, the Colorado School Finance Project (CSFP) started a detailed study of Colorado's funding system, including both equity and adequacy research and an evaluation of the structure of the state's current funding formula. Augenblick, Palaich and Associates (APA) worked with CSFP to complete the study and this report presents the findings from this work.

Colorado's current funding formula was first utilized to fund school districts in 1994 for the 1995-96 school year. As implemented, Colorado's formula was a classic foundation-based equalization formula. This type of formula sets a base amount of funding for each student across the state, makes adjustments for student and district characteristics, and then uses these figures to set a total target amount of funding for each school district. The equalization component of the formula then determines the share of total funding that is paid by the state and local community based on the calculated wealth of each district and a target/required tax levy.

In 1994, the state's base amount per student was not related to any specific standards, as standards-based reform was just beginning. The formula provided only one student adjustment for at-risk students (measured by eligibility for free lunch) and provided two district adjustments, one for cost of living and one for district size. Wealth was measured by the assessed value of districts, as determined by the

commercial and residential property values of a district, and each district was expected to levy 40 mills[2] unless a lower rate could raise 90 percent of the total target amount. The school finance act was designed to have an equal state and local share.

Since 1994, a number of changes have occurred in funding and education policy in Colorado. These include, but are not limited to:

- The impact of Gallagher on district assessed valuation,
- The impact of TABOR on district mill levies,
- The adoption of standards-based reform and the accountability and assessment programs related to such reforms,
- Amendment 23,
- Increased caps on mill levy overrides, and
- The negative factor.

These changes have led to a school funding system in 2016 that has: 1) a base figure that has little to no meaning, 2) mill levies that vary widely across districts, and 3) a state/local split that is closer to 65 percent state/35 percent local than the target 50/50 split (but still maintains the same student and district adjustments in the formula). Most of these changes have occurred due to either political decisions and/or the impact of other statutory or constitutional requirements. The change have no occurred in a measured or thoughtful manner.

CSFP has regularly promoted principles of a strong state school finance system:

- The system must be "adequate," allowing students, teachers, schools, and districts to meet all state standards;
- A system must be equitable for students and taxpayers;
- A system must be "sustainable," which is defined by consistent and reliable revenue; and
- The system must be adaptable to new statutes and expectations.

This report is intended to contribute to CSFP's ongoing discussion of how Colorado's school funding system measures up to these principles.

Chapter II first assesses the equity of Colorado's system by examining the variations in need and fiscal capacity of districts. In 2015, CSFP produced a comprehensive detailed equity study, so this report will instead focus on the cost pressures faced by districts due to the varied student populations they serve, as well as differences in their capacity to raise funds and the burden it places on their taxpayers.

[2] A mill represents $1 dollar for every $1,000 dollars of property value. Forty mills would generate $40 per every $1,000 of property value, meaning in the 1994 act a home with assessed value of $100,000 would be expected to pay $4,000 of property taxes for K-12 education.

Chapter III then examines the adequacy of Colorado's system by utilizing the professional judgment (PJ) approach. The PJ approach relies on the expertise of Colorado educators to identify the resources needed to ensure all students, teachers, schools, and districts can meet state standards. The chapter will focus on how the PJ approach was used to calculate a base cost for students with no identified special needs.

Chapter IV continues the examination of the adequacy of Colorado's system by identifying the additional resources needed for students with special needs, including special education, at-risk, English Language Learners (ELL), and gifted students. The chapter first presents the results of a survey sent to Colorado districts examining how at-risk and ELL students are served. The results from this survey were then combined with information from past Colorado adequacy studies and national studies on the resources needed for special needs populations.

Finally, Chapter V examines the full results of the study and how this information could be used to design a new state funding formula.

II. Equity

In the context of K-12 education finance, the term "equity" refers to how state, local, and federal resources are allocated across school districts, and ultimately across schools and students. There are three equity measures that are considered in this study: (1) horizontal equity, (2) vertical equity, and (3) fiscal neutrality:

1. **Horizontal equity** assesses how equally resources are allocated to districts or students in similar situations. It is sometimes said that horizontal equity addresses the "equal treatment of equals." That is, an equitable school finance system will provide a roughly equal amount of resources to students with similar educational needs. Under a school finance system with high horizontal equity, students with no special needs are funded roughly equally, regardless of the school districts in which they are enrolled.

2. **Vertical equity** measures how well the school finance system takes into account varying student needs. A system with high vertical equity will provide more resources for students with greater educational needs. In this way, a system with high vertical equity supports the programs and interventions that are required for students with greater educational needs to succeed in school.

3. **Fiscal neutrality** assesses the link between local wealth and the amount of revenue available to support a school district. A touchstone of school finance theory asserts that there should be little or no relationship between local wealth, such as the local property tax base, and the amount of revenues provided to a local school district. A school finance system with high fiscal neutrality minimizes the relationship between local wealth, or capacity, and district spending.

For this report, the equity analysis will be more limited in scope and is focused on understanding the cost pressures faced by districts due to differences in the types of students they serve (student need), as well as differences in their capacity to raise funds and the burden placed on taxpayers. It is a descriptive analysis of the variation found between the 178 school districts in the state.

Student Need

It is commonly accepted in school finance research that students with special needs require additional resources in order to meet state standards. Special needs students include special education, at-risk, ELL, and gifted students. These additional resources may include specific resources, such as additional instructional staff, after-school programs, summer school programs, additional social and emotional support for students, or specific services related to the Individual Education Plans (IEPs) of special education students.

Colorado currently provides two ways of funding for the special needs populations described above. First, only at-risk students are funded within the state's funding formula. Second, special education, ELL, and gifted students are funded through direct payments to districts known as categorical funding. Currently, the funding for these special needs populations is not based on any quantifiable analysis of student need, but is simply based on historical funding or what is available.

While Chapter IV focuses specifically on the resource needs of special needs students, this section examines the large variation in student need in districts across the state. Using figures derived as described in the report below, an estimation of the level of need for each district was identified and the variation was then examined. For this analysis, the additional resources needed for students were quantified into weights for each special needs category. A weight is the amount of additional funding a student would need in order to be provided with the needed resources above what is already allocated. For example, a weight of .50 means a student needs 50 percent more resources than the base amount to meet state standards.

For this comparative analysis, the weights used are 1.00 for special education, 0.35 for at-risk, 0.50 for ELL, and .25 for gifted. The student populations of each district are multiplied by these weights to determine a need factor for each district. For example, a district with 1,000 students, 160 special education students, 400 at-risk students, 60 ELL students, and 80 gifted students would have a need factor of 1.35, as shown in the figure below.

$$\frac{1{,}000 + (160 \times 1.0) + (400 * .35) + (60 * .50) + (80 * .25)}{1{,}000}$$

Table 2.1 shows the mean, median, minimum, and maximum amounts for the need factors across the 178 Colorado school districts for 2015-16. The mean need factor across the districts was 1.35, with a median of 1.33. The lowest need district had a need factor of just 1.13, while the highest need district was at 1.68.

Table 2.1
District Need Factors

	Need Factor
Mean	1.35
Median	1.33
Minimum	1.13
Maximum	1.68

Colorado has a number of very small districts. An adjustment was made in the state formula to recognize the additional expense of providing similar education resources to students in these smaller districts. The size adjustment developed during the 2011 adequacy study ranged from 1.00 to 2.269. Table 2.2 looks at the need factors of districts with the size adjustment. The mean need factor increased to 1.94 and the median to 1.80. The minimum need factor with size was 1.19 and the maximum was 2.95.

Table 2.2
District Need Factors with Size

	Need Factor with Size
Mean	1.94
Median	1.80
Minimum	1.19
Maximum	2.95

Tables 2.1 and 2.2 show just how varied need is across districts in Colorado, and therefore how varied the cost pressures they face are due to the characteristics of the districts. It is important for the school funding system to recognize and adjust for these variations in need.

Mill Levies

Colorado school districts levy a variety of mills in order to raise the tax revenues required to run a district. The three main levies in the state include: 1) the levy for the state's school funding program (Total Program Mills), 2) mill levy override mills, and 3) bond mills for capital projects. This section examines the variation in these mills across the 178 school districts.

Total Program Mills

Table 2.3 shows the variation in Total Program Mills across the state.

Table 2.3
Total Program Mills, 2015-16

	Total Program Mills
Mean	19.72
Median	21.74
Minimum	1.68
Maximum	27.00

Variation in Total Program Mills in 2015-16 was high, especially when compared to the goal of the 1994 Public School Finance Act of having nearly all districts at the same mill rate. Further, the mean Total Program Mills was 19.72.[3] This means that the average district has less than half of the required 40 mill levies for the Total Program. The minimum mills for the Total Program were just 1.68 mills, and the maximum was at the stabilization maximum of 27.00 mills.[4]

Mill Levy Overrides

Districts are allowed to generate operating revenue above Total Program through mill levy overrides. These overrides are voter approved mill levies available to the district for the education of students. In 2015-16,[5] 118 of the 178 districts levied mills for overrides. Table 2.4 provides more detail on the mill levy overrides.

Table 2.4
Mill Levy Overrides

	Mill Rate	Percent of Total Program
Mean		
All districts	**4.06**	**7.9%**
Only districts with overrides	**6.12**	**11.9%**
Median	**2.29**	**5.4%**
Minimum	**-**	**0.0%**
Maximum	**22.47**	**31.4%**

As shown in Table 2.4, mill levy overrides varied from a low of 0 mills (60 districts had no overrides) to a high of 22.47. The mean rate was 4.06 for all districts. When only districts with overrides were included, the mean was 6.12 mills.

