PROFESSIONAL JUDGMENT STUDY REPORT

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Introduction

This report summarizes the Professional Judgment (PJ) Study conducted by Augenblick, Palaich, and Associates (APA) for the Lincy Institute at University of Nevada, Las Vegas (UNLV). The Institute commissioned the PJ study as part of a review of Nevada's school funding system. The review called for studies like this one to update the 2006 Nevada education funding adequacy study.

This current study is an adequacy study examining the base cost and adjustments needed for students in Nevada to meet state standards. In the early 1990s, states began to implement Standards-Based Reform in education. By implementing Standards-Based Reform, states set standards for students, teachers, schools, and districts. States then use tests and other measures to evaluate success in reaching these standards. Accountability systems have been created by states to hold schools and districts accountable for performance. Adequacy studies examine the resources needed for students, schools, and districts to meet state expectations. A number of approaches have been developed to examine these resource needs. In this particular study, APA utilizes the PJ approach, described below, to study adequacy, meaning the resources needed to ensure all students can be successful. The Lincy Institute also commissioned another team of researchers to conduct a study using the cost function approach. Those findings are reported separately.

The PJ approach relies on two assumptions: First, that experienced educators can specify the resources representative schools and school districts need to meet state standards, and second, that the costs of such resources can be determined by applying salary, benefits and technology hardware prices, to those resources. Resources discussed include school-level personnel; non-personnel costs; additional supports and services; and technology and district-level resources.

These resources are first identified for students with no identified special needs in districts with no special circumstances, which allows for the calculation of a "base cost." The PJ approach then identifies the resources above and beyond the base resources needed to serve students with additional, identified needs, including students receiving special education services, English language learners (ELLs), and at-risk students (often based on qualification for free and reduced lunch). These additional resources are then represented as a series of adjustments, or "weights," relative to base cost.

This particular study puts specific emphasis on the resources needed to serve ELL students. Nevada has one of the most quickly growing populations of ELL students in the country.[1] The Nevada Report Card shows statewide ELL enrollment at about 68,000 in 2013-2014.[2] To understand what level of funding is adequate to meet state standards, it is necessary to first understand the resources needed to educate this distinct population.

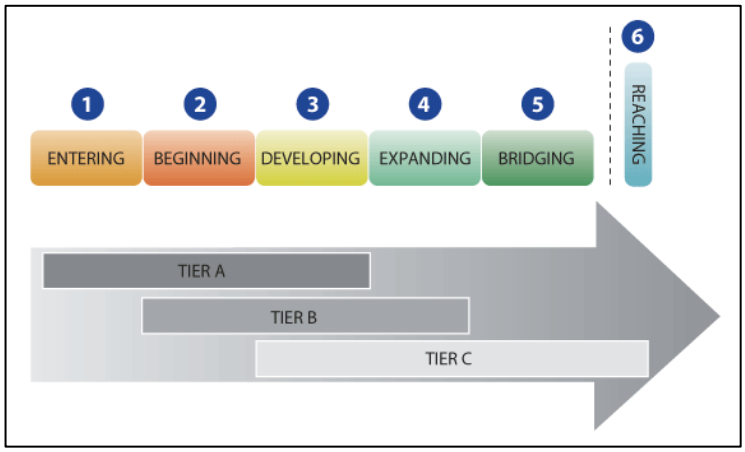
For this study, APA conducted a series of PJ panels to update the base and adjustments, or "weights," to reflect the additional resources needed to serve ELL students above the base. APA further conducted a review of the prior 2006 Nevada study and adequacy studies from around the nation to identify updated at-risk and special education weights, as well as size and cost of living adjustments.

[1] http://vue.annenberginstitute.org/issues/37/high-ell-growth-states
[2] http://www.nevadareportcard.com/di/main/demoprof

Creating Representative Schools

The PJ panels focused on representative schools, which were designed using statewide average characteristics—including size and grade configuration—to represent schools across the state. Further, PJ panels considered three levels of ELL need as identified by the panelists. These student categories were developed based upon the experience of these Nevada ELL educators, and aligned with WIDA's ELL language proficiency standards from ACCESS testing, which is Nevada's English Language Proficiency Assessment (ELPA).

WIDA's ACCESS for ELL Performance Levels



These three ELL categories considered by the panel were:

1. L1 (Entering) and L2 (Beginning) students;
2. L3 (Developing) and L4 (Expanding) students; and
3. L5 (Bridging) students and "Monitoring" students who have transitioned out of levels 1-5, but still require monitoring (including L6 students).

ELL percentages tend to vary greatly between districts and between schools; often there is either a very low or very high percentage of students with ELL needs. Because of this variation, instead of working from statewide averages, the panelists identified percentages for each grade level based on their own experience; these percentages reflected schools that have a sizable ELL population (50 percent) and reflect the shifting dispersion of students based upon grade levels. The representative schools used in the panel are shown below in Table 1.

Table 1: Representative Schools

	Elementary School (K-5)	Middle School (6-8)	High School (9-12)
Enrollment	450	750	1,300
Identified Need Populations			
ELL- L1, L2	68 (15%)	75 (10%)	65 (5%)
ELL- L3, L4	135 (30%)	225 (30%)	325 (25%)

ELL- L5, Monitoring	23 (5%)	75 (10%)	260 (20%)

APA created the representative schools in this manner so the schools would closely resemble actual schools across the state. Since the schools looked familiar, PJ panelists could comfortably estimate resource needs. The approach, then, developed per-student figures that could be applied in each unique district in Nevada, based on the district's actual enrollment figures and demographics.

Professional Judgment Panel Design

In this Nevada costing-out study, APA conducted five separate panels: (1) an elementary school panel; (2) a middle school panel: (3) a high school panel; (4) an ELL panel; and (5) a statewide panel. Typically, APA conducts panels for students with other types of identified needs, such as special education students or at-risk students. Based on the timeline and resources available for this study it was agreed that there would be a focus on ELL student needs. Compared to the robust body of research on the resources needed for at-risk students and special education students, there is much less knowledge around the resources needed for ELL students to meet state and federal standards. To better understand ELL resource needs, APA conducted interviews with multiple ELL experts—as identified by the Lincy Institute and other Nevada leaders—in advance of the ELL panel. The goal was to set the foundation for the ELL panel and to obtain expert views on effective programming and resources for ELL students.

Structuring PJ panels in the sequential order of school panels, followed by the Ell panel than the final statewide panel, allowed each subsequent panel to review and build upon the previous panels' work, thus increasing the accuracy and validity of the estimates.

Each panel had between six and eight participants. The school-level panels included a combination of classroom teachers, principals, technology specialists, instructional administrators, and school business officials. The ELL panel consisted of experts from across the state with firsthand knowledge of ELL services, including teachers, school administrators, and district-level administrators. A total of 33 panelists participated in the five PJ panels. A list of panel members is provided in Appendix A of this report.

To identify and recruit panel participants, APA worked with the Lincy Institute, the Nevada Department of Education, a number of Nevada school districts, and other education leaders in the state. There were various routes for panel nominations, with each route ensured that participants had requisite knowledge of the resources needed for student achievement. Panel participants were identified within schools and districts recognized as successful in terms of student performance. Geographic representation was also a factor in choosing participants. For example, Clark County School District is one of the few urban districts out of 17 districts in the state. It serves about 70 percent of Nevada's overall student population and about 77 percent of Nevada's ELL students.[3] It was important to have representation from rural districts across the state, as well as sufficient representation from urban

[3]http://www.nevadareportcard.com/di/main

districts, whose needs are very different. It was particularly important to have Clark County, and other school districts with high ELL populations, speak to needs and resources on the ELL panel.

Panels were held in October 2014, with in-person meetings at the University of Nevada Cooperative Extension and video conferencing for off-site participants. Panelists did not receive monetary compensation for their participation, though meals were provided.

Summarizing Nevada State Standards

Prior to the commencement of any PJ panel discussions, all panelists reviewed a specific, APA-prepared set of background materials and instructions. In particular, panelists were instructed to identify the resources needed to meet all Nevada standards. APA prepared a brief summary document of these standards, which was then shared with panelists (Appendix B). The document was not meant to be exhaustive, as all panel participants were experienced educators in Nevada; instead, the document was meant to highlight key or recently revised expectations, such as Nevada's new assessments and content standards. APA consulted with leadership at the Nevada Department of Education and with several districts, providing them the opportunity to review the document. The instructions and background used at the PJ panels are shown in Appendix C.

Using the Evidence-Based Approach to Strengthen Professional Judgment Work

A number of states have used the Evidence-Based (EB) approach to adequacy to fully cost-out an adequate education. The EB approach can also be used to strengthen the PJ approach, serving as a starting point for the PJ panelists' discussions. Panelists were presented with the applicable figures from the EB approach, which could then be adjusted, as panelists saw fit, to best suit Nevada.[4]

The following tables summarize the initial personnel resources from the EB approach. There were a number of position categories where the EB work recommended that such personnel resources should be present, but did not indicate a recommended resource level; such cases are denoted with "Recommended" ("Rec.") in place of a figure. Research indicated EB figures for schools of 500, so figures could then be modified to fit the varying school sizes in the current study. Tables 2 and 3 identify the EB starting points for the panels.

