

MEMORANDUM

DATE: August 31, 2006

TO: Legislative Commission's Committee to Study School Financing Adequacy

FROM: Fiscal Analysis Division

SUBJECT: **Correction to the APA Report "Estimating the Cost of an Adequate Education in Nevada"**

Augenblick, Palaich and Associates, Inc. have indicated that the report printed for the August 31, 2006, meeting includes an error. In the haste to meet the printing deadline between the August 24 and August 31 meetings, the information included in Chapter VIII regarding ways to increase school district revenues to match anticipated costs was not updated with all of the correct information. Specifically, on pages 110 and 113, the references to annual increases of \$438 million are incorrect.

Using the same assumptions that APA used in their report (i.e. estimated annual inflation of 2.3 percent and no changes in enrollment), the Fiscal Analysis Division has estimated that the annual increase amount should be changed to \$222.7 million. The Fiscal Analysis Division will work with APA to finalize the amount, and once that is completed, new reports will be provided to committee members.

Committee members should note that this amount would need to be adjusted for increases in enrollment, funding provided by the 2005 Legislature, and actual inflation for each of the years between 2004 and 2014.



Augenblick, Palaich
and Associates, Inc.

Estimating the Cost of an Adequate Education in Nevada

Prepared By

**John Augenblick
Justin Silverstein
Amanda R. Brown
Douglas Rose
Dale DeCesare
Amy Berk Anderson**

**Augenblick, Palaich and Associates, Inc.
Denver, Colorado**

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EXECUTIVE SUMMARY

In today's world of No Child Left Behind (NCLB), increased accountability for student, school and district performance, and a steady growth in high-stakes testing, there is ever-increasing pressure on education systems to ensure that all students leave school with the tools and skills they need to succeed in life. Such increased pressure can have a positive influence on performance, but only if policymakers and education leaders also have the capacity to answer what might appear to be a simple question: Do schools and districts have the resources they need to meet performance expectations?

Many state education finance systems have not addressed this question of "adequate" education funding. In many states, for instance, policymakers have developed academic standards and timetables to achieve performance expectations. And they have created accountability systems with consequences for schools and districts when expectations are not met. Most often, however, these expectations and consequences are created without understanding what it costs for schools and districts to meet desired outcomes.

This "funding adequacy" report is designed to help address this issue in Nevada and to develop a supportable means for policy makers and other education leaders to estimate what it will cost for each district in the state to achieve the performance that is expected of them. Furthermore, this report is designed to address both what it costs to meet **present-day standards** as well as **future standards**, where 100 percent of students are required to be meeting proficiency by both the federal and state government in 2013-14.

This report – prepared by Augenblick, Palaich and Associates, Inc. (APA), a Denver-based consulting firm that has worked with state policy makers on school funding issues for more than 20 years – focuses on determining two key cost elements:

- 1) A base, per-student cost adjusted by size of district; and
- 2) Additional cost "weights" (which are applied to the base cost) for students with special needs, including: children who are:
 - In special education;
 - At-risk of failing in school (based on the number of students receiving free or reduced-price lunches);
 - English language learners (ELL); and
 - In career and technical education (CTE) programs.

APA's experience conducting funding adequacy studies in other states, however, has revealed the importance of addressing a variety of additional factors. In Nevada's case, APA also examines the cost impacts of career and technical

education (CTE) as well as specific school and district characteristics such as: size, geographic location, and inflation. In conjunction with the base cost and added weights for special need students, these characteristics can be used to more accurately estimate the cost of adequacy.

In conducting its work, APA uses a combination of well established data gathering and analysis techniques: 1) a “successful school” (SS) approach; 2) a “professional judgment” (PJ) approach; 3) evidence-based research findings to strengthen our PJ work; and 4) statistical analysis to understand how inflation, cost of living, and district size impact Nevada education costs.

Under the SS approach a base, per-student cost is determined by examining the spending of schools that successfully meet **current** academic performance standards (118 schools were identified as successful for purposes of this study). The SS approach offers an important view on the present-day spending of successful schools. It does not, however, provide information about the added cost adjustments required for special education, ELL, at-risk, or CTE students.

The PJ approach relies on panels of experienced educators and education service experts – informed by education research – to specify the resources needed for different size schools and districts to educate their students to meet the much higher state and federal performance expectations set in the future. Panelists, for instance, review current state and federal academic standards and requirements and are asked to outline the resources they believe are needed to meet those requirements in large, medium and small K-12 districts. In contrast to the successful school analysis, the professional judgment approach is particularly useful in identifying special need student costs and in examining the **future** costs of districts in meeting state and federal performance standards.

The combination of the SS, PJ, evidence-based, and statistical work produce a powerful set of data that APA can use to develop recommendations for how Nevada might ensure that all schools and districts meet rapidly escalating academic performance expectations.

It is important to note that capital, transportation, food services, adult education, and community services were *excluded* from consideration and therefore not included in cost estimates.

Key Findings

Comparing and integrating the findings from all of APA’s analyses provides a clearer picture of the resources needed for Nevada schools and districts to succeed. Through this work, APA identified **two equally important figures**:

- **A “starting” cost.** Drawn primarily from the SS analysis using 2003-04 data, this cost offers Nevada policymakers a launching point from which to

- begin addressing the needs of districts that currently do not receive adequate funds to meet state and federal performance standards. According to our SS work, 12 Nevada districts need an additional \$79.6 million, or \$231 per student on average, to bring them up to the successful schools adequacy level. In total Nevada would need to spend \$2,295.5 million annually to meet the 2003-04 successful schools adequacy level, plus an additional \$15.3 million in hold harmless money for the 5 districts currently spending over adequacy (if the state decides to continue funding them at previous levels initially).
- This “starting” cost would provide adequate funds to meet **present-day performance standards**. For the purposes for this study, present-day standards the AYP performance targets for 2008-09. In most test subject areas, these targets require **just over half** of all students to be proficient.
 - This figure must also be adjusted for inflation, and APA provides a process within this report to make such an adjustment. Nevada could choose to also adjust this figure to account for regional cost differences between different Nevada districts. To provide this option, APA creates a statistically-based “Location Cost Metric” (LCM) that calculates a regional cost adjustment.
- **A “goal” cost.** This cost is drawn primarily from the professional judgment group analysis, represents the full cost of educating students (including the base cost and added weights for CTE and students with special needs) to reach **future performance standards**. These future standards, as specified by the state and federal government, include the goal of nearly **100 percent student proficiency** in 2013-14. Including the LCM to account for regional cost differences, the PJ-produced end-point would be \$3,551.3 million or \$1,320.8 more than 2003-04 spending (\$3,579 per student), not allowing for hold harmless money.
 - This figure also needs to be adjusted for inflation.
 - The significance of this funding increase is directly related to the significant new resources that research and education experts indicate are needed to reach the much higher 2013-14 goal of nearly 100 percent of students being proficient.
 - The “goal” cost includes several universal recommendations by the PJ panels where are:
 - Small class sizes: through either a lower teacher to pupil ratio, or additional support personnel for larger classes;
 - Full-day kindergarten;
 - Before/after school, summer school, and Saturday school programs to help struggling students;
 - Additional funding for equipment and consumable materials to be used in career and technical education programs;

- Support staff, such as instructional aides, to address the needs of English language learners and at-risk students and supplement their regular classroom education;
- Increased professional development for teachers, this includes five days in addition to those in existing contracts specifically for professional development and \$500 per teacher for other associated costs such as travel, supplies, presentation costs, and conference fees.

One caveat, the purpose of the PJ work is not to specify exactly how funding should be spent, but instead to estimate the level of funding necessary to provide programs and resources such as the ones mentioned above. The intent is that schools and districts would have the power to decide how to use the funds once available.

Given the scope of costs involved, it should not be expected that the state will be able to reach the goal overnight. Instead, the state can and should pursue other alternatives designed to achieve the goal gradually over time. This incremental approach could be accomplished in two ways:

- (1) The increase could be based on the annual percentage change needed to move from the lower costs to the higher costs; or
- (2) The increase could be based on the annual constant amount that would be needed to move from the lower costs to the higher costs.

Regardless of the approach chosen to increase funding to schools and districts, the gaps between current spending and the amount needed to reach the starting point and ultimate funding goal indicate there is significant work to be done. And yet, this work is certainly achievable. The conclusions reached here do not suggest that the overall structure of Nevada's school finance system is flawed. Rather, the knowledge gained through this report could be used to modify the state's existing aid system so that it guarantees every school district has sufficient revenue to successfully meet existing performance expectations.

In closing, it is important to note that APA's analysis focuses on the total amount of funding required to raise school districts in Nevada to an adequate funding level. The report does not discuss where needed revenues might come from, but all funds do not necessarily need to come from state aid. Instead the costs identified here can be paid through a combination of federal, state, and local revenue sources.

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INTRODUCTION

This report was prepared by Augenblick, Palaich and Associates, Inc. (APA), a Denver-based consulting firm that has worked with state policy makers on school funding issues for more than 20 years. Over this time, the firm has evaluated school finance systems in more than 20 states and has helped to create the school finance systems in Colorado, Kansas, Louisiana, Maryland, Mississippi, New Hampshire, Ohio, and South Dakota.

The report was prepared at the request of Nevada's Legislative Committee on School Financing Adequacy (the Committee). In late 2005 the Committee released a request for proposals (RFP) seeking to identify contractors interested in helping Nevada study its school finance system. A competitive bidding process was held in which several firms responded to the state's RFP. In early 2006, APA was selected by the Committee to conduct the work that produces this report. As part of this work, APA met several times with the committee and conducted two outreach meetings (one in Las Vegas and one in Reno) which were open to the public and were designed to receive feedback and to help explain and clarify the process APA would use in developing the current report.

The purpose of this report is to estimate the cost of an "adequate" education in Nevada. As used here, "adequacy" means the cost of meeting state and federal resource requirement and student performance expectations, including those in Nevada's education accountability system and the state's federally-approved plan to comply with the No Child Left Behind Act (NCLB). By defining the cost of adequacy, this report can therefore help school districts, taxpayers, and policy makers understand the revenues schools need to produce the student results that are expected of them. To accomplish this work, APA focuses on two key costs:

- 1) A base cost, per-student (including the cost of plant operation and maintenance, but excluding costs of student transportation, food services, community services, adult education, capital costs, and debt service costs) adjusted for the size of the district; and
- 2) Additional cost "weights" for students with special needs (including at-risk students, special education students, English language learners, and career and technical education).

APA also looked at the cost impacts of the geographic location of districts, and possible inflation adjustments.

As discussed in greater detail in the next chapter, APA combined several approaches to help determine the base cost and additional cost weights for special need students. These included the professional judgment approach, the

successful schools approach, and aspects of the evidence based and statistical approaches.

APA also for the first time created an in-state panel to help us understand Nevada's unique fiscal, policy, and education environment. Working with the Committee, three people were identified who have a great deal of Nevada-specific, school funding knowledge to be on this panel. This team served several roles: (1) as a source of background information; (2) as a statewide panel to review the work of the school-level, district-level, and special needs professional judgment panels (described in Chapter III of this report); and (3) to discuss finance system options. We talked with members of the team on several occasions and met as group in Carson City. The team also helped us to understand the fiscal data collected by the state, develop prices used in costing out the resources identified by the professional judgment panels, and create a school finance model sensitive to the characteristics of the state and its school districts.

The remaining chapters of this report are organized as follows:

- Chapter I offers a discussion on what it means to examine the cost of an “adequate” education. It provides a background on adequacy, outlines the four main approaches used to conduct adequacy studies, and describes the experiences of three states that have used such studies in the past.
- Chapter II describes the successful school approach and the base, per-student cost figures it produced.
- Chapter III describes the professional judgment approach and the results it produced, including base cost figures and added costs for students with special needs.
- Chapter IV describes the statistical analyses APA conducted to create base cost and funding formula adjustment factors. These statistical analyses address the cost impact of three factors: 1) school and district size; 2) regional cost differences; and 3) inflation.
- Chapter V discusses how APA used its analyses to estimate the cost of adequacy for school districts and individual schools with various demographic characteristics.
- Chapter VI compares the cost of adequacy with actual spending in Nevada's school districts.
- Chapter VII provides an overview of Nevada's existing school finance system and compares this system to several other states.

- Chapter VIII discusses how Nevada's school finance system can be designed to deliver both equitable and adequate levels of state aid to all schools and districts.

I. WHAT DOES “ADEQUACY” MEAN?

For purposes of this report “adequate revenues,” or “adequacy,” mean: sufficient funding so that schools and districts have a reasonable chance to meet state and federal student performance expectations. Such performance expectations are reflected in Nevada’s state education accountability system, the state’s federally-approved plan to comply with the No Child Left Behind Act (NCLB), and other requirements.

There are two primary reasons to determine the cost of adequacy:

- (1) To understand the cost implications associated with meeting state and federal requirements/expectations; and
- (2) To estimate needed adjustments to existing state school finance formulas.

With regard to meeting state and federal requirements, the fact is that most states (including Nevada) and the federal government have decided that standards-based reform is the best way to improve the elementary and secondary education system in this country. Under standards-based reform, the role of the state is to: (1) set standards for students, teachers, schools, and/or school districts (in terms of both “inputs”, such as teacher qualifications, course offerings, or service requirements, and “outcomes”, such as attendance and student performance on achievement tests); (2) measure how well students, teachers, schools, and/or school districts are doing (which may mean developing assessment procedures specifically tied to the standards); and (3) hold students, teachers, schools, and/or school districts accountable for their performance (sometimes associated with consequences either for meeting or not meeting standards).

At the outset of the standards-based reform movement, starting with the reform of the Kentucky education system in 1990, most states and the federal government did not attempt to estimate the costs that every school or district would incur in order to meet state/federal performance standards. Determining such costs has therefore become an essential missing piece that state policy makers need in order to understand what resources are required for schools and districts to succeed. Once these costs are determined, state policy makers also need to be able to properly incorporate them into the state’s school finance system.

Nevada, like many states, uses a “foundation-type” formula as the basis for allocating a majority of the state’s aid to school districts. Under a foundation approach, the state typically determines a “target” amount of revenue per student (combining a fixed, base amount – the foundation level – with added amounts for students with special needs). Districts are required to make a state-calculated

amount of local tax effort to help meet the foundation level. In Nevada, that amount is based on property wealth and Local School Support Tax (LSST) revenues. Due to differences in property values and LSST revenues, however, the same local tax effort can raise varying amounts of funds from district to district. To help level the playing field between wealthy and poor districts, the state makes up the difference between the amount of revenue generated by the property taxes and LSST and the amount guaranteed as the foundation target.

In some states the foundation level is calculated based on the amount of revenue needed for a student with no special needs attending school in an average size school district. In other states, student weights are used to help reflect the added cost of serving students with special, high cost needs. Weights can also be used to reflect the added cost of providing services in districts that face uncontrollable cost pressures – often related to a district’s size or regional cost differences. In many states – including Nevada – however, the determination of the foundation level does not take into account the state (and federal) expectations for district and school performance. Such a method for determining the foundation does not reflect the level of resources needed to fully implement standards-based reform.

Approaches to Estimating the Cost of Adequacy

In the past few years, states have begun to develop approaches that can calculate a cost that reflects a particular level of desired student performance. These efforts are designed to create a base cost that has meaning beyond simply reflecting available state revenue. Four approaches have emerged as ways to determine such a base cost:

- (1) The successful school approach;
- (2) The professional judgment approach;
- (3) The evidence-based approach; and
- (4) The statistical approach.

Each of these methodologies has strengths and weaknesses. They differ in their underlying philosophies, the amounts of information they require, the types of information they produce, the number of states in which they have been used, and the magnitude of the parameters that they estimate.

APA has come to believe that the successful school approach provides a reasonable estimate of the base cost in relation to what school districts are accomplishing at present. Under this approach a “base cost” is determined by examining the basic spending of districts that meet current state standards. The base cost applies to students with no special needs attending schools in districts that do not face unusual cost pressures.

We have found that the professional judgment approach provides a reasonable estimate of the base cost for a level of performance expected in the future. It

also provides information about the additional costs of serving students with special needs or of serving students in districts that vary in size. The approach relies on the views of experienced educators and education service providers to specify the resources needed for schools and districts to achieve a set of specified performance objectives. Once the services have been specified (with a focus on numbers of personnel, regular school programs, extended-day and extended-year programs, professional development, and technology), costs are attached and a per pupil cost is determined.

APA has found that the statistical approach – which is based on understanding those factors that statistically explain differences in spending across school districts while controlling for student performance – cannot be used effectively in many states due to a lack of available information. In particular, there is often a lack of needed fiscal data at the school level. We have found the evidence-based approach – which seeks to use information gleaned from research to define the resource needs of a hypothetical school district – to also be limited in its usefulness. This limited usefulness is driven by the limited findings that current education research offers. For instance, existing research speaks only to limited kinds of resources, primarily teachers and some of the staff who support them – and studies even in these areas can offer conflicting or unclear results. In addition, research says nothing about many critical resources that schools utilize such as librarians, counselors, plant operation and maintenance, and school district administration.

Drawing on our experience, APA therefore recommended – and subsequently conducted – an adequacy analysis for Nevada based primarily upon both the successful school and professional judgment approaches. The use of both is advantageous to policy makers because it allows for a more thorough examination that can better account for inherent differences among approaches.

However, APA also integrated aspects of both the statistical and evidence based approaches. The evidence based work was used to guide and strengthen our professional judgment panels. We relied on two national experts to inform these panels of the types of resources which research shows may be needed for improving student performance. With regard to the statistical approach, our work (as described in Chapter IV) was made possible by the availability of school level data in Nevada and helps provide a much more thorough cost picture that takes into account inflation as well as cost differences based on school/district size and location differences. We believe that, by integrating the best aspects of the statistical and evidence based analyses into our professional judgment and successful school work, APA provides the strongest possible set of analyses for Nevada.

How Adequacy Studies Are Used: Case Studies in Three States

This section describes the experience of three states (Kansas, Maryland, and Mississippi) that have conducted studies designed to understand the cost of an adequate education. Each state's unique context and circumstances result in different stories for how the adequacy studies are used and implemented by policymakers.

Kansas

Kansas is an interesting example of the interaction between a state's constitution, its legislature, and its courts in terms of education adequacy. The Kansas constitution (1966) requires that the "legislature shall make suitable provision for finance of the educational interests of the state." In 1994, the Kansas Supreme Court upheld the recently enacted school finance system (the School District Finance and Quality Performance Act). In 2002 APA released its study, which was commissioned by the state Legislature. The study estimated the factors that could be used to estimate the cost of a "suitable" education. APA, however, never used the factors to make a district by district estimate of such costs. Instead, the state, through the state Department of Education, did its own analysis and determining that the cost was \$726 million over the \$1.95 billion that was being spent in school districts at the time.

In 2003, a state district court declared the school finance system to be unconstitutional and gave the legislature until the end of the 2004 session to fund the system at an appropriate level. The legislature did not modify funding that year and in 2005 the Kansas Supreme Court found the school finance system to be in violation of the state constitution cited above.

During the 2005 legislative session, the legislature developed a plan to increase education funding by \$141 million and to do so by phasing-in new funds over time. The Kansas Supreme Court required the legislature to add \$143 million to the \$141 million already provided, and this was accomplished before the 2005-06 school year began. During the 2005 session the legislature also required that the Legislative Division of Post Audit (LDPA) conduct an independent study of the costs of a suitable education. A driving factor behind the legislature's request for the LDPA study was a statement made by the Supreme Court that the only information it had to guide its thinking about cost was the 2002 APA study.

The study by the LDPA was released in 2006 and recommended total spending that was consistent with the state's interpretation of the APA study. In 2006, the legislature added additional funding for education and established a plan to phase in additional funding over the next eight years. The Kansas Supreme Court is reviewing the legislature's work and is expected to issue a ruling soon about whether the school finance system is in compliance with the state constitution.

Maryland

Maryland is an example of a state taking the lead in identifying and providing the adequate cost of education. In 1999, Maryland established the Commission on Education Finance, Equity, and Excellence (Thornton Commission). The Thornton Commission first looked at the overall structure of the state's school finance system and then began to examine the adequacy of the system. One of the big reasons the commission turned to adequacy was Maryland's strong accountability system and the commission's belief that districts needed to be assured of having the resources necessary to meet the standards.

The Thornton Commission relied on APA, then Augenblick & Myers, to conduct both the Successful Schools and Professional Judgment approaches. The approaches created two base costs and a number of adjustments for students with special needs. The Thornton Commission's final report suggested using the Successful Schools base number as a starting point with district's having the ability to get to the Professional Judgment base. The adjustments for students with special needs were also adjusted to be in line with the number of students who would fall into more than one category.

The legislature took the Thornton Commission's recommendations and passed them in legislation in 2002. There was a six year phase in of a \$1.1 billion dollar increase in funding for schools. The phase-in continues today and is nearing full implementation.

Mississippi

Mississippi is an example of a state that has used the successful school (in this case focusing on districts) approach as the basis for developing the base cost figure it uses in its school finance system (the Mississippi Adequate Education Program, or MAEP). MAEP was adopted in 1996, replacing a system that had been based on numbers of personnel and a statewide teacher salary schedule. Both MAEP and its predecessor are foundation-type systems, which require the state to specify the revenue needs of each school district.

At the time MAEP was enacted, the legislature was looking for a way to determine how much school districts needed to spend in order to meet state school district accreditation requirements. The MAEP base, developed by APA, is therefore composed of four accreditation components – instruction, administration, plant operation and maintenance (M&O), and ancillary (primarily student and staff support). APA created a procedure to identify districts that were "successful" in terms of meeting specific criteria associated with each component. First school districts that met the highest level of school district accreditation were selected. Then, within each component, efficiency criteria were specified to identify districts that had personnel ratios that were not too far

from the statewide average. So, for example, with instruction, the per student expenditure figures of districts that both met accreditation standards at the highest level and did not have unusually low student-teacher ratios were used to create a statewide average figure for instruction. Figures for the other components were combined with instruction to create a base cost.

In 2005 APA was asked to help the legislature update the figures in light of student performance information (which had not been available earlier) and new efficiency criteria. The legislature adopted the new procedure in 2006 and student performance criteria now play a central role in the state's accreditation standards. It should be noted that the legislature has not made changes in the ways it provides support for students with special needs, some of which are based on student weights. Additional analysis, using an approach other than the successful school approach would be required to make such adjustments.

II. IMPLEMENTING THE SUCCESSFUL SCHOOLS APPROACH IN NEVADA

The successful schools (SS) approach examines the actual spending of schools or districts that successfully meet state and federal performance expectations. The base spending of identified successful districts or schools is then used to help determine an overall adequate base funding level. The selection of successful schools is impartial and is based solely on whether identified performance criteria are met. At the same time, it is not correct to label those districts or schools that do not meet the criteria as “unsuccessful.” Such schools may, in fact, be doing very well with their students, they simply do not meet the specific criteria established by the SS approach.

Using the Successful Schools Approach in Nevada

As mentioned above, the SS approach looks at the performance of either high-performing districts or high-performing schools to calculate a base cost figure. The approach does not generally look at both districts and schools but focuses instead on one or the other. In the case of Nevada, it was readily apparent that the level of analysis should be the school level. This was largely because Nevada has such a small number of school districts (17). Such a small number of districts does not lend itself well to conducting the SS approach at the district level. APA therefore decided to focus on the school level.

In order to undertake the SS approach APA requires spending data for each school in the state. The spending data must be organized in such a manner that APA can isolate the base spending (spending for students without special needs) for each school. In many states, such school level data is simply unavailable. In Nevada, however, the state pays for the collection of In\$ite® data, which offers school level information. In\$ite® is a registered trademark of EdMin.Com (referred to hereinafter as In\$ite). This In\$ite data provided APA with all the spending data needed to undertake the SS approach at the school level.

With this school level data in hand APA identified the process described in the following sections for running an SS analysis in Nevada. This process includes:

- 1) Selecting successful schools using two primary criteria.
- 2) Identifying the base spending for the successful schools.
- 3) Using the base spending data to apply efficiency screens that exclude schools that are inefficient in their spending.
- 4) Identifying an overall base cost.

Selecting Successful Schools

When selecting schools for the SS approach, APA picked criteria that would identify Nevada schools which are on their way to meeting future state and federal student performance standards. In other words, the criteria were not

designed simply to identify those schools doing better on today’s tests. Instead, we sought to identify those showing rates of performance improvement needed to meet the escalating future standards.

The strength of this approach is that it does not simply identify schools that are doing well today and who may enroll students who are already likely to meet performance expectations. Instead, the approach identifies schools that either consistently attained performance levels called for in the future, or show an improvement in performance that trended toward meeting those future goals. APA also wanted the criteria to measure success with a broad range of students, not just success with the average student. The testing systems allow this by breaking out performance results for different types of students. To be selected as a successful school, APA therefore examined two criteria:

1. 2008-09 English and math general student population performance objectives; and
2. 2004-05 English and math test scores for students with special needs.

The first criteria focused on Nevada’s No Child Left Behind (NCLB) Annual Yearly Progress standards for the 2008-09 school year. The standard differed by grade level as seen in the following table. APA used performance data for each school from the 2002-03, 2003-04 and 2004-05 school years to see if the school was on target to meet the 2008-09 objectives. We did this by regressing the proportion of students making adequate yearly progress against time for each school and using the resulting formula to predict the school’s 2008-09 performance. If the school was on target to meet the 2008-09 objectives they were deemed successful.

Nevada	Elementary		Middle School		High School	
AYP Objectives,	<i>ELA</i>	<i>Math</i>	<i>ELA</i>	<i>Math</i>	<i>ELA</i>	<i>Math</i>
2008-2009	52%	56%	58%	55%	82%	62%

The second criteria focused on how well schools were doing with their special student populations. The populations APA looked at were special education, at-risk pupils, and English language learners. We then looked at reading and math tests for each of those three populations. This gave us six tests to examine for each school. APA looked at the performance on the 2004-05 tests and set the standard as the 2004-05 objectives, which are shown in the following table.

Nevada	Elementary		Middle School		High School	
AYP Objectives,	<i>ELA</i>	<i>Math</i>	<i>ELA</i>	<i>Math</i>	<i>ELA</i>	<i>Math</i>
2004-2005	40%	45%	48%	43%	78%	52%

To be considered “successful” for our purposes, a school who met the first criteria (based on the 2008-09 AYP targets) also had to meet the 2004-05 objective for two of the six special population tests. By using this combination of

criteria, 118 schools were identified as successful. The list of successful schools is shown in Table II-1.

Identifying Base Spending for Successful Schools

Once successful schools were identified, the next step was to identify the base spending amount for each successful school. As mentioned earlier in the section, Nevada uses the In\$ite data collection system. This provides data for every school in the state and breaks down such data by different types of spending. For the SS approach, we needed to identify the base spending for every school. This spending excludes spending for at-risk students, special education students, ELL students, transportation, food service and capital. To get this base spending data APA worked with the contractor for Nevada’s In\$ite data.

APA was provided with In\$ite data that included general education spending for three different areas: 1) Instruction; 2) Administration; and 3) Building Operations and Maintenance. The table below shows the categories of spending within each of these three areas.