Table 2.4 also shows the amount of additional revenue the overrides can generate in comparison to the Total Program revenue generated by the state's school finance formula. The mean additional funding

[3] Data from the CDE file FY2015-16 Final Mills found at http://www.cde.state.co.us/cdefinance/sfmilllevy.

[4] In 2007, the mill levy stabilization act was passed in the state in order to stop the decreases in mill levies being driven by the interaction between the Gallagher legislation and the TABOR amendment to the constitution. All districts that had de-Bruced had their mill rate for Total Program frozen at the lower of the current rate or 27 mills.

[5] Data from the CDE file OVERRIDE 16 found at http://www.cde.state.co.us/cdefinance/sfmilllevy.

was 7.9 percent for all districts; however, the mean was 11.9 percent for the 118 districts with overrides. This indicates that the districts with overrides could raise an additional $119 for every $1,000 in Total Program funding, while the 60 districts without overrides did not generate any additional operating revenue in this way. The districts with the highest overrides raised an additional 31.4 percent of Total Program funding, or an additional $314 per $1,000 of Total Program funding.

Bond Mills

The prior two sections focused on revenues for the operating costs of school districts. Colorado provides no systematic funding for the capital expenses of school districts.[6] This means that the vast majority of capital costs are born by the taxpayers of school districts. It also means that each district's ability to maintain current buildings and build new buildings is contingent on citizen approval of bond mill levies. It is important to be careful when examining bond mills as they are in part related to the specific needs of districts, and therefore the associated costs. However, it is also clear that variation is at least in part due to each district's ability to get bond mill levies passed.

Table 2.5 examines the bond mill rates for all 178 school districts in Colorado.

Table 2.5
Bond Mills

	Mill Rate
Mean	6.06
Median	5.34
Minimum	-
Maximum	22.07

In 2015-16, 135 districts had some level of bond mills. The mill rates ranged from 0 to 22.07, with a mean of 6.06 when all districts were included and 7.99 when only the 135 districts with bond mills were included. In 2015-16, 33 districts had no bond mills; again it is difficult to know if this is based on a lack of need for capital projects or an inability to raise bond funds. In 2009, a state run assessment of capital needs across districts identified nearly $18 billion dollars in need.[7] This assessment is currently being updated.

[6] Some funding is provided through the state's Building Excellent Schools Today (BEST) program. More information on the program can be found at https://www.cde.state.co.us/communications/capitalconstructionfactsheet.

[7] http://hermes.cde.state.co.us/drupal/islandora/object/co%3A11102/datastream/OBJ/view

Fiscal Capacity

The prior section examined the mill rates that districts impose to generate both operating and capital dollars. Total Program Mills are "equalized" by the state, which in school finance terms means the state sets a target funding amount for each district and then pays the district the targeted funding amount less local dollars generated by Total Program Mills. The override dollars and bond dollars are not equalized – local districts generate all revenues with no dollars from the state.

Thus, the property wealth of a district is a key factor in the amount of money it can generate from a mill. Some districts can generate large amounts in total and per student through a small number of mills, while other districts can generate very little.

Table 2.6 shows the range of total dollars generated by one mill in 2015-16 across the 178 districts and the amount generated per funded student.[8]

Table 2.6
Revenue from One Mill

	Total Raised	Raised per Funded Student
Mean	$578,590	$283
Median	$111,054	$133
Minimum	$3,842	$19
Maximum	$13,221,694	$3,239

The total amount raised averaged $578,590, and ranged from a low of just $3,842 to a high of $13,221,694. When adjusted to account for funded students, the average was $283 per students, with a range of just $19 to a high of $3,239. This means that the district with the highest revenues per student per mill could raise over 170 times the revenue as the district with the lowest revenues per student per mill.

These differences in capacity to raise dollars can have a large impact if a district can get voters to approve a mill or if it is even worthwhile to ask for an increase. For example, if the cost to build an elementary school is $10,000,000, the lowest capacity district would need 260 years to pay off the debt assuming a levy of 10 mills. The wealthiest district would need less than a month to pay off the same building assuming a 10 mill levy. Both of the above are basic examples and do not include the interest costs associated with bonded indebtedness.

More closely examining the 2015-16 school year data, 70 of the 89 districts with above median dollars raised per funded student had mill levy overrides, while only 48 of the 89 districts below the median had mill levy overrides. The 70 districts above the median per funded student raised on average 15 percent

[8] The state refers to the number of students funded as Funded Pupil Count, for consistency in the report student is used instead of pupil throughout.

above Total Program through overrides, while the 48 districts below the median raised just 7 percent of Total Program. This information shows that: (1) districts with higher capacity are both more likely to raise additional operating dollars through overrides, and (2) when they raise these dollars it is at a higher scale than those below the median.

Conclusion

The information in this chapter shows that districts face very different cost pressures based on the characteristics of their student populations. They also differ in capacity to both raise funds, and the burden it places on their taxpayers. The current funding structure ensures that communities, and thus taxpayers, pay very different rates to provide: 1) the Total Program identified by the state, 2) override dollars for students, and 3) bond dollars for their communities. When communities do try to raise additional revenues they have widely varying capacity to raise dollars due to large differences in local wealth. The state provides almost no support for the raising of these dollars. In the case of overrides, communities with higher property wealth are more likely to have passed overrides, and these overrides provide a higher rate of additional funds than the districts with less property wealth.

III. Professional Judgment Approach to Developing a Base Cost

The professional judgment approach (PJ) relies on the expertise of Colorado educators to identify the resources needed to ensure all students, teachers, schools, and districts can meet state standards. Panelists were asked to use their long education experience and knowledge to work with other educators to identify the types of programs and interventions needed. Panelists work with the state's standards as the guiding document for their work and build representative schools and district(s) to fulfill the states objectives.

Creating Representative Schools and a Representative District

To develop an estimate of the base cost for the adequacy research, the study team developed a series of representative schools and a representative district to be resourced during panel discussions. School sizes and the district were chosen to closely resemble actual schools in the state. This allowed PJ panelists from a range of districts to comfortably estimate what resources were needed, since the representative schools and district look familiar. At the same time, the approach developed per-student figures that can be applied in each unique district and school in Colorado based on real enrollment figures.

Table 3.1 identifies the representative schools and representative district used for the PJ process in this study.

Table 3.1
PJ Representative Schools and District

	Elementary School	Middle School	High School	District
Enrollment	420	675	1,200	14,475

Professional Judgment Panel Design

Based on the study team's experience using the PJ approach in other states, the study team felt it was best to use multiple levels of PJ panels. There were a number of reasons for doing so. First, multiple panels allow for the separation of school-level resources (which include teachers, supplies, materials, and professional development) from district-level resources (which include facility maintenance and operation, insurance, and school board activities). Second, the study team believes strongly in having each panel's work reviewed by another panel for the consensus approach to be effective.

The PJ panel structure was designed as follows:

1. **School-level panels**: The study team first held three school-level panels based on grade level (elementary, middle, and high school). Each of these panels focused on the resources needed to serve students with no special needs.

2. **District panel**: The next panel was a district-level panel that reviewed the work of the previous school-level panel and then identified the needed district-level resources.

3. **Statewide panel**: The study team then held a statewide panel to review the work of all previous panels to attempt to resolve any remaining inconsistencies that arose across panels.

4. **Chief Financial Officers (CFO) panel**: The study team also held a final panel with CFOs to review all non-personnel costs, both at the school and district level, identified by previous panels.

Panels generally had between six and eight participants, including a combination of classroom teachers, principals, and district administrators (including superintendents, technology specialists, and school business officials). The Colorado Education Association (CEA) and the Colorado Association of School Executives (CASE), as well as superintendents and CFOs were asked to identify potential panelists in key position categories. Then CSFP followed up with districts and individuals to ensure representation. In total, 42 panelists participated in six PJ panels. A list of panel members is provided in Appendix A to this report.

Panels were held in September and October 2016 at APA's offices in Denver. Panelists were not compensated for their participation, though breakfast and lunch were provided.

Summarizing Colorado State Standards and Requirements

Prior to the commencement of PJ panel discussions, all panelists first reviewed a specific set of background materials and instructions prepared by the study team. Panelists were instructed that their task was to identify the resources needed, such as personnel and interventions, to meet all Colorado standards and requirements, including the requirements of Colorado's Achievement Plan for KIDS (CAP4K) around school readiness, content standards and assessment, and postsecondary and workforce readiness; the Colorado Reading To Ensure Academic Development Act (READ Act); graduation requirements; and any additional requirements for schools and districts for accountability and educator evaluation. The study team prepared a brief summary document of these standards and requirements, which was then shared with panelists (Appendix B). The document was not meant to be exhaustive, as all panel participants were experienced Colorado educators; instead, it was meant to highlight key expectations and recently revised expectations. Panelists were instructed to use the summary document in conjunction with their knowledge of other critical education policies and practices in Colorado to guide their allocation of resources needed to increase the number of Colorado students meeting or exceeding standards. The instructions and background information used by the PJ panels can be found in Appendix C.

Using Best Practice Research and Professional Association Recommendations as a Starting Point for PJ Panels

The study team provided the PJ panels with some starting point figures from a review of best practice research and staffing recommendations that were available from professional educator associations. These figures were used to prompt discussion, and panelists were in no way constrained by these

recommended figures. They could adjust the figures as they saw fit to best suit Colorado and add in additional necessary staffing positions that were not addressed in the starting point figures.

Table 3.2 presents the staffing ratios (or minimum FTE) used for starting point figures based on the study team's research review and recommendations from professional associations. Note that where "Rec." is indicated, the research or professional associations indicated a resource should be in place, but a specific resource level was not identified.