[4] APA used the most recent work of Picus, Odden and Associates, prominent researchers in the Evidence-Based approach, as our evidence base.

Table 2: Evidence-Based Starting Personnel Figures

	Elementary School	Middle School	High School
Enrollment	450 students	750 students	1,300 students
Instructional Staff			
Teachers	26.0	30.0	52.0
Specials Teachers	Rec.		
Instructional Facilitator (Coach)	1.8	3.0	5.2
Teacher Tutor/Interventionist			
Librarians/Media Specialists	1.0	1.0	1.0
Technology Specialists			
Instructional Aides			
Pupil Support Staff			
Counselors		3.0	5.2
Nurses	Rec.	Rec.	Rec.
Psychologists			
Social Worker	Rec.	Rec.	Rec.
Family Liaison			
Administrative Staff			
Principal	1.0	1.0	1.0
Assistant Principal		1.0	1.0
Clerical/Data Entry	2.0	2.0	3.0
Other Staff			
Duty Aides	Rec.	Rec.	Rec.
Substitutes	10 days per teacher	10 days per teacher	10 days per teacher

The EB approach also identifies a set of non-personnel cost figures that APA also shared with panelists. These figures are shown in Table 3.

Table 3: Evidence-Based Starting Figures for School-Level Non-Personnel Costs

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

It is important to note that the EB research APA used did not identify district-level resources beyond the school-level items listed above.

APA used the EB research as a starting point to stimulate discussion within the school-level PJ panels.

Using Findings from Interviews with ELL Experts to Inform PJ Panels

Given that EB research is limited for ELL students, APA also spoke to a number of Nevada and national experts to better understand the needs of these students and effective interventions. The goal was to have a foundation for starting the conversations with the ELL and statewide PJ panels about resources needed for ELL students to meet state and federal expectations, prior to convening these PJ panels.

The experts were identified by Nevada leaders involved in ELL issues, and included academic researchers, members of the English Mastery Council established by Senate Bill 504 in 2013, and Nevada Department of Education staff. A couple of the experts also previously had classroom experience teaching ELL students. The same interview protocol was used with all five of the experts in phone interviews (see Appendix F). Mainly, they were asked about specific effective models, student to teacher ratios, other supports needed, technology needs, teacher professional development, and other factors that pertain to ELL students.

The experts we spoke with felt that the effectiveness of ELL interventions were not necessarily dependent on the specific model implemented, rather it is the quality of the implementation. So a school could utilize dual immersion, a new comer program, sheltered instruction observation protocol, or various other types of programs, but its effectiveness is much more reliant on the quality of teaching, leadership within a school, and ongoing professional development and opportunities for ESL certifications for all teachers.

Additional recommendations included:

1. Summer school and extended learning time for ELL students; time could be used to be bridge time to start early on the new curriculum, intensive language development, gaining technology skills, or working on academic skills.
2. Extra family supports are ideal-liaisons who can help families connect with other community resources, bridge language and cultural divides, and help children's families who do not have academic backgrounds.
3. Collaborative approach to educating ELL students. Classrooms teachers and ELL teachers who are pulling students out of classrooms should have time to collaborate and both feel invested and held accountable for student results.

The experts also identified current challenges in serving long-term English learners with conversational skills, but not enough academic and college and career ready skills. These students often fall through the cracks of interventions and often need extra supports to achieve academically.

While the experts did not speak directly to resources associated with the supports and interventions needed by ELL students, they did acknowledge that the needs and associated resources are different for different grades and levels of language need. For example, a kindergartener newcomer student will need different resources than a high school long-term ELL.

Professional Judgment Panel Procedures

Once panelists were provided with instructions and background information to guide their efforts, the PJ panels convened. At least two APA staff members were present at every panel meeting to facilitate the discussion, take notes about the level of resources needed, and the rationale for participant decisions. Panelists were frequently reminded that they should be identifying the resources needed to meet state standards in the most efficient way possible without sacrificing quality.

Each panel discussed the following school-level resource needs:

1. Personnel, including classroom teachers, other teachers, psychologists, counselors, librarians, teacher aides, administrators, nurses, etc.
2. Other personnel costs, including days for substitute teachers and professional development.
3. Non-personnel costs, such as supplies, materials and equipment costs (including textbook replacement and consumables) and the cost of offering extracurricular activities
4. Non-traditional programs and services, including before and after school, preschool, and summer school programs
5. Technology, including hardware, software, and licensing fees

School-level panels first identified the needs for the above resources for students with no identified needs (such as being at-risk, ELL or Special Education). The ELL panel then identified the additional resources needed to serve ELL students. Keeping these resources separate allowed for the creation of a "base cost" as well as additional ELL "weights." (These weights will be discussed in greater detail later in this report). The statewide panel reviewed the resources identified by the school-level panels and ELL panel.

As previously described, APA provided panelists with EB figures to be used as starting points in their discussions. In the categories of personnel where research-based figures were given, panelists reviewed and adjusted these figures to better fit the representative school they were looking at and to meet Nevada's unique state requirements. Panelists then added additional personnel in the categories without research-based figures as needed, also with the goal of meeting state 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 useful in a PJ adequacy analysis.

For each panel, the figures APA recorded represented a consensus 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 being identified. Instead, APA's actual calculations and costing of resources 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; however, without specific price information and knowledge of how other panels were proceeding, it would have been impossible for any individual or panel to

suggest resource levels that would have led to a specific base cost figure or weight, much less a cost that was relatively higher or lower than another.

Professional Judgment Results

This section reviews the results from the Nevada PJ panels, including some of the "raw" resources they identified, the prices attached to those raw resources, and the costs produced by combining resource quantities and resource prices. Specifically, this section:

1. Discusses the resource needs identified by the PJ groups for representative 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 ELL students.

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

- Small class sizes: 15:1 for K-3rd grade, 25:1 for 4th-12th grade;
- Professional development and instructional coaches for teachers;
- Student support (counselors, social workers);
- Technology rich learning environments, including one-to-one student devices and needed IT support; and
- Preschool, recommended for all four-year-olds.

Panels also recommended the following additional resources for ELL students:

- A multi-faceted approach to ELL education to ensure that the education of ELL students is a responsibility shared among staff, including: ELL teachers for direct instruction and/or co-teaching, instructional coaches to provide all teachers with guidance on ELL instruction, interventionists to work one-on-one with students, and social workers, family liaisons, and (at the high school level) counselors to provide pupil support;
- A focus on addressing the need of "long-term" ELL students who often stay in the L3-L4 category;
- Ongoing monitoring support for students who have transitioned out of the L1-L5 categories, to ensure their success; and
- Extended day opportunities and summer school for L1-L4 ELL students.

It should be noted that the resources identified by the PJ panels are examples of how funds might be used to organize programs and services in representative situations. APA cannot emphasize strongly enough that the identified resources do not represent the only possible way to organize programs and services to meet state standards. Instead, the identification is meant to estimate the overall cost of adequacy—not to determine the one "best" way to organize schools and districts.

School-Level Personnel

Staffing discussed and recommended by the PJ panels included:

- Instructional staff, including teachers, instructional aides, instructional coaches, interventionists, librarian/media specialists, and technology specialists;
- Pupil support staff, including counselors, nurses, and social workers;
- Administrative staff, including principals, assistant principals, bookkeepers, attendance monitors, registrars, and clerical/secretarial staff; and
- Other staff members, including school resource officers, in-school suspension teachers, aides for duty and monitoring, and media aides.

Tables 4.1 through 4.3 first identify the school size and the panel-recommended average class size. The tables then identify the personnel on a full-time equivalent (FTE) basis needed to serve all students regardless of need at the elementary, middle, and high school levels (base education).

Table 4.1: Elementary School Personnel as Recommended by Nevada PJ Panels, Base Education

School Size and Configuration	K-5, 450 students
Recommended Average Class Size	Grades K-3: 15 to 1 Grades 4-5: 25 to 1
Instructional Staff	
Teachers (Classroom)	26.0
Teachers (Specials)	4.0
Instructional Facilitator (Coach)	2.0
Librarians/Media Specialists	1.0
Technology Specialists	0.5
Pupil Support Staff	
Counselors	1.0
Nurses	1.0
Psychologists	0.2
Social Worker	0.25
Family Liaison	0.25
Administrative Staff	
Principal	1.0
Assistant Principal	1.0
Office Manager	1.0
Clerical/Data Entry	1.0
Other Staff	
School Resource Officer (SRO)	0.25
In-School Suspension	1.0
Aides – Duty, Monitoring	2.0
IT Technician	0.5

As noted previously, panelists identified resources for an elementary school of 450 students. The panelists identified the need for an average class size of 15:1 in grades kindergarten to 3rd grade classrooms, and 25:1 in 4th and 5th grade classrooms. This meant a total of 26.0 classroom teachers. Panelists identified four other teachers to teach "specials" subjects like art, music, and P.E. When students go to specials classes, traditional classroom teachers have time for planning and collaboration. Panelists also identified additional instructional staff, pupil support staff, administrative staff, and other staff.