Instruction	
	Instructional Teachers
	Substitutes
	Instructional Paraprofessionals
	Pupil-Use Technology & Software
	Instructional Materials, Trips & Supplies
	Guidance & Counseling
	Library & Media
	Extracurricular
	Student Health & Services
	Curriculum Development
	In-Service, Staff Development & Support
	Sabbaticals
	Program Development
	Therapists, Psych, Eval, Pers Att. & Soc Workers
	Safety
Administration	
	Business Operations
	Principals & Assistant Principals
	School Office
Building Operations and Maintenance	
	Building Upkeep, Utilities & Maintenance

Applying Efficiency Screens

Once APA identified the base spending for each successful school, we then looked to apply efficiency screens in each of the three spending areas (instruction, administration, and operations and maintenance). The screens are designed to exclude schools whose spending in any one of the areas is out of line with the other schools. The screens measure efficiency in two ways: 1) For instruction and administration APA looked at the number of personnel per 1,000 students; 2) For buildings operations and maintenance, personnel data was not available, so spending per pupil was used for the efficiency screen.

The personnel data for instruction and administration was collected from the state. For instruction, APA looked at the number of teachers per 1,000 pupils in each school. We then excluded any school that had a teacher-per-1,000 pupil figure one standard deviation above the mean or higher. The administration efficiency screen relied on the number of administrators per 1,000 pupils and again excluded those schools with a figure higher than one standard deviation above the mean. Finally for building maintenance and operations, APA excluded any school whose spending per pupil in the category was one standard deviation above the mean or higher. In each of the three categories some data was missing for a few schools and these schools were excluded from the calculation of base spending in that area. The list of schools used for each spending area can be seen in Tables II-2A through II-2C listed at the end of this chapter.

Identifying the Overall Base Cost

Once the efficiency screens were applied, APA was left with 101 schools for instruction, 93 schools for administration and 98 schools for building maintenance and operations. We examined per pupil spending for each of these sets of schools in the three different categories and came up with the following base costs for each area:

- 1) Instruction weighted average base cost is \$3,277;
- 2) Administration weighted average base cost is \$429; and
- 3) Building maintenance and operations weighted average base cost is \$556.

APA next needed to add in district costs to the school level base spending. We again used In\$ite data for this information. Through the work done for the statistical approach we were able to identify the district level costs associated with the base cost figures described above. The district costs were \$398. This creates an SS base cost of \$4,660. This figure will be comparable to the large district figure developed in the PJ work. The size adjustment developed using the PJ approach will also need to be applied to the SS base to create an SS base cost for every district.

TABLE II - 1
SCHOOLS MEETING THE SUCCESSFUL SCHOOLS APPROACH CRITERIA

01-202	Northside Elementary School	03-209	Pinon Hills Elementary School
01-204	West End Elementary School	03-301	Carson Valley Middle School
01-301	Churchill County Junior High School	03-302	Pau Wa Lu Middle School
02-103	Lundy Elementary School	03-501	Douglas High School
02-126	David Cox Elementary School	03-502	Whittell High School
02-136	King Martha Elementary School	04-209	Mountain View Elementary School
02-137	Bartlett Elementary School	04-210	Spring Creek Elementary School
02-138	Bendorf Elementary School	04-211	Sage Elementary School
02-141	Lummis Elementary School	04-503	Elko Junior High School
02-148	Richard Bryan Elementary School	04-504	Spring Creek Middle School
02-154	Vanderburg Elementary School	04-505	Jackpot Junior High School
02-156	Bryan Roger Elementary School	04-606	Spring Creek High School
02-162	Morrow Elementary School	08-301	Battle Mountain Junior High School
02-174	Rogers Elementary School	08-601	Battle Mountain High School
02-176	Twitchell Elementary School	09-202	Panaca Elementary School
02-178	Alamo Elementary School	09-203	Pioche Elementary School
02-202	Hoggard Elementary School	09-302	Pahrnagat Valley Middle School
02-225	Cahlan Elementary School	09-601	Pahrnagat Valley High School
02-230	Taylor Glen Elementary School	10-208	Dayton Intermediate
02-235	Red Rock Elementary School	10-302	Yerington Intermediate
02-246	Bracken Elementary School	10-303	Fernley Intermediate
02-271	Bilbray Elementary School	10-602	Smith Valley High School
02-272	Frias Elementary School	12-108	Johnson Elementary School
02-280	Bass Elementary School	12-206	Mt Charleston Elementary School
02-283	Ober Elementary School	12-313	Round Mountain Middle School
02-286	Staton Elementary School	12-315	Gabbs Middle School
02-296	Marion Earl Elementary School	12-316	Amargosa Valley Middle School
02-298	McDoniel Elementary School	13-302	Eagle Valley Middle School
02-303	Hyde Park Middle School	14-301	Pershing Middle School
02-309	Knudson Middle School	05-301	Virginia City Middle School
02-318	Garrett Middle School	16-207	Beck Elementary School
02-320	Sandy Valley Middle School	16-210	Melton Elementary School
02-321	Laughlin High School	16-212	Double Diamond Elementary School
02-323	Johnson Middle School	16-215	Corbett Elementary School
02-324	Greenspun Middle School	16-216	Gomm Elementary School
02-326	White Middle School	16-222	Maxwell Elementary School
02-327	Becker Middle School	16-223	Drake Elementary School
02-328	Sawyer Middle School	16-227	Lincoln Park Elementary School
02-329	Lyon Middle School	16-229	Brown Elementary School
02-334	Silvestri Middle School	16-235	Verdi Elementary School
02-337	Lawrence Middle School	16-257	Lenz Elementary School
02-338	Bob Miller Middle School	16-261	Caughlin Ranch Elementary School
02-339	Rogich Middle School	16-262	Hidden Valley Elementary School
02-347	Fertitta Middle School	16-267	Moss Elementary School
02-349	Canarelli Middle School	16-268	Desert Heights Elementary School
02-412	SNVTC	16-274	Hunsberger Elementary School
02-418	Las Vegas Academy	16-301	Clayton Middle School
02-420	Advanced Technologies Academy	16-306	Dilworth Middle School
02-421	Silverado High School	16-309	Incline Middle School
02-422	Community College East	16-310	Billinghurst Middle School
02-423	Community College West	16-311	Mendive Middle School
02-601	Boulder City High School	16-313	Gerlach Middle School
02-607	Centennial High School	16-315	Damonte Ranch Middle School
02-608	Foothill High School	16-503	Sparks High School
02-611	Sierra Vista High School	17-101	Lund Elementary School
02-612	Coronado High School	17-601	Lund High School
03-205	Meneley Elementary School		Dyer Elementary School
03-207	Scarselli Elementary School		Silver Peak Elementary School
03-208	Kingsbury Middle School		Eureka High School

TABLE II - 2A
SCHOOLS USED TO CALCULATE THE SUCCESSFUL SCHOOL
INSTRUCTION AMOUNT PER PUPIL

01-202	Northside Elementary School	02-608	Foothill High School
01-204	West End Elementary School	02-611	Sierra Vista High School
01-301	Churchill County Junior High School	02-612	Coronado High School
02-103	Lundy Elementary School	03-205	Meneley Elementary School
02-126	David Cox Elementary School	03-207	Scarselli Elementary School
02-136	King Martha Elementary School	03-208	Kingsbury Middle School
02-137	Bartlett Elementary School	03-209	Pinon Hills Elementary School
02-138	Bendorf Elementary School	03-301	Carson Valley Middle School
02-141	Lummis Elementary School	03-302	Pau Wa Lu Middle School
02-148	Richard Bryan Elementary School	03-501	Douglas High School
02-154	Vanderburg Elementary School	03-502	Whittell High School
02-156	Bryan Roger Elementary School	04-209	Mountain View Elementary School
02-162	Morrow Elementary School	04-210	Spring Creek Elementary School
02-174	Rogers Elementary School	04-211	Sage Elementary School
02-176	Twitchell Elementary School	04-503	Elko Junior High School
02-202	Hoggard Elementary School	04-504	Spring Creek Middle School
02-225	Cahlan Elementary School	04-606	Spring Creek High School
02-230	Taylor Glen Elementary School	08-301	Battle Mountain Junior High School
02-235	Red Rock Elementary School	08-601	Battle Mountain High School
02-271	Bilbray Elementary School	10-208	Dayton Intermediate
02-272	Frias Elementary School	10-302	Yerington Intermediate
02-280	Bass Elementary School	10-303	Fernley Intermediate
02-283	Ober Elementary School	10-602	Smith Valley High School
02-286	Staton Elementary School	12-108	Johnson Elementary School
02-296	Marion Earl Elementary School	12-206	Mt Charleston Elementary School
02-298	McDoniel Elementary School	13-302	Eagle Valley Middle School
02-303	Hyde Park Middle School	14-301	Pershing Middle School
02-309	Knudson Middle School	16-207	Beck Elementary School
02-318	Garrett Middle School	16-210	Melton Elementary School
02-320	Sandy Valley Middle School	16-212	Double Diamond Elementary School
02-321	Laughlin High School	16-215	Corbett Elementary School
02-323	Johnson Middle School	16-216	Gomm Elementary School
02-324	Greenspun Middle School	16-222	Maxwell Elementary School
02-326	White Middle School	16-223	Drake Elementary School
02-327	Becker Middle School	16-227	Lincoln Park Elementary School
02-328	Sawyer Middle School	16-229	Brown Elementary School
02-329	Lyon Middle School	16-235	Verdi Elementary School
02-334	Silvestri Middle School	16-257	Lenz Elementary School
02-337	Lawrence Middle School	16-261	Caughlin Ranch Elementary School
02-338	Bob Miller Middle School	16-262	Hidden Valley Elementary School
02-339	Rogich Middle School	16-267	Moss Elementary School
02-347	Fertitta Middle School	16-268	Desert Heights Elementary School
02-349	Canarelli Middle School	16-274	Hunsberger Elementary School
02-412	SNVTC	16-301	Clayton Middle School
02-418	Las Vegas Academy	16-306	Dilworth Middle School
02-420	Advanced Technologies Academy	16-310	Billinghurst Middle School
02-421	Silverado High School	16-311	Mendive Middle School
02-422	Community College East	16-503	Sparks High School
02-423	Community College West	17-601	Lund High School
02-601	Boulder City High School		Dyer Elementary School
02-607	Centennial High School		

TABLE II - 2B

**SCHOOLS USED TO CALCULATE THE SUCCESSFUL SCHOOL
ADMINISTRATION AMOUNT PER PUPIL**

01-202	Northside Elementary School	02-611	Sierra Vista High School
01-204	West End Elementary School	02-612	Coronado High School
01-301	Churchill County Junior High School	03-205	Meneley Elementary School
02-126	David Cox Elementary School	03-207	Scarselli Elementary School
02-136	King Martha Elementary School	03-209	Pinon Hills Elementary School
02-137	Bartlett Elementary School	03-301	Carson Valley Middle School
02-138	Bendorf Elementary School	03-302	Pau Wa Lu Middle School
02-141	Lummis Elementary School	03-501	Douglas High School
02-148	Richard Bryan Elementary School	04-209	Mountain View Elementary School
02-154	Vanderburg Elementary School	04-210	Spring Creek Elementary School
02-156	Bryan Roger Elementary School	04-211	Sage Elementary School
02-162	Morrow Elementary School	04-503	Elko Junior High School
02-174	Rogers Elementary School	04-504	Spring Creek Middle School
02-176	Twitchell Elementary School	04-606	Spring Creek High School
02-178	Alamo Elementary School	08-301	Battle Mountain Junior High School
02-202	Hoggard Elementary School	08-601	Battle Mountain High School
02-230	Taylor Glen Elementary School	09-202	Panaca Elementary School
02-235	Red Rock Elementary School	09-601	Pahranagat Valley High School
02-271	Bilbray Elementary School	10-208	Dayton Intermediate
02-272	Frias Elementary School	10-302	Yerington Intermediate
02-280	Bass Elementary School	10-303	Fernley Intermediate
02-283	Ober Elementary School	12-108	Johnson Elementary School
02-286	Staton Elementary School	12-206	Mt Charleston Elementary School
02-296	Marion Earl Elementary School	13-302	Eagle Valley Middle School
02-298	McDoniel Elementary School	14-301	Pershing Middle School
02-303	Hyde Park Middle School	16-207	Beck Elementary School
02-309	Knudson Middle School	16-210	Melton Elementary School
02-318	Garrett Middle School	16-212	Double Diamond Elementary School
02-323	Johnson Middle School	16-215	Corbett Elementary School
02-324	Greenspun Middle School	16-216	Gomm Elementary School
02-326	White Middle School	16-222	Maxwell Elementary School
02-327	Becker Middle School	16-223	Drake Elementary School
02-328	Sawyer Middle School	16-227	Lincoln Park Elementary School
02-334	Silvestri Middle School	16-229	Brown Elementary School
02-337	Lawrence Middle School	16-235	Verdi Elementary School
02-338	Bob Miller Middle School	16-257	Lenz Elementary School
02-339	Rogich Middle School	16-261	Caughlin Ranch Elementary School
02-347	Fertitta Middle School	16-262	Hidden Valley Elementary School
02-412	SNVTC	16-267	Moss Elementary School
02-418	Las Vegas Academy	16-268	Desert Heights Elementary School
02-420	Advanced Technologies Academy	16-274	Hunsberger Elementary School
02-421	Silverado High School	16-301	Clayton Middle School
02-422	Community College East	16-306	Dilworth Middle School
02-423	Community College West	16-310	Billinghurst Middle School
02-601	Boulder City High School	16-311	Mendive Middle School
02-607	Centennial High School	16-503	Sparks High School
02-608	Foothill High School		

TABLE II - 2C

**SCHOOLS USED TO CALCULATE THE SUCCESSFUL SCHOOL
MAINTENANCE AND OPERATIONS AMOUNT PER PUPIL**

01-202	Northside Elementary School	02-612	Coronado High School
01-204	West End Elementary School	03-205	Meneley Elementary School
01-301	Churchill County Junior High School	03-207	Scarselli Elementary School
02-126	David Cox Elementary School	03-209	Pinon Hills Elementary School
02-136	King Martha Elementary School	03-301	Carson Valley Middle School
02-137	Bartlett Elementary School	03-302	Pau Wa Lu Middle School
02-138	Bendorf Elementary School	03-501	Douglas High School
02-141	Lummis Elementary School	04-209	Mountain View Elementary School
02-148	Richard Bryan Elementary School	04-210	Spring Creek Elementary School
02-154	Vanderburg Elementary School	04-211	Sage Elementary School
02-156	Bryan Roger Elementary School	04-503	Elko Junior High School
02-162	Morrow Elementary School	04-504	Spring Creek Middle School
02-174	Rogers Elementary School	04-606	Spring Creek High School
02-176	Twitchell Elementary School	08-301	Battle Mountain Junior High School
02-178	Alamo Elementary School	08-601	Battle Mountain High School
02-202	Hoggard Elementary School	09-202	Panaca Elementary School
02-225	Cahlan Elementary School	09-203	Pioche Elementary School
02-230	Taylor Glen Elementary School	09-302	Pahranagat Valley Middle School
02-235	Red Rock Elementary School	10-208	Dayton Intermediate
02-246	Bracken Elementary School	10-302	Yerington Intermediate
02-271	Bilbray Elementary School	10-303	Fernley Intermediate
02-272	Frias Elementary School	12-108	Johnson Elementary School
02-280	Bass Elementary School	12-206	Mt Charleston Elementary School
02-283	Ober Elementary School	12-316	Amargosa Valley Middle School
02-286	Staton Elementary School	13-302	Eagle Valley Middle School
02-296	Marion Earl Elementary School	14-301	Pershing Middle School
02-298	McDoniel Elementary School	16-207	Beck Elementary School
02-303	Hyde Park Middle School	16-210	Melton Elementary School
02-309	Knudson Middle School	16-212	Double Diamond Elementary School
02-318	Garrett Middle School	16-215	Corbett Elementary School
02-323	Johnson Middle School	16-216	Gomm Elementary School
02-324	Greenspun Middle School	16-222	Maxwell Elementary School
02-326	White Middle School	16-223	Drake Elementary School
02-327	Becker Middle School	16-227	Lincoln Park Elementary School
02-328	Sawyer Middle School	16-229	Brown Elementary School
02-334	Silvestri Middle School	16-235	Verdi Elementary School
02-337	Lawrence Middle School	16-257	Lenz Elementary School
02-338	Bob Miller Middle School	16-261	Caughlin Ranch Elementary School
02-339	Rogich Middle School	16-262	Hidden Valley Elementary School
02-347	Fertitta Middle School	16-267	Moss Elementary School
02-349	Canarelli Middle School	16-268	Desert Heights Elementary School
02-412	SNVTC	16-274	Hunsberger Elementary School
02-418	Las Vegas Academy	16-301	Clayton Middle School
02-420	Advanced Technologies Academy	16-306	Dilworth Middle School
02-421	Silverado High School	16-309	Incline Middle School
02-601	Boulder City High School	16-310	Billinghurst Middle School
02-607	Centennial High School	16-311	Mendive Middle School
02-608	Foothill High School	16-315	Damonte Ranch Middle School
02-611	Sierra Vista High School	16-503	Sparks High School

III. IMPLEMENTING THE PROFESSIONAL JUDGMENT APPROACH IN NEVADA

The professional judgment (PJ) approach relies on the assumption that experienced educators can specify the resources hypothetical schools need in order to meet state standards, and that the costs of such resources can be determined based on a set of prices specific to those resources. Identified resources are typically divided into two groups:

- (1) Those associated with a “base cost” that applies to all students; and
- (2) Those associated with students who have special needs.

For example, thinking about the base cost, a PJ panel of experienced educators might find that, for a hypothetical school with 200 students, ten teachers would be needed so that students can meet state academic standards. If the statewide average salary and benefits of a teacher were \$40,000, then the cost per student based on the professional judgment panel’s input would be \$2,000 (10 teachers times \$40,000/teacher divided by 200 students). Based on the panel’s judgments, other costs might also need to be incurred such as those associated with teacher aides, school principals, supplies and materials, and so on. Together, these costs could be added to determine the total “base” cost of providing an adequate education.

In the case of this study, APA also examined whether base costs should vary by such factors as school district size. Professional judgment panels were also asked to separately estimate the resources needed to serve students with special needs. Students with special needs include:

- Those in special education programs (for which students require individual education plans [IEPs]);
- Those with language difficulties (who we refer to as English language learners [ELL students]);
- Those who are at risk of failing in school (the count for which we estimate based on a generally accepted proxy measure – which is eligibility for free or reduced-price lunch – rather than on a direct measure of student performance)
- Students in career and technical education (CTE) programs.

Using the PJ approach, the additional cost of serving students with such special needs can be expressed through student “weights” relative to the base cost.¹

¹ Pupil weights are factors used to express the added cost of serving students with special needs. Every student, regardless of special needs, is counted as 1.00 student. In order to determine the base cost of a district, the number of students enrolled in the district is multiplied by 1.00 and that product is then multiplied by the base cost figure. If the *added* cost of serving a student with a special need were determined to be 60 percent of the base cost, then the weight applied to such a student would be .60 (for a total weight of 1.60). Additional weighting might be applied to all students in a district to account for certain district characteristics (such as size) that can impact per student costs.

The ability to identify resources for such special needs students distinguishes the professional judgment approach from the successful school approach discussed in Chapter II of this report. This is because the successful school approach only allows for an examination of base, per-student costs.

Creating Hypothetical Schools

Hypothetical schools are ones designed to act as a proxy to reflect statewide average characteristics of school districts. To the extent that all of the schools within a state would be reasonably well represented by a single set of hypothetical schools, a single PJ panel would be sufficient to estimate funding adequacy. Due to the existing variations among Nevada school districts, however, APA needed to use multiple PJ panels, each focused on hypothetical schools and/or districts of different configuration and size.

As shown in Table III-1, some 369,023 students attended public, non-charter schools in Nevada in 2003-04. Those students attended schools in 17 districts. Among these 17 districts, 8 school districts have fewer than 1,500 students, 7 districts have between 1,501 and 49,999 students, and 2 districts have over 50,000 students. The 8 districts with fewer than 1,500 students enroll less than 1 percent of all students. The 2 largest districts (with more than 50,000 students) enroll 86 percent of all students.

Based on these variations, we divided Nevada's school districts into three groups based on size: 1) "small"; 2) "moderate"; and 3) "large". APA then determined the average characteristics of each group and developed a set of hypothetical schools and districts based on these averages. The characteristics of the hypothetical groups are shown in Table III-2. For example, the small K-12 hypothetical district had 780 students who attended one small elementary school with 70 students, two large elementary schools with 175 students each, one middle school with 120 students, and one high school with 240 students.

To address the added cost of students with special needs in hypothetical schools APA similarly looked at the average characteristics in existing schools in Nevada and developed enrollment levels for each of the three hypothetical district sizes (shown in Table III-2). Special education percentages were kept constant across the three district groups; 9.5 percent are mild special education students, 3.5 percent are moderate, and 1 percent are severe². At-risk and English language learner (ELL) percentages differed to mirror the populations found in existing school districts. For instance, in the hypothetical small size district, 48 percent of students are identified as at-risk, which is higher than the 29 percent seen in moderate and large districts. This is not unusual as small, rural districts often

² Mild Special Education includes Learning Disabilities and Speech; Moderate includes Mentally, Aurally, Visually, Emotionally, and Orthopedically Handicapped/Impaired, Other Health Impairments, and Developmentally Delayed; Severe includes Deaf/Blind, Autistic, Multiple Disabilities, and Traumatic Brain Injury.

have higher concentrations of at-risk students than their larger counterparts. ELL percentages vary conversely with district size; 4 percent of students in small districts are ELL, while 9 percent are ELL in the hypothetical moderate and large districts.

By approaching cost evaluation for special needs students in this way, APA's analysis gains several advantages. First, the numbers more closely resemble those found in actual schools across Nevada. Second, the use of more realistic numbers means that the PJ panelists were better able to relate to the hypothetical schools and districts that they were attempting to create.

Professional Judgment Panel Design

Based on APA's previous experience using the PJ approach in other states, we felt that it was best to continue using multiple levels of professional judgment panels as we have done before. There are several reasons to use multiple panels: (1) it allows for the separation of school-level resources (which include such things as teachers, supplies, materials, and professional development) from district-level resources (which include such things as facility maintenance and operation, insurance, and school board activities); (2) multiple panels can study schools and districts of varying sizes so that APA can determine whether size has an impact on cost; and (3) APA believes strongly in the importance of having each panel's work reviewed by another panel.

Building on the multiple panel format APA took a unique approach in Nevada and added two additional student population-specific panels. These two panels focused on special needs populations and Career and Technical Education (CTE). By convening these two additional panels, APA believes the needs of these specific sub-groups were more accurately identified and addressed than in any previous work.

Overall, the PJ panel structure in Nevada was designed as follows:

- (1) First round panels. Two panels were convened to address school-level needs in three hypothetical K-12 school districts (small, moderate, and large). Schools in moderate and large districts were addressed in a single moderate/large panel. Both the small panel, and the moderate/large panel "built" hypothetical elementary, middle, and high schools designed to accomplish a specific set of performance objectives and standards (which are described later in this chapter in the section on "Professional Judgment Panel Procedures").
 - The moderate/large panel created several different sized schools of various grade configurations. The resulting input was then later used to build two separate districts. The moderate/large panel also looked at school-level resources needed for "regular" education

students, at-risk and ELL students, but not special education students (these were addressed in the second round panels).

- The small panel looked at school-level resources for “regular” education students and all special needs student populations, including special education, as well as district-level resources for all students.

(2) Second round panels. Three panels were held at this stage: one district-level panel, a panel for special needs populations, and a panel for CTE.

- Moderate and large districts were handled by the district-level panel which reviewed the work of the first round, school-level panel, then looked at additional district-level resources necessary.
- The special needs panel reviewed the resources identified by the first round small district panel. The special needs panel then added in resources needed for special needs students in moderate and large districts.
- The CTE panel examined additional resources needed in all districts to run such a program.

(3) Final in-state panel. This panel reviewed previous panel work, discussed resource prices, examined preliminary cost figures and attempted to resolve some of the inconsistencies that arose across panels.

First and second round panels each had 6-8 participants, including a combination of classroom teachers, principals, personnel who provide services to students with special needs, superintendents, and school business officials. The in-state panel had three members. A total of 39 panelists participated in the three rounds of panels. A list of panel members is provided in Appendix A to this report.

APA did not select the panel members, they were selected through a nomination process that included the:

- School superintendents
- Superintendent of public instruction
- Nevada Manufacturers Association
- Nevada State Education Association
- Nevada Association of School Boards
- Nevada Association of School Administrators
- Commission on Educational Excellence

In order to set the panels, APA did however provide a list of the job titles we were looking for, as well as some suggestions for selection criteria such as: (1) participants should be from districts that fit within the size range of the panels they would be serving on, i.e. for the small district panel participants were asked to be from districts of less than 1,500 students, (2) participants should be experienced and, if possible had received recognition for excellence, and (3) school-level personnel should be from schools identified as successful (based on

our use of the successful school approach as discussed in Chapter II) to the extent that it is possible. This request was made to help assure that panelists based their recommendations on experiences in school districts that are already performing comparatively well.

Nominated panelists were then contacted by APA with panel details. Observers were invited to watch panel discussions. One individual chose to attend the first day of panel discussion during the second round of panels. This observer did not participate in any discussions, but was able to freely move from room to room and to watch and listen to all discussions.

The first round of panels met for two days in Las Vegas in late March 2006; the second round met for two days in Carson City at the end of April; and the overview panel met in Carson City for a day in mid-May, 2006.

Identifying the “Standard”: State and Federal Accountability Requirements in Nevada

Prior to the commencement of any PJ panel discussions, all panelists first met jointly with APA staff to review a specific set of background materials and instructions. These background materials were prepared by APA. In particular, panelists were instructed that their task was to identify what constitutes an “adequate” level of resources for hypothetical schools and districts. To accomplish this task, it was therefore necessary for panelists to understand the state’s academic performance standards as described in this chapter. Panelists were instructed to focus on this standard in order to appropriately estimate the resources that schools and districts need to be successful.

To identify the appropriate standard, APA collected information about accountability requirements that school districts in Nevada must adhere to according to state and federal law. This information was used to guide the discussion and allocation of resources in the professional judgment panels. From the Nevada Department of Education’s website, APA accessed information about Nevada’s statewide assessments, content standards and performance criteria, graduation requirements, high school completion indicators, NCLB targets, recent results on the statewide assessments, high school completion rates, and the state’s progress towards meeting adequate yearly progress. In addition to the website, APA accessed the Nevada legislature’s homepage to find information about state statutes that mandate the use of resources in particular ways (e.g., minimum number of days of instruction per year, student/teacher ratios).

Following the collection of all of these data, APA synthesized the information and summarized it in a draft form. The draft was distributed to the committee overseeing the study. The committee then shared it with others, including the Nevada Department of Education. Comments APA received back from the

reviewers were incorporated into the final version of the standard that was used in the professional judgment panels.

APA reviewed the standard with the professional judgment panelists and said that the information contained within the standard was a summary of key accountability requirements within Nevada and federal law. Panelists were instructed to use the standard, as well as their knowledge of other critical education policies and practices in Nevada, to guide the allocation of resources needed in order to increase the number of students meeting or exceeding the standards. A copy of the standard used in the professional judgment panels is shown in Appendix B.

Using the Evidence-Based Approach to Strengthen PJ Work

In a number of states, the evidence-based approach to adequacy has been used to fully cost out an adequate education. APA feel's that this work treats a state exactly like any other state creating generic, one-sized fits all recommendations. To avoid this, but to still incorporate research evidence, APA convened two national researchers (a third dropped out at the last minute)³ to identify the resources needed to meet Nevada's specific goals for its children. This panel was familiar with current research – and could apply their knowledge of the research to Nevada's specific demographic characteristics and performance expectations.

The national expert group's job was to set the initial “research-based” resource levels for consideration by the Nevada professional judgment panelists. The national expert group was given both the Nevada standard and hypothetical school characteristics to estimate initial resource needs.