Table 3.2
Research and Professional Association Recommendations

	Ratio/Minimum FTE	Source
Instructional Staff		
Classroom Teachers	15:1 K-3, 25:1 grades 4-12	Research; National Education Association
Specials Teachers	Rec.	Research
Instructional Facilitator (Coach)	200:1	Research
Teacher Tutor/ Interventionist	1+ per school	Research
Librarians/Media Specialists	1+ per school	American Association of School Librarians
Pupil Support Staff		
Counselors	250:1	American School Counselor Association (ASCA)
Nurses	1 per school (research) 750:1 for general student population (professional association)	Research; National Association of School Nurses
Psychologists	500-700:1, based upon school need (higher end ratio used for general population)	National Association of School Psychologists
Social Worker	400:1	School Social Work Association
Administrative Staff		
Principal	1	Research; National Association of Elementary School Principals
Assistant Principals	1 per Elementary and Middle School; 1+ High School	National Association of Elementary School Principals; National Association of Secondary School Principals
Clerical/Data Entry	2+	Research
Other Staff		
IT Technicians	250:1	The International Society for Technology in Education, NETS Standards.
Duty Aides	Rec.	Research

The following tables 3.3 -3.5 summarize the starting point figures that were shared with the panelists for the representative elementary, middle and high school based on the recommendations in Table 3.2. Additional detail on starting point figures for teaching staff is also given for each level.

Table 3.3

Starting Point Personnel Figures from Research and Professional Association Recommendations

Elementary School of 420 Students

Personnel Position	Research-Based Recommendations	Professional Association Recommendations
Instructional Staff		
Classroom Teachers	24.3	24.3
Specials Teachers (art, music, PE, world language, etc.)	Rec.	Rec.
Instructional Facilitators (Coaches)	2.1	
Interventionists	1.0	
Librarians/Media Specialists	1.0	1.0
Technology Specialists		
Instructional Aides		
Student Support Staff		
Counselors	1.7	1.7
Nurses	1.0	0.6
Psychologists		0.6
Social Workers		1.1
Family Liaisons		
Administrative Staff		
Principal	1.0	1.0
Assistant Principals		1.0
Clerical	2.0	
Other Staff		
IT Technicians		1.7
Duty Aides	Rec.	

As noted in Table 3.2, the study team's research review identified class sizes that have been shown to positively impact student success, from 15:1 in kindergarten through grade three and 25:1 in grades four and five. The National Education Association recommends class sizes of 15:1 in kindergarten through grade three, then smaller class sizes in higher grades, but they do provide a specific figure. The study team therefore used 25:1 for grade four and five to create a comparison starting point figure. Other specials teachers, such as music, art, and P.E., were also recommended, but not at a specific resource level.

Table 3.4

Starting Point Personnel Figures from Research and Professional Association Recommendations

Middle School of 720 Students

Personnel Position	Research-Based Recommendations	Professional Association Recommendations
Instructional Staff		
Teachers	36.0	
Instructional Facilitators (Coaches)	3.4	
Interventionists	1.0	
Librarians/Media Specialists	1.0	1.0
Technology Specialists		
Instructional Aides		
Student Support Staff		
Counselors	2.7	2.7
Nurses	1.0	1.0
Psychologists		0.9
Social Workers		1.7
Family Liaisons		
Administrative Staff		
Principal	1.0	1.0
Assistant Principals		1.0
Clerical	2.0	
Other Staff		
IT Technicians		2.7
Duty Aides		

The research review recommended class sizes of 25:1 on a block schedule for middle school students, with teachers teaching three out of four blocks, amounting to 36.0 teachers. As noted, there was not a specific class size recommendation from the professional associations, so a specific figure was not included as a starting point.

Table 3.5

Starting Point Personnel Figures from Research and Professional Association Recommendations

High School of 1,200 Students

Personnel Position	Research-Based Recommendations	Professional Association Recommendations
Instructional Staff		
Teachers	64.0	
Instructional Facilitators (Coaches)	6.0	
Interventionists	1.0	
Librarians/Media Specialists	1.0	1.0
Technology Specialists		
Instructional Aides		
Student Support Staff		
Counselors	4.8	4.8
Nurses	1.0	1.7
Psychologists		1.7
Social Workers		3.0
Family Liaisons		
Administrative Staff		
Principal	1.0	1.0
Assistant Principals		1+
Clerical	2.0	
Other Staff		
IT Technicians		4.8
Duty Aides		

The research review recommended the same class sizes (25:1) and schedule (four period block) at the middle school level and the high school level, leading to a figure of 64.0 teachers. Again, there was not a specific class size recommendation from the professional associations, so a specific figure was not included as a starting point.

The study team also provided starting point figures from the research review for non-personnel costs, as shown in Table 3.6.

Table 3.6

Evidence-Based Starting Figures for School-Level Non-Personnel Costs

Cost Category	Research-based Starting Figures		
	Elementary School	Middle School	High School
Professional Development	10 days per teacher; $100 per student	10 days per teacher; $100 per student	10 days per teacher; $100 per student
Supplies & Materials	$165 per student	$165 per student	$200 per student
Student Activities	$250 per student	$250 per student	$250 per student

It is important to note that the study team's research review did not identify resources beyond the school-level items listed above (e.g. district-level resources).

Professional Judgment Panel Procedures

Once panelists were provided with instructions and background information to guide their efforts (as described previously), PJ panels convened and followed a specific procedure. At least two study team members attended each panel meeting to facilitate the discussion and to take notes about the level of resources needed as well as the rationales behind participant decisions. Panelists were frequently reminded that they should be identifying the resources needed to meet state standards in the most efficient way possible without sacrificing quality.

Each panel discussed the following **school-level** resource needs:

1. Personnel, including classroom teachers, other teachers, psychologists, counselors, librarians, teacher aides, administrators, nurses, etc.

2. Other personnel costs, including the use of substitute teachers and time for professional development.

3. Non-personnel costs, such as supplies, materials and equipment costs (including textbook replacement and consumables), plus the costs of offering extracurricular activities.

4. Non-traditional programs and services, including before- and after-school programs, prekindergarten, and summer school programs.

5. Technology, including hardware, software, and licensing fees.

District-level panels also addressed the following district-level resource needs:

1. Personnel, including central office administrators and support staff in the areas of the superintendent's office, human resources, finance and operations, information technology, and instruction/curriculum.

2. Non-personnel costs, such as maintenance and operation, insurance, legal, safety and security, and contract services.

PJ panels identified the above resources for students with no special needs in order to develop an estimate of an adequate base cost in Colorado.

For each panel, the study team developed figures that represented the general consensus among members. At the time of the meetings, no participant (either panel member or study team member) had a precise idea of the costs of the resources identified. (The study team developed cost estimates for resources at a later date.) This is not to say that panel members were unaware that higher levels of resources would produce higher base cost figures or weights. However, without specific price information and knowledge of how other panels were proceeding, it would have been impossible for

any individual or panel to suggest resource levels that would lead to specific base cost figures or weights, much less costs that were relatively higher or lower than others.

Professional Judgment Resources Identified

While panels varied in the resources they identified as necessary for an adequate educational program, several key recommendations were common across panels:

- Small class sizes, with student-to-teacher ratios of 15:1 in kindergarten through grade two, 18:1 in grades two and three, and 20:1 in grades four and five, and then 25:1 in secondary grades;
- Time for teacher planning, collaboration, and professional development, both outside of the regular school day and embedded with instructional coaches and education technology specialists in the school;
- Instructional support for students, including teacher tutors/interventionists;
- A comprehensive special education student identification team that includes a special education teacher, occupational therapist, and speech pathologist;
- A high level of student support (counselors, social workers, and behavior specialists);
- Sufficient administrative support in the form of assistant principals to allow for required staff evaluations, and assessment/data coordinators to manage assessment requirements and allow for data-driven decision making;
- Additional programs, including extended day and summer school to fulfill READ Act requirements; homework help and bridge programs for entering students at the secondary level;
- Technology-rich learning environments, including 1:1 student devices in 3rd through 12th grades, and associated IT support; and
- Security personnel to ensure a safe school environment.

It should be noted that the resources PJ panels identified here are examples of how funds might be used to organize programs and services in representative situations. Further, there were separate panels for each school level, so approaches may vary in how they identified resources, but subsequent review panels felt the differences were appropriate. The study team emphasized strongly that the resources identified are not the only ways to organize programs and services to meet state standards. The purpose of the exercise is to estimate the overall level of resources and therefore the cost of adequacy – not to be prescriptive.

School-Level Personnel

PJ panels discussed and recommended personnel in the key areas of instruction, pupil support, administration, as well as other areas such as security, assessment, and technology.

Tables 3.7A through 3.7C first identify the school or program size, and the panel-recommended average class size. The tables then identify the personnel on a FTE basis needed to serve all students, regardless of need, in elementary, middle, and high school settings (base education).