Table 4.2: Middle School Personnel as Recommended by Nevada PJ Panels, Base Education

School Configuration and Size	**6-8, 750 students**
Recommended Average Class Size	25 to 1
Schedule	6 period day; teachers teaching 5 periods
Instructional Staff	
Teachers (Classroom)	36.0
Instructional Facilitator (Coach)	3.0
Teacher Tutor/Interventionist	1.0
Librarians/Media Specialists	1.0
Technology Specialists	1.0
Instructional Aides	
Pupil Support Staff	
Counselors	3.0
Nurses	1.0
Psychologists	
Social Worker	0.25
Family Liaison	0.25
Administrative Staff	
Principal	1.0
Assistant Principal	2.0
Office Manager	1.0
Attendance/Registrar	1.0
Clerical/Data Entry	2.0
Other Staff	
School Resource Officer (SRO)	0.25
In-School Suspension	1.0
Aides – Duty, Monitoring	2.0
IT Technician	1.0

For middle school grades, the panelists felt that 25 was an appropriate average class size. Panelists also planned staffing based on a six period day, with teachers teaching five classes per day. This resulted in a total of 36.0 teachers in the middle school of 750 students. Note that the total number of teachers needed is shown as a single figure (whereas for the Elementary school teachers were disaggregated between classroom and specials teachers. Panelists also identified additional pupil support staff, administrative staff, and other staff.

Table 4.3: High School Personnel as Recommended by Nevada PJ Panels, Base Education

School Configuration and Size	**9-12, 1,300 students**
Recommended Average Class Size	25 to 1
Schedule	6 period day; teachers teaching 5 periods
Instructional Staff	
Teachers (Classroom)	62.4
Instructional Facilitator (Coach)	4.0
Teacher Tutor/Interventionist	
Librarians/Media Specialists	1.0
Technology Specialists	1.0
Instructional Aides	
Pupil Support Staff	
Counselors	5.2
Nurses	1.0
Psychologists	
Social Worker	0.5
Family Liaison	0.5
Administrative Staff	
Principal	1.0
Assistant Principal	3.0
Office Manager	1.0
Attendance/Registrar	1.0
Clerical/Data Entry	5.0
Other Staff	
SRO	1.0
Behavior Interventionist	1.0
Aides – Duty, Monitoring	2.0
IT Technician	1.0

The panelists kept the same schedule and the same average class size of 25 for the representative school of 1,300. The panelists also identified additional pupil support staff, administrative staff, and other staff.

Tables 5.1 through 5.3 identify the additional personnel needed to serve ELL students in elementary, middle, and high school.

Table 5.1: Additional Personnel Needed to Serve Elementary School ELL Students

ELL Level	L1, L2	L3, L4	L5, Monitoring
# of ELL Students	68 students	135 students	23 students
Instructional Staff			
ELL Teachers/Coaches	1.7	2.25	0.23
Pupil Support Staff			
Social Worker	0.15	0.15	0.05
Family Liaison	0.15	0.15	0.05

Panelists identified the need for ELL teachers/coaches at a ratio of 40:1 for L1 and L2 students, 60:1 for L3 and L4 students, and 100:1 for L5 and students that need monitoring services. Additionally, panelists recommended pupil support staff to serve these students.

Table 5.2: Additional Personnel Needed to Serve Middle School ELL Students

ELL Level	L1, L2	L3, L4	L5, Monitoring
# of ELL Students	75 students	225 students	75 students
Instructional Staff			
ELL Teachers	0.9	2.8	
ELL Coaches	0.2	0.6	0.2
Interventionists	0.9	2.8	0.8
Pupil Support Staff			
Social Worker	0.10	0.30	0.10
Family Liaison	0.10	0.30	0.10

Panelists recommended a slightly different approach to serve high school ELL students, using a combination of ELL teachers to allow students to receive an additional period of instruction each day, as well as coaches, interventionists, and pupil support staff.

Table 5.3: Additional Personnel Needed to Serve High School ELL Students

ELL Level	L1, L2	L3, L4	L5, Monitoring
# of ELL Students	65 students	325 students	260 students
Instructional Staff			
ELL Teachers	0.8	4.1	
ELL Coaches	0.2	0.9	0.7
Interventionists	0.8	4.1	1.3
Pupil Support Staff			
Counselors	0.05	0.25	0.20
Social Worker	0.2	0.5	0.2
Family Liaison	0.2	0.5	0.2

Panelist maintained the same approach for high school ELL students. Panelists also recommended that a half-time counselor was needed to specifically serve ELL students and support their transitions to post-secondary education.

School-Level Non-Personnel Costs

In addition to personnel needs, the figures in Table 6 show other resources needed in schools, including needs for instructional supplies and materials, equipment, assessment, student activities (sports, extracurricular activities, field trips, etc.) professional development, and assessment. All figures shown for identified need populations (ELL students in three categories) are in addition to base figures, and are only applied to the students and the additional staff in those categories.

Table 6: School-Level Non-Personnel Costs

	Base Education	ELL- L1, L2	ELL- L3, L4	ELL- L5, Monitoring
Professional Development				
Additional days per teacher	6 days	6 days	6 days	6 days
PD supplies/training costs	$100/student	$100/student	$100/student	$100/student
Substitutes- days per teacher	10 days	10 days	10 days	10 days
Supplies, Materials, and Equipment (incl. textbooks)	Elem: $165/student Middle: $175/student HS: $350/student	$25/student	$25/student	$25/student
Student Activities	Elem: $35/student Middle: $125/student HS: $250/student			
Assessment		$25/student		
Interventions (Licensing)		$300/student	$300/student	
TSEL		Elem: $900 Middle: $600 HS: $300	Elem: $1,800 Middle: $1,800 HS: $1,500	Elem: $300 Middle: $600 HS: $1,200

One additional cost area is professional development, both days specifically for professional development per teacher and a per-student amount to cover professional development costs like materials, hired trainers, or conference fees. Other non-personnel cost areas include: substitutes; supplies, materials and equipment (including textbooks); and student activities, such as field trips and extracurricular activities. For ELL students, key cost areas were additional supplies and materials, licensing fees for interventions, and a budget to allow a certain number of teachers to receive TSEL training in ELL education each year.

School-Level Additional Programs

Tables 7.1 through 7.3 indicate other programs—such as a preschool, before and after school, and summer school—panels felt were needed to assure students could meet Nevada standards.

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.

It is important to note that while our study did not include transportation, panelists felt that sufficient transportation was necessary for extended day and summer school programs to be possible.

Table 7.1: Elementary Additional Programs

	Preschool	Tutoring: L1, L2	Tutoring: L3, L4	Summer School
Type of Student Served	All 4 year olds	ELL L1, L2	ELL L3, L4	ELL L1-L4
Percentage of Identified Populations Served	100%	100%	100%	100%
Program Specifics (length of program, length of day)	Full day	1 hour a day, 4 days a week	1 hour a day, 4 days a week	1/2 day, 4 days a week, 4 weeks
Personnel				
Teachers	18:1 ratio	10:1 ratio	15:1 ratio	15:1 ratio
Specials Teachers	0.2			
Instructional Aides	18:1 ratio			
Coordinator		0.7	0.3	1.0
Speech	0.2			
Other Costs				
Professional Development				
-Days per teacher	10 days			
Supplies, Materials and Equipment	$165/ student			

Panelists identified programs for elementary grade students, including preschool for all four year olds, tutoring, and summer school for L1-L4 ELL students.

Table 7.2: Middle School Additional Programs

	21st Century School	Test Prep	Summer School
Type of Student Served	All	All	ELL L1-L4
Percentage of Identified Populations Served			75%
Program Specifics (length of program, length of day)	3 hours a day, 4 days a week, 2 weeks	1 hours a day, 4 days a week, 4 weeks	1/2 day, 4 days a week, 4 weeks
Personnel			
Teachers	5.0	4.0	15:1 ratio
Nurse			1.0
Coordinator		0.3	1.0
Other Costs			
Supplies, Materials and Equipment			$25/student

Panelists identified programs for middle school students, including a 21st Century School program and test prep available to all students, as well as summer school for L1-L4 ELL students. Note that ELL teachers were already identified in Table 5.2, where they were recommended to provide an additional period of instruction for L1-L4 ELL students.