The actual instructions for the expert group were written as follows:

- Please review the description of the attached Nevada standards that has been provided. The resources you identify should all be associated with meeting this standard.
- The following assumptions should be made while completing this exercise.
 - It is assumed that you can attract and retain highly qualified personnel for any position you need.
 - It is assumed that your facilities can handle any programming you create.
 - For the purpose of this exercise, the source of the money to pay for the needed resources does not matter.

³ The two national experts were Dr. C. Kent McGuire, Dean of the School of Education at Temple University and Dr. David Conley, Professor of Education at the University of Oregon.

- Please use the accompanying template to record the resources you think each school (elementary, middle and high school) needs to help their students reach the above standards. For each school there are three separate columns that need to be filled in.
 - The first is the “Regular” education column. Assume that the schools total student population has no identifiable special needs (at-risk, limited English proficient or special education) and identify the resources the school needs to help these students meet the above standards.
 - Second is the At-Risk column. This second column assumes that the school has the same total population, but a specified number of students are identified as being at-risk. The task is to specify what additional resources would be needed to help these students to meet the standard.
 - Finally, the last column is focused on the resources for the LEP students. This third column assumes that the school has the same total population, but a specified number of students are identified as being limited English proficient. The task is to specify what additional resources would be needed to help these students to meet the standard.

The following tables summarize the initial personnel resources identified by the national expert group. The estimates were made based on Nevada standards and school characteristics, expert experiences, and the selected references listed in Appendix C. As shown in the following tables, the “instructional facilitator” position provides mentoring and professional development for teachers. A teacher tutor works directly with students to provide one on one tutoring.

ELEMENTARY SCHOOL RESOURCE MODEL			
600 TOTAL PUPILS, 100 PER GRADE, 200 AT-RISK, 54 ESL			
Personnel	K-5	At Risk	ESL
	Regular Ed		
Classroom Teachers	27.8	5.0	2.8
Other Teachers	7.8		
Librarians/Media Specialists	2.0		
Technology Specialist	0.3		
Pupil Support Staff	5.8	5.0	
Counselors	2.4		
Nurses	0.0		
Psychologists	0.8		
Instructional Aides	6.8		
Clerical/Data Entry	1.1		
Principal	1.0		
Assistant Principal	0.7		
Instructional Facilitators	0.7		
Teacher Tutor	5.1		
Substitutes	1.3		

MIDDLE SCHOOL RESOURCE MODEL			
750 TOTAL PUPILS, 250 PER GRADE, 250 AT-RISK, 135 ESL			
Personnel	6-8	At Risk	ESL
	Regular Ed		
Classroom Teachers	32.6	2.8	2.9
Other Teachers	8.2		
Librarians/Media Specialists	2.0		
Technology Specialist	0.5		
Pupil Support Staff	7.9	4.4	
Counselors	3.0		
Nurses	0.5		
Psychologists	1.0		
Instructional Aides	14.9		
Clerical/Data Entry	4.3		
Principal	1.0		
Assistant Principal	1.0		
Instructional Facilitators	1.2		
Teacher Tutor	0.7		
Substitutes	1.8		

HIGH SCHOOL RESOURCE MODEL			
1,250 TOTAL PUPILS, 312 PER GRADE, 412 AT-RISK, 225 ESL			
Personnel	9-12	At Risk	ESL
	Regular Ed		
Classroom Teachers	62.0	10.0	5.0
Other Teachers		5.0	1.0
Librarians/Media Specialists	2.0		
Technology Specialist	4.0		
Pupil Support Staff			
Counselors	7.0		
Nurses	1.0		
Psychologists	1.0		
Instructional Aides		5.0	
Clerical/Data Entry	10.0		
Principal	1.0		
Assistant Principal	1.0	1.0	
Instructional Facilitators	4.0		1.0
Teacher Tutor			
Substitutes	3.0	2.0	

It is important to note that the expert group did not specify resources needed for every size of school. The expert group also did not look at school-level personnel categories beyond the list above (such as custodians), district-level personnel, or other non-personnel costs (supplies and materials, technology, etc). As such, the work of the expert panel cannot be used as is to cost out the needs of a school district. Instead, APA used the expert panel's work as a starting point to stimulate discussion within the professional judgment panels.

Professional Judgment Panel Procedures

Once panelists were provided with a performance standard to guide their efforts (as described previously) the PJ panels were convened. All panels followed a specific procedure in doing their work.

Individual panels examined the following types of resources:

- 1) Personnel, including classroom teachers, other teachers, psychologists, counselors, librarians, teacher aides, administrators, nurses, etc.
- 2) Supplies and materials, including textbooks and consumables.
- 3) Non-traditional programs and services, including before-school, after-school, pre-school, full day kindergarten, and summer-school programs.
- 4) Technology, including hardware, software, and licensing fees.
- 5) Other personnel costs, including the use of substitute teachers and time for professional development.

- 6) Other costs, including security, extra-curricular programs, insurance, facilities operation and maintenance, etc.

As described in the previous section, APA provided panelists with research-based figures, based on the work of the expert group, to use as a starting point in their discussion. Since the expert group did not specify what resources would be needed for every size of school, the figures provided to the panel were increased or decreased in relation to the size of the hypothetical school the individual panel was building. For example, the elementary resource list from the expert group shows 27.8 teachers needed for a school of 600. If the panel is instead being asked to look at an elementary school of 400, the research-based starting figure would be 18.5 teachers. Similarly, if the panel was working with an elementary school of 800 the research-based starting figure would be increased to 37.1 teachers.

Thus, in the categories of personnel (teachers, principals, instructional aides, teacher tutors) where research-based figures were given panelists reviewed and adjusted these figures to better fit the hypothetical school they were looking at. Panelists then added additional personnel in the categories without research-based figures (like custodians, clinical aides, superintendents, or directors) as needed to meet standards.

It is important to note that capital, transportation, food services, adult education, and community services were *excluded* from consideration. For a variety of reasons, these elements pose data gathering difficulties and are generally too cost-specific to the characteristics of an individual district to be usefully included in a PJ adequacy analysis.

For each panel, the figures recorded by APA represented a consensus agreement among members. At the time of the meetings, no participant (either panel members or APA staff) had a precise idea of the costs of the resources that were being identified. Instead, the costing of resources by APA took place 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. But 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 have led to a specific base cost figure or weight, much less a cost that was relatively higher or lower than another.

Once the panels completed their work, APA gathered salary data to cost out the personnel component of resources. To calculate these costs, we used statewide average salaries provided by the state, which were also reviewed by the final in-state panel.

Professional Judgment Results

This section reviews the results produced by the professional judgment groups in Nevada including some of the “raw” resources they identified, the prices that were attached to those resources, and the costs that were produced by combining resource quantities and resource prices. Specifically the section:

1. Discusses the resource needs identified by the professional judgment groups for hypothetical schools and districts to meet academic standards.
2. Identifies associated prices for the resources.
3. Applies the prices to the identified resources to generate a series of school-level, district-level, and total base costs and added costs for students with special needs.

It should be noted that the resources identified by the PJ panels here are examples of how funds might be used to organize programs and services in hypothetical situations. APA cannot emphasize strongly enough that the resources identified are not the only way to organize programs and services to meet state standards.

In fact, there is no one best way to provide services and no member of our panels would suggest that resources be deployed precisely in the way the panels did for the purpose of estimating cost in each individual school district.

Instead, the purpose of the exercise is to estimate the overall cost of adequacy – not to determine the best way to organize schools and districts. This is particularly true when the circumstances in an actual district differ from those associated with the hypothetical ones. With this in mind, the box offers a series of caveats for the reader to consider when reviewing this chapter.

Caveats to the Professional Judgment Approach in Nevada

1. The purpose of the exercise is to estimate the cost of adequacy, not to determine the best way to organize schools and school districts.
2. Figures are in full-time equivalent personnel terms and assume that schools can employ people on a part-time basis.
3. APA asked a specific special needs panel to distinguish the extra resources that students with special needs require.
4. APA also asked another specific panel to look at the extra resources needed for CTE students.
5. We asked panels to be as precise as they could, but panel members sometimes found it difficult to precisely link resources to performance expectations.
6. APA treated each group of students with special needs as if they were independent while, in reality, there may be cross-over among groups that leads to some double counting of resources (for example, some ESL students might also be eligible for free/reduced-price lunch).
7. Some resources, such as custodians, do not appear at the school level because they are accounted for at the district level.
8. The cost estimates do not include transportation, food services, adult education or capital outlay and debt service related to facilities. **Some panelists noted that existing facilities might not be able to accommodate the programs they designed** for hypothetical schools.

Resource Needs Identified by the Professional Judgment Panels

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

- Small class sizes: through either a lower teacher to pupil ratio, or additional support personnel for larger classes;
- Full-day kindergarten;
- Before/after school, summer school, and Saturday school programs to help struggling students;
- Additional funding for equipment and consumable materials to be used in career and technical education programs;
- Support staff, such as instructional aides, to address the needs of English language learners and at-risk students and supplement their regular classroom education;
- Increased professional development for teachers, this includes five days in addition to those in existing contracts specifically for professional development and \$500 per teacher for other associated costs such as travel, supplies, presentation costs, and conference fees.

It is important to note that the purpose of the PJ work is not to specify exactly how funding should be spent, but instead to estimate the level of funding necessary to provide programs and resources such as the ones mentioned above. The intent is that schools and districts would have the power to decide how to use the funds once available.

The panels addressed additional resources in areas such as Personnel, Supplies/Materials, Student Programs, and Teacher Services which may be different or needed on higher level than currently seen in Nevada school districts. For example in the area of Personnel, panelists may have suggested additional teachers to create smaller class sizes, or added pupil support staff positions that may not currently be present in Nevada schools, such as reading specialists or teacher tutors. The following table lists these areas and possible resources discussed by the PJ panels, including the recommendations listed above.

**RESOURCES SUGGESTED BY THE PROFESSIONAL
JUDGMENT APPROACH THAT MAY BE HIGHER THAN
THOSE USED BY SUCCESSFUL SCHOOLS OR BY SCHOOL
DISTRICTS ON AVERAGE**

Personnel

- Regular classroom teachers
- Other teachers, including Reading and Math specialists
- Counselors
- Librarians
- Technology specialists
- Teacher tutors
- Social workers
- School-parent liaisons
- Clerical Staff

Supplies/Materials

- Computer hardware and software (instructional, data analysis, or other)
- Materials for students with special needs
- Equipment and materials for CTE programs
- Assessment materials

Student Programs

- Pre-school
- Full-day kindergarten
- Before/after school programs
- Summer school programs

Teacher Services

- Professional development

Moving on to the work of specific PJ panels, the figures shown in Tables III-3A, 3B, and 3C indicate in detail the personnel needs of hypothetical elementary, middle, and high schools in different size school districts.

For example, looking at Table III-3B (the moderate size K-12 district), the panel identified the need for 35 classroom teachers and 3 instructional aides for 600 elementary students (a pupil teacher ratio of 15:1 for K-3, and 25:1 for 4-5) and that 5 other teachers were also needed (to cover topics such as art, music, or language while providing classroom teachers with planning time). In addition, other personnel were needed to serve students with special needs (for example, two teachers and two instructional aides to serve 21 students with moderate special education needs and three teachers to provide assistance to the 174 at-risk students).

As discussed previously, the research-based figures created by the expert group were used as a starting point by the PJ panels. Panelists could then decide to modify those figures as they saw fit. The following tables show how the research-based figures were modified by PJ panelists participating in the Moderate panel:

Elementary School Resources, Research-based Starting Figures vs. PJ Panel End Figures for Regular Education (All Students) 600 Total Pupils, 100 per grade		
Personnel	K-5 Regular Ed	
	Research-based	PJ
Classroom Teachers	27.8	35.0
Other Teachers	7.8	5.0
Librarians/Media Specialists	2.0	1.0
Technology Specialist	0.3	1.0
Pupil Support Staff	5.8	
Counselors	2.4	1.0
Nurses	0.0	1.0
Psychologists	0.8	0.4
Instructional Aides	6.8	6.0
Clerical/Data Entry	1.1	3.0
Principal	1.0	1.0
Assistant Principal	0.7	1.0
Instructional Facilitators	0.7	3.0
Teacher Tutor	5.1	1.0
Substitutes	1.3	7 sub days/tch.

Middle School Resources, Research-based Starting Figures vs. PJ Panel End Figures for Regular Education (All Students) 750 Total Pupils, 250 per grade		
Personnel	6-8 Regular Ed	
	Research-based	PJ
Classroom Teachers	32.6	30.0
Other Teachers	8.2	6.0
Librarians/Media Specialists	2.0	1.0
Technology Specialist	0.5	1.0
Pupil Support Staff	7.9	
Counselors	3.0	2.0
Nurses	0.5	1.0
Psychologists	1.0	0.4
Instructional Aides	14.9	4.0
Clerical/Data Entry	4.3	4.0
Principal	1.0	1.0
Assistant Principal	1.0	1.0
Instructional Facilitators	1.2	3.0
Teacher Tutor	0.7	3.0
Substitutes	1.8	7 sub days/tch.

High School Resources, Research-based Starting Figures vs. PJ Panel End Figures for Regular Education (All Students) 1,250 Total Pupils, 312 per grade		
Personnel	9-12 Regular Ed	
	Research-based	PJ
Classroom Teachers	62.0	65.0
Other Teachers		
Librarians/Media Specialists	2.0	1.0
Technology Specialist	4.0	3.0
Pupil Support Staff		
Counselors	7.0	4.0
Nurses	1.0	1.0
Psychologists	1.0	0.5
Instructional Aides		4.0
Clerical/Data Entry	10.0	10.0
Principal	1.0	1.0
Assistant Principal	1.0	3.0
Instructional Facilitators	4.0	4.0
Teacher Tutor		2.0
Substitutes	3.0	7 sub days/tch.

In order to make it easier to compare the resource needs of different size schools/districts, we took some of the information shown in the Table III-3 series of tables and “normed” them so that figures could be shown in terms of “personnel per 1,000 students.” For example, in Tables III-4A, 4B, and 4C the number of teachers, counselors, librarians, and principals (among others) are shown in such terms. Standardizing the personnel data in this way facilitates a better understanding of the relationship between personnel needs and district/school size.

Aside from personnel needs, the figures in Tables III-5A, 5B, and 5C show other resources needed in schools, including those associated with instructional supplies and materials, equipment, assessment, student activities (sports, extracurricular activities, field trips, etc.) professional development, and curriculum adoption. Many of these costs were standardized by the final in-state overview panel after reviewing the various approaches different panels took to develop their estimates.

One item which is shown separately is professional development. The attention to this particular cost area reflects the strong opinion of most panels that one of the most important contributors to the future success of schools is the assurance that teachers have time to: become familiar with their students, form strong working relationships with their colleagues, participate in enrichment programs,

visit other schools, take part in training sessions, and improve their knowledge of curriculum, technology, and research.

APA's experience is that, as standards-based reform has become the approach most states have embraced to improve schools, educators and policy makers have concluded that teachers and other school personnel need many more opportunities, and much more time, to engage in serious professional development. Such development is needed in education perhaps even more than other professions and opportunities need to go well beyond what is traditionally provided. In the case of Nevada, panelists found it was necessary to add five additional days for professional development in addition to any days already stipulated in existing teacher contracts, plus \$500 per teacher for other associated costs such as travel, supplies, presentation costs, and conference fees. This was true across small, moderate, and large districts.

Tables III-6A, 6B, and 6C indicate other kinds of services – such as a preschool program for at-risk students – the panels felt were needed to assure schools could meet state and federal performance expectations. Many of these programs are designed with the belief that investments made early, even before kindergarten, would alleviate the need for some services later on. Other programs are designed to supplement services in higher grades, particularly for at-risk students, or to comply with service requirements for special education students.

The technology needs of elementary, middle, and high schools are shown in Tables III-7A, 7B, and 7C. In order to develop the technology needs, panels were given a standard list of equipment, based on recommendations of the Education Commission of the States (an interstate policy consortium of states to which Nevada belongs). The panels modified this list as necessary. In most cases, panelists called for an array of technology available in classrooms, computer labs, media centers, and for teachers and administrative staff.

Resource Prices

The primary prices needed to cost out the resources specified above are the *salaries and benefits of personnel* and the prices assigned to different kinds of *technology equipment* (see Table III-8). For personnel salaries, we used statewide average salaries for different personnel categories. These salaries were then reviewed by the in-state overview panel. A benefit rate of 33 percent was applied to all salaries to account for the costs associated with contributions to retirement programs and health care programs. In determining technology costs, we assumed equipment would be replaced every four years.

School and District-Level Costs

School Level Costs

Tables III-9A, 9B, and 9C show the school-level costs that result from applying the prices discussed above to the resources specified by the PJ panels. Per student figures were calculated for regular students and for students with special needs by multiplying numbers of resources (such as personnel or technology equipment) by prices and dividing either by the number of students in each hypothetical school or by the number of students with a particular special need.

In looking at the tables, we have divided the information into two categories: (1) figures related to base, per-student spending; and (2) figures related to spending for students with special needs. Within the first category, we divided figures for regular programs (services available to all students, the costs of which include personnel, annually consumed supplies and materials, and ancillary school-based costs such as professional development), technology, and other programs.

For all figures we show school-level costs and then combine costs across levels to calculate a district-wide figure based on an assumed distribution of students. In small districts where there were two different sized elementary schools, the distribution was assumed to be 9.0% in the small elementary school, 45.0% in the large elementary schools, 15.0% in middle school, and 31.0% in high school. In the moderate and large districts the distribution was 46.1% in elementary schools, 23.1% in middle schools, and 30.8% percent in high schools.

For example, looking at moderate size schools in K-12 districts (Table III-9B), we found that the total base cost per student would include: (1) \$5,823 for basic instruction, support, and administration; and (2) \$176 for technology. Other programs for students with no special needs, like summer school, added \$243 per student. These elements produce a total of \$6,242 at the school level for every student. In addition, the added costs per student for students with particular special needs would be: (1) \$4,425 for students with mild special education needs; (2) \$7,557 for students with moderate special education needs; (3) \$17,320 for students with severe special education needs; (4) \$1,726 per at-risk student; (7) \$3,854 for ELL students; and (8) \$444 for CTE students.

One should be careful in drawing conclusions based on school level costs since such costs exclude district level costs and different panels included different costs at the school and district levels. It is really the combination of school and district costs that reflect the true, total cost of providing services and that permit the most appropriate comparison across school districts of different size.

District Level Costs

Complete cost figures for school districts of different size are shown in Table III-10. District costs are for central services, some of which affect all students – such as administration and facilities maintenance and operation (M&O). Other costs affect only students with special needs. The figures in Table III-10 indicate that district-level administration costs are between about \$719 and \$1,431 per student. Plant maintenance and operation costs range between \$431 and \$641. Other costs (\$254 to \$625 per student) include such items as insurance, legal expenditures, textbooks purchased centrally, and so on. In the end, district-level costs are between 19-24% of total base costs (excluding added costs for special need students).

There are some district costs associated with students with special needs, that may reflect a specialized facility, such as an alternative school in moderate and large districts (which would be attributable to the costs for at-risk students), central services for special education (including diagnostic services or services that are shared across schools), and the cost of language interpreters (attributable to the cost of ELL students). In the case of special education, it was impossible to distinguish which district-level costs were associated with mild, moderate, or severe levels of special education.

Table III-10 also shows total spending after combining school and district spending. For example, in moderate size K-12 districts, combined school-level and district-level base costs are \$7,868 per student. In addition, students with mild special education needs add \$6,918, students with moderate special education needs add \$10,050, and students with severe special education needs add \$19,813. At-risk students add \$2,256, ELL students add \$4,426 per student, and CTE students require an additional \$568.

While this is the basic information produced by the PJ analysis, *it is impossible to use this information in the form in which it has been presented to estimate the cost of an adequate education in districts that have different characteristics from the hypothetical districts shown in this chapter.* The purpose of Chapter V is to explain how the information gained from both the professional judgment and successful school approaches can be used to estimate costs in Nevada school districts of any size and with any proportion of special education students, at-risk students, and ELL students.

TABLE III-1

**NUMBER AND SIZE DISTRIBUTION OF DISTRICTS THAT PROVIDE
ELEMENTARY AND SECONDARY EDUCATION SERVICES IN NEVADA**

WITHOUT CHARTERS

	Small < 1,500	Moderate 1,500 - 49,999	Large > 50,000	Total
# of Districts	8	7	2	17
# of Students	5,789	45,260	317,974	369,023

TABLE III-2

**CHARACTERISTICS OF HYPOTHETICAL DISTRICTS
AND SCHOOLS USED IN THE PROFESSIONAL
JUDGMENT ANALYSIS IN NEVADA**

	Small	Moderate	Large
Total Enrollment	780	6,500	50,000
Number of Schools			
Elementary	3	5	25
Middle	1	2	8
High	1	2	6
Size of School			
Elementary (K-5)	-	600	900
Elementary (K-6)	70 or 175	-	-
Middle (6-8)	-	750	1,500
Middle (7-8)	120	-	-
High (9-12)	240	1,250	2,500
Proportion of Special Needs Students			
<i>Special Education</i>			
Mild	9.5%	9.5%	9.5%
Moderate	3.5%	3.5%	3.5%
Severe	1.0%	1.0%	1.0%
<i>At-Risk</i>	48.0%	29.0%	29.0%
<i>English Language Learners</i>	4.0%	9.0%	9.0%

TABLE III-3A

PERSONNEL NEEDED BY ELEMENTARY, MIDDLE AND HIGH SCHOOLS IN SMALL K-12 DISTRICTS TO MEET ACCOUNTABILITY STANDARDS IN NEVADA

Small Elementary	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	70	7	3	1	3	34
<u>Personnel</u>						
Classroom Teachers	7.0	0.5	0.5	0.5		
Other Teachers	0.5				0.2	1
Librarians/Media Specialists	0.3					
Technology Specialists	0.2					
Pupil Support Staff						
- Counselors	0.5					
- Nurses	0.2					
- Psychologists	0.1					
Instructional Aides	1.5	0.2	0.4	0.6	1	0.5
Clerical/Data Entry	1.0					
Principal	1.0					
Assistant Principal						
Instructional Facilitator	0.1					
Teacher Tutor						
Clinical Aide	1.0					
Large Elementary	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	175	17	6	2	7	84
<u>Personnel</u>						
Classroom Teachers	11.0	1	1	0.6	0.6	3
Other Teachers	1.5					
Librarians/Media Specialists	1.0					
Technology Specialists	0.5					
Pupil Support Staff						
- Counselors	0.5					
- Nurses	0.5					
- Psychologists	0.2					
Instructional Aides	3.5	0.5	1	0.5	1	1
Clerical/Data Entry	1.5					
Principal	1.0					
Assistant Principal						
Instructional Facilitator	0.2					
Teacher Tutor						
Clinical Aide	1.0					0.5

TABLE III-3A Continued

Middle School	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	120	11	4	1	5	58
<u>Personnel</u>						
Classroom Teachers	6.0	1	0.5	0.5		
Other Teachers	2.0				1	3
Librarians/Media Specialists	1.0					
Technology Specialists	0.5					
Pupil Support Staff						
- Counselors	0.5					
- Nurses	0.2					
- Psychologists	0.1					
Instructional Aides	2.0	0.5	0.5	0.5		
Clerical/Data Entry	1.0					
Principal	1.0					
Assistant Principal						
Instructional Facilitator	0.2					
Teacher Tutor						
Clinical Aide	1.0					
High School	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	240	23	8	2	10	115
<u>Personnel</u>						
Classroom Teachers	13.0	2.0	1.0	0.5		
Other Teachers	4.0				1.0	5.0
Librarians/Media Specialists	1.0					
Technology Specialists	1.0					
Pupil Support Staff						
- Counselors	1.5					0.5
- Nurses	0.1				0.1	0.1
- Psychologists	0.1	0.1				
Instructional Aides	1.0	1.0	0.5	1.5	2.0	
Clerical/Data Entry	2.0					
Principal	1.0					
Assistant Principal	0.5		0.2			0.3
Instructional Facilitator	0.4					0.2
Teacher Tutor						
Clinical Aide	1.0					1.0
SRO	0.5					

Note: Panel also recommended 7 Substitute days per teacher

TABLE III-3B

**PERSONNEL NEEDED BY ELEMENTARY, MIDDLE AND HIGH
SCHOOLS IN MODERATE K-12 DISTRICTS TO MEET
ACCOUNTABILITY STANDARDS IN NEVADA**

Elementary	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	600	57	21	6	54	174
<u>Personnel</u>						
Classroom Teachers	35.0	3.0	2.0	1.0		
Other Teachers	5.0				2.0	3.0
Librarians/Media Specialists	1.0					
Technology Specialists	1.0	0.1				
Pupil Support Staff						
- Counselors	1.0					1.0
- Nurses	1.0					
- Psychologists	0.4					
Instructional Aides	6.0	1.0	2.0	1.0	1.0	
Clerical/Data Entry	3.0					
Principal	1.0					
Assistant Principal	1.0					
Instructional Facilitator	3.0				0.3	0.8
Teacher Tutor	1.0	0.2				0.2
Parent Liason					0.5	0.5
Clinical Aide	1.0		0.4	0.3		0.3

Middle School	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	750	71	26	8	68	218
<u>Personnel</u>						
Classroom Teachers	30.0	3.5	2.0	1.5		
Other Teachers	6.0				2.0	2.0
Librarians/Media Specialists	1.0					
Technology Specialists	1.0	0.5				
Pupil Support Staff						
- Counselors	2.0					1.0
- Nurses	1.0					
- Psychologists	0.4	0.2	0.1	0.1		
Instructional Aides	4.0	1.0	1.0	1.0	3.0	
Clerical/Data Entry	4.0					
Principal	1.0					
Assistant Principal	1.0					
Dean	1.0					
Instructional Facilitator	3.0				0.3	0.8
Teacher Tutor	3.0	0.5				
Parent Liason					0.5	1.0
Librarian Aide	1.0					
Clinical Aide	1.0		0.4	0.3		0.3

TABLE III-3B Continued

High School	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	1250	119	44	12	113	363
<u>Personnel</u>						
Classroom Teachers	65.0	5.5	3.0	2.0	4.0	
Other Teachers						
Librarians/Media Specialists	1.0					
Technology Specialists	3.0	0.5				
Pupil Support Staff						
- Counselors	4.0					
- Nurses	1.0					
- Psychologists	0.5	0.3	0.1	0.1		
Instructional Aides	4.0	1.0	1.0	2.0	3.0	1.0
Clerical/Data Entry	10.0	0.5	0.3	0.2		
Principal	1.0					
Assistant Principal	3.0					
Deans	3.0					
Instructional Facilitator	4.0				0.3	0.8
Teacher Tutor	2.0	1.0				2.0
Parent Liaison					0.5	1.0
Library Aides	2.0					
Clinical Aide	1.0		0.4	0.3		0.3
Truancy Officer	0.5					0.5

Note: Panel also recommended 7 Substitute days per teacher

TABLE III-3C

**PERSONNEL NEEDED BY ELEMENTARY, MIDDLE AND HIGH
SCHOOLS IN LARGE K-12 DISTRICTS TO MEET
ACCOUNTABILITY STANDARDS IN NEVADA**