Table 3.7A

Elementary School Personnel, as Recommended by Colorado PJ Panels, Base Education

School Configuration and Size	K-5, 420 students
Recommended Average Class Size	Grades K-1: 15 to 1 Grades 2-3: 18 to 1 Grades 4-5: 21 to 1
Instructional Staff	
Teachers	23.8
Specials Teachers	4.0
Instructional Facilitator (Coach)	1.0
Teacher Tutor/ Interventionists	2.0
Librarians/Media Specialists	1.0
Education Technology Specialist	0.7
Media Aide	1.0
Instructional Aides	2.0
Special Education Teacher	0.2
Student Support Staff	
Counselor	1.0
Nurse	1.0
Psychologist	0.5
Social Worker	0.5
Family Liaison	0.5
Speech Therapist	0.2
Occupational Therapist	0.2
Administrative Staff	
Principal	1.0
Assistant Principal	1.0
Clerical/Data Entry Staff	2.0
Other Staff	
IT Technician	0.33
School Resource Officer	0.25
Substitute	1.0
Duty Aides	2.0
Security	0.25
Assessment Coordinator	0.5

For the representative elementary school of 420 students shown in Table 3.7A, the panelists recommended an average class size of 15:1 in kindergarten through second grade, then gradually increasing to 18:1 in grades two and three, and 21:1 for grades four and five, for a total of 23.8 classroom teachers. Panelists also identified four other specials teachers to teach subjects such as art, music, physical education, and world language, and a librarian/media specialist. These positions allow for sufficient planning and collaboration time for classroom teachers. The panelists also felt that the instructional facilitator (coach) and education technology specialist (whose primary role is to provide coaching to teachers on incorporating technology in the classroom) were essential to providing embedded professional development and support to teachers. Other key staffing included student support across a variety of positions, such as IT staff, assistant principals to handle required educator evaluations, a half-time assessment coordinator, duty aides, and a full-time substitute teacher to provide continuity of instruction. The panel also identified a special education identification team that includes a partial FTE for a special education teacher, speech pathologist, and occupational therapist that can identify students with special education needs. Once identified, students would receive special education services not identified here in the base costs.

Next, Table 3.7B on the following page addresses the representative middle school of 720 students. Panelists felt that 25:1 was an appropriate average class size. Panelists also based their staffing of middle school grades on an eight-period day, with teachers teaching six classes a day. The panelists also identified the need for four additional teachers that would ensure the schools ability to implement a true middle school model. This resulted in a total of 40.0 teachers.

At the secondary level no distinction was made between classroom or specials teachers and was instead presented as a total teachers figure. As was the case at the elementary level, panelists also identified significant student support services needed for all students, administrators to address evaluations, and similar other personnel.

Table 3.7B

Middle School Personnel, as Recommended by Colorado PJ Panels, Base Education

School Configuration and Size	Grades 6-8, 720 students
Recommended Average Class Size	25 to 1
Schedule	Eight period day; teachers teaching six periods
Instructional Staff	
Teachers	40.0
Instructional Facilitators (Coaches)	2.0
Teacher Tutor/ Interventionists	3.0
Librarians/Media Specialist	1.0
Education Technology Specialist	0.7
Media Aide	1.0
Special Education Teacher	0.2
Alternative to Suspension Instructor	1.0
Student Support Staff	
Counselors	3.0
Nurse	1.0
Psychologist	1.0
Social Worker	0.5
Family Liaison	1.0
Behavioral Interventionist	0.3
Speech Therapist	0.2
Occupational Therapist	0.2
Administrative Staff	
Principal	1.0
Assistant Principals	2.0
Clerical/Data Entry Staff	3.0
Other Staff	
IT Technician	0.5
School Resource Officer	1.0
Substitute	1.0
Assessment Coordinator	0.5
Security	1.0
Duty Aides	3.0

Table 3.7C

High School Personnel, as Recommended by Colorado PJ Panels, Base Education

School Configuration and Size	Grades 9-12, 1,200 students
Recommended Average Class Size	25 to 1
Schedule	Seven period day; teachers teaching five periods
Instructional Staff	
Teachers	69.6
Instructional Facilitators (Coaches)	4.0
Teacher Tutors/ Interventionists	2.0
Librarians/Media Specialists	1.0
Education Technology Specialist	0.75
Media Aide	1.0
Instructional Aides	2.0
Special Education Teacher	0.2
Alternative to Suspension Instructor	1.0
Student Support Staff	
Counselors	4.8
Nurse	1.0
Psychologist	1.0
Social Worker	1.0
Family Liaison	1.0
Crisis Interventionist	1.0
Health Aide	1.0
Speech Therapist	0.2
Occupational Therapist	0.2
Administrative Staff	
Principal	1.0
Assistant Principals	4.0
Clerical/Data Entry Staff	6.0
Paraprofessionals	3.0
Discipline Dean	1.0
Other Staff	
IT Technician	1.0
School Resource Officer	1.0
Campus Supervisor/Security	4.0
Assessment Coordinator	1.0
Athletic Trainer	1.5

For the representative high school of 1,200 students, panelists kept the same average class size of 25:1 that they used for the middle schools, then recommended a seven-period day, with teachers teaching five periods, as well as 2.4 additional teachers that could be used to provide a zero hour or other courses to ensure students could meet all graduation requirements. This led to a total of 69.6 teachers.

It was important to panelists that a wide range of course offerings were available to students. Panelists also identified additional student support staff, administrators to manage evaluations, and other staff. The panels identified the use of three paraprofessionals in the central office to perform duties that did not need to be done by a secretarial-level staff person.

School-Level Non-Personnel Costs

Aside from personnel needs, Table 3.8 shows additional school-level non-personnel costs identified.

Table 3.8
School-Level Non-Personnel Costs Identified by Colorado PJ Panels

	Elementary School	Middle School	High School
Professional Development (days per teacher)	10 days per teacher	10 days per teacher	10 days per teacher
Professional Development (non-personnel costs)	$100/student	$100/student	$100/student
Substitutes	10 days per teacher	10 days per teacher	10 days per teacher
Supplies, Materials & Equipment (including textbook replacement and school-level technology licensing)	$165/student	$200/student	$250/student
Assessment	$10/ student	$10/ student	$10/ student
Student Activities	$50/ student	$200/ student	$450/ student
Program Specific Technology		$12,500	$50,000

Non-personnel cost figures were developed for instructional supplies, materials, equipment, textbooks, technology licensing assessment, student activities (field trips, sports, extracurricular activities, etc.), assessment, and program specific technology at the secondary level. Professional development was addressed through both a number of days for teachers to participate, as well as an amount to address non-personnel professional development costs, such as training materials and conference fees.

The statewide panel and then the CFO panel reviewed these figures, considering both what is currently spent and the adequacy of the resources available in these areas. Supplies, materials, and equipment and student activities were two areas that panelists felt increased in cost in later grades.

School-Level Additional Programs

Tables 3.9A through 3.9C indicate other programs, such as a before- and after-school programs, summer school, and bridge programs, the panels felt were needed to ensure schools could meet Colorado state standards and requirements.

First looking at Table 3.9A, panelists identified the need for both extended day (80 hours total) and summer school (40 hours total) to ensure students were provided the full supports related to the READ Act both prior to and after third grade, serving 10 percent of all students. Both programs would be

staffed with teachers at a 5:1 ratio; the summer school program would then also need support from an instructional aide and a clerical staff person.

Table 3.9A
Elementary Additional Programs Identified by Colorado PJ Panels

	READ Act Extended Day	READ Act Summer School
Number of Students Served	42 (10 percent)	42 (10 percent)
Program Specifics (length of program, length of day, or total hours)	80 hours total	40 hours total
Personnel		
Instructional Staff	8.4 teachers (5:1 ratio)	8.4 teachers (5:1 ratio); 1.0 instructional aide
Student Support Staff		
Administration Staff		1.0 clerical staff
Other Staff		

At the middle school level, shown in Table 3.9B, panelists identified the need for homework help (available to all students) and a bridge program for entering students. Operating the bridge program entailed two additional days of time for 33 percent of instructional staff members, and the same amount of time for all student support staff, administrative staff, and other staff members. There was no additional cost associated for staff on extended (10 month or longer) contracts.

Table 3.9B
Middle School Additional Programs Identified by Colorado PJ Panels

	Homework Help	Bridge
Number of Students Served	Available to all students as needed	225 entering 6th grade students
Program Specifics (length of program, length of day, or total hours)	Two hours a day, four days per week, 36 weeks	Seven hours a day, two days total
Personnel		
Instructional Staff	1.0 teacher; 1:0 instructional aide	33% of all instructional staff
Student Support Staff		100% of all support staff
Administration Staff		*100%, but no additional cost due to contract length*
Other Staff		100% of all other staff

Programs were similar at the high school level (Table 3.9C) as the middle school. Panelists felt that there should be homework help available to all students, staffed by four teachers in the core content areas. They also identified the need for a week-long bridge program for entering ninth graders. This amounted to five additional days of time for 25 percent of instructional staff members, and the same amount of

time for all student support staff, administrative staff, and other staff members. There was no additional cost associated for staff on extended (10 month or longer) contracts.

Table 3.9C
High School Additional Programs Identified by Colorado PJ Panels

	Homework Help	Bridge
Number of Students Served	Available to all students as needed	300 entering 9th grade students
Program Specifics (length of program, length of day, or total hours)	Two hours a day, four days per week, 36 weeks	Seven hours a day, five days total
Personnel		
Instructional Staff	4.0 teachers	25% of all instructional staff
Student Support Staff		100% of all support staff
Administration Staff		*100%, but no additional cost due to contract length*
Other Staff		100% of all other staff

School-Level Technology Hardware

Tables 3.10A through 3.10C show the technology needs of each school.