Table 7.3: High School Additional Programs

	Bridge	Tutoring	Credit Enrichment	Summer School
Type of Student Served	Entering 9th graders	All	All	ELL L1-L4
Percentage of Identified Populations Served	100%		30%	75%
Program Specifics (length of program, length of day)	5 hours a day, 5 days a week, 3 weeks	1 hours a day, 4 days a week, 4 weeks		1/2 day, 4 days a week, 4 weeks
Personnel				
Teachers	25:1 ratio	25:1 ratio	4.0	15:1 ratio
Nurse	1.0			1.0
Aides- Duty, Monitoring	1.0			1.0
Other Costs				
Snacks	$2,000			

Panelists identified programs for high school students, including a bridge program for incoming 9th graders, tutoring and credit enrichment available to all students, as well as summer school for L1-L4 ELL students. Again, ELL teaching personnel were already identified in Table 5.3 to provide an additional period of instruction for L1-L4 ELL students.

School-Level Technology Hardware

The technology needs of each school are shown in Tables 8.1 through 8.3.

Table 8.1: Elementary School Technology Hardware

Hardware Item	# of Units Needed
Administration/Main Office	
Computers	4 total
Laptops	1 per administrator
Mobile Devices	1 per administrator
Printers	2 total
Copier/Printer	2 total
Servers	1 total
Scanner/Fax	1 total
Faculty	
Laptops	1 per professional
Mobile Devices	1 per professional
Copier/Printer	6 total
Classroom	
Computers	2 per classroom
Printers	6 total
Visual Presentation System	1 per classroom
Document Camera	1 per classroom
Audio system	1 per classroom
Fixed Computer Labs	1 fixed lab
Computers	26 per fixed lab
Printers	1 per fixed lab
Visual Presentation System	1 per fixed lab
Document Camera	1 per fixed lab
Audio system	1 per fixed lab
Media Center	
Computers	7 total
Digital Video Cameras/Cameras	
Printers	1 total
Barcode Scanners	2 total
High Quality Video Camera	1 total
Other	
Student Mobile Devices	1 per student
Visual Presentation System	1 total
Audio System	1 total
Infrastructure (Switches, Routers, etc.)	$20/student

Table 8.2: Middle School Technology Hardware

Hardware Item	# of Units Needed
Administration/Main Office	
Computers	1 per office staff member
Laptops	1 per administrator
Mobile Devices	1 per administrator
Printers	5 total
Copier/Printer	2 total
Servers	1 total
Faculty	
Laptops	1 per professional
Mobile Devices	1 per professional
Classroom	
Computers	
Printers	1 per classroom
Visual Presentation System	1 per classroom
Document Camera	1 per classroom
Audio system	1 per classroom
Fixed Computer Labs	5 fixed labs
Computers	30 per fixed lab
Printers	1 per fixed lab
Visual Presentation System	1 per fixed lab
Document Camera	1 per fixed lab
Audio system	1 per fixed lab
Media Center	
Computers	20 total
High Quality Video Camera	1 total
Printers	1 total
Other	
Student Mobile Devices	1 per student
Infrastructure (Switches, Routers, etc.)	$20/student

Table 8.3: High School Technology Hardware

Hardware Item	# of Units Needed
Administration/Main Office	
Computers	1 per office staff member
Laptops	1 per administrator
Mobile Devices	1 per administrator
Printers	10 total
Copier/Printer	3 total
Servers/Cloud Service	1 total
Scanner/Fax	1 total
Faculty	
Laptops	1 per professional
Mobile Devices	1 per professional
Classroom	
Computers	2 per classroom
Printers	5 total
Visual Presentation System	1 per classroom
Document Camera	1 per classroom
Audio system	1 per classroom
Fixed Computer Labs	3 fixed labs
Computers	27 per fixed lab
Printers	1 per fixed lab
Visual Presentation System	1 per fixed lab
Document Camera	1 per fixed lab
Audio system	1 per fixed lab
Media Center	
Computers	30 total
Visual Presentation System	1 total
Printers	1 total
Other	
Student Mobile Devices	1 per student
Infrastructure (Switches, Routers, etc.)	$20/student

Panelists called for an array of technology to be available in classrooms, computer labs, and media centers, and to be available to teachers and administrative staff. Of particular note, panelists recommended one-to-one mobile devices (tablets, notebooks, etc.) for all students.

District-Level Resources

Due to study constraints, APA did not address base district-level resources, but instead relied on the 2006 work to identify additional district level costs beyond the identified school-level resources. District-

level costs—including costs for administration, building maintenance and operation (M&O), insurance, legal expenditures, school board expenses, and other central office purchases—were also identified as part of the base cost. In 2005, district-level costs were 25 percent of school-level costs. APA used the same proportions to estimate the district level costs for this update.

As this study was focused on addressing ELL student need in an in-depth manner, the ELL panel did address the additional resources needed at the district level to serve ELL students, as shown in Table 9.

Table 9: Additional District Resources to Serve ELL Students

ELL Student Enrollment	10,000 students
Personnel	
Assistant Superintendent	1.0
Coordinator/Supervisor	1.0
Translator	2.0
Clerical/Data Entry	3.0
Testing Staff	10.0
Data Specialist	1.0
Assessment/Compliance	1.0
Training Staff	3.0
Program staff	4.0
Interpreter	20.0
Other Costs	
Professional Development	15%
Printing	$75,000

Panelists identified a number of needed district-level ELL positions, including administrators; translators and interpreters; testing, data, and assessment/compliance personnel; training staff; program staff; and clerical personnel. Other costs included professional development and printing.

Applying Resource Prices

Once the panels had completed their work, APA undertook the process of costing out the resources identified above. The primary prices needed to complete this costing out are the salaries and benefits of personnel (Appendix D) and the prices assigned to different kinds of technology hardware (Appendix E).

For personnel salaries, APA used what 2012-13 statewide average salary was available from the Nevada Department of Education. This average salary information was not available for all positions needed for this work; therefore, APA turned to the 2006 work to understand the proportional relationship between the average teacher salary and salaries for other positions, such as if a counselor's salary was 1.1 times the teacher salary, or an instructional aide position was 0.5 times the teacher salary. APA then applied the same relationship factor to the updated 2012-13 teacher salary to calculate the salaries need for all

other positions. For benefit rates, APA consulted CFOs and other district leaders to determine a reasonable benefit rate that represented a statewide average.

In determining technology costs, APA used cost figures from our most recent statewide study. Calculations assumed equipment would be replaced every four years for the majority of hardware items.

School-Level and District-Level Costs

Table 10 that follows shows the base costs for each representative school, disaggregated into costs for personnel, professional development, non-personnel areas, and technology. The table also shows the additional costs above and beyond the base for ELL students based upon the PJ panels' work.

Table 10: School-Level Base Costs

	Elementary School	Middle School	High School
School-level Costs, Base	**$7,690**	**$6,313**	**$6,225**
Personnel	*$7,005*	*$5,541*	*$5,093*
Professional Development	*$223*	*$192*	*$188*
Non-Personnel Costs	*$200*	*$300*	*$600*
Technology	*$261*	*$264*	*$240*
Other Programs	*$0*	*$17*	*$104*
Additional Costs for Identified Students			
ELL- L1, L2	**$3,482**	**$2,749**	**$3,021**
ELL- L3, L4	**$2,617**	**$2,749**	**$2,898**
ELL- L5, Monitoring	**$1,063**	**$1,140**	**$768**

Additionally, the school-level cost of a preschool program in an existing elementary school would be $9,502 per student.

One should be careful in drawing conclusions based on school-level costs, since such costs exclude district-level costs. 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 sizes.

Table 11 presents the district-level cost figures, including the calculated district-level cost for the base (25 percent of the average school-level base cost) and the ELL district-level amount based on the resources identified by the PJ panelists.

Table 11: District-Level Costs

District-level Costs, Base	$1,715
District-level Costs, ELL	$350

Table 12 presents the resulting base cost and ELL weights coming out of the PJ process.

Table 12: Total PJ Base Cost and ELL Weights

Base	**$8,577**
Weights	
ELL- L1, L2	0.41
ELL- L3, L4	0.36
ELL- L5, Monitoring	0.13

As Table 12 shows, the final base cost is $8,577, with additional weights for ELL students ranging from 0.13 to 0.41. The base cost is for students K-12; the cost for a preschool student would be $11,217.

Determining Additional Weights and Adjustments

Special Education Weight

APA reviewed the Special Education weights from the 2006 Nevada adequacy study and compared them against weights from the last 10 years of adequacy studies in Colorado, Connecticut, Kentucky, Minnesota, Montana, Pennsylvania, South Dakota, Tennessee, and Washington, D.C.[5]

Table 13 presents the results of this national comparison. (*Note that if more than one Special Education weight was included in a state's report—such as separate weights for mild, moderate or severe special education needs—APA created a combined single figure based on the proportion of students in each category).*

Table 13: Review of Special Education Weights

State	Year	Special Education Weight*
Nevada	2006	1.10
Comparison States		
Colorado	2003	1.15
Colorado	2006	1.15
Colorado	2011	1.49
Colorado	2013	1.49
Connecticut	2005	1.29
D.C.	2013	1.09
Kentucky	2004	1.23
Minnesota	2006	1.00
Montana	2007	1.06
Pennsylvania	2007	1.30
South Dakota	2006	1.40
Tennessee	2004	0.84

[5]Aportela, A., Picus, L., Odden, A. & Fermanich, M. (2014). A Comprehensive Review of State Adequacy Studies Since 2003. Denver, CO: Augenblick, Palaich & Associates

Nationally, special education weights ranged from 0.8 to 1.5, with the combined special education weight from the Nevada 2006 work at 1.1. Since the Nevada-specific figure was within the aforementioned special education weight range, we believe it appropriate to continue to use this figure.