Elementary	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	900	86	32	9	81	261
<u>Personnel</u>						
Classroom Teachers	52.0	5.0	3.0	1.0		
Other Teachers	7.5				3.0	6.0
Librarians/Media Specialists	1.0					
Technology Specialists	1.0	0.1				
Pupil Support Staff						
- Counselors	1.5					1.5
- Nurses	1.0					
- Psychologists	0.0					
Instructional Aides	9.0	2.0	3.0	2.0	2.0	
Clerical/Data Entry	5.0	0.2	0.1	0.1		
Principal	1.0					
Assistant Principal	1.0					1.0
Dean	1.0				0.3	0.8
Instructional Facilitator	3.0					0.4
Teacher Tutor	2.0	0.4				
Parent Liason						1.0
Librarian Aide	1.0					
Clinical Aide			0.4	0.3		0.3

Middle School	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	1500	143	53	15	135	435
<u>Personnel</u>						
Classroom Teachers	60.0	8.0	4.0	2.0		
Other Teachers	12.0	0.5			4.0	6.0
Librarians/Media Specialists	1.0					
Technology Specialists	2.0	0.3	0.1	0.1		
Pupil Support Staff						
- Counselors	4.0					1.0
- Nurses	1.0					
- Psychologists		0.2	0.2	0.1		
Instructional Aides	8.0	2.0	2.0	2.0	4.0	
Clerical/Data Entry	8.0					
Principal	1.0					
Assistant Principal	2.0	0.3	0.1	0.1		
Dean	2.0	0.3	0.1	0.1		0.5
Instructional Facilitator	4.0				0.5	1.5
Teacher Tutor	6.0					
Parent Liason						1.0
Librarian Aide	2.0					
Clinical Aide	1.0		0.4	0.3	0.3	

TABLE III-3C Continued

High School	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	2500	238	88	25	225	725
<u>Personnel</u>						
Classroom Teachers	130.0	13.0	6.0	4.0		
Other Teachers					6.0	7.0
Librarians/Media Specialists	1.0					
Technology Specialists	3.0	0.3	0.1	0.1		
Pupil Support Staff						
- Counselors	8.0					
- Nurses	2.0					
- Psychologists	1.0	0.6	0.2	0.2		
Instructional Aides	8.0	2.0	2.0	4.0	4.0	3.0
Clerical/Data Entry	12.0					
Principal	1.0					
Assistant Principal	4.0	0.6	0.2	0.2		
Deans	4.0					1.0
Instructional Facilitator	6.0				0.3	0.8
Teacher Tutor	4.0					4.0
Parent Liaison					1.0	2.0
Library Aides	3.0					
Clinical Aide	1.0		0.4	0.3		0.3
Truancy Officer	1.0					1.0

Note: Panel also recommended 7 Substitute days per teacher

TABLE III-4A

**ELEMENTARY SCHOOL PERSONNEL PER 1,000 STUDENTS FOR
SMALL, MODERATE AND LARGE SIZE K-12 DISTRICTS**

		<u>Size of School District</u>			
		<u>Small</u>		<u>Mod.</u>	<u>Large</u>
		Small Elem.	Large Elem.		
(1)	<u>Teaching Staff</u>				
	Classroom Teacher	100.0	62.8	58.3	57.7
	Other Teacher	7.1	8.6	8.3	8.3
	Instructional Facilitator	1.4	1.1	5.0	3.3
	Instructional Aide	21.4	20.0	10.0	10.0
(2)	<u>Pupil Support Staff</u>				
	Guidance Counselor	7.1	2.9	1.7	1.7
	Nurse	2.9	2.9	1.7	1.1
	Psychologist	1.4	1.1	0.7	0.0
(3)	<u>Other Staff</u>				
	Librarian/Media Spec.	4.3	5.7	1.7	1.1
	Technology Spec.	2.9	2.9	1.7	1.1
(4)	<u>Administration</u>				
	Principal	14.3	5.7	1.7	1.1
	Asst. Principal	0.0	0.0	1.7	1.1
	Clerical	14.3	8.6	5.0	5.6

TABLE III-4B

**MIDDLE SCHOOL PERSONNEL PER 1,000 STUDENTS FOR
SMALL, MODERATE AND LARGE SIZE K-12 DISTRICTS**

		<u>Size of School District</u>		
		<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1)	<u>Teaching Staff</u>			
	Classroom Teacher	50.0	40.0	40.0
	Other Teacher	16.7	8.0	8.0
	Instructional Facilitator	1.7	4.0	2.7
	Instructional Aide	16.7	5.3	5.3
(2)	<u>Pupil Support Staff</u>			
	Guidance Counselor	4.2	2.7	2.7
	Nurse	1.7	1.3	0.7
	Psychologist	0.8	0.5	0.0
(3)	<u>Other Staff</u>			
	Librarian/Media Spec.	8.3	1.3	0.7
	Technology Spec.	4.2	1.3	1.3
(4)	<u>Administration</u>			
	Principal	8.3	1.3	0.7
	Asst. Principal	0.0	1.3	1.3
	Clerical	8.3	5.3	5.3

TABLE III-4C

**HIGH SCHOOL PERSONNEL PER 1,000 STUDENTS FOR
SMALL, MODERATE AND LARGE SIZE K-12 DISTRICTS**

		<u>Size of School District</u>		
		<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1)	<u>Teaching Staff</u>			
	Classroom Teacher	54.2	52.0	52.0
	Other Teacher	16.7	0.0	0.0
	Instructional Facilitator	1.7	3.2	2.4
	Instructional Aide	4.2	3.2	3.2
(2)	<u>Pupil Support Staff</u>			
	Guidance Counselor	6.3	3.2	3.2
	Nurse	0.4	0.8	0.8
	Psychologist	0.4	0.4	0.4
(3)	<u>Other Staff</u>			
	Librarian/Media Spec.	4.2	0.8	0.4
	Technology Spec.	4.2	1.6	0.8
(4)	<u>Administration</u>			
	Principal	4.2	0.8	0.4
	Asst. Principal	2.1	2.4	1.6
	Clerical	8.4	8.0	4.8

TABLE III-5A

**NON-PERSONNEL COSTS NEEDED FOR A
HYPOTHETICAL ELEMENTARY SCHOOL IN SMALL,
MODERATE AND LARGE K-12 DISTRICTS**

		Size of School District			
		<u>Small</u>		<u>Mod.</u>	<u>Large</u>
		Small Elem.	Large Elem.		
(1)	Instructional Supplies/Materials/ Equipment	\$375/stu.	\$375/stu.	\$250/stu.	\$250/stu.
(2)	Student Activities	\$20/stu.	\$20/stu.	\$20/stu.	\$20/stu.
(3)	Professional Development	\$500/tch.+ 5 extra days	\$500/tch.+ 5 extra days	\$500/tch.+ 5 extra days	\$500/tch.+ 5 extra days

TABLE III-5B

**NON-PERSONNEL COSTS NEEDED FOR A
HYPOTHETICAL MIDDLE SCHOOL IN SMALL,
MODERATE AND LARGE K-12 DISTRICTS**

		<u>Size of School District</u>		
		<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1)	Instructional Supplies/Materials/ Equipment	\$450/stu.	\$300/stu.	\$300/stu.
(2)	Student Activities	\$40/stu.	\$60/stu.	\$60/stu.
(3)	Professional Development	\$500/tch.+ 5 extra days	\$500/tch.+ 5 extra days	\$500/tch.+ 5 extra days

TABLE III-5C

**NON-PERSONNEL COSTS NEEDED FOR A
HYPOTHETICAL HIGH SCHOOL IN SMALL,
MODERATE AND LARGE K-12 DISTRICTS**

		<u>Size of School District</u>		
		<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1)	Instructional Supplies/Materials/ Equipment	\$675/stu.	\$450/stu.	\$450/stu.
(2)	Student Activities	\$560/stu.	\$300/stu.	\$250/stu.
(3)	Professional Development	\$500/tch.+ 5 extra days	\$500/tch.+ 5 extra days	\$500/tch.+ 5 extra days

TABLE III-6A

**PERCENT OF STUDENTS PARTICIPATING IN OTHER PROGRAMS
NEEDED AT HYPOTHETICAL ELEMENTARY SCHOOLS IN SMALL,
MODERATE, AND LARGE K-12 DISTRICTS**

		Size of School District			
		<u>Small</u>		<u>Mod.</u>	<u>Large</u>
		Small Elem.	Large Elem.		
(1)	<i>Pre-School*</i>				
	All Students				
	At-Risk Students	100%	100%	100%	100%
	Special Education	100%	100%	58%	52%
(2)	<i>After School</i>				
	All Students	25%	25%	25%	25%
	At-Risk Students				
	Special Education				
(3)	<i>Summer School</i>				
	All Students	20%	20%	20%	20%
	At-Risk Students				
	Special Education				
(4)	<i>Extended School Year</i>				
	All Students				
	At-Risk Students				
	Special Education	50%	48%	36%	36%

Note: Regular Pre-School costs are not included in school or district level cost totals, but Special Ed Pre-School costs are included

TABLE III-6B

**PERCENT OF STUDENTS PARTICIPATING IN OTHER PROGRAMS
NEEDED AT HYPOTHETICAL MIDDLE SCHOOLS
IN SMALL, MODERATE, AND LARGE K-12 DISTRICTS**

		<u>Size of School District</u>		
		<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1)	<i>After School</i>			
	All Students	10%	20%	20%
	At-Risk Students			
	Special Education			
(2)	<i>Saturday School</i>			
	All Students	10%	3%	3%
	At-Risk Students			
	Special Education			
(3)	<i>Summer School</i>			
	All Students	20%	20%	20%
	At-Risk Students			
	Special Education			
(4)	<i>Extended School Year</i>			
	All Students			
	At-Risk Students			
	Special Education	48%	14%	17%

TABLE III-6C

**PERCENT OF STUDENTS PARTICIPATING IN OTHER PROGRAMS
NEEDED AT HYPOTHETICAL *HIGH* SCHOOLS IN
SMALL, MODERATE, AND LARGE K-12 DISTRICTS**

		<u>Size of School District</u>		
		<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1)	<i>Saturday School</i>			
	All Students	8%		
	At-Risk Students			
	Special Education			
(2)	<i>Dual Credit</i>			
	All Students	10%	20%	20%
	At-Risk Students			
	Special Education			
(3)	<i>Credit Recovery</i>			
	All Students			
	At-Risk Students	17%	17%	18%
	Special Education			
(4)	<i>Summer School</i>			
	All Students	20%	20%	20%
	At-Risk Students			
	Special Education			
(5)	<i>Extended School Year</i>			
	All Students			
	At-Risk Students			
	Special Education	30%	20%	15%

TABLE III-7A

TECHNOLOGY NEEDS OF HYPOTHETICAL ELEMENTARY SCHOOLS IN SMALL, MODERATE AND LARGE K-12 DISTRICTS

	<u>Size of School District</u>			
	<u>Small</u>		<u>Mod.</u>	<u>Large</u>
	Small Elem.	Large Elem.		
(1) <u>Classroom</u>				
Computers	7	11	95	139
Printers (Inkjet)	7	11	35	52
LCD Projectors	7	11	35	52
Smartboards	7	11	-	-
ELMOs (Opaque Projectors)	-	-	35	52
Scanners	7	11	-	-
(2) <u>Computer Lab (Standing and Mobile)</u>				
Computers	-	-	50	50
Laptops	30	90	-	-
Scanners	-	-	2	2
Printers (Laser)	-	-	2	2
(3) <u>Media Center</u>				
Computers	5	10	10	15
Dig. Video Cam.	2	4	2	2
Digital Cameras	2	13	2	2
Vid. Edit Comp.	1	1	1	1
(4) <u>Admin./Support/Other Staff</u>				
Computers	3	5	6	8
Printers (Laser)	2	3	3	4
Copiers	1	2	-	-
Scanners	1	1	-	-
(5) <u>Other</u>				
Faculty Laptops	11	19	51	71
Servers	1	1	2	2
Mobile Smartboards	2	2	-	-

TABLE III-7B

**TECHNOLOGY NEEDS OF HYPOTHETICAL MIDDLE
SCHOOLS IN SMALL, MODERATE AND LARGE K-12 DISTRICTS**

		<u>Size of School District</u>		
		<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1)	<u>Classroom</u>			
	Computers	6	150	300
	Printers (Inkjet)	6	30	60
	LCD Projectors	6	30	60
	Smartboards	6	-	
	ELMOs (Opaque Projectors)	-	30	60
	Scanners	6	-	-
(2)	<u>Computer Lab (Standing and Mobile)</u>			
	Computers	25	-	-
	Laptops	40	100	150
	Scanners	1	4	6
	Printers (Laser)	1	4	6
	Smartboards	1	-	-
(3)	<u>Media Center</u>			
	Computers	8	10	10
	Dig. Video Cam.	4	2	2
	Digital Cameras	9	2	2
	Vid. Edit Comp.	1	1	1
(4)	<u>Admin./Support/Other Staff</u>			
	Computers	5	10	16
	Printers (Laser)	3	5	8
	Copiers	2	-	-
	Scanners	1	-	-
(5)	<u>Other</u>			
	Faculty Laptops	14	48	94
	Servers	1	2	3

TABLE III-7C

**TECHNOLOGY NEEDS OF HYPOTHETICAL HIGH
SCHOOLS IN SMALL, MODERATE AND LARGE K-12 DISTRICTS**

		<u>Size of School District</u>		
		<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1)	<u>Classroom</u>			
	Computers	26	325	650
	Printers (Inkjet)	13	65	130
	LCD Projectors	13	65	130
	Smartboards	13	-	-
	Scanners	13	-	-
(2)	<u>Computer Lab (Standing and Mobile)</u>			
	Computers	60	75	125
	Laptops	30	100	150
	Scanners	4	7	11
	Printers (Laser)	4	7	11
	Smartboards	2	-	-
(3)	<u>Media Center</u>			
	Computers	15	30	30
	Dig. Video Cam.	6	2	2
	Digital Cameras	18	2	2
	Vid. Edit Comp.	2	1	1
	Smartboards	2	-	-
(4)	<u>Admin./Support/Other Staff</u>			
	Computers	7	20	20
	Printers (Laser)	3	10	10
	Copiers	3	-	-
	Scanners	1	-	-
(5)	<u>Other</u>			
	Faculty Laptops	27	80	166
	Servers	2	3	3

TABLE III-8
PRICES FOR HYPOTHETICAL
SCHOOL AND DISTRICT RESOURCES IN 2003-04

Resource Element

(1) Average Salaries and Benefits

<u>School Level</u>	<u>Salary</u>	<u>Salary + 33% Benefit Rate</u>
Classroom Teachers	\$44,721	\$59,479
Other Teachers (incl. Teacher Tutor, Inst. Facilitator, Parent Liason)	\$44,721	\$59,479
Librarians/Media Specialists	\$47,632	\$63,350
Technology Specialists	\$46,092	\$61,302
Counselors/ Social Workers	\$52,043	\$69,217
Nurses	\$52,043	\$69,217
Psychologists/ Therapists	\$52,043	\$69,217
Aides (Instructional, Library, Clinical)	\$16,250	\$21,613
Clerical/Data Entry	\$24,773	\$32,948
Principal	\$75,967	\$101,036
Assistant Principal	\$63,504	\$84,460
Dean	\$63,504	\$84,460
Truancy Officer	\$31,000	\$41,230
School Resource Officer	\$44,721	\$59,479
Custodian	\$32,000	\$42,560
<u>District Level</u>		
Superintendent	\$109,460	\$145,582
Assistant Superintendent	\$102,370	\$136,152
Director	\$80,812	\$107,480
Coordinator	\$80,812	\$107,480
Supervisor	\$80,812	\$107,480
Specialists/Trainers	\$52,043	\$69,217
Interpreters	\$20,000	\$26,600

(2) Technology

	<u>Cost Per Item</u>
Computer	\$1,000
Printer (Basic Laser)	\$455
Printer (Quality Laser)	\$650
Copier	\$2,259
Scanner	\$100
Digital Video Camera	\$600
Digital Camera	\$400
Video Editing Complex	\$5,500
Laptop	\$1,400
Server	\$5,000
LCD Projector	\$1,849
Smart Board	\$1,599
ELMO (Opaque Projector)	\$1,815

Note: All salary figures provided by the state and reviewed by in-state panel.
 Technology figures gathered independently and reviewed by in-state panel.

TABLE III-9A

**SCHOOL-LEVEL COSTS FOR SMALL K-12
SCHOOL DISTRICTS BASED ON THE WORK OF THE
NEVADA PROFESSIONAL JUDGMENT PANELS IN 2003-04**

	<u>Small Elem. School</u>	<u>Large Elem. School</u>	<u>Middle School</u>	<u>High School</u>	<u>Total</u>
(1) <u>Enrollment</u>	70	175	120	240	-
(2) <u>Base Spending</u>					
Regular*	\$11,049	\$7,401	\$7,668	\$7,944	\$7,937
Technology	\$464	\$359	\$352	\$308	\$350
Other Programs for Students with <u>No Special Needs:</u>	\$357	\$401	\$421	\$220	\$343
(3) <u>Added Spending for Special Student Populations**</u>					
<u>Special Education:</u>					
- <i>Mild</i>	\$5,601	\$4,696	\$7,178	\$7,111	\$5,899
- <i>Moderate</i>	\$14,097	\$14,678	\$11,291	\$12,021	\$13,294
- <i>Severe</i>	\$46,468	\$26,338	\$44,269	\$37,720	\$34,368
<u>At-Risk Students:</u>	\$2,308	\$2,766	\$3,376	\$4,222	\$3,268
<u>ELL Students:</u>	\$11,750	\$8,812	\$12,798	\$11,081	\$10,378
<u>CTE Students:</u>	-	-	-	\$892	\$892

* Basic base spending includes school level personnel salaries and benefits, supplies and materials, and other expenditures.

** Costs are shown per student in the program.

Note: All combined figures, except CTE, are based on the following proportions of students: small elementary schools, 9.0%, large elementary schools, 45.0%, middle schools, 15.0%, and high schools, 31.0%. The CTE figure is based on the following: high school, 100% (panelists did not identify a CTE program in elementary or middle schools).

TABLE III-9B

**SCHOOL-LEVEL COSTS FOR MODERATE K-12
SCHOOL DISTRICTS BASED ON THE WORK OF THE
NEVADA PROFESSIONAL JUDGMENT PANELS IN 2003-04**

	<u>Elem. School</u>	<u>Middle School</u>	<u>High School</u>	<u>Total</u>
(1) <u>Enrollment</u>	600	750	1,250	-
(2) <u>Base Spending</u>				
Regular*	\$6,053	\$5,111	\$6,013	\$5,823
Technology	\$175	\$175	\$177	\$176
Other Programs for Students with <u>No Special Needs:</u>	\$276	\$354	\$112	\$243
(3) <u>Added Spending for Special Student Populations**</u>				
<u>Special Education:</u>				
- <i>Mild</i>	\$4,238	\$4,691	\$4,505	\$4,425
- <i>Moderate</i>	\$8,961	\$6,766	\$6,007	\$7,557
- <i>Severe</i>	\$17,218	\$18,176	\$16,827	\$17,320
<u>At-Risk Students:</u>	\$2,168	\$1,568	\$1,182	\$1,726
<u>ELL Students:</u>	\$3,939	\$3,850	\$3,729	\$3,854
<u>CTE Students:</u>	-	\$298	\$531	\$444

* Basic base spending includes school level personnel salaries and benefits, supplies and materials, and other expenditures.

** Costs are shown per student in the program.

Note: All combined figures, except those for CTE, are based on the following proportions of students: elementary schools, 46.1%, middle schools, 23.1%, and high schools, 30.8%. The CTE figure is based on the following: middle school, 33.3%, and high school, 66.7% (panels did not identify a CTE program in elementary school).

TABLE III-9C

**SCHOOL-LEVEL COSTS FOR LARGE K-12
SCHOOL DISTRICTS BASED ON THE WORK OF THE
NEVADA PROFESSIONAL JUDGMENT PANELS IN 2003-04**

	<u>Elem. School</u>	<u>Middle School</u>	<u>High School</u>	<u>Total</u>
(1) <u>Enrollment</u>	900	1,500	2,500	-
(2) <u>Base Spending</u>				
Regular*	\$5,838	\$4,745	\$5,359	\$5,438
Technology	\$159	\$159	\$161	\$159
Other Programs for Students with <u>No Special Needs:</u>	\$296	\$271	\$100	\$229
(3) <u>Added Spending for Special Student Populations**</u>				
<u>Special Education:</u>				
- <i>Mild</i>	\$4,756	\$4,491	\$4,339	\$4,567
- <i>Moderate</i>	\$8,766	\$6,721	\$5,865	\$7,403
- <i>Severe</i>	\$14,933	\$15,302	\$17,456	\$15,793
<u>At-Risk Students:</u>	\$2,968	\$1,270	\$1,666	\$1,704
<u>ELL Students:</u>	\$3,581	\$3,162	\$2,935	\$3,286
<u>CTE Students:</u>	-	\$299	\$532	\$454

* Basic base spending includes school level personnel salaries and benefits, supplies and materials, and other expenditures.

** Costs are shown per student in the program.

Note: All combined figures, except those for CTE, are based on the following proportions of students: elementary schools, 46.1%, middle schools, 23.1%, and high schools, 30.8%. The CTE figure is based on the following: middle school, 33.3%, and high school, 66.7% (panels did not identify a CTE program in elementary school).

TABLE III-10

DISTRICT-LEVEL COSTS BASED ON THE WORK OF THE NEVADA PROFESSIONAL JUDGMENT PANELS IN 2003-04

	<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1) <u>Enrollment</u>	780	6,500	50,000
(2) <u>District Level Spending</u>			
<u>Basic</u>			
Administration	\$1,431	\$833	\$719
Plant M & O	\$641	\$500	\$431
Other*	\$625	\$293	\$254
<u>Special Needs</u>			
Special Education**	\$5,883	\$2,493	\$1,906
At-Risk Students	\$270	\$530	\$382
ELL Students	\$3,313	\$572	\$123
(3) <u>Total Spending</u>			
<u>Base Spending</u>			
School Level	\$8,630	\$6,242	\$5,826
District Level	\$2,697	\$1,626	\$1,403
Total Base Cost	\$11,327	\$7,868	\$7,229
Added Cost of <u>Spec. Need Student</u>			
<u>Special Education</u>			
Mild	\$11,781	\$6,918	\$6,472
Moderate	\$19,177	\$10,050	\$9,309
Severe	\$40,250	\$19,813	\$17,699
At-Risk Students	\$3,538	\$2,256	\$2,558
ELL Students	\$13,691	\$4,426	\$3,409
CTE Students	\$1,622	\$568	\$176

* Includes legal, insurance, central office technology, and other items placed at the district level (textbooks and tuition, in some cases).

** Special Education district costs include Special Ed Pre-School program costs

IV. STATISTICAL ANALYSES: INFLATION, SIZE, AND REGIONAL COST OF LIVING

As mentioned earlier, APA used the statistical approach to strengthen our work and focused on an examination of three factors:

- 1. Inflation impacts.**
- 2. Cost impacts based on school and district size differences.**
- 3. Regional cost of living differences.**

Our experience working on school finance issues over the past 20 years tells us that these are three factors which districts cannot control, but which can have significant cost impacts. Much of our statistical analyses of these three factors was made possible through the availability in Nevada of In\$ite's school-level data.

Understanding Inflation Cost Differences

Understanding how inflation affects costs in Nevada is an important consideration as the state implements any adequacy-based funding changes to its school finance system. In fact, failure to properly account for the impact of inflation could, over time, alter the impact of any funding changes which are made. APA was asked to create a possible inflation adjustment as part of our contract with Nevada. We developed the following approach that fulfills that obligation.

APA believes the key goal in any inflation analysis is to identify a process which Nevada can use regularly to identify year to year inflation adjustments. Our discussion in this section is therefore designed to describe how such a process could be used by Nevada. Nevada can use the process we describe with data from subsequent years to create year to year inflation adjustments. Such adjustments can then be accurately applied to the state's school funding formula to ensure that districts have the actual purchasing power intended by the state.

The basic process used to identify state-level inflation rates is:

- 1) Identify an overall, nationwide inflation rate; and
- 2) Gather state data to compare with the nationwide rate and extrapolate whether state inflation is higher or lower than the rest of the country.

For the first step above, the most widely used measure of nationwide inflation is the Consumer Price Index (CPI) provided by the U.S. Department of Labor. The CPI is a measure of the average change over time in the prices paid by

consumers for a set of goods and services.⁴ Because the CPI is reliable and regularly updated, APA recommends its use for Nevada's inflation analysis.

For the second step above, state level consumer price data is often available from the federal government. This federal data typically focuses on the price changes taking place in large urban areas within a state. Federal data in Colorado, for instance, focuses on the Denver area, and this data can then be extrapolated to approximate price changes and inflation rates for the state as a whole.

In Nevada, however, such localized federal data is not available. Therefore, APA used data from the Council for Community and Economic Research (ACCRA).⁵ ACCRA provides data for three specific urban areas in Nevada: 1) Las Vegas; 2) Reno; and 3) Carson City. When combined, these three areas make up the large majority of the state's population and therefore offer an effective means of approximating inflation changes for the state as a whole. To generate a more accurate inflation adjustment, the ACCRA data should be weighted to reflect the differences in population represented by each urban area. APA's calculations indicate the following weights should be applied: Las Vegas (80.0%), Reno = (17.5%), and Carson City = (2.5%).

The table on the next page outlines five steps for how Nevada can use both CPI and ACCRA data to determine a statewide Inflation Adjustment Factor. For illustrative purposes, the table carries out calculations using 2003-04 data to generate a 2005 Inflation Adjustment Factor. However, Nevada can use the outlined approach in any given year to calculate an updated adjustment factor. The resulting adjustment factor can be applied to the state's school finance system in order to increase funding to Nevada schools and districts as necessary to keep up with inflation.

⁴ For more information, visit the Department of Labor Web site at <http://www.bls.gov/cpi/cpifaq.htm>.

⁵ For more information, visit the ACCRA Web site at <http://www.accra.org/index.asp>.

Calculating a Year to Year Inflation Adjustment Factor for Nevada

Step	Description of Calculation
1.0	Identify national CPI Increase in past year (CPI increase from 2003 to 2004 was 3.4%)
2.0	Identify the cost of living for Las Vegas, Reno, and Carson City for two years using ACCRA data and weighting each city's figure by population: (Las Vegas = 80.0%, Reno = 17.5%, and Carson City = 2.5%)
3.0	Calculate: Nevada Cost of Living This Year/Nevada Cost of Living Last Year (relative to national average of 1.00) Using 2003-04 data, this calculation looks like this: $1.127/1.081 = 1.0426$
4.0	Calculate inflation adjustment factor: Step 3 result times (1 + national CPI increase) minus 1 For example, the 2005 adjustment for Nevada would be: $1.0426(1 + .034) - 1 = 0.078$
5.0	Therefore, for 2005, Nevada's Inflation Adjustment Factor would be .078 or 7.8%.

Creating a School and District Size Adjustment

The idea that size can impact a district's cost in delivering education services is supported by years of research, including many APA studies conducted in other states. These studies consistently show that cost differences exist across different size districts. Determining the extent of these differences in Nevada is therefore an important step to ensure that resources are properly allocated in the state's education funding formula.

Other states have taken notice of size-related cost differences and have made adjustments to their school finance formulas to account for such differences. For instance, states such as Colorado, Kansas, Montana, and Nebraska all now include size adjustments in their school funding formulas. In many of these states, geographic separation and other factors mean that many school districts are small by necessity. District consolidation is, therefore, not a viable option.

There are three basic principles which apply to the cost impacts of school and district size:

- a) Fixed cost. Schools and districts all have an initial, fixed operating cost that will be incurred to establish and run any school or district, regardless of its enrollment.
- b) Added per student cost. There is an added cost for every student that is added to the school or district's enrollment.
- c) Economies of scale. There is also a cost savings for every student added to a school or district's enrollment. This savings grows exponentially as the number of students increase and greater economies of scale are realized.