Table 3.10A
Elementary School Technology Hardware Identified by Colorado PJ Panels

Hardware Item	# of Units Needed
Administration/Main Office	
Laptop	1 per administrator; 1 per office staff member
Printer	1 total
Copier/Printer	2 total
Faculty	
Laptop	1 per professional
iPad	1 per professional
Classroom	
Visual Presentation System	1 per classroom
Document Camera	1 per classroom
Computer Lab(s) - Fixed (1)	
Computer	22 per fixed lab
Visual Presentation System	1 per fixed lab
3D Printer	1 per fixed lab
Computer Lab(s)- Mobile (3)	
Laptop	20 per mobile lab
Media Center	
Computer	3 total
Visual Presentation System	2 total
Lookup Station	3 total
Loaner Computers	5 total

Other	
Student Device	210 total (1 per every two students)

Table 3.10B

Middle School Technology Hardware Identified by Colorado PJ Panels

Hardware Item	# of Units Needed
Administration/Main Office	
Laptop	1 per administrator
Computer	1 per office staff member
Printer	1 total
Copier/Printer	3 total
Faculty	
Laptop	1 per professional
Classroom	
Visual Presentation System	1 per classroom
Document Camera	1 per every two classrooms
Computer Lab(s)- Fixed (2)	
Computer	30 per fixed lab
Visual Presentation System	1 per fixed lab
Printer	1 per fixed lab
Media Center	
Visual Presentation System	4 total
Loaner Computers	8 total
Other	
Student Device	1 per student

Table 3.10C

High School Technology Hardware Identified by Colorado PJ Panels

Hardware Item	# of Units Needed
Administration/Main Office	
Laptop	1 per administrator
Computer	1 per office staff member
Printers	3 total
Copier/Printer	6 total
Faculty	
Laptop	1 per professional
Classroom	
Visual Presentation System	1 per classroom
Document Camera	1 per every two classrooms
Computer Lab(s) - Fixed (4)	
Computer	30 per fixed lab
Visual Presentation System	1 per fixed lab
Printer	2 per fixed lab
Media Center	
Printers	2 total
Visual Presentation System	3 total

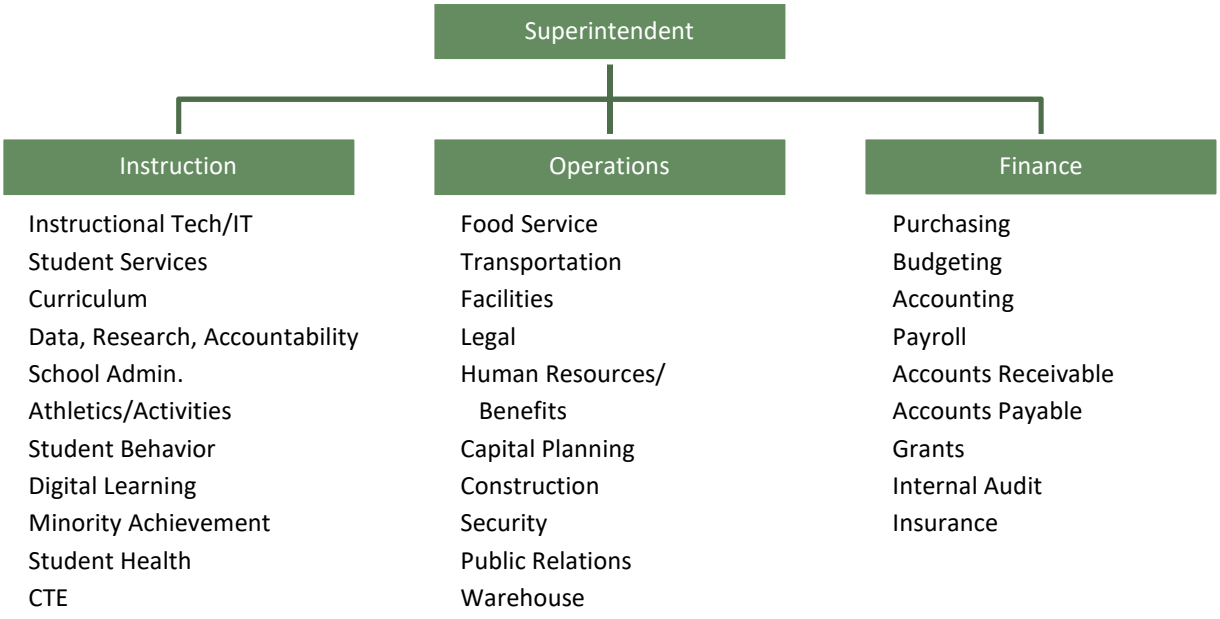
Loaner Computers	10 total
Other	
Student Device	1 per student

At all levels, panelists called for an array of technology to be available to students, teachers, and administrative staff in classrooms, computer labs (fixed or mobile), and media centers. Of particular note, panelists recommended one-to-one mobile devices (tablets, netbooks, or similar) for students in grades 3 through 12. Panels also recommended a computer level of three students to one computer in mobile labs in grades K–2. Fixed computer labs are recommended in all schools to allow for instruction in courses that require higher-powered machines for the course work.

District-Level Resources

Panelists also identified the resources needed at the district level to support schools. It is important to note that different districts often use different position titles or levels of personnel to fulfill the same functions or roles. For example, one district may have a CFO, while that same function might be filled in another district by a business manager or a director. Therefore, the panelists first discussed the functions that would need to be fulfilled, as shown in Figure 3.1.

Figure 3.1
District Functions



Panelists then identified the number of personnel needed to fulfill these functions in broad personnel categories, as shown in Table 3.11.

Table 3.11
District Personnel Resources, Base Education Identified by Colorado PJ Panels

Personnel	FTE
Superintendent	1.0
Assistant/Associate Superintendent	2.0
Executive Director	2.0
Director	16.0
Supervisor	1.0
Coordinator	10.0
Manager	19.0
Secretary/Clerk	22.5
Professional	16.5
AP/AR Clerks	2.0
Payroll Clerks	2.0
Security Engineer	1.0
Security Tech	1.0
Security Staff	5.0
Warehouse	2.0

Panelists then addressed the district-level costs incurred to support schools, including building maintenance and operation (M&O), district-level technology licensing and hardware, insurance, legal fees, finance and data system fees, and contracted services, as shown in Table. 2.12.

Table 3.12
District Non-Personnel Costs, Base Education Identified by Colorado PJ Panels

Cost Area	Total	Detail
Contracted Services	$289,500	$20 per student
Maintenance and Operations	$14,475,000	$1,000 per student
Security	$361,875	$25 per student
Textbooks/ Techbooks	$1,085,625	$75 per student
Supplies and Materials	$20,000	
Legal	$150,000	
Assessment	$361,875	$25 per student
Technology Licensing	$1,447,500	$100 per student
Tech Hardware (District level)	$25,750	$250 per district-level staff member
Vehicles	$300,000	
Data storage/security	$144,750	$10 per student
Broadband	$80,000	

Insurance	$1,000,000	
Audit	$60,000	

Costs in Table 3.12 were identified by the statewide and CFO panels, building off current district expenditures but adjusted to ensure the levels were adequate to meet state standards. Some cost areas were already identified at the school level, so they were not included at the district level to avoid double counting.

Developing Cost Estimates

Once the panels completed their work, the study team undertook the process of costing-out the resources identified above.

Resource Prices

The primary prices needed to complete this costing-out were the salaries and benefits of personnel and the prices assigned to different kinds of technology hardware. See Appendix D for more detail on salaries and benefits used.

Salaries and Benefits

For personnel salaries, the study team used CDE data on 2014-15 statewide average salaries for different personnel categories when available, supplemented by benefit information collected from CFOs. Salaries for a few positions, such as clerical staff and IT technicians, were not available from CDE, so the study team benchmarked them as a percentage of the average teacher salary based on data from previous PJ studies conducted by APA.

Panelists identified the need to ensure that salaries were adequate to attract and retain staff. In 2011, salaries were adjusted to be more competitive nationally, resulting in a 10 percent increase in salaries for instructional and student support professionals. The current panels asked for an examination of the regional market to see what costs would be if salaries were adjusted to a point where Colorado was more competitive nationally. Looking at the CSFP's profile data produced yearly, it is clear that Colorado was far more competitive nationally in the 1992-93 school year. The inflation-adjusted figure was identified for use in the costing out phase. The average teacher's salary was $50,279 in 2014-15. Using the adjustment approach described, the new teacher's salary would be $60,776 applied to teachers, tutors/interventionists, and instructional coaches.

Technology Hardware

In determining the cost of technology hardware, the study team used prices from the 2016 Maryland study, which utilized up-to-date purchase information collected from district CFOs. The assessment also assumed equipment would be replaced every four years for the majority of hardware items. See Appendix E for more detail on technology hardware prices used.

School-Level and District-Level Costs

Table 3.13 lists the base costs for each representative school, disaggregated into costs for personnel, professional development, non-personnel, technology, and other programs after applying the resource prices noted above.

Table 3.13
School-Level Base Costs Identified by Colorado PJ Panels

	Elementary School	Middle School	High School
School-level Costs, Base	**$9,374**	**$8,575**	**$8,433**
Personnel Costs	*$8,344*	*$7,574*	*$7,079*
Professional Development	*$315*	*$326*	*$310*
Non-Personnel Costs	*$225*	*$429*	*$752*
Technology	*$170*	*$188*	*$187*
Other Programs	*$320*	*$59*	*$105*

School-level base costs ranged from $8,433 to $9,374, primarily reflecting the lower class sizes recommended for the earliest grades.

Table 3.14 presents the district-level cost figure, based on district-level personnel and non-personnel costs identified by panelists.

Table 3.14
District-Level Costs Identified by Colorado PJ Panels

District-level Costs, Base	$2,105
Personnel	$563
Non-Personnel Costs	$1,543

The additional district-level base cost was $2,105.

Professional Judgment Total Base Cost

The study team then calculated a single, weighted school-level base cost figure. To do this, the study team used school-level cost figures for each grade configuration (Table 3.13), along with the distribution of students at each grade level. This created a combined school-level cost of $8,898 across all grade levels. The study team then added the district-level cost figure of $2,105 from Table 3.14 to develop a total base cost of $11,004.