At-Risk Weight

APA also examined the at-risk weights produced in the same states' adequacy studies. Table 14 presents the results of this review.

Table 14: Review of At-Risk Weights

State	Year	At-Risk Weight
Nevada	2006	0.29-0.35 (based on district size)
Comparison States		
Colorado	2003	0.26- 0.56 (based on district size)
Colorado	2006	0.26- 0.56 (based on district size)
Colorado	2011	0.35
Colorado	2013	0.35
Connecticut	2005	0.28-0.62 (based on concentration)
D.C.	2013	0.37
Kentucky	2004	0.49-0.59
Minnesota	2006	0.75
Montana	2007	0.27-0.50 (based on district size)
Pennsylvania	2007	0.43
South Dakota	2006	0.24-0.72 (based on district size)
Tennessee	2004	0.25

In the 2006 Nevada adequacy study, the at-risk weight for Nevada ranged from 0.29 to 0.35, compared to national weights ranging from 0.25 to 0.75. Given that the Nevada results were within the national range, APA felt the 2006 Nevada results could still be appropriately used. However, since a single weight is being used for all other student categories, APA felt that a single at-risk weight should also be used here. Based upon the national results, APA recommends an at-risk weight of 0.35.

District Size Adjustment

The idea that size can influence a district's cost in delivering education services is supported by years of research, including many adequacy studies conducted in other states. These studies consistently show that cost differences exist across different sizes of districts. Therefore, addressing the extent of these

differences in Nevada is an important step in ensuring that resources are properly allocated in the state's education funding formula.

A major advantage to having a size adjustment is that such an adjustment produces gradual changes in projected costs based on enrollment differences. Gradual change is preferable to funding "cliffs" 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 (which would provide the districts with a significantly higher level of funding). With a size-adjusted formula, no such plateaus exist, and districts therefore have no incentive to artificially alter their student counts.

Resources for this update study did not allow for APA to conduct a full update of the size adjustment. Instead, APA evaluated the district-size adjustment created in the 2006 study, then compared the 2006 adjustment against an adjustment from the most recent adequacy study in another state—an adequacy study in Colorado in 2012. Colorado is a good comparison for Nevada given similarities in the sizes and geographic dispersions of districts in both states.

The 2006 Nevada District Size Adjustment

APA developed a size adjustment that considered the following three basic principles related to the cost impacts of school and district size:

1. Fixed cost. Schools and districts all incur an initial, fixed operating cost when establishing and running any school or district, regardless of enrollment.
2. Added per student cost. There is a cost for every student, added to the school or district enrollment.
3. Economies of scale. There is also a cost savings for every student, added to a school or district enrollment. This savings grows exponentially as the number of students increases and as 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:

$$\mathbf{a + b(x) - c(x^2)}$$

Using this formula, APA examined the per-student spending of different-sized Nevada schools and districts using available In$ite data.[6] (*Note that since In$ite addresses actual spending, APA's 2006 analysis was also focused on actual spending, and is therefore not reflective of the spending level that might be necessary to achieve adequacy.)*

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

The base cost size adjustment formula from the 2006 work is:

Less than 780 students	(Students X (-0.0008789)) +2.311
781 – 6,500 students	(Students X (-0.0000868+1.6938
More than 6,500 students	(Students X (-0.000002067)) +1.1429

No district would have a size factor below 1.0

Comparing 2006 Nevada Size Adjustment to 2012 Colorado Adjustment

As part of this update study, APA compared the 2006 Nevada adjustment to the adjustment from the 2012 Colorado work. Both Nevada and Colorado have a wide range of district sizes, from large, urban districts to small, geographically remote districts. APA ran both size adjustment formulas against a range of district sizes to understand the resulting weight generated under each formula, as shown in Table 15.

Table 15: Comparison of Size Adjustments

	Nevada (2006)	Colorado (2012)
50	2.27	2.27
100	2.22	2.27
250	2.09	2.03
500	1.87	1.41
780	1.63	1.35
2500	1.48	1.13
5000	1.26	1.10
6500	1.13	1.09
15000	1.11	1.04
25000	1.09	1.03
50000	1.04	1.00
275000	1.00	1.00

As shown in Table 15, both size adjustments produce very similar weights at most district size levels. The 2006 Nevada adjustment is notably higher for districts in the 500-5,000 range. However, given that the Nevada adjustment was, overall, relatively in line with a similar state's adjustment, APA felt that it was appropriate to use the Nevada-specific size adjustment.

Updating 2006 Size Adjustment with 2014 Updated PJ Base Cost

The base cost from the PJ process is $8,577—a figure developed using a district size of 50,000 students. To address districts larger than 50,000, APA referred to data from its 2006 work regarding the identified ratio of spending differences between Nevada's largest districts. APA used this data to create a cost

"floor," below which no district could go. APA then applied this ratio to the $8,577 base cost figure to obtain a minimum $8,251 floor. The size adjustment then runs off this floor figure.

Location Cost Metric

A "Location Cost Metric" (LCM) adjustment could also be included in Nevada's education funding formula to take into account geographic cost of living differences across school districts. Again, a full update of the LCM was not a part of this update study. As such, the results of the 2006 cost of living analysis will be presented here and used as part of modeling statewide adequacy costs. *(Note that, to the extent that economic realities have changed in Nevada since 2006, the results of an updated LCM study would likely be different than findings presented here. Thus, APA recommends cautious consideration of these prior findings).*

2006 Nevada Cost of Living Analysis

In APA's 2006 Nevada work, analysis focused specifically on the cost of living issue. APA did not, therefore, seek to address any differences between districts or regions that might affect the districts' "attractiveness" to potential employees. Such an attractiveness analysis would need to address a myriad of subjective factors (e.g. recreational opportunities and overall quality of life) that APA did not believe would be useful (or easily quantified) for inclusion in a state education funding formula.

APA's 2006 study of cost of living differences in Nevada focused on the cost of providing labor. As in most states, labor in Nevada represents approximately 80 percent of all district operating costs. This makes labor by far the most important driver of district cost differences between districts. Because the remaining 20 percent of district costs are very difficult to quantify, APA held this 20 percent constant across districts in its LCM formula: .20 + (.80 x Cost of Living Indicator).

With this focus on labor costs in mind, APA developed an LCM by first identifying a Cost of Living Indicator. This indicator was comprised of the primary costs employees face. To identify such costs, APA reviewed data from the Council for Community and Economic Research (ACCRA)[7] and from the Economic Policy Institute. During this 2006 analysis, this data yielded several significant findings, including the findings that:

- Cost of living variances in Nevada are largely based on differences in housing costs.
- Areas across Nevada can be separated into higher-cost and lower-cost housing areas.
- Aside from housing costs, other living costs did not vary significantly in Nevada.

Based on these findings, APA developed both a Cost of Living Indicator and a Housing Index to generate an LCM index for each county in the state. Please refer to the 2006 study for further detail on how APA developed the Cost of Living Indicator and Housing Index. An LCM index, such as the 2006 LCM index shown below, could be applied to each school district's base cost when building Nevada's school finance formula. *(Note that if a new funding formula were implemented in Nevada using an LCM, APA would recommend an update of this index.)*

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

Table 16: 2006 Nevada LCM

County	LCM
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

Estimating the Cost of Adequacy in Nevada

This final section discusses how the results of the base costs, weights, and other adjustments—developed through the PJ panels and the analysis process described in prior sections—can be used to estimate the cost of adequacy for school districts with varying demographic characteristics.

Table 17 on the following page presents the combined results of the PJ process (base and ELL weights), plus our additional review and analysis (Special Education weight, at-risk weight, size adjustment and LCM).

Table 17: Base Cost, Weights and Additional Adjustments for Modeling Statewide Adequacy Costs

Base Cost, *Size Adjusted Minimum*	$8,251
Weights	
ELL	0.42
At- Risk	0.35
Special Education	1.10
Additional Adjustments	
Size	*Less than 780 students* Students X (-0.0008789)) +2.311 *781 – 6,500 students* (Students X (-0.0000868+1.6938 *More than 6,500 students* (Students X (-0.000002067)) +1.1429 *No district would have a size factor below 1.0*
LCM	83.2- 104.7

For the ELL weight, note that while the PJ process produced three different weights, we are using a single weight for modeling statewide results. This is because available ELL enrollment data is only a single total ELL count and likely did not include a count of students that have transitioned out of ELL categorization, but would still be in the "Monitoring" category recommended by the PJ panelists. Given that the weights for L1-L4 students were very similar (.41 and .36) APA went with a single weight of .40. After adjusting this figure to account for the lower base "floor" figure that is being used for modeling, APA produced a final ELL weight of .42.