To understand how size truly impacts cost in Nevada, APA created a quadratic formula based on the three principles described above. Where "a" represents the fixed cost, "b" represents the added cost for educating each student, "c"

represents economies of scale, and “x” represents the number of students enrolled, APA’s quadratic formula looks like this:

$$a + b(x) - c(x^2)$$

With this formula in hand, APA examined the per-student spending of different sized Nevada schools and districts. To conduct our analysis, we used In\$ite data and definitions of school and district spending.⁶ Since In\$ite addresses actual spending, APA’s analysis was also focused on actual spending. The numbers shown in this section are not, therefore, reflective of the spending level that might be necessary for adequacy purposes. In other words, the numbers shown here do not necessarily reflect the level of resources school and districts might need to meet state and federal performance standards.

School-level Size Adjustment

At the school level, APA used In\$ite data to graph the relationship between actual spending data and school size. The parameters of the lines of best fit for that data using the quadratic equation described above are shown below.

<u>Level</u>	School-Level Actual Spending		
	<u>Fixed</u>	<u>Student</u>	<u>Student²</u>
<i>elementary</i>	\$78,709	\$5,711	-\$2.016
<i>middle</i>	\$224,515	\$5,000	-\$0.754
<i>high school</i>	\$727,957	\$4,241	-\$0.175

The numbers in the “fixed,” “student,” and “student squared” columns above can be respectively plugged into the “a,” “b,” and “c” variables in our quadratic formula. Once this is accomplished, we can generate per-student, actual costs for schools of all different types and sizes. For instance, for the elementary level, our calculations are based on the following: Total cost = \$78,709 + (\$5,711 X students) - (\$.2.016 X students²). Results are shown in the table below. As expected, the costs reflect that smaller schools – with fewer students to absorb and spread out the same fixed costs – are more expensive per student. Conversely, the largest schools – with greater economies of scale – have the lowest per-student costs.

⁶ Nevada pays In\$ite to collect a variety of education spending data, including school-level spending data. In\$ite has its own method of defining school and district spending (for instance, maintenance and operations spending is allocated to the school level).

School-Level Cost by Size and Grade Span

<u>Level</u>	<u>Size</u>	<u>Cost per Student</u>
<i>Elementary</i>	100	\$6,296
	300	\$5,369
	500	\$4,860
	700	\$4,412
<i>Middle</i>	300	\$5,522
	600	\$4,922
	900	\$4,571
	1200	\$4,282
<i>High School</i>	300	\$6,615
	600	\$5,349
	1,200	\$4,638
	1,800	\$4,330
	2,400	\$4,124

District-level Size Adjustment

Our district-level size analysis was conducted in a similar way to the school level analysis shown above. APA graphed the relationship between actual spending data and district size. The parameters of the line of best fit for that data using the quadratic equation described above is shown below.

District-Level Actual Spending

<u>Fixed</u>	<u>Student</u>	<u>Student²</u>
\$338,204	\$387	\$0.00014

Again, the numbers in the “fixed,” “student,” and “student squared” columns above can be respectively plugged into the “a,” “b,” and “c” variables in our quadratic formula. This results in the following calculation: Total cost = \$338,204 + (\$387 X students) - (\$.00014 X students²). Results are shown below.

District-Level Cost by Size

<u>District Size</u>	<u>Per Student Cost</u>
100	\$3,769
500	\$1,063
1,000	\$725
4,000	\$471
8,000	\$428
60,000	\$384
280,000	\$349

Understanding Regional Cost of Living Differences

In this section, APA analyzes adjustment factors which can be included in Nevada's education funding formula that take into account geographic cost of living differences across school districts. The purpose of this analysis is to:

- 1) Identify if there are cost of living differences between districts in different parts of Nevada that impact the cost of delivering education services; and
- 2) Create a "Location Cost Metric" (LCM) which is a factor that can be included in Nevada's school funding formula to adjust the amount of state aid districts receive.

The rationale for conducting such an analysis is well established. In fact, it is now widely recognized that cost of living differences can have a significant impact on the ability of districts to provide equivalent education services. This is especially true with regard to labor. To retain teachers and other employees, school districts must be able to offer compensation that is competitive with other employers, and employee compensation must be sufficient to purchase goods at local prices.

A few states around the country have developed a procedure to quantify cost of living differences. These states use a variety of approaches. Some, such as Ohio, focus on wage differences among districts. Others, such as Florida, have fewer school districts and look at the cost of delivering a wide range of education goods and services in order to identify differences among districts.

In Nevada, our analysis focuses specifically on the cost of living issue. We do not, therefore, seek to address any differences between districts or regions that might affect their "attractiveness" to potential employees. Such an attractiveness analysis would need to address a myriad of subjective factors (for example, recreational opportunities and overall quality of life) that we believe are not useful (or easily quantified) for inclusion in a state education funding formula.

APA's approach to studying cost of living differences in Nevada is to focus on the cost of providing labor. We chose this focus because, as in most states, labor in Nevada represents approximately 80 percent of all district operating costs. This makes it by far the most important driver of district cost differences. Because the remaining 20 percent of district costs are very difficult to quantify, APA holds this 20 percent constant across districts in its LCM formula: $.20 + (.80 \times \text{Cost of Living Indicator})$.

With this focus on labor costs in mind, the main focus of APA's work to develop an LCM for Nevada was to identify a Cost of Living Indicator. This indicator is comprised of the primary costs which employees face. To identify such costs, APA reviewed data from the Council for Community and Economic Research

(ACCRA)⁷ and the Economic Policy Institute. The most significant findings which this data yielded were:

- Cost of living variances in Nevada are largely based on housing cost differences.
- Areas across the state can be separated into high cost housing areas and lower cost housing areas.
- Aside from housing, other living costs do not significantly vary in Nevada (available data showed non-housing costs across the state ranged only from \$2,112 to \$2,196 per month).

Based on these findings, APA decided that the LCM's Cost of Living Indicator should be based on Nevada's housing cost differences and that the housing cost analysis should be separated into lower cost areas and high cost areas. The counties considered high cost areas include Carson City, Clark, Douglas, Lyon, Nye, Storey, and Washoe. The Cost of Living Indicator receives a higher weight (29 percent of cost) in these counties. All remaining areas in the state are considered lower cost. For these counties, the Cost of Living Indicator receives a slightly lower weight (25 percent of cost).

Once the decision was made to focus on housing costs, APA next created a Housing Index. This index, which is weighted to reflect county population differences, is expressed as a ratio of each county's median housing sale price⁸ to the statewide average price.⁹ The index is shown in the table below.

Nevada's Housing Index

<u>County</u>	<u>Median Price</u>	<u>Index</u>
Carson City	\$305,000	94.2
Churchill	\$192,500	59.5
Clark	\$329,612	101.8
Douglas	\$390,000	120.5
Elko	\$151,500	46.8
Esmeralda	\$65,940	20.4
Eureka	\$61,760	19.1
Humboldt	\$136,900	42.3
Lander	\$68,825	21.3
Lincoln	\$79,000	24.4
Lyon	\$241,500	74.6
Mineral	\$42,009	13.0
Nye	\$249,000	76.9
Pershing	\$71,000	21.9
Storey	\$300,000	92.7
Washoe	\$368,287	113.8
White Pine	\$52,981	16.4

⁷ For more information, visit the ACCRA Web site at <http://www.accra.org/index.asp>.

⁸ Based on median sales price as of June 30, 2005. Data availability required the median price to be imputed based on a regression analysis for Esmeralda, Eureka, and White Pine Counties.

⁹ The statewide average price was \$323,649.

It is not surprising that, since the Housing Index weights each county by population, Clark County's index value of 101.8 is not far above the statewide average (which would be represented as 100 in the index). Since Clark County represents a large portion of the state's overall population, it necessarily also has a large impact on the state sales price average.

Once the Housing Index was calculated, APA was able to plug the resulting data into its Cost of Living Indicator for both high cost and low cost areas. These indicators could then be included into the overall Location Cost Metric to generate an LCM index for each county in the state. The index, shown below, can be applied to each school district's base cost when building Nevada's school finance formula.

Nevada's LCM Index

<u>County</u>	<u>LCM</u>
Carson City	98.6
Churchill	91.8
Clark	100.3
Douglas	104.7
Elko	89.3
Esmeralda	84.0
Eureka	83.7
Humboldt	88.4
Lander	84.2
Lincoln	84.8
Lyon	98.3
Mineral	82.5
Nye	94.6
Pershing	84.3
Storey	98.4
Washoe	103.1
White Pine	83.2

V. ESTIMATING THE COST OF ADEQUACY IN NEVADA

This chapter discusses how APA used the successful school and professional judgment analyses to estimate the cost of adequacy for school districts and individual schools with various demographic characteristics.

Alternative Base Cost Figures

The successful school and professional judgment approaches produce data and information that is specific to successful schools with specific characteristics or to hypothetical districts. That information, however, needs to be translated so it can be applied to schools and districts with any set of demographic characteristics. For these purposes, several specific questions need to be addressed:

- (1) What do the differences in the base cost (the cost of educating a student with no special needs) produced by the successful school (SS) and professional judgment (PJ) approaches mean?
- (2) Does the base cost differ by district size?
- (3) How can the costs of serving students with special needs be used to create student weights?

Once we respond to these questions, it becomes possible to estimate costs for each of the 17 Nevada districts. The two approaches we used to study the cost of adequacy produced two different base cost results. The base cost from the PJ approach is \$7,229. The base cost from the SS approach is \$4,660, which is approximately 64.4 percent of the PJ base.

It is important to note that the SS and PJ approaches really address two different standards. In some sense, the SS base cost represents what districts are spending today (2003-04 figures) to be successful. The PJ base figures represent the resources that panels of educators felt are necessary for districts of varying size to get students to meet higher performance expectations by 2013. This higher performance expectation explains the higher cost associated with the PJ base.

Developing Formulas for Base Cost Adjustment Factors: Size and Special Need Students

Although we obtained base cost figures from both the successful school (SS) and professional judgment (PJ) approaches, only the PJ produced base cost figures for K-12 districts of *varying size*. Also, only the PJ approach could provide APA with information needed to generate a series of weights regarding the cost of *serving special need students*. As discussed at the beginning of Chapter III, such student weights are designed to reflect the cost of serving students with special needs relative to the base cost. APA developed the size and student

need formulas described below and applied them to both the \$7,229 and \$4,660 base cost figures identified by the PJ and SS approaches.

The PJ-derived figures shown in Table V-1 indicate that the per-student base cost for K-12 districts vary based on school district size. They also indicate the different levels of cost involved with adequately educating special need students. As shown in the table, the total base cost per student is highest in small districts. This is not surprising, since these districts have fewer students across which to spread a variety of fixed education costs. Conversely, the base cost drops as district size increases and economies of scale are realized. The table also generally shows that the cost of serving students with special needs drops as district size increases and districts are able to provide more centralized services.

Table V-1					
District Level Costs Including Adjustments for					
Size and Special Need Students					
(Based on PJ Panel Work)					
School Size			Small	Moderate	Large
	Enrollment		780	6,500	50,000
	Total Base Cost		\$11,327	\$7,868	\$7,229
Added Cost of Special Need Students					
	Special Education				
	<i>Mild</i>		\$11,781	\$6,918	\$6,472
	<i>Moderate</i>		\$19,177	\$10,050	\$9,309
	<i>Severe</i>		\$40,250	\$19,813	\$17,699
	At-Risk Students		\$3,538	\$2,256	\$2,558
	ELL Students		\$13,691	\$4,426	\$3,409
	CTE Students		\$1,622	\$568	\$176

Based on the figures in Table V-1, APA generated a series of cost weights to help reflect the cost impact of different special need students in different sized districts. These weights were generated simply by dividing the added cost figure for each category by the total base cost. So, for instance, to generate a mild special education student weight for small districts, one would divide \$11,781 by the base cost of \$11,327. This yields a cost weight of 1.04. Using this process, all the resulting student weights are shown in Table V-2 below.

APA used the cost weights shown in Table V-2 to generate a series of formulas to calculate the full PJ cost of an adequate education (including both the base and any adjustments for district size and special need students). These are shown in the box on the following page. It is important to note that it was not feasible to run an individual PJ panel for every existing district size in Nevada.

APA's PJ-derived data was therefore limited to a range of 780 students (at the small district end) and 50,000 students (at the large district end).

Table V-2					
Special Need Student Cost Weights by District Size					
(Based on PJ Panel Work)					
School Size		Small	Moderate	Large	
	Enrollment	780	6,500	50,000	
	Total Base Cost	\$11,327	\$7,868	\$7,229	
Added Cost Weight for Special Need Students					
	Special Education				
	<i>Mild</i>	1.04	.88	.89	
	<i>Moderate</i>	1.69	1.28	1.29	
	<i>Severe</i>	3.55	2.52	2.44	
	At-Risk Students	.31	.29	.35	
	ELL Students	1.21	.56	.47	
	CTE Students	.14	.05	.04	

To address districts larger than 50,000, APA examined In\$ite actual spending data and identified the ratio of spending differences between Nevada's largest districts. We used this data to create a cost "floor" below which no district could go. We applied this ratio to the \$7,229 based cost figure to obtain a \$6,966 floor using PJ figures (similarly we obtained a \$4,486 cost floor using the SS figures).

To address districts smaller than 780 students, APA used its statistical size analysis (discussed in Chapter IV of this report). This statistical analysis indicated a specific data line tracking the differences in cost as one moves from small to large districts. Importantly, the statistical analysis was able to identify the cost differences even for Nevada's very smallest districts. Our statistical analysis, however, relied on In\$ite data and definitions of school and district spending. Since In\$ite addresses only actual spending, the data produced do not reflect the level of spending that might be necessary for adequacy purposes. In other words, the data do not reflect the level of resources school and districts might need to meet state and federal performance standards.

While the statistical size analysis data did not reflect the level of spending required for adequacy purposes, the data line it produced was parallel to that of the data generated by our adequacy-based PJ work. APA was therefore able to use the same slope of the line produced by the statistical work to develop a formula for districts smaller than 780 students for both the PJ and SS.

**FORMULAS TO DETERMINE BASE COST AND WEIGHTS
FOR SIZE AND STUDENT NEED IN SCHOOL DISTRICTS**

Base Cost

Professional Judgment

Conditions

Less than 780 students

781 – 6,500 students

More than 6,500 students

Note: the minimum is \$6,966.

Formulas for Base Cost

$\$16,101 + (\text{Students } X (-6.120))$

$\$11,799 + (\text{Students } X (-.6047))$

$\$7,961 + (\text{Students } X (-.0144))$

Successful Schools

Conditions

Less than 780 students

781 – 6,500 students

More than 6,500 students

Note: the minimum is \$4,486.

Formulas for Base Cost

$(\$16,101 + (\text{Students } X (-6.120))) X .644$

$(\$11,799 + (\text{Students } X (-.6047))) X .644$

$(\$7,961 + (\text{Students } X (-.0144))) X .644$

Special Education

Mild

Conditions

All size districts

Note: the minimum weight is .89 and
the maximum weight is 1.04.

Formula for Mild Special Ed Weight

$(\text{Students } X (-0.00005)) + 1.0605$

Moderate

Conditions

All size districts

Note: the minimum weight is 1.29 and
the maximum weight is 1.69.

Formula for Mod. Special Ed Weight

$(\text{Students } X (-0.00007)) + 1.7445$

Severe

Conditions

Less than 780 students

781 – 6,500 students

More than 6,500 students

Note: the minimum weight is 2.44.

Formula for Severe Special Ed Weight

3.55

$(\text{Students } X (-0.0002)) + 3.6905$

$(\text{Students } X (-0.000002)) + 2.532$

At-Risk (number of students eligible for free/reduced price lunch)

Conditions

All size districts

Note: the minimum weight is .30 and
the maximum weight is .35.

Formulas for At-Risk Weight

$(\text{Students } X (0.000001)) + .2925$

English Language Learners (ELL)

Conditions

Less than 780 Students

781 – 6,500 Students

More than 6,500 Students

Note: the minimum weight is 0.47.

Formulas for ELL Weight

1.21

$(\text{Students } X (-0.0001)) + 1.2986$

$(\text{Students } X (-0.000002)) + .5734$

Career-Technical Education (CTE)

Conditions

All size districts

Note: the minimum weight is 0.05 and
the maximum weight is .14.

Formulas for CTE Weight

$(\text{Students } X (-.00002)) + 0.1523$

Note: In all formulas, students refers to the number of students in the district.

In cases where the weights were almost identical, APA blended them together into a single weight. For instance, there was a minimal difference in mild special education student weights between the moderate and large size district (.88 and .89 respectively). In its formula therefore, APA selected the .89 weight as the overall minimum for mild special education students.

A major advantage to the formulas APA created is that they produce gradual changes in projected costs based on enrollment differences. Such gradual change is preferable because it helps avoid the creation of perverse incentives for school districts to gain or shed a few students in order to reach a specific formula-driven plateau that would provide them with a significantly higher level of funding. With APA's formulas, no such plateaus exist and districts therefore have no incentive to artificially alter their student counts.

Examples of How APA's Formulas Work

A) If a Nevada K-12 district had 200 students, 27 of whom were in special education programs (18 mild, 7 moderate, and 2 severe); 80 were at-risk; 10 were in ELL programs; and 15 in career and technical education (CTE) programs; the cost of adequacy would be calculated as follows:

1. Base cost = 200 X \$14,877 or \$2,975,400
2. At-risk = 80 X .30 X \$14,877 or \$357,048
3. ELL = 10 X 1.21 X \$14,877 or \$180,012
4. CTE = 15 X .14 X \$14,877 or \$31,242
5. Special Education
 - Mild* = 18 X 1.04 X \$14,877, or \$278,497
 - Moderate* = 7 X 1.69 X \$14,877, or \$175,995
 - Severe* = 2 X 3.55 X \$14,877, or \$105,627

DISTRICT TOTAL: \$4,103,821

TOTAL PER STUDENT: \$4,103,821 divided by 200 = \$20,519

B) For a larger Nevada district (with 50,000 students) that has 6,750 children in special education (4,500 mild, 1750 moderate, and 500 severe); 20,000 at-risk; 2,500 in ELL programs; and 3,750 in CTE; the calculation would be as follows:

1. Base cost = 50,000 X \$7,241 or \$362,050,000
2. At-risk = 20,000 X .3425 X \$7,241, or \$49,600,850
3. ELL = 2,500 X .4734 X \$7,241, or \$8,569,724
4. CTE = 3,750 X .05 X \$7,241, or \$1,357,688
5. Special Education
 - Mild* = 4,500 X .89 X \$7,241, or \$29,000,205
 - Moderate* = 1,750 X 1.29 X \$7,241, or \$16,346,558
 - Severe* = 500 X 2.44 X \$7,241, or \$8,834,020

DISTRICT TOTAL: \$475,759,045

TOTAL PER STUDENT: \$475,759,045 divided by 50,000 = \$9,515

Calculating Funding Adequacy In an Individual School

Another set of formulas can also be developed to estimate the cost of adequacy at an individual school, recognizing that per student costs may differ between schools based on the grades served. There is a separate formula to determine the school-level cost of elementary, middle, and high schools. However, one formula is used to determine district-level costs for each school regardless of type, and the same weights as seen at the district-level are applied to every school. The formulas based upon the PJ approach are as follows:

FORMULAS TO DETERMINE SCHOOL AND DISTRICT-LEVEL BASE COSTS IN AN INDIVIDUAL SCHOOL

School-level Base Cost

Elementary

Conditions

Less than 175 students

176- 600 students

More than 600 students

Note: the minimum is \$5,664.

Formulas for School-level Base Cost

$\$1,434 + (\text{Students } X \text{ } (-35.324))$

$\$8,843 + (\text{Students } X \text{ } (-3.8988))$

$\$6,926 + (\text{Students } X \text{ } (-0.7033))$

Middle

Conditions

Less than 750 students

More than 750 students

Note: the minimum is \$4,658.

Formulas for School-level Base Cost

$\$8,975 + (\text{Students } X \text{ } (-4.446))$

$\$6,105 + (\text{Students } X \text{ } (-0.62))$

High School

Conditions

Less than 1,250 students

More than 1,250 students

Note: the minimum is \$5,508.

Formulas for School-level Base Cost

$\$8,988 + (\text{Students } X \text{ } (-2.1485))$

$\$6,984 + (\text{Students } X \text{ } (-0.5456))$

District-level Base Cost

All School Types

Conditions

Less than 6,500 students

More than 6,500 students

Note: the minimum is \$1,307.

Formulas for School-level Base Cost

$\$2,843 + (\text{Students } X \text{ } (-0.1872))$

$\$1,659 + (\text{Students } X \text{ } (-0.0051))$

Note: Minimums for the school-level base costs were set at 90% of the lowest per pupil figure from the PJ panel work for each of the three school types. The minimum for the district-level costs was set using the same rationale as described in an earlier chapter.

SS base figures could then be calculated as 64.4 percent of PJ figures (since the SS base is 64.4 percent of the PJ base) as seen when formulas were applied at the district level. To illustrate the application of these formulas, using an example of a 200 student school:

- If it was an **elementary school**, the school-level PJ base cost would be \$8,064 per student and the SS school-level base would be \$5,193.
- If it was a **middle school** the school-level PJ base cost would be \$8,085 per student, and the SS school-level base would be \$5,207.
- If it was a **high school** the school-level PJ base cost would be \$8,558 per student, and the SS school-level base would be \$5,511.

Once the school-level base cost was determined, a district level-base cost would be added depending on the size of district the school was in. Using the same example of a 200 student school, regardless of type:

- If it was in a **district of 500**, the added PJ district-level base cost would be \$2,749 per student, the SS district-level base cost would be \$1,771.
- If it was in a **district of 5,000**, the added PJ district-level base cost would be \$1,907 per student, the SS district-level base cost would be \$1,228.
- If it was in a **district of 50,000**, the added PJ district-level base cost would be \$1,404 per student, the SS district-level base cost would be \$904.

The two figures (school-level and district-level costs) would then be combined to determine the total base cost to which the previously discussed weights would be applied.

Table V-3 identifies 20 example schools for which the cost of adequacy was calculated. The selected schools were chosen so there would be a relatively even mix of elementary, middle, and high schools from different sized districts. An effort was also made to have at least one school from each district represented. Individual schools were then chosen at random from those in a given district.

Table V-3 also provides the demographics of each school, including total enrollment and the number of students in each special needs subgroup as reported by InSite for 2003-04. The final two columns in Table V-3 show the cost of adequacy using the SS and PJ base costs for each school.

TABLE V-3

ESTIMATING THE COST OF ADEQUACY FOR SELECT NEVADA SCHOOLS USING BOTH
 THE SUCCESSFUL SCHOOLS AND PROFESSIONAL JUDGMENT BASES IN 2003-04

District	School	School Enrollment	Mild Special Ed	Moderate Special Ed	Severe Special Ed	At-Risk	ELL	CTE	SS Adequacy per pupil	PJ Adequacy per pupil
Esmeralda	Dyer Elem	43	3	0	0	30	0	0	\$13,675	\$21,235
Eureka	Eureka HS	91	16	2	0	26	0	46	\$11,916	\$18,503
Storey	Virginia City HS	137	18	4	1	0	0	65	\$10,954	\$17,009
Mineral	Schurz Elem	79	11	3	1	65	0	0	\$15,955	\$24,775
Pershing	Pershing County Middle	218	32	10	0	94	41	0	\$12,634	\$19,619
Lincoln	Lincoln County Sr. High	191	5	3	0	76	6	96	\$9,627	\$14,948
Lander	Eleanor Lemaire Elem	273	19	3	1	69	0	0	\$8,565	\$13,299
White Pine	White Pine Middle	299	37	6	2	83	0	0	\$9,501	\$14,753
Humboldt	Albert M. Lowery HS	987	113	29	3	259	238	494	\$9,719	\$15,091
Churchill	Numa Elem	544	53	18	2	257	71	0	\$8,703	\$13,514
Nye	Rosemary Clark Middle	1,045	152	63	7	566	20	0	\$7,703	\$11,962
Douglas	George Whitell HS	228	10	3	1	34	28	101	\$8,238	\$12,792
Lyon	Silver Springs Elem	416	21	9	2	252	0	0	\$7,678	\$11,922
Carson City	Carson Middle	1,220	136	38	6	439	120	0	\$6,580	\$10,218
Elko	Elko Sr. High	1,217	90	16	3	49	14	609	\$6,269	\$9,734
Washoe	Mamie Towles Elem	393	36	14	2	84	22	0	\$7,716	\$11,981
Washoe	Reno HS	1,831	108	43	6	109	48	655	\$5,831	\$9,055
Clark	Jim Thorpe Elem	579	70	23	6	168	56	0	\$7,669	\$11,909
Clark	Charles West Middle	1,215	163	53	13	1,021	223	0	\$7,648	\$11,876
Clark	Western HS	2,190	215	69	17	898	400	1,095	\$7,080	\$10,994

VI. COMPARING ADEQUACY COSTS WITH ACTUAL SPENDING IN NEVADA SCHOOL DISTRICTS

Tables VI-1A, B, C and D, compare the cost of adequacy to actual, comparable spending in 2003-04, excluding capital, transportation, and food service, for the 17 districts in Nevada not including charter schools. Figures are disaggregated into three size categories of districts: (1) Small, which includes districts below 1,500 students; (2) Moderate, which includes districts with 1,501- 49,999 students; and (3) Large, which includes districts above 50,000.

The tables are organized into two categories:

- Tables **VI-1A and VI-1B** focus on the **Successful School (SS) approach** adequacy figures. Table VI-1A shows adequacy figures without using the Location Cost Metric (LCM), and Table VI-1B shows adequacy figures to which the LCM has been applied.
- Tables **VI-1C and VI-1D** focus on the **Professional Judgment (PJ) approach** adequacy figures. Table VI-1C shows figures without the LCM, and Table VI-1D shows the figures with the LCM.

All figures in the tables are in 2003-04 dollars.

Section I of Tables VI-1A, B, C, and D shows the 2003-04 demographic characteristics of Nevada school districts. There were 8 small districts, 7 moderate size districts, and 2 large districts. Of the 369,023 students enrolled in the 17 districts, 5,789 students were in small districts, 45,260 students were in moderate districts, and 317,974 students were in large districts.

Section II of Tables VI-1A, B, C, and D indicates the total cost of adequacy for the state as a whole in 2003-04 based on the SS approach (in Tables VI-1A and VI-1B), and the PJ approach (in Tables VI-1C and VI-1D). For example, in Table VI-1A, using the SS approach base cost without LCM, the total cost of an adequate education in 2003-04 would have been about \$2,295.5 million. The cost of providing base services to all students would have been \$1,714.4 million. The added cost to serve students with special needs would have been: \$226.5 million to serve special education students; \$206.0 million to serve at-risk students; \$132.7 million to serve ELL students; and \$15.9 million to serve CTE students. Taken together, these costs equate to \$6,221 per student (as shown in Section III of Table VI-1A).

Section IV of Tables VI-1A, B, C, and D display actual, comparable spending in 2003-04. In the example of Table VI-1A, using the SS approach without LCM, for the given year, the 17 school districts spent \$2,231.3 million, or \$6,046 per student. These figures suggest that school districts would have needed to spend

\$64.2 million more than what they were spending in order to reach an SS-adequate level of spending.