Two adjustments were then made to this figure to account for: 1) the size of the representative schools and district used, and 2) the use of statewide average salaries.

First, the representative schools and district used for this study were smaller than those that set the base in the prior study and update. In prior work, the base was set based on the results from the Very Large district setting, since it had the greatest economies of scale and would be the lowest resource point. However, for the purposes of this study, a smaller high school (1,200 instead of 2,000) and a

smaller district size (14,475 instead of more than 43,000) were used in order to ensure that the size of schools and district discussed during PJ panels were more relatable to a wider set of educators. The size of the elementary school and middle school were the same in the current and past studies. Therefore, in order to account for the differences in size and potential for diseconomies of scale in a smaller setting, the total base cost figure was reduced by 4.0 percent based on the size adjustment formula developed as a part of the 2011 study.

Second, in applying costs to the staffing resources identified by the PJ panelists, APA used statewide average salaries for specific staff positions. As such, the base cost must be adjusted by the average adjustment for COL across the state to arrive at the lowest base point. To do this, APA used the weighted average COL adjustment from the 2014-15 funding formula. The statewide average COL adjustment was 1.166 for 2014-15. The cost-of-living adjustment was applied only to the portion of costs related to personnel, as determined by the state's personnel cost factor. The weighted average personnel cost factor for the year was 0.893. The two factors used in conjunction led to an average COL adjustment of 1.148. The size-adjusted PJ base cost of $10,564 was divided by this number to generate a final PJ base figure of $9,202, as shown in Table 3.15.

Table 3.15
Professional Judgment Total Base Cost

Base	
Raw	$11,004
Adjusted for size and COL	**$9,202**

Comparison to the 2011 Adequacy Study and 2013 Update

It can be helpful to compare the base cost from this study to the results from both the 2011 study as well as the 2013 update study. The figures from the 2011 and 2013 work were adjusted by inflation to put them in 2014-15 dollars using the Consumer Price Index for Denver-Boulder-Greeley from the Bureau of Labor and Statistics.

Table 3.16
Professional Judgment Base Cost Comparison

	2011 Study, inflated	2013 Update, inflated	2016 Study
Base Cost	$8,262	$8,675	$9,202

Put in comparable terms, the base costs increased between 2011 and 2016. Differences in costs between the 2011 and 2013 update figures were attributed to new state requirements or increases in clarity that occurred between the two studies, including:

- Passage of the READ Act to replace the Colorado Basic Literacy Act (CBLA);
- Changes to assessments, including methods of administration and number required;
- Increased clarity around SB191;

- Changes in Accountability, specifically related to turnaround schools; and
- Changes to NCLB, specifically the granting of the state waiver.

Further understanding and revisions to expectations then occurred between the 2013 update and the current study, including:

- Greater clarity around the requirements of the READ Act, leading to extended day and summer school for an expected ten percent of elementary school students;
- Statewide use of PARCC and CMAS assessments; lower statewide scores on PARCC caused further concern about students meeting performance expectations, and led panelists to recommend increased instructional support for students;
- The release of graduation guidelines that have prompted the need for additional instructional staffing to offer a robust program;
- The passage of the Every Student Succeeds Act (ESSA), which replaced NCLB; and
- The Claire Davis Safety Act, which makes school districts legally responsible for incidents of school violence. The Claire Davis Safety Act amended the "Colorado Governmental Immunity Act" to recognize that a duty of reasonable care exists with respect to public school districts, charter schools, and their employees to exercise reasonable care to protect students, faculty, staff, and others from harm that is reasonably foreseeable while such students, faculty, staff, and others are within the school facilities or are participating in school-sponsored activities.[9] This led to panelists to recommend increases in both safety personnel, as well as student support staff to identify potential risks.

[9] SB 15-213 Summary

IV. Special Needs Resources

Chapter III addressed how the PJ approach was used to develop a new base cost. Additional adjustments, or weights, would then be needed to provide the resources to serve special needs populations. APA considered three sources of information for this examination: (1) results from a district survey regarding needed interventions for at-risk and ELL students; (2) resources identified by panelists to serve special education, at-risk, ELL, and gifted students during the CSFP adequacy update in 2011, the last time resources for special needs populations in Colorado were reviewed; and 3) comparison information from adequacy studies conducted across the country.

District Survey Results

In August of 2016, the CSFP and APA sent a survey out to all 178 superintendents in the state. The survey asked about the services provided to at-risk and ELL students in each district. Appendix F offers the full list of survey questions.

Table 4.1 below shows the demographic breakdown of all districts in the state and then for the responding districts.

Table 4.1

Survey Respondents by Size, Location, and Need

	Districts in State	Percent of All Districts	District Respondents	Percent of All Respondents
Size				
<=250	53	30%	29	37%
<=500	32	18%	9	11%
<=1,000	24	13%	12	15%
<=5,000	39	22%	16	20%
<=10,000	11	6%	6	8%
<=25,000	9	5%	4	5%
>25,000	10	6%	3	4%
Location				
Denver Metro	15	8%	4	5%
Outlying City	13	7%	6	8%
Outlying Town	49	28%	26	33%
Remote	86	48%	36	46%
Urban- Suburban	15	8%	7	9%
Need				
Lowest Need	35	20%	15	19%
Low Need	40	22%	19	24%
Moderate Need	36	20%	17	22%
High Need	36	20%	14	18%
Highest Need	31	17%	14	18%

Seventy-nine districts took the survey and they were generally representative of the state. After the initial window for taking the survey was completed, study team staff examined the respondents by size, location, and need level and targeted specific districts to follow up with to encourage participation in order to ensure representation. As the table shows, responding districts were generally representative of all districts in the state.

At-Risk

Districts were asked a number of questions regarding how they serve at-risk students. First they were asked to identify the types of programs or services that they currently use to serve students, as well as the number of students served in broad terms- all, most, some, few. Districts were provided a list of 14 possible answers and were also allowed to identify other programs or interventions they use not listed.

Table 4.2 shows that 10 interventions were identified by over 40 percent of respondents as being used to serve at-risk students, as well as the percentage of districts that indicated the intervention was being provided to most or all at-risk students in the district.

Table 4.2
Interventions Used by Districts for At-risk Students and Amount of Students Served

Type of At-risk Intervention	% of Districts providing Intervention	% of Districts who use the intervention to serve most or all at-risk students
Differentiated Instruction	95%	84%
Pullout/push-in intervention support	83%	63%
Additional Pupil Support (counseling, social workers, psychologists, behavior support)	77%	65%
Remedial Course Recovery	70%	68%
Career and Technical Education	67%	74%
Summer School	68%	42%
Reduced Class Sizes	62%	72%
Purchasing Specific Intervention Curriculum/Program/Software	54%	75%
Tutoring	52%	52%
Before/After School Program(s) (extended time)	44%	47%

Differentiated instruction was used by 95 percent of respondents with pullout/push-in services the second most commonly used intervention (83 percent). Other interventions used include additional support services, remedial course recovery, CTE, summer school, reducing class size, specific programmatic interventions, tutoring, and extended learning time such as before or after school. Table

4.2 also shows that none of the interventions are being used for most or all students. Differentiated instruction is used for the most students while summer school is used for the least students.

Districts were then asked to rank the impact of each intervention on a scale from zero (no impact) to three (high impact). Respondents were also asked to rank the cost level of each intervention from zero (low cost) to three (high cost).

Table 4.3 shows the results of the impact and cost rating for each of the ten interventions shown in Table 4.2.The interventions are listed from most impactful to least impactful.

Table 4.3
Impact and Cost of At-Risk Interventions

Type of At-risk Intervention	Average Positive Impact of Intervention (low 0- high 3)	Average Cost of Intervention (low 0 - high 3)
Career and Technical Education	2.30	2.41
Additional Pupil Support (counseling, social workers, psychologists, behavior support)	2.28	2.66
Differentiated Instruction	2.24	1.57
Pullout/push-in intervention support	2.21	2.47
Reduced Class Sizes	2.08	2.53
Tutoring	2.07	2.83
Remedial Course Recovery	2.05	1.96
Before/After School Program(s) (extended time)	2.03	2.29
Purchasing Specific Intervention Curriculum/Program/Software	1.98	2.30
Summer School	1.87	1.98

Career and technical education was rated as having the greatest positive impact according to respondents. Additional pupil support, differentiated instruction and pullout/push-in interventions were also highly rated. Summer school received the lowest impact rating with a figure of 1.87. Given that at least 40 percent of responding districts reported using each of these interventions and the fact that nearly all of the interventions received a rating of two or above on a three point scale, it suggests that all the listed interventions are seen as beneficial for at-risk students.

Considering then the cost of these interventions, while Career and technical education and additional pupil support are both viewed being highly impactful, they are also viewed as being high cost interventions by respondents. Tutoring is viewed as the lowest cost. Looking at the relationship between impact and cost, differentiated instruction and tutoring appear to be both high impact and lower cost.

Survey respondents were also asked to rate their district's implementation of the noted interventions on a scale of 1 (barely implemented) to 3 (fully implemented), as shown in Table 4.4.

Table 4.4
Implementation Ratings for At-Risk Interventions

Type of At-risk Intervention	Average Implementation of Intervention (Barely 1 - Fully 3)
Reduced Class Sizes	2.52
Remedial Course Recovery	2.37
Career and Technical Education	2.33
Pullout/push in interventionist	2.33
Purchasing Specific Intervention Curriculum/Program/Software	2.30
Differentiated Instruction	2.30
Summer School	2.28
Additional Pupil Support (counseling, social workers, psychologists, behavior support)	2.26
Tutoring	2.24
Before/After School Program(s) (extended time)	2.19

As the table shows, on average, districts reported a moderate level of implementation of each intervention; reduced class sizes was reported as being the closest to fully implemented.