For the LCM, we are using the index developed in 2006, but recommend that if such a funding formula were put into practice that an updated LCM be calculated.

Examples of Base, Weights and Adjustments Applied to Districts

A) If a Nevada K-12 district had 250 students, including 35 special education students, 80 at-risk students, and 10 ELLs, then the cost of adequacy would be calculated as follows:

1.	Size Adjusted Base Cost	=	250 X $17,245 or $4,311,148
2.	At-risk	=	80 X .35 X $8,251 or $231,028
3.	ELL	=	10 X .42 X $8,251 or $34,654
4.	Special Education	=	35 X 1.10 X $8,251 or $317,664

DISTRICT TOTAL: $4,894,494
TOTAL PER STUDENT: $4,894,494 divided by 250 = $19,578

This total would then be multiplied by the district's LCM to either raise or lower this cost to reflect cost of living differences.

B) For a larger Nevada district with 25,000 students, including 3,250 special education students, 10,000 at-risk students, and 1,250 ELLs, then the calculation would be as follows:

1.	Size Adjusted Base Cost	=	25,000 X $8,994 or $224,839,750
2.	At-risk	=	10,000 X .35 X $8,251 or $28,878,500
3.	ELL	=	1,250 X .42 X $8,251 or $4,331,775
4.	Special Education	=	3,250 X 1.10 X $8,251 or $29,497,325

DISTRICT TOTAL: $287,547,350
TOTAL PER STUDENT: $4,103,821 divided by 25,000 = $11,502

This total would then be multiplied by the district's LCM to either raise or lower this cost to reflect cost of living differences.

Total Cost of Adequacy for Nevada Districts, 2012-13

Using the base cost, weights and adjustments described above, APA calculated the total adequacy cost for the state in 2012-13 figures. Table 18 presents total statewide figures for size adjusted base costs, at-risk, ELL, Special Education, then presents the total with or without an LCM adjustment.

Table 18: Total Cost of Adequacy in Nevada Districts, 2012-13

Size Adjusted Base	$3,595,832,307
At-Risk	$652,548,881
ELL	$236,309,902
Special Education	$448,834,516
Total	
-Without LCM	$4,933,525,606
-With LCM	$4,927,768,519

The total adequacy cost for Nevada in 2012-13 figures, is $4,933.5 million without the LCM adjustment, including: $3,595.8 million for size adjusted, base education; $625.5 million for at-risk; $236.3 for ELL; and $448.8 for Special Education. Adjusting the total cost figure by the 2006 LCM produces a total of $4,927.8 million.

Note that these figures are for K-12 education, and do not include costs for preschool students.

Comparing Adequacy Costs with Actual Spending In Nevada School Districts

To compare the costs of adequacy in Nevada districts to current spending, APA had to collect comparable data for districts. APA gathered 2012-13 expenditure data available on the Nevada Department of Education, which then needed to be reduced by expenditures for food service and transportation (which are not a part of our adequacy figures). Data for spending in these two areas was not readily available for 2012-13, so APA calculated these costs by:

- Transportation: using 2013-14 transportation data and deflating it by one year using the western states CPI; and
- Food service: using 2003-04 In$ite's data (from prior 2006 study) and then inflating it to 2012-13 using western states CPI. *This data was not by district, so a per pupil allocation was used to estimate the figure for each district.*

Capital expenditures were also not included.

Total adequacy costs, as presented in the prior section, were than compared against the 2012-13 expenditures-excluding capital, transportation and food service. Table 19 presents these results.

Table 18: Total Cost of Adequacy Compared to Actual Expenditures in Nevada Districts, 2012-13

District	Current Expenditures*	Current Per Pupil	Adequacy Total	Adequacy Per Pupil	Difference	Difference Per Pupil
TOTAL	$3,303,731,046	$7,809	$4,933,525,606	$11,661	$1,629,794,560	$3,852

**Less transportation and food service.*

Appendix A- Professional Judgment Panel Participants

District	School-Level Panelist
Clark County	Dave Wilson
Clark County	Diana Gomez
Clark County	James Blake
Clark County	Jim McIntosh
Clark County	Kathrine Lee
Clark County	Katie Decker
Clark County	Marty Gardner
Clark County	Nathan Miller
Clark County	Travis Warnick
Douglas	Holly Luna
Douglas	Mark Kuniya
Douglas	Roger Cramer
Douglas	Rommy Cronin
Elko	Duane Barton
Elko	Keith Walz
Elko	Tim Giere
Humboldt	Kitty Norcutt
Washoe	Ana Herrera
Washoe	Bruce Meissner
Washoe	Krissy Brown
White Pine	Sharyl Allen
District	**ELL Panelist**
Clark County	Miriam Benitez
Clark County	Margarita Gamboa
Clark County	Lorna Cervantes
Elko	Karen Branzell
Washoe	Janeen Kelly
District	**Statewide Panelist**
Clark County	Salvador Rosales
Clark County	Erika Wagstaff
Douglas	Brian Frazier
Elko	Steven Cook
Humboldt	Gail Janhunen
Pershing	Dan Fox
White Pine	Paul Johnson

Appendix B- Summary of Nevada Standards

Nevada Standards

October 2014

Compulsory Education

Any person having under his or her control or charge a child who is between the ages of 7 and 18 years shall send the child to a public school during the time school is in session in the school district of residence. A child must be five by September 30 to be admitted into kindergarten and a child must be six by September 30 to be admitted into first grade. Further, kindergarten is required before a student can go on to grade 1. If a child does not complete kindergarten in a public school program, a licensed private school, an exempt private school, or have on file with the school district a notification of intent to provide home instruction, then the child must pass a developmental screening test for grade 1 readiness.[8]

The boards of trustees of each school district is required to provide at least 180 days of free school to their students.[9]

Student-Instructor Ratio Requirements

State law requires the ratio of pupils per licensed teacher designated to teach those classes full time in kindergarten to be no more than 21:1[10], no more than 16:1 in grades 1 and 2, no more than 18:1 in grade 3, and no more than 25:1 for grades 4, 5, and 6.[11] In determining this ratio, all licensed educational personnel who teach in those grades must be counted except teachers of art, music, physical education or special education, counselors, librarians, administrators, deans, and specialists. School districts are allowed to have alternative class-size reduction plans approved by the State Board of Education. The ratios are reported in the *Nevada Annual Reports of Accountability.*[12] When bills were passed in 2013 to increase student to instructor ratios to the current requirements, school districts such as Clark County School District were not being funded adequately to meet the requirements.[13]

Nevada Academic Content Standards

The Nevada State Board of Education adopted the Common Core State Standards (CCSS) for English Language Arts and Mathematics in 2010 and Next Generation Science Standards in 2014.[14] The goal is to ensure all students are ready for college and careers. The Nevada Academic Content Standards are in place for all K-12 grades. The state defines standards in the following areas:

- ELA and Mathematics (informed by the CCSS)
- Computer & Technology
- Digital Learning/Distance Education
- Fine Arts

[8] NRS 392.040
[9] NRS 388.090
[10] Clark County School District personnel review of this document emailed October 7, 2014.
[11] Chapter 5, Statutes of Nevada, 27th Special Session. https://www.leg.state.nv.us/Statutes/27thSS/Stats2013SS2701.html
[12] http://www.nevadareportcard.com/di/main/students
[13] http://www.8newsnow.com/story/22378853/clark-county-student-teacher-ratios-getting-worse
[14] http://www.doe.nv.gov/Curriculum_Standards/

- World Language
- Health & Physical Ed
- Pre-K
- Science (informed by the Next Generation Science Standards)
- Social Studies
- Career & Technical Education

Student Assessment

Nevada is transitioning to the Smarter Balanced assessments aligned to new Common Core State Standards, in English language arts and mathematics.[15] Nevada participated in the Smarter Balanced pilot and field tests during the 2012-13 and 2013-14 school years. The 2014-15 school year will be the first year the Smarter Balanced assessments will be used statewide for grades 3-8 for accountability purposes. These tests will cover skills such as analytical reading, persuasive writing, and problem solving. Nevada will not use the digital library, interim, or college-readiness components of Smarter Balanced in 2014-15. The ACT was chosen as the college-ready assessment for 2014-15 in grade 11.