To gain a better understanding of variations in resources currently available to districts, it is important to examine separately those districts that appear to be spending above adequate levels and those spending below adequate levels. Section V of Tables VI-1A, B, C and D shows districts spending above than the amount estimated to be adequate in 2003-04. Using the same example of Table VI-1A, of the 17 districts, 5 were spending above SS-adequate levels. Those districts, which enrolled 23,975 students, spent \$15.3 million over SS adequacy, or \$640 per student, on average. The districts that were spending above adequacy fell into the small and moderate size categories. Section VI of Tables VI-1A, B, C, and D show which districts were spending below the adequacy level estimated by the SS approach. In the example of Table VI-1A, the data shows that 12 districts would have needed a total of \$79.6 million, or \$231 per student, on average, to bring them up to the successful schools adequacy level.

The degree to which districts were spending above or below adequacy varied by which approach was used and if the LCM was applied. In the example of Table VI-1A (using the SS approach without the LCM) the cost of adequacy again was \$2,295.5 million or \$64.2 million more than current actual spending, with 5 districts spending above the adequate amount and 12 districts spending below. In Table VI-1B (using the SS approach but also applying the LCM) the cost of adequacy was \$2,287.0 million or \$55.7 million over current spending, with 10 districts spending above the adequate amount and 7 districts spending below.

Table VI-1C and VI-1D both used the professional judgment approach to determine the cost of adequacy using the 2013-14 standard. Since this standard is, by definition, higher than that used for the SS approach, the costs for providing resources to meet that standard as shown in Tables VI-1C and D are much higher than the estimates of the previous tables. Table VI-1C (using the PJ approach without applying the LCM) shows an adequacy cost of \$3,564.5 million (or \$1,333.2 million more than current spending) with only one district spending above the estimated adequate amount, and the other 16 spending below. In Table VI-1D, (using the PJ approach with the LCM) the cost of adequacy was \$3,551.3 million (or \$1,320.0 million more than current spending) with 2 districts spending above adequacy and 15 spending below.

TABLE VI-1A

ESTIMATING THE COST OF ADEQUACY FOR NEVADA SCHOOL DISTRICTS
 USING THE SUCCESSFUL SCHOOLS BASE IN 2003-04

WITHOUT LCM

	Small	Moderate	Large	<u>TOTAL</u>
I. <u>School District Characteristics</u>				
Range in Size of District (Students)	< 1,500	1501 - 49,999	> 50,000	
Number of Districts	8	7	2	17
Number of Students	5,789	45,260	317,974	369,023
II. <u>Estimated Aggregate Cost of Adequacy (millions)*</u>				
Base Cost	\$43.1	\$239.1	\$1,432.2	\$1,714.4
Special Education	\$8.6	\$37.9	\$180.0	\$226.5
At-Risk	\$4.1	\$24.2	\$177.6	\$206.0
ELL	\$1.7	\$11.6	\$119.4	\$132.7
CTE	\$1.8	\$3.1	\$11.0	\$15.9
Grand Total	\$59.2	\$316.0	\$1,920.3	\$2,295.5
III. <u>Estimated Cost of Adequacy Per Student*</u>				
<i>Grand Total</i>	<i>\$10,232</i>	<i>\$6,981</i>	<i>\$6,039</i>	<i>\$6,221</i>
IV. <u>Actual Comparable Spending*</u>				
Aggregate Total (millions)	\$54.2	\$319.8	\$1,857.3	\$2,231.3
<i>Per Student Total</i>	<i>\$9,356</i>	<i>\$7,065</i>	<i>\$5,841</i>	<i>\$6,046</i>

TABLE VI-1A (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
V. <u>Districts with Higher Spending than the Amount Estimated to be Adequate</u>				
Number of Districts	2	3	0	5
Number of Students	279	23,696	0	23,975
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$3.6	\$152.5	--	\$156.2
Actual 2003-04 Spending (Aggregate in millions)*	\$5.5	\$166.0	--	\$171.5
Actual Spending Over Adequacy (Aggregate in millions)*	\$1.9	\$13.4	--	\$15.3
Per Student Spending Over Adequacy	\$6,767	\$567	--	\$640

TABLE VI-1A (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
VI. <u>Districts with Lower</u> <u>Spending than the Amount</u> <u>Calculated to be Adequate</u>				
Number of Districts	6	4	2	12
Number of Students	5,509	21,564	317,974	345,047
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$55.6	\$163.4	\$1,920.3	\$2,139.4
Actual 2003-04 Spending (Aggregate in millions)*	\$48.6	\$153.8	\$1,857.3	\$2,059.8
Actual Spending <i>Under Adequacy</i> (Aggregate in millions)*	\$7.0	\$9.7	\$63.0	\$79.6
Per Student Spending <i>Under Adequacy</i>	\$1,264	\$448	\$198	\$231

* Figures exclude spending for capital, transportation, and food service

TABLE VI-1B

ESTIMATING THE COST OF ADEQUACY FOR NEVADA SCHOOL DISTRICTS
USING THE SUCCESSFUL SCHOOLS BASE IN 2003-04

WITH LCM

	Small	Moderate	Large	<u>TOTAL</u>
I. <u>School District Characteristics</u>				
Range in Size of District (Students)	< 1,500	1501 - 49,999	> 50,000	
Number of Districts	8	7	2	17
Number of Students	5,789	45,260	317,974	369,023
II. <u>Estimated Aggregate Cost of Adequacy (millions)*</u>				
Base Cost	\$36.8	\$229.2	\$1,442.2	\$1,708.2
Special Education	\$7.4	\$36.4	\$181.4	\$225.2
At-Risk	\$3.5	\$23.1	\$178.8	\$205.4
ELL	\$1.4	\$11.0	\$120.1	\$132.6
CTE	\$1.5	\$3.0	\$11.1	\$15.5
Grand Total	\$50.6	\$302.7	\$1,933.7	\$2,287.0
III. <u>Estimated Cost of Adequacy Per Student*</u>				
<i>Grand Total</i>	<i>\$8,741</i>	<i>\$6,689</i>	<i>\$6,081</i>	<i>\$6,198</i>
IV. <u>Actual Comparable Spending*</u>				
Aggregate Total (millions)	\$54.2	\$319.8	\$1,857.3	\$2,231.3
<i>Per Student Total</i>	<i>\$9,356</i>	<i>\$7,065</i>	<i>\$5,841</i>	<i>\$6,046</i>

TABLE VI-1B (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
V. <u>Districts with Higher Spending than the Amount Estimated to be Adequate</u>				
Number of Districts	5	5	0	10
Number of Students	3,147	33,326	0	36,473
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$27.9	\$218.0	--	\$245.9
Actual 2003-04 Spending (Aggregate in millions)*	\$32.0	\$238.3	--	\$270.3
Actual Spending Over Adequacy (Aggregate in millions)*	\$4.1	\$20.3	--	\$24.4
Per Student Spending Over Adequacy	\$1,307	\$609	--	\$669

TABLE VI-1B (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
VI. <u>Districts with Lower</u> <u>Spending than the Amount</u> <u>Calculated to be Adequate</u>				
Number of Districts	3	2	2	7
Number of Students	2,642	11,934	317,974	332,550
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$22.7	\$84.8	\$1,933.7	\$2,041.1
Actual 2003-04 Spending (Aggregate in millions)*	\$22.1	\$81.5	\$1,857.3	\$1,960.9
Actual Spending <i>Under Adequacy</i> (Aggregate in millions)*	\$0.6	\$3.3	\$76.3	\$80.2
Per Student Spending <i>Under Adequacy</i>	\$209	\$275	\$240	\$241

* Figures exclude spending for capital, transportation, and food service

TABLE VI-1C

ESTIMATING THE COST OF ADEQUACY FOR NEVADA SCHOOL DISTRICTS
USING THE PROFESSIONAL JUDGMENT BASE IN 2003-04

WITHOUT LCM

	Small	Moderate	Large	<u>TOTAL</u>
I. <u>School District Characteristics</u>				
Range in Size of District (Students)	< 1,500	1501 - 49,999	> 50,000	
Number of Districts	8	7	2	17
Number of Students	5,789	45,260	317,974	369,023
II. <u>Estimated Aggregate Cost of Adequacy (millions)*</u>				
Base Cost	\$66.9	\$371.3	\$2,223.9	\$2,662.1
Special Education	\$13.3	\$58.9	\$279.6	\$351.8
At-Risk	\$6.4	\$37.7	\$275.8	\$319.9
ELL	\$2.6	\$18.0	\$185.5	\$206.1
CTE	\$2.7	\$4.9	\$17.0	\$24.7
Grand Total	\$92.0	\$490.6	\$2,981.8	\$3,564.5
III. <u>Estimated Cost of Adequacy Per Student*</u>				
<i>Grand Total</i>	<i>\$15,888</i>	<i>\$10,841</i>	<i>\$9,378</i>	<i>\$9,659</i>
IV. <u>Actual Comparable Spending*</u>				
Aggregate Total (millions)	\$54.2	\$319.8	\$1,857.3	\$2,231.3
<i>Per Student Total</i>	<i>\$9,356</i>	<i>\$7,065</i>	<i>\$5,841</i>	<i>\$6,046</i>

TABLE VI-1C (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
V. <u>Districts with Higher Spending than the Amount Estimated to be Adequate</u>				
Number of Districts	1	0	0	1
Number of Students	67	--	--	67
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$1.39	--	--	\$1.39
Actual 2003-04 Spending (Aggregate in millions)*	\$1.43	--	--	\$1.43
Actual Spending Over Adequacy (Aggregate in millions)*	\$0.04	--	--	\$0.04
Per Student Spending Over Adequacy	\$627	--	--	\$627

TABLE VI-1C (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
VI. <u>Districts with Lower</u> <u>Spending than the Amount</u> <u>Calculated to be Adequate</u>				
Number of Districts	7	7	2	16
Number of Students	5,721	45,260	317,974	368,955
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$90.6	\$490.6	\$2,981.8	\$3,563.1
Actual 2003-04 Spending (Aggregate in millions)*	\$52.7	\$319.8	\$1,857.3	\$2,229.8
Actual Spending <i>Under Adequacy</i> (Aggregate in millions)*	\$37.9	\$170.9	\$1,124.5	\$1,333.2
Per Student Spending <i>Under Adequacy</i>	\$6,616	\$3,776	\$3,536	\$3,614

* Figures exclude spending for capital, transportation, and food service

TABLE VI-1D

ESTIMATING THE COST OF ADEQUACY FOR NEVADA SCHOOL DISTRICTS
 USING THE PROFESSIONAL JUDGMENT BASE IN 2003-04

WITH LCM

	Small	Moderate	Large	<u>TOTAL</u>
I. <u>School District Characteristics</u>				
Range in Size of District (Students)	< 1,500	1501 - 49,999	> 50,000	
Number of Districts	8	7	2	17
Number of Students	5,789	45,260	317,974	369,023
II. <u>Estimated Aggregate Cost of Adequacy (millions)*</u>				
Base Cost	\$57.2	\$355.9	\$2,239.5	\$2,652.6
Special Education	\$11.5	\$56.5	\$281.7	\$349.7
At-Risk	\$5.4	\$35.9	\$277.6	\$319.0
ELL	\$2.2	\$17.1	\$186.6	\$205.9
CTE	\$2.3	\$4.6	\$17.2	\$24.1
Grand Total	\$78.6	\$470.1	\$3,002.6	\$3,551.3
III. <u>Estimated Cost of Adequacy Per Student*</u>				
<i>Grand Total</i>	<i>\$13,573</i>	<i>\$10,386</i>	<i>\$9,443</i>	<i>\$9,623</i>
IV. <u>Actual Comparable Spending*</u>				
Aggregate Total (millions)	\$54.2	\$319.8	\$1,857.3	\$2,231.3
<i>Per Student Total</i>	<i>\$9,356</i>	<i>\$7,065</i>	<i>\$5,841</i>	<i>\$6,046</i>

TABLE VI-1D (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
V. <u>Districts with Higher Spending than the Amount Estimated to be Adequate</u>				
Number of Districts	2	0	0	2
Number of Students	279	--	--	279
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$4.7	--	--	\$4.7
Actual 2003-04 Spending (Aggregate in millions)*	\$5.5	--	--	\$5.5
Actual Spending Over Adequacy (Aggregate in millions)*	\$0.8	--	--	\$0.8
Per Student Spending Over Adequacy	\$2,801	--	--	\$2,801

TABLE VI-1D (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
VI. <u>Districts with Lower</u> <u>Spending than the Amount</u> <u>Calculated to be Adequate</u>				
Number of Districts	6	7	2	15
Number of Students	5,509	45,260	317,974	368,743
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$73.8	\$470.1	\$3,002.6	\$3,546.5
Actual 2003-04 Spending (Aggregate in millions)*	\$48.6	\$319.8	\$1,857.3	\$2,225.7
Actual Spending <i>Under Adequacy</i> (Aggregate in millions)*	\$25.2	\$150.3	\$1,145.3	\$1,320.8
Per Student Spending <i>Under Adequacy</i>	\$4,573	\$3,322	\$3,602	\$3,579

* Figures exclude spending for capital, transportation, and food service

VII. NEVADA'S CURRENT SCHOOL FINANCE SYSTEM

This chapter serves two key purposes:

- It provides a discussion and overview of Nevada's current school finance system and funding formula and compares key components of this funding system with several surrounding states; and
- It provides a comparison of Nevada to other selected states in terms of a series of school finance-related variables:
 - Numbers of students and schools, and growth over time;
 - Percentages of students with special needs;
 - Teachers per 1,000 students and teachers as percentage of staff;
 - Changes over time of per student revenues and expenditures;
 - Capital spending and long term debt per student; and
 - School district revenue sources.

An Overview of Nevada's Current School Finance System

The "Nevada Plan" is the State's mechanism for providing a "reasonably equal educational opportunity" for students in every district and all charter schools (Nevada Revised Statutes 387.121). The system guarantees a level of funding on a per student basis. The per-student amount is established by each Session of the Legislature for each of the following two years. The funds are then divided statewide by a weighted apportionment enrollment. The weighted apportionment enrollment includes:

- A partial count (.6) of kindergarten and pre-kindergarten students);
- A full count (1) for students in grades 1-12;
- A full count (1) for ungraded students; and
- The inclusion of net transfers (transfers out of the school district minus transfers in).

In an effort to meet the diverse needs of Nevada's school districts the Nevada Plan has an equity allocation process that looks at each district's unique characteristics. Specifically, student enrollment, teacher and licensed staffing, other operating costs, the school district's degree of urbanization and school dispersal through the concept of "attendance areas," transportation cost equalization, and a local wealth factor incorporating each district's relative ability to raise specific local education taxes.¹⁰ All of these adjustments are combined to create a per-student funding amount for each district.

The State guarantees to provide the per-student funding support to each district based on student enrollment. To meet this requirement there are two sources of

¹⁰ Nevada Department of Education, Administrative and Fiscal Services (2006). "The "NEVADA PLAN" and Distributive School Account (DSA): The DSA Equity Allocation Model. p. 3.

money: (1) the Distributive School Account in the State General Fund and (2) two-locally generated revenues –a county-specific and apportioned 2.25% Local School Support Tax (LSST) and a 1/3 (\$0.25) Public Schools Operating Property Tax (PSOPT). The LSST and PSOPT are subtracted from the state-guaranteed support to determine the state’s financial responsibility. If the revenue from these two local sources is more than anticipated, state aid is decreased, if, on the other hand, the revenue is less than expected the state aid is increased to ensure the basic support level guaranteed.

Approximately 80 percent of school districts’ operating funds are guaranteed by the state.¹¹ This money is allocated through the Distributive School Account (DSA) in the State General Fund. In addition to the General Fund resources, the state uses several other dedicated revenue sources to meet its share of the financial obligation. These revenue sources include: A share of the annual slot tax; Investment income from the permanent school fund; Federal mineral land lease receipts; Sales tax on out-of-state sales that cannot be attributed to a particular county; and Estate tax.

The remaining 20 percent of the school districts’ operating budgets are provided through local revenues that are considered “outside” of the Nevada Plan. These additional components of local revenue include the remaining 2/3 (\$0.50) of the PSOPT; a share of basic government services tax distributed to school districts; Franchise taxes; Interest income; Tuition; Rent; Non-categorical federal funds (such as Title VIII of the Elementary and Secondary Education Act of 1965); and Opening general fund balance.¹² These additional revenues do not affect state aid like the two other local revenue sources –state aid does not increase or decrease if estimations are met or not. However, this revenue is considered when determining each school district’s relative wealth.

To better understand the funding system in Nevada, key components of the funding system were compared to several surrounding states’ systems. Table VII-1 on the following page outlines important components of the finance system.

There are several interesting findings shown in the table. First, the Legislature sets the base cost per-pupil support in every state, including Nevada. In several states, including California and Oregon, the base cost is determined by previous year support or average daily membership. Another similarity among the states is the relationship between local and state support. In every state, local school districts are required to levy property tax to meet their financial obligation. Depending on the ability of each school district to raise money, the State pays the difference between what is guaranteed per-student support and local revenue for student support. However, Nevada requires local districts to levy a local

¹¹ Fiscal Analysis Division, Legislative Counsel Bureau (2003). The NEVADA PLAN for School Finance: An Overview. p. 3.

¹² Fiscal Analysis Division, Legislative Counsel Bureau (2003). The NEVADA PLAN for School Finance: An Overview. p. 5

school tax in addition to property taxes. This differs from the surrounding states. In some states there is an option for local school districts to raise additional revenue above the base cost determined by the state. Arizona, Idaho, and Utah school districts all have the opportunity to ask voters to approve additional taxation to support schools. Nevada, California, and Oregon do not have this local option.

Special populations of students, including Special Education, At-Risk, and English Language Learners, have implications for school funding systems. Oftentimes, local school districts face higher costs in educating these students. The support for special education students varies in the above comparison. Nevada allocates special education units and Idaho says that funding is included in the base cost, while Utah gives school districts an added weight of 1.53. There is more homogeneity in supporting at-risk and ELL students. Three states (Nevada, Arizona, and Idaho) do not include additional support for at-risk students in the calculation of per-student support. Oregon and Utah, on the other hand, include additional support for at-risk students in the base cost. Finally, Nevada is the only state that does not include additional support for ELL students. All surrounding states either include these students in the base cost or provide some additional support (like \$100 per student in California) to local school districts. These differences may reflect important assumptions about the cost of educating Special Education, At-risk, and/or ELL students.

The last funding component compared is the support for Capital. With certain exceptions on a case-by case basis, Nevada and Idaho are the only two states in the comparison that do not provide any support for Capital. The other four states support local school districts by providing funds or assuming the cost of construction and then leasing the buildings back to the district. In both Arizona and Utah districts either match state support or can go beyond what state support is given.

TABLE VII - 1

OTHER STATE APPROACHES TO SCHOOL FINANCE

		Nevada	Arizona	California	Idaho	Oregon	Utah
Base Cost		Set by legislature for following two years	Weighted Student Formula, Legislature sets base cost	Set by state legislature based on previous year	Foundation set by the Legislature	Set by Legislature, system based on defined amount per ADM	Set by the Legislature
Pay for the Base		Use the LSST, PSOPT and State funds	District Primary Tax Levy is deducted from the base and the State pays the difference	Controlled by Proposition 13 with limited local funding coming from property taxes and the State paying the difference	Districts must levy a set amount and State pays the difference	Districts levy property tax and then state picks up difference, also use the timber tax	Districts levy property tax and then state picks up difference
Local Option			Secondary Levy option is available with voter approval		Additional Levy available with voter approval		Additional Levy available with voter approval
Special needs	Special Ed	Special Education Units are allocated	Based on a number of weights specified in the funding formula	Receive a per pupil amount derived from a base year of actual spending and then adjusted for inflation yearly	Funded as part of regular program	Included in base amount up to \$30,000 per pupil which is then reimbursed	Added weight of 1.53
	At-Risk	Not Included	Not included	State funds an Economic Impact Aid program and allows certain districts to raise local resources	Not included	Included in base amount	Considered in Base or from local levy
	ESL	Not Included	Based on a weight in the funding formula	\$100 per identified student	Additional funding has been made available based on legal requirements	included base amount	Considered in Base or from local levy
Capital		Not generally provided by the state	State funds a definition of adequate facilities, districts can go above	State passes bonds to build facilities and then leases them back to Districts	None provided by the State	Up to 8% of the construction cost of new classrooms	State provide funds with District match

Comparison of Nevada to Selected Other States in Terms of School Finance-Related Variables

The purpose of this section is to describe a variety of school funding characteristics in Nevada and to compare those characteristics with selected other states. APA identified two sets of states for comparison purposes. The first set includes the five states that are geographically close to Nevada (Arizona, California, Idaho, Oregon, and Utah). The second set includes three states (Florida, Maryland, and New Mexico) that are similar to Nevada in two ways that school districts are organized – they have a relatively small number of school districts (less than half of the national average of 300 or so) and they have at least one large, urban school district (similar to Clark County). We chose these two sets because it is not unusual that states near to one another tend to fund schools at similar levels and because the way states organize their school districts may affect school funding.

In addition to these two sets of states, we also show national average information. The comparisons use data from the National Center for Education Statistics (NCES) and are for three years: 2002-03, the latest year for which all of the variables we wanted to look at were available; 1997-98, five years prior to 2002-03; and 1992-93, ten years prior to 2002-03.

First, we looked at the basic demographic characteristics of the education system in the states, including the number of school districts, schools, and students. Information about these demographic characteristics is shown in Table VII-2. Some interesting findings include:

- Clearly, Nevada has the fewest number of school districts among the states selected for comparison. In most of the other comparison states, school districts are not organized by county (in many states, some, but not all, districts are county based) as they are in Nevada but, rather, reflect communities or groups of communities.
- The growth in Nevada's number of schools from 1992-2003 is impressive. Only Arizona had faster growth over this timeframe and, in most states, the number of schools increased less than half as fast as Nevada.
- The growth in the number of students in Nevada far outpaced student population growth in all other selected states. In fact, Nevada's pace of student growth from 1992-2003 was more than 50 percent greater than the next fastest growing state (Arizona).

TABLE VII-2

NUMBERS OF SCHOOL DISTRICTS, SCHOOLS, AND STUDENTS WITH CHANGE BETWEEN 1992-93 AND 2002-03

	School Districts	Schools					Students				
		1992-93	1997-98	2002-03	Change 92-93 to 02-03	Change 97-98 to 02-03	1992-93	1997-98	2002-03	Change 92-93 to 02-03	Change 97-98 to 02-03
Nevada	17	383	455	542	41.5%	19.1%	222,169	295,972	368,794	66.0%	24.6%
U.S.	15,873	84,374	89,508	96,048	13.8%	7.3%	41,955,413	45,307,422	47,666,276	13.6%	5.2%
<u>Nearby States</u>											
Arizona	522	1,117	1,429	1,928	72.6%	34.9%	672,557	808,089	957,188	42.3%	18.5%
California	1,056	7,665	8,182	9,100	18.7%	11.2%	5,089,808	5,634,519	6,181,021	21.4%	9.7%
Idaho	115	605	642	697	15.2%	8.6%	230,485	244,510	248,604	7.9%	1.7%
Oregon	205	1,213	1,253	1,263	4.1%	0.8%	507,429	539,118	551,605	8.7%	2.3%
Utah	53	714	759	804	12.6%	5.9%	452,509	469,890	473,274	4.6%	0.7%
<u>Similarly Organized States</u>											
Florida	73	2,592	2,888	3,526	36.0%	22.1%	1,981,407	2,295,671	2,541,478	28.3%	10.7%
Maryland	24	1,263	1,300	1,404	11.2%	8.0%	783,139	817,013	861,255	10.0%	5.4%
New Mexico	89	697	745	809	16.1%	8.6%	307,890	331,673	320,264	4.0%	-3.4%

Source: National Center for Education Statistics (Build a Table)

Note: Similarly organized states are those with a relatively small number of school districts and at least one comparatively large district.

Second, it is important to understand something about the nature of the students being served in a state. This is important because, in addition to raw enrollment growth, the number of students with special needs and associated higher costs places a significant fiscal responsibility on the state. Just looking at 2002-03, as shown in Table VII-3, it is clear that Nevada's proportion of students in special education programs and the proportion eligible for free or reduced-price lunch (often used as a proxy for the number of "at-risk" students, who might not keep pace with other students unless added services are provided) is slightly below the national average and below the averages of the two groups of comparison states. On the other hand, Nevada's proportion of students who are English language learners, and may require special services, is higher than the national average and those of the comparison groups.

When students are "weighted" to reflect the relative cost of serving them, a ratio of weighted to unweighted students can be created. Such a ratio is shown in the last column of Table VII-3. To create this ratio, APA used a common set of weights for all states in the table. This common set was based on APA experience, not on any specific weights generated through the current Nevada study. Nevada's ratio of weighted to unweighted students of 1.47 suggests that it costs 47 percent more to educate the actual students enrolled as compared to the cost of serving students with no special needs. Nevada's costs are slightly more than the national average but generally similar to those of the comparison states (with the exception of California and New Mexico, which had much higher costs).

TABLE VII-3

TOTAL STUDENTS, PERCENTAGE OF STUDENTS WITH SPECIAL NEEDS, AND RATIO OF WEIGHTED TO UNWEIGHTED STUDENTS IN 2002-03

	2002-03 Total Students	Percentage of All Students with Special Needs in 2002-03			2002-03 Ratio of Weighted to Unweighted Students*
		Special Education	Free and Reduced-Price Lunch Eligible	English Language Learners	
Nevada	368,794	11.5%	34.1%	15.9%	1.47
U.S.	47,666,276	13.5%	36.8%	8.6%	1.45
<u>Nearby States</u>					
Arizona	957,188	10.6%	47.6%	15.0%	1.54
California	6,181,021	10.9%	48.6%	25.9%	1.64
Idaho	248,604	11.6%	36.4%	7.5%	1.41
Oregon	551,605	13.0%	38.4%	9.5%	1.46
Utah	473,274	11.9%	31.6%	9.1%	1.40
Simple Average		11.6%	40.5%	13.4%	1.49
<u>Similarly Organized States</u>					
Florida	2,541,478	15.3%	45.2%	8.0%	1.51
Maryland	861,255	12.3%	30.9%	3.2%	1.35
New Mexico	320,264	19.9%	57.0%	20.4%	1.74
Simple Average		15.8%	44.4%	10.5%	1.53

* Student weights are: special education, 1.10; free and reduced-price lunch eligible, .60; and ELL, .90 (based on prior APA work in other states).

Source or raw data: National Center for Education Statistics (Build a Table)

Note: Similarly organized states are those with a relatively small number of school districts and at least one comparatively large district.

Table VII-4 shows the number of employees working in the public schools relative to the number of students enrolled. It should be noted that most states do not specify how revenues should be spent (to hire specific numbers of employees, such as teachers) so the figures shown in the table reflect the average of decisions made by all of the school districts, and schools, in the states. While the number of teachers per 1,000 students has grown over time in Nevada, from 53.8 in 1992-93 to 54.3 in 2002-03, that level is well below the U.S. average, higher than most nearby states, and below two of the three similarly organized states; weighting students does not change this result. Nevada's teachers represent a high proportion of all staff, which grew in the mid 1990's

and has remained constant at about 57.4 percent. In fact, Nevada's teacher proportion is well above the national average and above all comparison states.