The interventions described by districts will be compared to those identified by previous professional judgment panels later in this chapter.

English Language Learners

Districts were then asked the same questions as above regarding the types of interventions used to serve ELL students. Table 4.5 shows the types of interventions identified by more than 40 percent of responding districts.

Table 4.5
Interventions Used by Districts for ELL and Amount of Students Served

Type of ELL Intervention	% of Districts providing Intervention	% of Districts who use the intervention to serve most or all ELL students
Differentiated Instruction	84%	85%
Pullout/Push-in Intervention Support	63%	63%
Targeted Professional Development for Instructional Staff	48%	83%
Additional Pupil Support (counseling, social workers, psychologists, behavior support)	43%	61%
Tutoring	43%	55%
Purchasing Specific Intervention Curriculum/Program Software	40%	83%

Only six interventions were provided by over 40 percent of responding districts and just one intervention, differentiated instruction, was used by more than 65 percent of districts. Pullout/push-in intervention support, targeted professional development, additional pupil support, tutoring, and specific purchased interventions were the other five interventions used by responding districts.

Districts averaged having at least 80 percent of students served by three of the interventions, differentiated instruction, targeted professional development, and specific purchased. Around 60 percent of the districts said most or all ELL students were served by pullout/push-in instruction support, additional student support, or tutoring.

Table 4.6 shows the impact and cost ratings for each of the six ELL interventions providing by more than 40 percent of districts.

Table 4.6
Impact and Cost of ELL Interventions

Type of ELL Intervention	Average Positive Impact of Intervention (low 0- high 3)	Average Cost of Intervention (low 0 - high 3)
Pullout/Push-in Intervention Support	2.37	2.74
Differentiated Instruction	2.33	1.68
Additional Pupil Support (counseling, social workers, psychologists, behavior support)	2.28	2.69
Targeted Professional Development for Instructional Staff	2.21	1.97
Tutoring	2.20	2.03
Purchasing Specific Intervention Curriculum/Program Software	1.96	2.18

As the table shows, districts felt the pullout/push-in intervention support had the highest impact. All other interventions besides purchasing specific intervention software received an impact rating of 2.20 or above indicating they had moderate to high impact. However, pullout/push-in intervention support is also rated as the highest cost interventions with additional pupil support rated nearly as costly. The lowest cost intervention was the second most impactful intervention, differentiated instruction.

Survey respondents were also asked to rate their district's implementation of the noted interventions for serving ELL students on a scale of 1 (barely implemented) to 3 (fully implemented), as shown in Table 4.6.

Table 4.6
Implementation Ratings for ELL Interventions

ELL Intervention	Average Implementation of Intervention (Barely 1 - Fully 4)
Targeted Professional Development for Instructional Staff	2.36
Pullout/Push in Interventionist Support	2.34
Differentiated Instruction	2.32
Purchasing Specific Intervention Curriculum/Program Software	2.29
Additional Pupil Support (counseling, social workers, psychologists, behavior support)	2.20
Tutoring	2.20

As seen for at-risk interventions, districts reported moderate implementation of the above interventions; no interventions were reported as being fully implemented, on average.

The interventions identified by the districts will be compared to interventions mentioned by past professional judgment panels in the next section of the chapter.

Special Needs Resources from Past Studies and Weights from National Comparisons

The survey examined only the interventions for at-risk and ELL students. This section reviews the resources identified by panelists during the CSFP adequacy update in 2011, the last time special needs populations were reviewed. This includes resources for special education, at-risk, ELL, and gifted students. The results from this study are also compared to information from adequacy studies conducted across the country.

Special Education

Special education services are provided based on each students specific Individual Education Plan (IEP). Knowing that panels cannot predict specific student disabilities, panelists during the 2011 study were asked to think about the average resources needed at schools to serve the full range of special education students. Subsequent district panels then built the resources needed to support personnel at the school sites.

School level resources identified during the 2011 study included special education teachers, instructional aides, additional student support services, and therapists, such as speech and occupational or physical therapists. Additionally, some special education students were served with extended school year programming. District-level resources included a director, supervisors, additional specialized therapists and clerical support. Panelists in 2011 also identified costs for contracted services, homebound students, and out-of-district placements.

Resources were disaggregated for three levels of special education need including mild, moderate, and severe, resulting in separate weights that varied based on district size and would be applied to a single base figure, such as the $9,202 figure identified in the previous chapter.

The weights identified in the 2011 study are shown in Table 4.7.

Table 4.7
Special Education Weights by Size

District Size	Special Education, Mild	Special Education, Moderate	Special Education, Severe
156	1.24	2.37	6.96
495	1.08	2.15	6.61
1,790	0.93	1.93	5.2
5,050	0.82	1.77	5.2
13,275	0.73	1.69	5.2
43,865	0.73	1.69	5.2

The weights in Table 4.6 above can also be compared with figures identified in national studies of adequacy over the past 13 years. Table 4.8 shows the special education figures identified in studies in nine other states.[10]

Table 4.8
Special Education Weights from State Adequacy Studies

State	Year	Special Education Weight
Connecticut	2005	0.987 for mild; 1.540 for moderate; 4.182 for severe
D.C.	2013	Level 1: .88; Level 2: 1.08; Level 3: 1.77; Level 4: 3.13
Kentucky	2004	1.23
Minnesota	2006	1.0
Montana	2007	0.77 for mild; 1.32 for moderate; 2.93 for severe
Nevada	2006	0.88 for mild; 1.28 for moderate; 2.52 for severe
Pennsylvania	2007	1.3
South Dakota	2006	0.94 for mild, 1.86 for moderate; 4.21 for severe
Tennessee	2004	0.5 for mild; 1 for moderate; 3.45 for severe

Colorado's weights are similar to those of states that examined multiple levels of special education need. The weight for mild special education, with a floor of 0.73, was below some states and the severe special education weight, with a floor of 5.2, was higher than any other state. However, all three figures were within the general ranges identified. Comparing the previous 2011 Colorado special education

[10] http://www.marylandpublicschools.org/Documents/adequacystudy/AdequacyReviewReport_rev_091214.pdf

weights to the national data led the study team to suggest the figures in Table 4.6 could be used for this study.

At-Risk

Students are identified as at-risk due to being at risk for academic failure for a number of reasons. Currently, Colorado uses eligibility for free-priced lunch as a proxy for being at-risk. This study expands that definition to include reduced-price lunch eligibility, which is consistent both with the approach taken by many states nationally and what panelists felt was appropriate.

During the 2011 study, panelists identified various resources for at-risk students. These included additional teachers that could be used for small group interventions or for lowering class sizes, additional student support services, and additional instructional aides. Panelists also identified the need for additional learning time in the form of both extended day and extended year for all students.

The services and interventions are similar to those identified by respondents to the survey. The additional teaching staff can be used for differentiated instruction and tutoring. The respondents and panelists identified the need for extended day and year opportunities. Additional student support was also a common resource identified.

The weight derived from the 2011 work for at-risk was a weight of 0.35 for all student regardless of district size. Table 4.9 shows the weights identified in nine other states for comparison.

Table 4.9
At-risk Weights from State Adequacy Studies

State	Year	At Risk Weight
Connecticut	2005	0.28-0.62 (based on concentration)
D.C.	2013	0.37
Kentucky	2004	0.49-0.59
Minnesota	2006	0.75
Montana	2007	0.27-0.50 (based on district size)
Nevada	2006	0.29-0.35 (based on district size)
Pennsylvania	2007	0.43
South Dakota	2006	0.24-0.72 (based on district size)
Tennessee	2004	0.25

Colorado's weight is on the lower end of the range of weights, but still well within acceptable bounds.

The base resources identified by the panelists in the current study included robust student support services, which suggested a lower weight could be appropriate. Given that the at-risk weight from the 2011 study was on the lower end of the weights recommended nationally, the study team recommends the 0.35 figure be used in light of the additional resources available in the base.

English Language Learners

ELL students frequently face both language needs and student support needs. Panelists from the 2011 study identified additional teaching and student support staff at the school level to address these needs. District panelists identified supports for schools that included a director, coordinators, translators, and clerical help.

The resources identified by the 2011 panelists were similar to those identified by respondents to the recent survey. Teachers can be used for the pullout/push-in, differentiated instruction, and tutoring identified by respondents. The additional pupil support staff can provide the needed support services.

The weights for the resources identified by the panelists in 2011 were .47 for most districts and .564 for the smallest districts.

Table 4.10 shows the weights for ELL for nine other states.

Table 4.10
ELL Weights from State Adequacy Studies

State	Year	ELL Weight
Connecticut	2005	0.76
D.C.	2013	0.60
Maryland	2001	1.0
Minnesota	2006	0.90
Montana	2007	0.50-0.82 (based on district size)
Nevada	2006	0.47-1.21 (based on district size)
Pennsylvania	2007	0.75
South Dakota	2006	.39-1.18 (based on district size)
Tennessee	2004	0.60-0.90 (based on district size)

In this case, the Colorado figures are clearly on the low end of the range of weights. With this in mind, and looking at the various interventions respondents identified for ELL students, the study team suggested increasing the weight for larger districts to .50 and the weight for smaller districts to .60.

Gifted and Talented

Gifted students often require additional resources to ensure their full needs are being met. The panelists identified additional teaching allocations to provide services to the students and district resources to coordinate these services. The study team does not have survey or national information on gifted resources. The recommendation is to use the previous study figures of .25 for large districts and .30 for smaller districts.