English Language Learners

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 four domains that include the areas of speaking, listening, reading, writing, as well as overall comprehension.[16] This language assessment does not replace the State English Language Arts Tests (Smarter Balanced assessments or HSPE) required by state law. All LEP students must participate in the state assessments as well as the assessment of English Language proficiency. Nevada is part of the World-Class Instructional Design and Assessment (WIDA) Consortium for its English Language Proficiency Assessments (ELPA) and English Language Development standards. The state is working to align its efforts to educate English Language Learners to mastery of the Nevada Academic Content Standards. Additionally, the state is required to report Annual Measurable Achievement Objectives to show ELL students are progressing and reaching proficiency and academic standards as required by Title III of No Child Left Behind Act.[17]

Career and Technical Education

There are two types of Career and Technical Education (CTE) Assessments. The Workplace Readiness Skills Assessment measures student proficiency in the Employability Skills for Career Readiness state standards. The End-of-Program Technical Assessments are program specific and measure the skill attainment of students who have completed a program course sequence. These assessments are aligned to the state standards.[18]

Course and Graduation Requirements

High school pupils must enroll in four credits of English; four credits of mathematics, including Algebra I and geometry; three credits of science, including two laboratory courses; and three credits of social

[15] Nevada Department of Education, "Guide to the Smarter Balanced Field Test." www.doe.nv.gov/NDE_Offices/APAC/Testing_and_Assessments/SBAC_Smarter_Balanced/Guide_to_Smarter_Balanced_Field_Test/

[16] http://www.doe.nv.gov/English_Language_Proficiency_Assessment_WIDA/

[17] http://www.doe.nv.gov/ELL_Resources_Page/

[18] http://cteae.nv.gov/Career_and_Technical_Education/CTE_Assessments_Home/

studies, including American government, American history, and world history or geography.[19] This default curriculum includes more credits than are required for a diploma, but a pupil may request a modified course of study as long as it satisfies the requirements for a standard high school diploma or an adjusted diploma, as applicable. Students in the graduating class of 2018 are currently slated to be the first to use the high school Smarter Balanced assessments in ELA and mathematics as a requirement for graduation.[20]

There are currently four types of high school diplomas granted in Nevada: (1) standard; (2) advanced; (3) adult; and (4) adjusted. A standard diploma is awarded upon successful completion of 22.5 units (15 credits for required courses and 7.5 elective credits) and passage of the High School Proficiency Examination (HSPE)—for students graduating during or before SY 2016. Classes of 2017 and 2018 must take end-of-course exams;[21] Classes of 2019 and beyond must pass the EOC exams. An advanced diploma requires completion of a minimum of 24 credits including all requirements for a standard diploma plus 1 additional credit each of mathematics, science, and social studies. In addition, the advanced diploma requires a minimum 3.25 Grade Point Average (GPA), which includes all credits applicable toward graduation. An adult diploma may be granted to a student who withdrew from high school before graduation, but has completed 20.5 units in a program of adult education or an alternative program for the education of pupils at risk of dropping out of high school. An adjusted diploma may be earned by any disabled student who meets the standards prescribed by the student's Individualized Education Plan.

	Standard Diploma[22]	**Advanced Diploma[15]**
Number of credits (units)	22.5	24
Core Courses Required	American Government (1) American History (1) Arts & Humanities (1) Computers* (.5) English Language Arts (4) Health (.5) Mathematics (3) Physical Education (2) Science (2) **can be taken in 7th or 8th grade*	American Government (1) American History (1) Arts & Humanities (1) Computers* (.5) English Language Arts (4) Health (.5) Mathematics (4) Physical Education (2) Science (3) Social Studies (1) **can be taken in 7th or 8th grade*
GPA Requirements	Check with local school districts	Must maintain 3.25 grade point average on the 4.0 scale

[19]Legislative Counsel Bureau, Policy and Program Report, April 2014. http://www.leg.state.nv.us/division/research/publications/pandpreport/10-ese.pdf

[20]http://www.doe.nv.gov/uploadedFiles/nde.doe.nv.gov/content/NDE_Offices/APAC/Program_Accountability/NV%20ESEA%20Flexibility%20Request%20rk070313.pdf

[21] Clark County School District personnel review of this document emailed October 7, 2014.

[22] Nevada State Requirements for Graduation. http://www.doe.nv.gov/NDE_Offices/APAC/Resources/Nevada_State_Requirements_for_Graduation/

High School Proficiency Subjects (passing score)	Reading (300) Writing (7)	Mathematics (300) Science (300)
High School Proficiency based on content contained in ELA, Math, and Science	Nevada Academic Content Standards in English Language Arts (2010), Mathematics (2010) and Science (2005)	

School Accountability/School Performance Framework

In July 2012, Nevada's ESEA Flexibility request was approved officially marking an end to the school accountability system known as Adequate Yearly Progress (AYP).[23] AYP has now been replaced by the Nevada School Performance Framework (NSPF). The NSPF is an integral component of the Educator Performance System that defines the State's shift away from AYP to a five-star classification approach, with schools earning a rating of 1, 2, 3, 4, or 5 stars. The lower star ratings would earn schools more oversight, as well as resources to increase achievement and interventions such as staff and leadership changes for the lowest rated schools.[24]

The Nevada School Performance Framework (NSPF) is Nevada's new school accountability system. It moves away from labeling schools as failing when they aren't reaching the proficiency targets. The NSPF recognizes that nuances exist in school performance and that rating every school as passing or failing is not singularly helpful. The NSPF classifies schools within a five-star performance rating system. The system does not give schools a "pass" and it doesn't re-set the clock. The NSPF includes multiple measures of student achievement and growth and aligns the designations for schools to the delivery of appropriate supports and rewards.

The index score for Elementary and Middle Schools is comprised of:

- Student growth measures over time on the State assessments
- Student achievement (status) on the State assessments
- Reductions in subgroup achievement gaps
- Average daily attendance[25]

Elementary/Middle School Index (100 points possible)		
Growth (40 points possible)		
	Math	Reading
School Median Growth Percentile (MGP)	10	10
Overall % of Students Meeting Adequate Growth Percentile (AGP)	10	10
Status (30 points possible)		
	Math	Reading
Overall % of Students Meeting Proficiency Expectations	15	15
Gap (20 points possible)		
	Math	Reading
% of IEP, ELL and FRL Students Meeting AGP	10	10

[23] http://nspf.doe.nv.gov/Home/FAQ#1
[24] http://www.lasvegassun.com/news/2014/jan/07/report-questions-nevadas-accountability-under-no-c/
[25] http://nspf.doe.nv.gov/Home/AboutEle

Other Indicator (10 points possible)	
Average Daily Attendance (ADA)	10

The index score for High School is comprised of:

- Student performance on State assessments (status) and growth measures over time on the State assessments
- Reductions in subgroup achievement gaps
- Graduation Measures
- College and Career Readiness
- Average daily attendance

High School Index (100 points possible)		
Status/Growth (30 points possible)		
	Math	Reading
Overall % of 10th Grade Students Meeting Proficiency Expectations	5	5
Cumulative % of 11th Grade Students Meeting Proficiency Expectations	5	5
School Median Growth Percentile for 10th Grade (MGP)	5	5
Gap (10 points possible)		
	Math	Reading
Cumulative % of 11th Grade IEP, ELL, FRL Proficiency Gap	5	5
Graduation (30 points possible)		
Overall Graduation Rate	15	
Graduation Rate Gap for IEP, ELL and FRL Students	15	
College and Career Readiness (16 points possible)		
% of Students in NV Colleges Requiring Remediation	4	
% of Students Earning an Advanced Diploma	4	
AP Proficiency	4	
ACT/SAT Participation	4	
Other Indicators (14 points possible)		
Average Daily Attendance (ADA)	10	
% of 9th Grade Students who are Credit Deficient	4	

Educator Preparation and Effectiveness

A new teacher evaluation system is to be implemented fully in the 2015-16 school year[26] to support and evaluate teachers' and school administrators' ability to teach the more rigorous Nevada Academic Content Standards. Assembly Bill 222 in 2011 and Senate Bill 407 in 2013 required the statewide educator performance evaluation and support models for teachers and school administrators.[27] The evaluation system requires 50 percent of the evaluation of an individual teacher or administrator to be based upon the academic achievement of pupils.[28] In addition, the measure provides that an evaluation

[26] http://www.reviewjournal.com/news/education/test-scores-could-matter-less-teacher-evaluations
[27] http://www.doe.nv.gov/NDE_Offices/Educator_Effectiveness/NEPF_Module_I-System_Overview/
[28] https://www.leg.state.nv.us/NRS/NRS-388.html#NRS388Sec090

of a probationary teacher or a post-probationary teacher must include an evaluation of whether the teacher employs practices and strategies to involve and engage the parents and families of pupils in the classroom. Finally, the evaluation system shall require that an employee's overall performance be determined to be "highly effective," "effective," "minimally effective," or "ineffective."

Federal Requirements

The No Child Left Behind Act (NCLB) is the most recent reauthorization of the Elementary and Secondary Education Act, and it had requirements for student proficiency and highly qualified teachers in classrooms for states to achieve. The U.S. Department of Education began offering flexibility regarding specific requirements of NCLB in exchange for rigorous and comprehensive state-developed plans designed to improve educational outcomes for all students, close achievement gaps, increase equity, and improve the quality of instruction.[29]

In August of 2012, Secretary of U.S. Department of Education approved Nevada's request for ESEA Waiver flexibility. [30] In April 2014, Nevada submitted a request to update ESEA flexibility through the waiver renewal process from the United States Department of Education for school year 2014-15. The waiver removes the Adequate Yearly Progress as targets, and allows the use of the Nevada School Performance Framework and state accountability designations of the five-star rating system using multiple measures of achievement: proficiency, growth and growth to standard, gaps in student group growth and growth to standard, and college-and career-readiness indicators that, in addition to graduation rate, also include dropout rate, score on national college-readiness assessments.[31] The conditions of the waiver do require annual measurable objectives (AMOs) for reading, mathematics, and high school graduation rates.