TABLE VII-4
TEACHERS PER 1,000 STUDENTS AND TEACHERS AS A PERCENTAGE OF ALL STAFF
IN 1992-93, 1997-98, AND 2002-03

	Teachers per 1,000 Students			Teachers per 1,000 Weighted Students 2002-03	Teachers as Percent of Staff		
	1992-93	1997-98	2002-03		1992-93	1997-98	2002-03
Nevada	53.8	54.2	54.3	36.8	55.7%	57.7%	57.4%
<i>U.S.</i>	<i>56.1</i>	<i>57.6</i>	<i>63.3</i>	<i>44.0</i>	<i>56.6%</i>	<i>54.7%</i>	<i>52.7%</i>
<u>Nearby States</u>							
Arizona	53.6	50.9	48.7	42.9	50.4%	50.8%	48.7%
California	42.4	47.0	48.7	29.6	50.8%	54.1%	52.4%
Idaho	51.3	54.0	55.9	39.5	60.4%	57.2%	55.8%
Oregon	52.5	50.2	49.2	33.8	51.6%	46.7%	49.3%
Utah	42.4	45.2	47.7	34.0	55.1%	53.4%	54.1%
Simple Average	48.5	49.5	50.0	36.0	53.7%	52.4%	52.1%
<u>Similarly Organized States</u>							
Florida	54.3	54.2	54.4	36.0	43.8%	48.6%	48.1%
Maryland	60.3	59.1	64.3	47.6	54.7%	55.3%	53.9%
New Mexico	56.1	59.2	66.1	37.9	49.6%	49.2%	48.0%
Simple Average	56.9	57.5	61.6	40.5	49.4%	51.0%	50.0%

Source of raw data: National Center for Education Statistics (Build a Table)

Note: Similarly organized states are those with a relatively small number of school districts and at least one comparatively large district.

Table VII-5 shows per student revenue and expenditure figures. It is important to note that revenues include all revenues, for current operations and for capital purposes (NCES does not separate revenues except by source), while expenditures are for current operating purposes only. In 2002-03, the total revenue per weighted student in Nevada were well below the national average, higher than in three of the five nearby states, and higher than two of the three similarly organized states. Revenues grew sluggishly over time compared to four of five nearby states and two of three similarly organized states.

Nevada does not fare quite as well in terms of expenditures. Table VII-5 shows that, in 2002-03, Nevada's expenditures were well below the national average. Increases in Nevada's per student expenditures were also slower than the national average and all comparison states. When the figures are adjusted for inter-state cost-of-living differences and weighted students (which is the fairest way to compare expenditure figures since it is sensitive to factors beyond the control of states) Nevada's per student spending was 20 percent below the

national average, five percent above the average of nearby states, and 14 percent below the average of similarly organized states.

TABLE VII-5

CHANGE OVER TIME IN PER STUDENT REVENUE (CURRENT AND CAPITAL) AND CURRENT EXPENDITURE ADJUSTED FOR NEED AND INTER-STATE COST-OF-LIVING

	Total Revenue per Student							Current Expenditure per Student						
	1992-93	1997-98	2002-03	Change: 92-93 to 02-03	Change: 97-98 to 02-03	Total Revenue per Weighted Student in 02-03*	Per Weighted Student in 02-03 Adjusted for Cost-of-Living**	1992-93	1997-98	2002-03	Change: 92-93 to 02-03	Change: 97-98 to 02-03	Expenditure per Weighted Student in 02-03*	Per Weighted Student in 02-03 Adjusted for Cost-of-Living**
Nevada	\$5,295	\$6,456	\$7,551	42.6%	17.0%	\$5,138	\$5,501	\$4,661	\$5,307	\$6,104	31.0%	15.0%	\$4,140	\$4,432
U.S.	\$5,902	\$7,194	\$9,234	56.5%	28.4%	\$6,368	\$6,386	\$5,266	\$6,301	\$8,131	54.4%	29.1%	\$5,608	\$5,608
<u>Nearby States</u>														
Arizona	\$5,060	\$5,855	\$7,680	51.8%	31.2%	\$4,987	\$5,200	\$4,094	\$4,629	\$6,155	50.4%	33.0%	\$3,997	\$4,168
California	\$5,509	\$6,769	\$9,225	59.7%	36.3%	\$5,625	\$4,614	\$4,758	\$5,814	\$7,763	63.2%	33.5%	\$4,721	\$3,873
Idaho	\$3,891	\$5,401	\$6,832	75.6%	26.5%	\$4,845	\$5,165	\$3,489	\$4,719	\$6,081	74.3%	28.9%	\$4,301	\$4,585
Oregon	\$6,180	\$7,204	\$8,339	34.9%	15.8%	\$5,712	\$5,514	\$5,615	\$6,445	\$7,525	34.0%	16.8%	\$5,161	\$4,982
Utah	\$3,663	\$4,906	\$6,155	68.0%	25.5%	\$4,396	\$4,323	\$3,042	\$4,079	\$5,001	64.4%	22.6%	\$3,566	\$3,506
Simple Average	\$4,860	\$6,027	\$7,646	57.3%	26.9%	\$5,113	\$4,963	\$4,200	\$5,137	\$6,505	54.9%	26.6%	\$4,366	\$4,223
<u>Similarly Organized States</u>														
Florida	\$5,738	\$6,529	\$7,470	30.2%	14.4%	\$4,947	\$5,252	\$4,876	\$5,548	\$6,435	32.0%	16.0%	\$4,256	\$4,518
Maryland	\$6,670	\$7,900	\$10,064	50.9%	27.4%	\$7,455	\$7,388	\$6,173	\$7,152	\$9,211	49.2%	28.8%	\$6,825	\$6,764
New Mexico	\$4,643	\$5,887	\$8,386	80.6%	42.5%	\$4,820	\$5,010	\$4,028	\$5,005	\$7,124	76.9%	42.3%	\$4,085	\$4,246
Simple Average	\$5,684	\$6,772	\$8,640	52.0%	27.6%	\$5,741	\$5,883	\$5,026	\$5,902	\$7,590	51.0%	28.6%	\$5,056	\$5,176

Source of raw data: National Center for Education Statistics (Build a Table)

* Student weights are: special education, 1.10; free and reduced-price lunch eligible, .60; and ELL, .90 (based on prior APA work in other states).

** Inter-state cost-of-living differences are based on figures from the American Federation of Teachers for the year 2000.

Note: Similarly organized states are those with a relatively small number of school districts and at least one comparatively large district.

Given that enrollment has grown and schools have been built so rapidly in Nevada (see Table VII-2), it makes sense to examine how spending for capital purposes has changed over time. Table VII-6 shows that, in 2002-03 (and 1997-98) Nevada spent more for capital purposes than the national average and more than all of the comparison states. While Nevada's rate of capital expenditure growth was lower than many of the comparison states, this is primarily attributable to the state's much higher spending in 1992-93. Nevada also had the highest levels of long term debt per student in 1997-98 and 2002-03. What should be kept in mind is that most capital, and debt, is paid by local school districts (this is the case in Nevada and several, but not all, of the comparison states).

TABLE VII-6

CHANGE OVER TIME IN PER STUDENT CAPITAL EXPENDITURE AND LONG TERM DEBT

	Capital Expenditure per Student					Long Term Debt per Student		
	1992-93	1997-98	2002-03	Change: 92-93 to 02 03	Change: 97-98 to 02 03	1997-98	2002-03	Change: 97-98 to 02 03
Nevada	\$915	\$1,190	\$1,607	75.6%	35.0%	\$6,214	\$8,697	40.0%
U.S.	\$631	\$904	\$1,167	84.9%	29.1%	\$3,127	\$5,077	62.4%
<u>Nearby States</u>								
Arizona	\$1,052	\$1,015	\$934	-11.2%	-8.0%	\$4,856	\$4,228	-12.9%
California	\$531	\$890	\$1,294	143.7%	45.4%	\$1,360	\$3,947	190.2%
Idaho	\$359	\$691	\$771	114.8%	11.6%	\$2,270	\$3,058	34.7%
Oregon	\$445	\$696	\$1,160	160.7%	66.7%	\$3,354	\$6,939	106.9%
Utah	\$530	\$877	\$1,132	113.6%	29.1%	\$2,362	\$3,191	35.1%
Simple Average	\$583	\$834	\$1,058	104.3%	28.9%	\$2,840	\$4,273	50.4%
<u>Similarly Organized States</u>								
Florida	\$896	\$1,038	\$1,313	46.5%	26.5%	\$2,921	\$3,989	36.6%
Maryland	\$472	\$724	\$824	74.6%	13.8%	\$1,819	\$2,317	27.4%
New Mexico	\$531	\$837	\$1,300	144.8%	55.3%	\$1,815	\$2,737	50.8%
Simple Average	\$633	\$866	\$1,146	88.6%	31.9%	\$2,185	\$3,014	38.0%

Source: National Center for Education Statistics (Build a Table)

Note: Similarly organized states are those with a relatively small number of school districts and at least one comparatively large district.

Finally, in Table VII-7, we show the distribution of revenues to school districts by source. We were somewhat hesitant to show these figures – not because they are not correct but because they are not very meaningful given Nevada’s funding system. As mentioned earlier, revenue figures include current operations and capital. In Nevada, however, local school districts have no control over their current operating tax rates – other states provide some flexibility to districts, which can set current operating tax rates in order to supplement state support. And, unlike other states, Nevada uses two major sources of local revenue, property and sales taxes, where in most states local school districts rely primarily on property tax revenues.

TABLE VII-7

DISTRIBUTION OF REVENUE TO SCHOOL DISTRICTS BY SOURCE IN 1992-93, 1997-98 AND 2002-03

	1992-93			1997-98			2002-03		
	Local	State	Federal	Local	State	Federal	Local	State	Federal
Nevada	61.1%	34.2%	4.7%	63.6%	31.8%	4.6%	62.8%	30.2%	7.0%
U.S.	45.8%	44.8%	7.0%	48.4%	44.5%	6.8%	48.7%	42.5%	8.5%
<u>Nearby States</u>									
Arizona	44.1%	41.5%	8.8%	41.8%	44.3%	10.2%	37.9%	48.5%	11.4%
California	29.8%	62.2%	8.0%	31.6%	60.2%	8.2%	31.3%	58.9%	9.9%
Idaho	30.4%	61.1%	8.4%	30.3%	62.7%	7.0%	31.1%	59.1%	9.8%
Oregon	54.5%	37.9%	6.3%	35.4%	56.8%	6.4%	38.4%	50.9%	9.1%
Utah	34.9%	58.0%	7.1%	32.1%	61.0%	6.9%	34.3%	56.4%	9.3%
Simple Average	38.7%	52.1%	7.7%	34.2%	57.0%	7.8%	34.6%	54.7%	9.9%
<u>Similarly Organized States</u>									
Florida	43.2%	48.5%	8.3%	43.6%	48.8%	7.6%	45.8%	43.6%	10.5%
Maryland	55.2%	39.4%	5.4%	55.8%	39.0%	5.2%	55.0%	38.3%	6.7%
New Mexico	13.8%	73.7%	12.6%	14.6%	72.2%	13.2%	12.9%	72.1%	15.0%
Simple Average	37.4%	53.8%	8.8%	38.0%	53.3%	8.7%	37.9%	51.3%	10.7%

Source of raw data: National Center for Education Statistics (Build a Table)

Note: Similarly organized states are those with a relatively small number of school districts and at least one comparatively large district.

Note: Revenue includes both current and capital funds. In Nevada local districts do not have flexibility in setting local tax rates so the distinction between state and local funds is very different than in other states where local districts have more control over tax decisions.

Looking at the figures in Table VII-7, it is clear that Nevada is very different from the national average and from the comparison states in its reliance on local funds to support public schools. This pattern of reliance has not changed much over time. Such patterns tend not to change over time although, as the figures for Oregon indicate, a change in state policy – in that case limiting local property taxes – can dramatically change the balance between state and local revenues. In our view, the figures shown in this table overall are difficult to interpret. We do not believe that these figures necessarily suggest a change in Nevada’s state-local share is needed.

VIII. DESIGNING NEVADA'S SCHOOL FINANCE SYSTEM TO ACCOMMODATE BOTH EQUITY AND ADEQUACY

This chapter provides recommendations for incorporating the findings of APA's equity and adequacy analyses into Nevada's school finance system. It therefore addresses four main topics:

- A discussion of school finance systems in general.
- A discussion of equity analysis in general
- An equity analysis of Nevada's funding system.
- Incorporating APA's analyses into Nevada's school finance system.

A Discussion of School Finance Systems in General

School finance systems are used by states for two primary purposes: to distribute state aid to school districts and to control the taxing and spending behavior of school districts. The centerpiece of most school finance systems is a mathematical formula that calculates state aid on the basis of comparable, auditable school district information. A state's school finance formula can be complex, reflecting the desire to make the formula sensitive to factors that simultaneously:

1. Affect the cost of providing education services;
2. Are beyond the control of districts; and
3. Vary significantly among districts.

Over the past 30 years, states have become more sophisticated about identifying these factors and estimating the extent of their fiscal impact. Fiscal needs can be calculated by establishing a base cost and a series of adjustments to the base cost.

The base cost is the cost of providing services to students with no special needs who attend schools that are not affected by external cost factors (such as size). It is important that the base cost have some "meaning" – that is, that it reflects the cost of doing something that the state considers to be important, such as providing a specific array of services or reaching a specific achievement level. Too often, however, states set a base cost solely on the basis of available revenue, which obscures whatever meaning the figure would otherwise have.

The series of adjustments to the base cost can be expressed as student "weights." Such weights reflect the cost of a particular factor relative to the base cost and can either apply to all students (as in the case of district size or geographic cost) or only to some students (as in the case of a weight for low income students or students in a particular grade level). Weights typically are incorporated in a school aid formula when three criteria are met: 1) the cost factor is important – it should be the case that knowledgeable people believe the

factor impacts school district cost even if they cannot agree on the extent of the impact; 2) a significant number of students are affected by the factor (at least 5-10 percent of all students in the state); and 3) there is significant variation in the number of students affected by the cost factor across all districts. If these three criteria are not met, then adding a weight to a state aid formula serves to unnecessarily complicate matters.

With a proper base cost and weights that meet the three criteria described above, a state can accurately estimate the costs districts face in fulfilling whatever expectations are specified. In this way, the state aid system can complement state education policy as reflected in school district accreditation, teacher certification, and education accountability requirements.

Once costs have been estimated for each district, it is necessary to determine how costs will be split between state and local sources of revenue (assuming that federal funds are considered to be supplemental or are accounted for by reducing the student weights associated with special education and at-risk students). Since one of the primary purposes of a school finance system is to “equalize” revenue (or spending), states use one of several procedures to assure that wealthy school districts pay a higher share of total cost than less wealthy districts: 1) a foundation program, under which districts make a uniform tax effort and state aid is the difference between estimated cost and the local revenue produced by the uniform tax rate; or 2) a formula that takes into consideration the relative wealth of districts. Under both options, the state determines the overall share of total cost it wants to pay and sets the parameters of the allocation procedure to accomplish that result.

Numerous other issues arise in designing a state aid system for public elementary and secondary education. At the highest level, policymakers need to decide whether state aid should be subdivided into components. Typically, current operating funds are separate from capital funds and it is not unusual that transportation funds are separated from other operating funds – but it is also possible to separate funding for special education or to create distinct funding streams for programs such as vocational education or ELL funds.

While creating separate funding streams complicates the system, it also provides greater flexibility to policymakers, who can choose to equalize some components of the system but not others or who could decide to provide a higher share of state support for one component than another. For example, it would be possible to create a school finance system in which the state separated capital costs from current operating costs, provided a small fixed amount of funding per student for capital purposes, and provided an equalized formula with the state paying 60 percent of costs in a district with average wealth for operating costs.

One of the issues many states have focused on is local tax effort, particularly tax effort beyond whatever might be required in the basic aid program (such as a

foundation program with state aid calculated as the difference between an estimate of district cost and the revenue raised by a specified level of tax effort). Typically, school districts have wide leeway in the effort they make above the base requirement – in some cases there is no state control over that tax effort or the control is in the form of requiring voter approval (many states require voter approval of *increases* in spending, local revenue, tax rates, and/or tax effort). Some states limit the extent to which districts can tax themselves above the base (based on the tax rate or the revenue produced by the tax rate). In addition, some states attempt to equalize the revenues that can be generated by such tax rates, by providing state aid that is inversely related to district wealth and directly related to the level of effort.

School finance systems can become extremely complicated depending on the decisions made by policymakers. The more complex systems become, the more difficult it is to assure that they achieve appropriate levels of adequacy and equity, two longstanding goals of school finance.

A Discussion of Equity Analysis in General

Over the last century, school finance equity has received a great deal of attention. State policymakers first became interested in the topic when they began to realize there were enormous differences in districts' fiscal capacity and that some districts could obtain much more revenue per student than others while taxing themselves at similar or lower tax rates.

Policymakers also came to understand that the way they were distributing state aid, primarily through "flat grants", did little to overcome the advantages of wealth that were associated with some districts. Much of the effort that has been made to change school finance systems in the past 30 years has been to make the allocation of state aid more sensitive to the wealth of school districts – to "equalize" state aid – so that the total revenues of districts would be more similar (or so that the primary determinant of differences in revenue would be the tax effort of school districts).

Many states have had to defend their school finance systems in court against plaintiffs who claimed that variations in school district wealth led to variations in per student expenditures, which violated the education clauses found in most state constitutions. As a result, many states changed the way they allocated state aid to school districts. While significant improvements have been made, many people remain concerned about differences in spending across school districts and the role that state aid can play to alleviate such differences.

It is possible to measure such "inter-district fiscal equity" using statistics. To be effective, the statistic needs to: 1) measure the variation in spending among all, or most, districts; 2) be simple to calculate; and 3) be easy for policymakers to understand. In our experience, the best statistic to use in measuring inter-district

equity is the “coefficient of variation,” which is the standard deviation of a distribution of figures divided by the average of such figures. For example, if a state had 200 school districts, the average spending per student was \$5,000 and the standard deviation was \$1,000, then the coefficient of variation would be .200. Sometimes this figure is interpreted as meaning that about two-thirds of the districts have per student spending between \$4,000 and \$6,000 (one standard deviation above and below the average).

The coefficient can also be calculated in a more complex way, taking into consideration the enrollment of each district, so that larger districts have a greater impact on the resulting coefficient than smaller ones. The coefficient of variation typically ranges from .000 to .900 or so, with the lowest number indicating that there is literally no variation among the cases.

An Equity Analysis of Nevada’s Funding System

In school finance it is generally considered “good” if the coefficient of variation for per student spending across all school districts is less than .150. However, while many state courts have used the coefficient of variation in examining the equity of a school finance system, no court has ever specified the level of the coefficient above which the variation would be so great as to violate state constitutional requirements.

APA calculated the coefficient of variation for the 2003-04 per student spending of the 17 school districts in Nevada. As shown in Column 1 of Table VIII-1, using all districts, the coefficient of variation was .473. This figure is a result of using data for all 17 districts, which range in spending per student from \$5,825 to \$21,250 (excluding capital spending and transportation spending), producing a range of \$15,425 (the difference between the maximum and minimum) and a range ratio of 3.648 (dividing the maximum by the minimum). The range and range ratio are sometimes used as indicators of fiscal equity but since they exclude all but two districts in the calculation, we do not find them to be of much value.

While the .473 coefficient of variation appears to be relatively high (and much greater than the .150 figure described above), it overstates the level of inequity because it weighs a Nevada district with 100 students the same as it weighs a district with 300,000 students. In fact, if a student weighted figure were calculated, the variation would be very close to zero because one district in Nevada has about 70 percent of all students, and two districts have about 85 percent of all students.

Our experience suggests that, if possible, it is important to take two factors into consideration in examining the per student spending of districts: 1) student-based cost pressures facing school districts – such as those associated with special education, students from low income families, and ELL students; and 2) district-

based cost pressures such as those associated with size and geographic cost differences. The purpose of considering these cost pressures is to account for spending differences that simply reflect factors that are beyond district control. That is, a district may appear to be spending more than another district because it has a higher proportion of students in special education programs (which are more expensive than regular programs) or because it is small and cannot obtain the economies of scale available to a larger district.

The way to account for such factors is to add student cost weights to reflect costs that are beyond district control. APA therefore waited to conduct its equity analysis until we had completed the work necessary to quantify the cost impacts of special education, students from low income families, and ELL students as well as district size and regional costs. Having developed formulas that quantify these factors (as described in previous chapters of this report) we combined the weights for student needs with the district size adjustment formula. We then applied the regional cost factor (using the Location Cost Metric, or LCM discussed in Chapter IV) separately to per student spending and to per weighted student spending.

Column 2 of Table VIII-1 shows equity figures for LCM-adjusted spending per student; Column 3 of Table VIII-1 shows equity figures for spending per weighted student (weighted for student needs and district size); and Column 4 shows equity figures for LCM-adjusted spending per weighted student.

Clearly, adjusting spending to reflect the cost of serving students with special needs and taking size into consideration reduces the coefficient of variation (see Column 3, all districts, of table VIII-1). At the same time, the range of spending (per weighted student) and the range ratio decrease also. But adjusting spending for geographic cost differences, using the LCM, raises the coefficient of variation slightly. This indicates that the state aid system is not sensitive to the cost differences estimated by the LCM. Again, the coefficient of variation would be close to zero if the enrollment of each district were factored into consideration of the per-student (or weighted student) spending figures for the 17 districts.

TABLE VIII-1

**INDICATORS OF INTER-DISTRICT FISCAL EQUITY USING 2003-04
SPENDING DATA FOR NEVADA SCHOOL DISTRICTS**

Spending is for Current Operations Excluding Transportation

**Raw Spending and Spending Adjusted by the Location Cost Metric (LCM)
and Shown in per Student and per Weighted Student Terms**

	<u>Spending per Student</u>		<u>Spending per Weighted* Student</u>	
	(1)	(2)	(3)	(4)
	<u>Actual Spending per Student</u>	<u>LCM- Adjusted** Spending per Student</u>	<u>Actual Spending per Weighted Student</u>	<u>LCM- Adjusted** Spending per Weighted Student</u>
<i>All Districts</i>				
Number of Districts	17	17	17	17
Minimum	\$5,825	\$5,725	\$4,073	\$4,284
Maximum	\$21,250	\$25,207	\$8,111	\$9,622
Range	\$15,425	\$19,482	\$4,038	\$5,338
Range Ratio	3.648	4.403	1.991	2.246
Simple Average	\$9,236	\$10,324	\$4,916	\$5,421
Simple Standard Deviation	\$4,373	\$5,518	\$1,154	\$1,535
Simple Coefficient of Variation	0.473	0.534	0.235	0.283
<i>Federal Range of Districts***</i>				
Number of Districts	6	7	9	10
Minimum	\$5,825	\$5,725	\$4,386	\$4,284
Maximum	\$7,199	\$8,008	\$4,826	\$4,904
Range	\$1,374	\$2,283	\$440	\$620
Range Ratio	1.236	1.399	1.100	1.145
Simple Average	\$6,547	\$6,821	\$4,526	\$4,655
Simple Standard Deviation	\$576	\$910	\$139	\$219
Simple Coefficient of Variation	0.088	0.133	0.031	0.047

* Students are weighted for district size and for special education, eligibility for free or reduced-price lunch, English-language learner, and vocational education

** The Location Cost Metric (LCM) is a factor designed to estimate inter-district differences in the cost of living.

*** The federal range of districts excludes those highest and lowest spending districts with five percent of all students -- it may only exclude the highest or lowest five percent depending on where Clark County and Washoe County stand in the distribution of districts.

Figures in the lower half of Table VIII-1 show the results of making the same calculations for districts that enrolled 90-95 percent of all students in Nevada. Years ago, the federal government developed inter-district fiscal equity tests in order to determine whether states could count federal Impact Aid as local revenue.¹³ Those tests allow states to exclude from statistical consideration those districts enrolling up to five percent of all students in the highest spending districts and five percent of all students in the lowest spending districts. The equity tests that exclude such districts are called the federal range and federal range ratio and a coefficient of variation can also be calculated for such districts.

The coefficient of variation of per student spending (unadjusted by the LCM) for the six districts with at least 90 percent of Nevada's students is .088, a very low level (as shown in Column 1). The coefficient drops even lower, to .031, when it is calculated for spending per weighted student (again, unadjusted by the LCM). In both cases, the coefficient of variation rises a bit when spending figures are adjusted by the LCM because state aid is not sensitive to geographic cost differences. While we discount the use of the federal range or range ratio statistics, it is interesting to note that both drop to extremely low levels when looking at spending per weighted student (columns 3 and 4) even though only a small proportion of students have been eliminated from the calculation.

Ultimately, APA believes Nevada's school finance system is highly equitable in terms of inter-district spending. Almost by definition, the system would be equitable given the low number of districts and the distribution of students across those districts. Calculating traditional statistics and weighing district data for enrollment would also produce highly equitable results. We used traditional statistics and calculated them using a conservative approach, without weighing districts by enrollment. Even under those circumstances, the system is fairly equitable once spending has been adjusted to reflect the impact of cost pressures beyond the control of districts (coefficient of variation is .235). Eliminating districts with only 5-10 percent of the students, as permitted under federal definitions of fiscal equity, makes the system appear to be almost perfect (coefficient of variation is .031).

Incorporating APA's Analyses into Nevada's School Finance System

Previously, we have discussed both the general nature of school finance formulas and the specific structure of Nevada's system (the Nevada Plan). We have also examined the inter-district fiscal equity achieved by the system and found that it was very high. Our analysis leads us to conclude that the general structure of the Nevada Plan should be maintained. The Plan operates as a

¹³ Impact Aid, given to school districts with large Native American populations and serving students whose parents work on military bases, is highly focused and completely fungible – in order for states to consider it local revenue, thereby reducing state aid, the state has to pass one of the equity tests devised by the federal government.

foundation program under which the state specifies the fiscal needs of each district and pays as state aid the difference between the fiscal needs and the yield of sales and property taxes that are set by the state (and which the districts cannot exceed).

The weakness of the Nevada Plan is that the parameters that drive the estimate of fiscal need are not tied to expected student performance levels. The analyses we have presented in Chapters II-VI allow those parameters to be set in a rational way so that there is a link to student performance. Setting the parameters in this way would complete the logical connection between the state's student performance expectations, the accountability system that identifies the extent of progress being made toward achieving those expectations, and the allocation of state support.

There are several issues that arise in using the parameters and formulas APA has developed, which are discussed below. These issues are presented as being independent of each other and we do not combine them. However, policymakers should understand that they would need to be dealt with together in order to construct a state aid formula.

Rectifying Two Base Cost Figures

As discussed in Chapter V, we calculated two base cost figures, one using the successful school approach and the other based on the professional judgment approach. One way to interpret these figures is that the successful school base represents a starting point in 2003-04 and the professional judgment figure represents an ending point in 2013-14. Assuming that the student and district cost weights that modify the base remain constant over time and apply to the base as it increases, the state would need to figure out how to increase the revenues of school districts to match their anticipated cost, including inflation, which could be done in two different ways:

- (1) The increase could be based on the annual percentage change needed to move from the lower costs to the higher costs; or
- (2) The increase could be based on the annual constant amount that would be needed to move from the lower costs to the higher costs.

The figures shown below indicate alternative approaches to dealing with rising costs between 2003-04 and 2013-14. These figures assume that student population remains constant (which is unlikely) and that annual inflation is 2.3 percent per year (a figure provided by Nevada legislative staff). The figures start with the actual spending in 2003-04 (where spending is for current operations and excludes transportation and food services).

As discussed previously in Chapter VI, total Nevada district spending in 2003-04 was \$2,231.3 million. According to Table VI-1A, data shows that 12 districts would have needed a total of \$79.6 million, or \$231 per student (excluding the adjustment for the Location Cost Metric) on average, to bring them up to the successful schools adequacy level. We add this \$79.6 million and increase the total by 2.3 percent to get to the 2004-05 figure of \$2,364.1 million, which becomes the adequacy starting point. The PJ-produced ending point is \$4,457.6, which is the total cost in 2003-04 (including the LCM, as shown in Table VI-1D) adjusted by inflation of 2.3 percent over ten years (which raises 2003-04 costs by 25.5 percent).