Conclusion

The responses from districts in the survey and the resources identified by the panelists were generally consistent. Additionally, the weights derived for the resources identified by the panelists in the 2011 study were generally well within the range identified by other adequacy studies from across the country.

Therefore, the study team recommended using the special education, at-risk, and gifted weights from the prior study. The study team also recommended increasing the weight for ELL students to be more in line with national results and to allow for the interventions suggested with the recent survey results.

The student weights recommended by the study team are summarized in Table 4.11 below.

Table 4.11
Special Needs Weights by Size

District Size	Special Education, Mild	Special Education, Moderate	Special Education, Severe	At-Risk	ELL	Gifted
156	1.24	2.37	6.96	0.35	0.60	0.30
495	1.08	2.15	6.61	0.35	0.60	0.30
1,790	0.93	1.93	5.2	0.35	0.50	0.25
5,050	0.82	1.77	5.2	0.35	0.50	0.25
13,275	0.73	1.69	5.2	0.35	0.50	0.25
43,865	0.73	1.69	5.2	0.35	0.50	0.25

The weights will be combined with the base cost figure identified in Chapter III and district adjustments to provide a cost estimate for the state in the next chapter.

V. Implementing a Funding Formula

Chapter II examined the differences in need, fiscal capacity, and taxpayer equity throughout the state. Chapters III and IV then identified the resources necessary for students to meet Colorado state standards, including the identification of a base cost figure and adjustments for special needs students. This chapter examines how this information could be used to design a new state funding formula.

Often in adequacy study reports, comparisons are made between the current funding/expenditure levels and the adequacy estimates. The CSFP and APA feel that given other work being done around the state, that approach is not appropriate at this time. Instead, this chapter describes the various decisions that need to be made in order to design a comprehensive student-based school funding system. For each decision, the report discusses recommendations based on the experience of the study team and input from the PJ panelists

Below we discuss the dynamics of a school funding system with a focus on the funding that goes through a state's funding formula. Other aspects of a funding system would include categorical funding including transportation, capital funding, and overrides. This section only examines override funding but does not address the other areas.

A school finance formula can be thought of as a two-stage system. The first stage determines the amount of dollars needed for each district to ensure students can meet all state standards. The second stage determines the state and local share of dollars required for each district to raise the needed funding. The rest of this section discusses the decisions that need to be made to design a system based on the information in this study, focusing on factors that likely impact district costs but are outside of the control of the district.

Determining Needed Student Funding for Districts

As has been mentioned previously, Colorado's current funding formula creates a Total Program Funding amount for each district by considering student count, at-risk students, size, and cost of living. Additional funding is provided for special education, ELL, and gifted and talented through categorical programs. This study examined the resources needed for all of the student needs currently funded either through the formula or categoricals. In order to utilize the figures in this report the student count needs to be determined and applied to each figure.

Student Characteristic Differences

Student Counts

Student Count – Base Cost

Colorado currently uses a single day count held on the first day of October to identify the funded students for each district. The count is then applied in a number of different ways within the funding formula, each of which needs to be considered in the design of a new formula.

Declining Enrollment

Currently districts with shrinking enrollments receive a declining enrollment adjustment. The districts with declining enrollments are funded at a figure that takes into account student counts of past years, averaging student counts to allow for a smoother funding transition. Declining enrollment adjustments work to lessen the impact of student changes since it can be difficult for schools to eliminate costs at the same rate as student decline. This study would encourage continued use of a declining enrollment adjustment in some form.

Online and ASCENT Students

Currently, online and ASCENT students are funded at a fixed per student amount across the state and do not receive the adjusted funding provided for size or cost of living. The figure is higher than the base cost figure but lower than districts adjusted per student amounts. A new formula will need to determine how to fund the online and ASCENT students. This study did not examine these costs specifically.

Kindergarten

Presently, Colorado kindergarten students identified in the October count are considered only .58 FTE. The panelists throughout the adequacy study identified the need for full-day kindergarten and this study would recommend fully funding these students as whole 1.0 FTEs.

Special Needs Adjustments

At-Risk – .35 Adjustment

Currently, Colorado estimates at-risk counts for school districts by the count of students eligible for free-priced lunch and the addition of a limited number of ELL students. The panelists suggested using students eligible for both free- and reduced-price lunch for funding. This would be consistent with many other states and is recommended by this study. With the addition of an ELL weight in the formula, the small number of ELL students in the current count could be excluded from the at-risk funding formula.

The funding for at-risk students is currently set at .12 for most at-risk students, with the weight applied to a district's cost of living and size adjusted per student funding amount. Districts with above average percentages of free-priced lunch students receive additional funding for those students above the statewide average. The weight developed in this study would be applied to a common base cost amount for each district, i.e. each at-risk student would generate the same funding amount. The study does not recommend a concentration adjustment.

Special Education – range of weights by size and service level, see Table 4.10

Special education students are currently funded through categorical funding from the state. This study recommends that funding be included in the funding formula. The weights for funding special education students could be differentiated based on service level. For this study the levels are mild, moderate, and severe. Results from the study also suggest funding may need to be higher for smaller districts,

therefore differentiated weights by district size may be needed. Weights would be applied to the same common base figure.

ELL – .50 or .60 adjustment

ELL students are currently funded through categorical funding from the state. Students are eligible for funding based on identification of need through state tests, though students are limited in the number of years they can receive funding. Panelists identified the need for funding for all special need students served and felt funding should be within the formula at the weights described earlier.

Gifted and Talented – .25 or .30 adjustment

Gifted students are currently funded through categorical funding. This study identified a weight for gifted students that would be included in the formula. Currently, gifted student counts are self-reported by the districts based upon district-administered assessments.

District Characteristic Differences

District Size

Currently Colorado adjusts funding based on the size of a district. The funding adjustments range from slightly more than 1.0 to more than 2.0. District size adjustments are made to take into consideration the economies-of-scale issues smaller districts face in providing the needed educational program to students. Panelists believed that a district size adjustment is still a necessary component of a state funding system and the study recommends keeping such an adjustment.

Cost of Living

Currently, Colorado adjusts cost of living for most districts. The adjustment is designed to take into account the cost differences districts face based on location. Personnel costs are the underlying cost driver of the adjustment and the formula only applies the adjustment to the amount of base funding determined to be associated with personnel for each district. This factor is called the personnel cost factor (PCF). The adjustment is only applied to districts with higher than average cost-of-living factors. It is not applied to lower funding for lower cost districts. Panelists tended to believe that districts did experience cost-of-living differences, but were not sure the current approach was the best measure of these cost differences. This was in part because the current approach did not take into account the difficulty of attracting and retaining personnel to certain communities. Some states with adjustments have begun to consider different factors, such as the relative cost of attracting similar personnel to a location for cost-of-living adjustments. The study recommends keeping a cost-of-living adjustment in some form.

Applying the base and weights to the student counts described above and then adjusting for district characteristic differences provides the targeted funding levels for each district. The next section examines how the state and local share is determined.

Determining State and Local Share

As has been described earlier in the report, Colorado's current funding system was designed in 1994. At the time, the system was designed to split the cost of the funding formula 50/50 between the state and local level. To do this, the formula required each district to levy 40 mills or at least enough mills to cover 90 percent of formula funding. Today, that split is tilted much heavier toward the state and mill rates for the formula range from 1.68 to 27.00. Policy around the proposed state and local share split would impact the tax rate that might be required for local districts to meet the local contribution level.

Wealth Calculation

Tax rates are applied to a wealth base. Currently, Colorado measures wealth purely on the assessed value of districts. Some states have started to move to including income in the calculation of local wealth. The change attempts to recognize that taxes are paid with personal income. The belief is that including some type of income measure helps to better determine the ability of each community to pay.

Equalization

In addition to the mills for total program, Colorado allows local districts to levy additional mill levy overrides to pay for additional operating costs. The current approach provides no state equalization dollars for districts that enact these overrides and limits the additional funds raised to 25 percent of total program for most districts, and 30 percent for the smallest districts. Looking at the variation in wealth across districts, it is clear that without any type of equalization many districts will struggle to pass overrides, and even if they do pass, they will generate very limited funds. Equalization could be included for mill levy overrides. One approach that can be used is power equalization.

Power equalization provides dollars to districts in a manner that guarantees raising dollars at a determined level. For example, if the state sets the power equalization rate at the 70th percentile of wealth and the district at the 70th percentile of wealth can raise $1,000 per student per mill, then any district below the 70th percentile would be guaranteed to raise $1,000 per student per mill if voters approve the mill. A district that can only raise $500 per student per mill would receive $500 per student in state funding in the power equalization system.

Conclusion

The information above provides details on parameters that could be used in developing a new state funding system in Colorado. This study recommends that a new system be student centric, and, as such, suggests that the majority of student funding be distributed within an equalized formula. Additionally, the formula should take into account the ability of each district to pay. The CSFP and APA understand that many more decisions would need to be made in order to develop a full school finance system.

When developing a new formula, a set of principles should be established before any work is done in fully fleshing out the system. This includes identifying the types of differences districts face that they do not control. These differences could include many of the items discussed above, such as student need differences, size, and cost of living. Any new system should keep equity in sight during the development of the system. This includes looking at how well similar students are treated, how well the system

addresses differences in student need, how equally taxpayers are treated, and ensuring that where a student lives does not determine the amount of resources available for their education.

Colorado school districts are diverse in size, setting, student demographics, and wealth. The creation of a new finance system needs to take into account all of the differences and their impact on each child's ability to meet the standards developed by the state.