The Individuals with Disabilities Education Act (IDEA) requires that students with disabilities receive services that are included in their Individualized Education Program (IEP), and they receive free appropriate public education in the least restrictive environment.[32] The law requires linking records of migratory children with disabilities among states, developing alternate assessments aligned with the state's content standards, reporting, specific performance goals and indicators, and special education teacher qualifications.[33]

[29] http://www.doe.nv.gov/uploadedFiles/nde.doe.nv.gov/content/NDE_Offices/APAC/Program_Accountability/NV%20ESEA%20Flexibility%20Request%20rk070313.pdf
[30] http://www.doe.nv.gov/Resources/NV_ESEA_Waiver/
[31] http://www.doe.nv.gov/NDE_Offices/APAC/Program_Accountability/FAQ_NV_ESEA_Waiver_Aug2012/
[32] http://www.ncld.org/disability-advocacy/learn-ld-laws/idea/what-is-idea
[33] http://idea.ed.gov/explore/view/p/%2Croot%2Cdynamic%2CTopicalBrief%2C3%2C

Appendix C- Background and Instructions for PJ Panels

INSTRUCTIONS TO PROFESSIONAL JUDGMENT PANEL MEMBERS

Augenblick, Palaich and Associates

October 2014

The work you are doing today is part of a Costing Out Study using the Professional Judgment (PJ) Approach being conducted in Nevada on behalf of the Lincy Institute at UNLV. This study is an update of the 2006 Nevada adequacy study to estimate the resources districts and schools need for all students to meet the current state standards. Specifically, the study will estimate the base cost figure for students will no identifiable needs as well as the adjustments necessary for students such as special education, at-risk, and English Language Learner (ELL) students.

The PJ approach on your professional experience to identify the resources needed so that all students, schools, and districts can fulfill all state standards. Below you will find a number of instructions to help you in this process. It is important to remember that you are not being tasked to build your "Dream School." Instead, you are being asked to identify the resources needed to meet the specific standards and requirements that the state expects students, schools and districts to fulfill. You should allocate resources as efficiently as possible without sacrificing quality.

1. You are a member of a panel that is being asked to design how programs and services will be delivered in representative school settings. These panels are being used to identify the resources that schools with a particular set of demographic characteristics should have in order to meet a specific set of "input" requirements and "output" objectives.

2. Three school-level panels that are being held, an additional panel looking specifically at the resources for English Language Learners (ELL) and a final statewide review panel.

3. The characteristics of the representative school(s) are identified for each, including: (1) grade span; (2) enrollment; and (3) the proportion ELL students.

4. The "input" requirements and "outcome" objectives that need to be accomplished by the representative school(s) are those required by the state. These requirements or objectives can be described broadly as education opportunities, programs, services, or as levels of education performance. You will be provided a short summary of state expectations and performance standards; it is not meant to be exhaustive of all requirements that the state requires schools and districts to fulfill, but instead should be considered a refresher or reminder.

5. In designing the representative school(s), we need you to provide some very specific information so that we can calculate the cost of the resources that are needed to fulfill the indicated requirements or objectives. The fact that we need that information should not constrain you in any way in designing the program of the representative school(s). Your job is to

create a set of programs, curriculums, or services designed to serve students with particular needs in such a way that the indicated requirements/objectives can be fulfilled. Use your experience and expertise to organize personnel, supplies and materials, and technology in an efficient way you feel confident will produce the desired outcomes.

6. For this process, the following statements are true about the representative school(s) and the conditions in which they exist:

Teachers: You should assume that you can attract and retain qualified personnel and that you can employ people on a part-time basis if needed (based on tenths of a full-time equivalent person).

Facilities: You should assume that the representative school has sufficient space and the technology infrastructure to meet the requirements of the program you design.

Revenues: You should not be concerned about where revenues will come from to pay for the program you design. Do not worry about federal or state requirements that may be associated with certain types of funding. You should not think about whatever revenues might be available in the school or district in which you now work or about any of the revenue constraints that might exist on those revenues.

Programs: You may create new programs or services that do not presently exist that you believe address the challenges that arise in schools. You should assume that such programs or services are in place and that no additional time is needed for them to produce the results you expect of them. For example, if you create after-school programs or pre-school programs to serve some students, you should assume that such programs will achieve their intended results, possibly reducing the need for other programs or services that might have otherwise been needed.

Appendix D- Nevada Statewide Average Salaries

Benefit Amount	$6,539
Benefit Rate	25%
Average Number of Contract Days	185
Substitute Daily Rate	$100

School-Level Salaries

Position Title	Average Salary	Average Salary + Benefits
Instructional Staff	$53,405	$73,295
Classroom Teachers	$53,405	$73,295
Specials Teachers	$53,405	$73,295
Instructional Facilitator (Coach)	$53,405	$73,295
Teacher Tutor/ Interventionist	$53,405	$73,295
Librarians/Media Specialists	$56,881	$77,640
Technology Specialists	$55,042	$75,342
Instructional Aides	$19,405	$30,795
Pupil Support Staff		$6,539
Counselors	$62,149	$84,225
Nurses	$62,149	$84,225
Psychologists	$62,149	$84,225
Social Worker	$62,149	$84,225
Family Liaison	$19,405	$30,795
Administrative Staff		$6,539
Principal	$90,718	$119,937
Assistant Principal	$75,835	$101,333
Office Manager	$40,602	$57,292
Attendance/ Registrar	$29,583	$43,518
Clerical/Data Entry	$29,583	$43,518
Other Staff		
Security Guards	$19,405	$30,795
Media Aide	19405	$30,795
In School Suspension	$19,405	$30,795
Aides- Duty, Monitoring	$19,405	$30,795
Behavior Interventionist	$62,149	$84,225
IT Technician	$47,767	$66,248

ELL District Salaries

Position Title	Average Salary	Average Salary + Benefits
Assistant Superintendent	$122,248	$159,349
Director	$96,504	$127,169
Coordinator/Supervisor	$96,504	$127,169
CFO	$96,054	$126,607
Business Manager	$96,054	$126,607
Translator	$53,405	$73,295
Clerical/Data Entry	$29,583	$43,518
Testing Staff	$19,405	$30,795
Data Specialist	$53,405	$73,295
Assessment/Compliance	$29,583	$43,518
Training Staff	$53,405	$73,295
Program staff	$53,405	$73,295
Interpreter	$53,405	$73,295

Appendix E- Nevada Technology Hardware Prices

	Cost per Unit	Replacement Cycle	Annual Price
Administration/Main Office			
Computers, Staff	$1,000	4	$250
Laptops, Staff	$1,200	4	$300
Mobile Devices	$500	4	$125
Smartphone	$300	2	$150
Printers	$300	4	$75
Large Scale Copier/Printer	$15,000	8	$1,875
Hotspot	$200	4	$50
Fax machine	$150	5	$30
Servers	$15,000	5	$3,000
Faculty			
Desktops, Staff	$1,000	4	$250
Mobile Devices	$500	4	$125
Classroom			
Computers, Student	$900	4	$225
Printers	$300	4	$75
Visual Presentation System	$1,000	4	$250
Sound System with Microphone	$1,000	4	$250
Document Camera	$300	4	$75
Computer Lab(s)- Fixed			
Computers	$900	4	$225
Printer	$300	4	$75
Visual Presentation System	$1,000	4	$250
Computer Lab(s)- Mobile			
Laptops	$1,000	4	$250
Printers	$300	4	$75
Media Center			
Computers	$900	4	$225
Digital Video Cameras/Cameras	$400	4	$100
Printer	$300	4	$75
Barcode Scanners	$200	4	$50
Laminator	$3,000	4	$750
Die Cut sets	$3,000	4	$750
Other		4	
Switches/Routers	$5,000 per school	5	$1,000 per school
Mobile Devices	$500	4	$125
Headsets	$50	4	$13

Appendix F- ELL Expert Interview Questions

1. Do you believe there is a specific instructional model that works best for ELL students? If so, does it vary by school type? By level of ELL need?
2. Do you believe there are specific student teacher ratios that are best for serving ELL students in schools? If so, do they vary by school type? By level of ELL need?
3. Are there specific interventions that you recommend for ELL students, such as extended day or extended year? If so, what are the resources needed to successfully implement these interventions?
4. Are there specific types of student support services that should be made available for ELL students such as family liaisons? If so, at what level should those resources be available?
5. What types of supports need to be made available at the district level to support school services for ELL students?
6. What type of professional development is needed? For ELL teachers? For all teachers?
7. Any specific technology resources that you feel are needed for ELL students, either hardware or software?