As discussed above, there are two ways which Nevada could use to increase the revenues of school districts to match their anticipated costs. These alternatives result in two different modes of revenue increase:

- (1) Using the first approach to get from \$2,364.1 million to \$4,457.6 million in nine years would require an annual increase of 7.3 percent (including the 2.3 percent assumed for inflation) and would result in a cost of \$2,759.8 million in 2006-07.
- (2) Using the second approach would require an annual increase of \$438 million each year for nine years (again, including inflation), which would result in a cost of \$2,829.3 million in 2006-07.

Table VIII-2 illustrates the above two ways to increase revenue. The table also shows that, had current spending been inflated by 2.3 percent per year from 2003-04 its value in 2013-14 would be \$2,801.0; that means that in 2013-14 the PJ amount would be 59.1 percent higher than the actual amount spent in 2003-04 inflated to 2013-14.

Adjusting Weights Due to the Availability of Federal Funds

As we have discussed previously, our work was designed to estimate the costs of achieving certain levels of student performance – and the costs we have shown are current operating costs less transportation. The federal government distributed support for education that can be used to pay for those costs and such revenue can be taken into consideration before thinking about state and local revenue. In general, most federal support is provided for students with special needs – while more federal aid is described as being fungible, the history of federal support, and the spirit in which it has been given, is based on providing supplemental revenue for students with special needs or for special programs and services.

One way to account for federal support is to deduct the amount a district receives from the estimated cost before determining state and local support. Unfortunately, this approach may violate federal “supplement not supplant”

requirements. We believe it would be possible to adjust the student weights we have described previously for special education, students from low income families, ELL, and career-technical education by reducing the cost associated with each weight by federal funding and recalculating the weights. In 2003-04, the federal government provided \$229.1 million to school districts in Nevada, of which \$46.5 million was for special education, \$48.2 million was for students from low income families (Title 1), \$4.8 million was for Impact Aid, and \$129.5 million was for other purposes (including \$63.5 million for at-risk students, \$56.5 million for ELL students, and \$9.6 million for vocational education). After accounting for students in charter schools, we estimate that \$46.2 million of federal revenue was for special education, \$110.7 million was for students from low income families (or at-risk students), \$56.0 million was for ELL, and \$9.5 million was for vocational education. Subtracting those funds from the funds attributable to the corresponding student weights (based on the proportion of students in mild, moderate, and severe special education programs in the case of special education), would allow those weights to be reduced as follows: at-risk by 53 percent; ELL by 42 percent, mild special education by 25 percent; moderate special education by 17 percent; severe special education by nine percent; and career-technical education by 57 percent. These adjustments apply to weights driven by the successful school base figure – the adjustments would be lower percentages if applied against the professional judgment base cost; this means that the adjustments would have to be modified a bit each year as progress was made in moving from the successful school to the professional judgment base.

Applying Weights to Students Who Qualify for Multiple Weights

As calculated, the weights we have shown previously are based on characteristics of individual students. That means that it would be possible for multiple weights to be associated with a single student so that if a student were from a low income family, enrolled in a moderate-cost special education program, and be an English language learner, a very high weight would be produced that would overstate the cost of the services that could be provided. One way to deal with that situation is to apply the highest single weight to a student eligible for multiple weights.

Using the LCM

Earlier we discussed the Location Cost Metric (LCM), which is designed to reflect differences in the regional cost of providing services in Nevada, which is mostly attributable to the variation in housing costs across the state. Our assumption is that the LCM should be applied against the base cost before applying any other weights to it. In effect, the LCM modifies the district size-adjusted base cost figure to which student weights then apply. For example, if the district size-adjusted base cost were \$8,000 and the LCM was .90, then the base used for student weights would be \$7,200 ($\$8,000 \times .90$) and a weight of .15 would add \$1,080 to the cost ($\$7,200 \times .15$).

Modifying the Base in Future Years

Previously we described a way to estimate the annual inflation rate for Nevada based on adjusting the national rate of inflation by annual changes in costs in Nevada communities. Regardless of what approach is used to estimate the cost of inflation in Nevada, we would recommend modifying the base each year by that factor plus whatever approach is used to move the figure from the successful school level to the professional judgment level. Our view is that there is no need to restudy the cost of adequacy for several years, particularly if the state's accountability system (including its standards, tests of student performance, and expectations for performance) does not change.

Applying the Base and the Weights to Schools

As discussed previously, it would be possible to determine the fiscal needs of school district based on aggregating the needs of individual schools in each district. The model we described for determining the needs of schools is sensitive to their size, which can be controlled by school districts to some extent. The state may not want to provide incentives to school districts to operate small schools (although there certainly is a push across the country to decrease the size of schools, particularly high schools), which would generate more fiscal need than larger ones. One way to deal with that issue is to define the concept of "necessarily small" schools – those that are small because there is no way to make them larger. In other states, this concept tends to focus on distance from other schools and/or the time it takes for students to travel to schools. Before applying the formulas APA developed to estimate the fiscal needs of schools, it would make sense to be able to distinguish necessarily small schools from those that are small by choice and to only apply the formula that benefits small schools to those that are necessarily small.

TABLE VIII-2

TOTAL COST OF MOVING FROM CURRENT FUNDING IN 2003-04 TO ADEQUATE FUNDING (PJ) IN 2013-14 USING THREE ALTERNATIVE APPROACHES TO DETERMINE ANNUAL COST CHANGES

Assuming an inflation rate of 2.3% for each year between 2003-04 and 2013-14

Year	Total Cost (Millions)	Basis of Total Cost
2003-04	\$2,231.3	Actual
2004-05	\$2,364.1	Actual in 2003-04 plus \$79.6 million, multiplied by 1.023
2006-07		<u>Impact of Alternative Approaches in 2006-07</u>
	\$2,759.8	(1) Using a 7.3% annual increase (including 2.3% inflation)
	\$2,829.3	(2) Using an annual increase of \$438 million
2013-14	\$4,457.6	Using the Professional Judgment figures (which are 25.5% above 2003-04 given 2.3% inflation/year)
	\$2,801.0	Actual Inflated to 2013-14
	1.591	2013-14 PJ figures in comparison to Actual, inflated to 2013-14

APPENDIX A

PROFESSIONAL JUDGMENT PANELISTS

First Round Panels: March 29-30

Brian Frazier
Dan Fox
George Worden
Jean Jackson
Jeanne Ohl
Jim Rickley
Jose Loya
Judy Pratt

Kathy Foster
Ken Higbee
Laurie Spark
Mary Ann Robinson
Nancy Sanger
Pete Peterson
Rick Hardy
Robert Slaby

Second Round Panels: April 25-26

Andrea Awerbach
Betty Fobes
Bill Langs
Bob Anderson
Derild Parsons
Dotty Merrill
Jeff Zander
Jim Hill
Juanita Jeanney
Keith Bradford
Leighann Pemelton
Leslie Zimmerman
Linda Enteles
Linda Fields
Loretta Asay
Nat Lommori
Sandra Reed
Sharla Hales
Sheila Jones Mosely
Steve Hansen

In-state Panel: May 17

Michael Alastuey
Rick Kester
Mary Pierczynski

APPENDIX B

SUMMARY OF NEVADA'S ACADEMIC STANDARDS

Student Assessment

Nevada's system for assessing students, the Nevada Proficiency Examination Program (NPEP), consists of different tests taken by students enrolled in public and charter schools in specific grades and specific programs.

As required by the No Child Left Behind Act of 2001, all students who are identified as "Limited English Proficient" must be assessed annually for English proficiency in the five domains of speaking, listening, reading, writing, and comprehension. This language assessment does not replace the State English Language Arts Criterion Referenced Tests (CRTs) or the Norm Referenced Tests (NRTs) as required by state law. All LEP students must participate in the state assessments as well as the assessment of English Language proficiency.

Similarly, as required by IDEA, all students who are identified as needing special education services must participate in the state assessments. The State Board is required to prescribe modifications and accommodations as necessary in order to ensure participation of all students, regardless of need, in the state assessments.

NPEP includes the following assessments: criterion-referenced tests (CRT), norm-referenced tests (NRT), performance-writing tests, high school proficiency examination (HSPE). The items that are in *italics* are the tests used in the AYP determination process.

Type of Tests (by Grade) that are Required

	2005-2006
Grade 3	<i>CRT-Reading, Math</i>
Grade 4	NRT-ELA, Math, Science <i>CRT-Reading, Math</i> <i>Perf-Writing</i>
Grade 5	<i>CRT-Reading, Math, Science</i>
Grade 6	<i>CRT-Reading, Math</i>
Grade 7	NRT-ELA, Math, Science <i>CRT-Reading, Math</i>
Grade 8	<i>CRT-Reading, Math, Science</i> <i>Perf—Writing</i>
Grades 9-12	NRT-ELA, Math, Science <i>HSPE-ELA, Math</i>

Proficiency/Graduation Requirements

If a pupil fails to demonstrate at least adequate achievement on the state tests administered before the completion of grades 4, 7 or 10, he may be promoted to the next higher grade, but the results of his examination must be evaluated to determine what remedial study is appropriate. If such a pupil is enrolled at a school that has failed to make adequate yearly progress or in which less than 60 percent of the pupils enrolled in grade 4, 7 or 10 in the school who took the examinations administered pursuant to this section received an average score on those examinations that is at least equal to the 26th percentile of the national reference group of pupils to which the examinations were compared, the pupil must complete remedial study that is determined to be appropriate for the pupil. As such, schools need to anticipate their resource needs for remediation.

If a pupil fails to pass the proficiency examination administered before the completion of grade 11, he must not be graduated until he is able, through remedial study, to pass the proficiency examination, but he may be given a certificate of attendance, in place of a diploma, if he has reached the age of 17 years.

Instructional Program Requirements

Nevada has developed standards in the following areas that guide the type of instruction schools must provide:

Arts

- Standards necessitate instruction in music, visual arts, and theater for grades 3 & 5, all other grades instruction is not required; however, if instruction is provided (and students elect to take such courses), standards specify the type of knowledge students should walk away from those course having.

Career & Tech Ed. (elective—no requirement to provide)

- If schools choose to provide, intent is to integrate career and technical education with core academic standards
- high school (primarily)

Computers & Technology

- ½ credit course in computers required to graduate high school
- Require integration of technology with core content standards across all grades
- Have specific outcomes for students in grades 3, 5, 8, & 12.

English Language Arts

- Specific criteria for subject matter and outcomes for students in grades K-8 and by the end of grade 12. As such, all schools must provide instruction in ELA for these grades.

Foreign Language (not mandated)

- If schools choose to implement, specific criteria for subject matter and outcomes for students in grades K, 3, 5, 8, 9, 10, &12 are provided.

Health & PE

- Specific outcomes for students in grades 2, 3, 5, 8, & by the end of 12. As such, all schools must provide health and P.E. instruction for students in these grades.

Math

- Specific criteria for subject matter and outcomes for students at grades K-8 and by the end of grade 12 meaning that all schools must provide math instruction across these grades.

PreK

- Not mandatory (except for children who have Individual Education Plans), but for those schools that choose to offer PreK, specific standards exist for these programs.

Science

- Specific criteria for subject matter and outcomes for students in clusters of grades (K-2, 3-5, 6-8, and 9-12).

Social Studies

- Schools must provide instruction in geography, economics, civics, and history in grades 2, 3, 5, 8, & by the end of grade 12
- Each year, schools must recognize and provide programs related to constitution day

Information Literacy

- Specific standards have been developed to ensure that students across all grades (K-12) are information literate. As such, schools are required to weave these standards into their instructional programs.

Student-Instructor Ratio Requirements

- The ratio in each school district of pupils per class in kindergarten and grades 1, 2 and 3 per licensed teacher designated to teach those classes full time must not exceed 15 to 1 in classes where core curriculum is taught. In determining this ratio, all licensed educational personnel who teach kindergarten or grade 1, 2 or 3 must be counted except teachers of art, music, physical education or special education, counselors, librarians, administrators, deans and specialists.¹

¹ Nevada currently funds a 16:1 ratio in grades 1 and 2 and a 19:1 ratio in grade 3.

Minimum # of Days of Instruction

- Boards of trustees of school districts shall schedule and provide a minimum of 180 days of free school in the districts under their charge

Graduation Requirements

1. The total number of credits required to graduate from high school is at least 22.5. Each district has the option of adding to the credit requirements.
2. There are 15 units of core courses that everyone must take. (For students who started high school in or before 1998 there are only 14 units of core courses required.) The core courses are: American Government —1, American History —1, Arts & Humanities —1, English —4, Health —__, Math —3 (2 if you started high school in or before 1998), PE —2, Computers* —__, Science —2. The remaining credits needed to graduate from high school are considered elective credits and are not specifically identified by content area. [* If a student passed a course of study in computers in 6th, 7th, or 8th grade, they don't have to take a course in computers in high school.]
3. In addition to passing the core courses to get the credits you need, every student must pass the Nevada High School Proficiency Exam (HSPE) in reading, math, and writing in order to receive a standard diploma.
4. Students who started 9th grade in or after 1999, need to achieve passing scores for the HSPE in Reading, Mathematics, Writing, and Science. The content of these tests will be based on the Nevada State Content and Performance Standards, approved by the State Board of Education in August, 1998. The passing scores for the new, standards based HSPE will be set in the fall of 2001. All of the content and performance standards are available on the NDE web site.
5. If a student achieves a passing score on any portion of the HSPE they don't have to retake that portion. However, if a student doesn't receive a passing score the first time, they may retake the test again until they receive a passing score. Currently, students have multiple opportunities to take the different portions of the test. For example, a student who took the HSPE reading and math tests for the first time in October of 1999 would be able to take them again in February, April, June/July, and October of 2000, and February, April, and June/July of 2001.

High School Dropout Rates

The dropout rate published in the Nevada Report Card is an *annual student dropout rate* and measures the percentage of students who dropout of high school in a given year. The calculation method is as follows: total dropouts plus total non-returns divided by total enrollment plus total non-returns, multiplied by one hundred. Consequently, a comparison to corresponding ninth grade student numbers cannot be made.

Over a five-year period, from the 1999-2000 school year to the 2003-2004 school year, the Nevada high school dropout rate decreased slightly from 6.1% to 5.8%. A look at the major ethnic groups indicates that the American Indian dropout rate had a slight increase over this five-year period, having one of the highest rates (7.4%) of the subgroups (same as the African American rate) in 2003-2004. The African American and Hispanic dropout rates had a slight decrease over the five years, from 8.0% to 7.4% and from 9.2% to 8.2% respectively. The Asian dropout rate was the lowest of the subgroups in 1999-2000 (4.6%) with a slight increase in five years to 4.9%. The White dropout rate fluctuated over the five years and had the lowest rate (4.5%) in 2003-2004. For the state rate and all subgroups (except Asian) the 2000-2001 dropout rates seem an anomaly with noticeable change from the year before and the year after.

High School Completion Indicators

The Nevada Report Card reports the number of students completing high school who receive standard diplomas, advanced diplomas, adjusted diplomas, adult diplomas, and certificates of attendance. Table 4 shows the state results of diplomas and certificates of attendance for the 2003-2004 school year. Of the 18,705 Nevada seniors, 17,311 (93%) received a diploma or certificate of attendance. The majority of students received a Standard Diploma.

Table 4: State results of diploma/certificate acquisition (2003-2004)

Standard Diploma (22 1/2 credits & proficient scores on HSPE)		Advanced Diploma (24 credits, 3.0 + GPA & proficient scores on HSPE)		Adult Diploma (Requirements of adult education or alternative education program met)		Adjusted Diploma (Special requirements or adjusted standards met by student with disability)		Certificate of Attendance (Met all requirements except proficient score on HSPE)	
10,931	63.1%	4,042	23.3%	192	1.1%	1,195	6.9%	951	5.5%

No Child Left Behind Federal Requirements

Participation Indicators

- Schools are required to have at least 95% of all students participate on the state AYP tests to meet the AYP requirements. Participation rates on English language arts and mathematics tests are considered separately.

“Other” Indicators

- In addition to subject area proficiency and test participation, schools must be judged with respect to at least one “other” indicator. At the high school level, the NCLB Act requires that graduation rate be used. The Act gives states flexibility in the use of other indicators at the elementary and middle school levels. State statute now requires that elementary and middle schools in Nevada be judged relative to average daily student attendance.

Crosswalk of Nevada and Federal Achievement Level Categories

Nevada Achievement Levels	Federal Achievement Levels
Developing/Emergent	
Approaching Standard	Basic
Meets Standard	Proficient
Exceeds Standard	Advanced

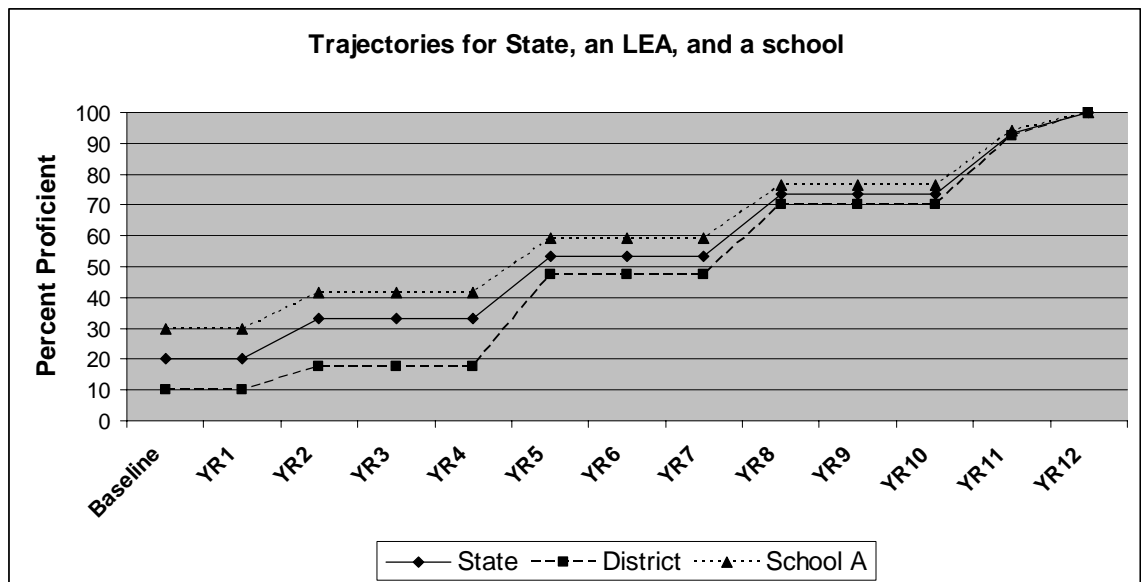
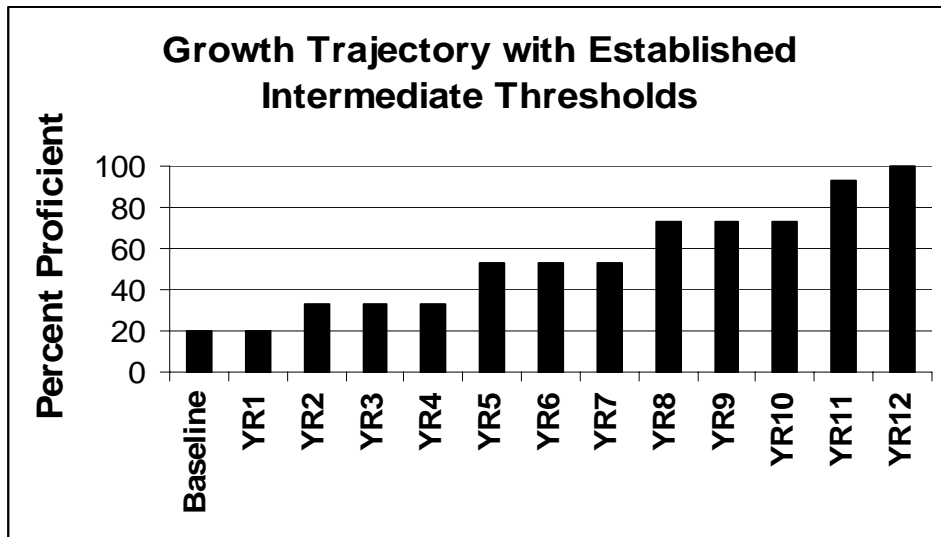
Adequate Yearly Progress Performance Targets

School year	Elementary School		Middle School		High School	
	ELA	Math	ELA	Math	ELA	Math
2003-04	27.5%	34.5%	37%	32%	73.5	42.8
2004-05, 2005-06, 2006-07	39.6%	45.4%	47.5%	43.3%	77.9%	52.3%
2007-08, 2008-09	51.7%	56.3%	58%	54.6%	82.3%	61.8%
2009-10, 2010-11	63.8%	67.2%	68.5%	65.9%	86.7%	71.3%
2011-12	75.9%	78.1%	79%	77.2%	91.1%	80.8%
2012-13	88%	89%	89.5%	88.5%	95.5%	90.3%
2013-14	100%	100%	100%	100%	100%	100%

2004 CRT Results (percentage of students meeting or exceeding proficiency levels in reading, math, science)

	3 rd Grade	5 th Grade	8 th Grade
Reading	44%	43%	49%
Math	45%	50%	48%
Science		52%	59%

AYP Growth Trajectories



APPENDIX C

REFERENCES USED BY APA'S NATIONAL EXPERT GROUP TO SET INITIAL RESEARCH-BASED RESOURCE LEVELS FOR PJ PANEL WORK

Position Statement: Comprehensive School Counseling Programs. 2005 [cited 2006 March 1]; Available from:

<http://www.schoolcounselor.org/content.asp?contentid=196>.

Evans, J., H. Burck, and D. Harman, The Effects of Career Education Interventions on Academic Achievement. *Journal of Counseling & Development*, 1992. 71(1): p. 63.

Gysbers, N.C., Comprehensive Guidance and Counseling Programs: The Evolution of Accountability. *School Counselor*, 2004: p. 1-14.

Kaufman, P., D. Bradby, and P. Teitelbaum, High Schools that Work and Whole School Reform: Raising Academic Achievement of Vocational Completers through the Reform of School Practice. 2000, National Center for Research in Vocational Education MPR Associates: Berkeley, CA.

Whiston, S.C. and T.L. Sexton, A Review of School Counseling Outcome Research: Implications for Practice. *Journal of Counseling & Development*, 1998. 76.

Black, P. and D. William, Inside the Black Box: Raising Standards Through Classroom Assessment. *Phi Delta Kappan*, 1998. 80(2): p. 139-44.

Britton, E., et al., Open Questions in Mathematics Education. 2002, ERIC Clearinghouse for Science, Mathematics, and Environmental Education, Columbus, OH.: Ohio. p. 4.

Carptner, T.P., et al. , Using knowledge of children's mathematics thinking in classroom teaching: an experimental study. *American Educational Research Journal*, 1989. 26(4): p. 499-531.

Fry, B., et al., Progress Being Made In Getting a Quality Leader in Every School. Challenge to Lead Series. 2004, Southern Regional Education Board: Atlanta, GA. p. 32.

Garet, M.S., Porter, A., Desimone, L., Birman, B., Yoon, K., What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, 2001. 38(4): p. 915-945.

Lozano, A.S., et al., A Statewide Professional Development Program for California Foreign Language Teachers. *Foreign Language Annals*, 2004. 37(2): p. 301-309.

Holland, H., Essential information for educational policy, teaching teachers: professional development to improve student achievement. *Research Points*, 2005. 3(1): p. 1-4.

McCutchen, D., R. Abbot, and L. Green, Beginning Literacy: Links Among Teacher Knowledge, Teacher Practice, and Student Learning. *Journal of Learning Disabilities*, 2002. 35(1): p. 69-86.

Gilzow, D.F., Model Early Foreign Language Programs: Key Elements. *ERIC Digest*. Access ERIC: FullText. 2002, ERIC Clearinghouse on Languages and Linguistics, Washington, DC.: District of Columbia. p. 4.

Pankratz, R., Petrosko, J., All Children Can Learn. Lessons From the Kentucky Reform Experience. 2000, San Francisco, CA: Jossey-Bass.

School Libraries Work!, Scholastic, Editor. 2006, Scholastic.

Michie, J.S. and B.W. Chaney, Evaluation of the Improving School Libraries Program. Final Report. 2005.

Saetre, T.P. and G. Willars, The IFLA/UNESCO School Library Guidelines. 2002, International Federation of Library Associations and Institutions.

Scott, L. and J. Owings, School Library Media Centers: Selected Results from the Education Longitudinal Study of 2002, N.C.f.E.S. U.S. Department of Education, Editor. 2004, U.S. Department of Education: Institution of Education Sciences, Washington, DC.

Warlick, D., et al., New essential skills. *Technology and learning*, 2005. 26(4): p. 11.

Okpala, C.O., A.O. Okpala, and F.E. Smith, Parental Involvement, Instructional Expenditures, Family Socioeconomic Attributes, and Student Achievement. *Journal of Educational Research*, 2001. 95(2): p. 110-15.

Block, S., The Well-Rounded Student: Extracurricular Activities and Academic Performance Go Hand in Hand. *American School Board Journal*, 2002. 189(6): p. 33-35.

Broh, B.A., Linking Extracurricular Programming to Academic Achievement: Who Benefits and Why? *Sociology of Education*, 2002. 75: p. 69-91.

Darling, N., Participation in extracurricular activities and adolescent adjustment: Cross-sectional and longitudinal findings . *Journal of Youth and Adolescence*, 2005. 34(5): p. 493-505.

Dumais, S., Elementary School Students' Extracurricular Activities: The Effects of Participation. *Sociological Spectrum*, 2006. 26(2): p. 117-147.

Fashola, O.S., Building effective afterschool programs. 2002, Thousand Oaks, CA. : Corwin Press.

Feldman, A.F. and J.L. Matjasko, The Role of School-Based Extracurricular Activities in Adolescent Development: A Comprehensive Review and Future Directions. *Review of Educational Research*, 2005. 75(2): p. 159-210.

Fredricks, J.A. and J.S. Eccles, Developmental Benefits of Extracurricular Involvement: Do Peer Characteristics Mediate the Link Between Activities and Youth Outcomes? *Journal of Youth and Adolescence*, 2005. 34(6): p. 507-520.

Gerber, Extracurricular Activities and Academic Achievement. *Journal of Research and development in Education*, 1996. 30(1): p. 42-50.

Guest, A. and B. Schneider, Adolescents' extracurricular participation in context: The mediating effects of schools, communities and identity. *Sociology of Education*, 2003. 76(2): p. 89-109.

Hunt, H.D., The Effect of Extracurricular Activities in the Educational Process: Influence on Academic Outcomes. *Sociological Spectrum*, 2005. 25(4): p. 417-445.

Mahoney, J.L. and B.D. Cairns, Do extracurricular activities protect against early school dropout. *Developmental Psychology*, 1997. 33(2): p. 241-253.

Mahoney, J.L., B.D. Cairns, and T.W. Farmer, Promoting interpersonal competence and educational success through extracurricular activity participation. *Journal of Educational Psychology*, 2003. 95(2): p. 409-418.

Miller, S.D., Partners in Reading: Using Classroom Assistants to Provide Tutorial Assistance to Struggling First-Grade Readers. *Journal of Education for Students Placed at Risk*, 2003. 8(3): p. 333-349.

Mosteller, F., The Tennessee Study of Class Size in the Early School Grades. *The Future of Children*, 1995.