

**AN EVIDENCED-BASED APPROACH TO  
SCHOOL FINANCE ADEQUACY IN ARKANSAS**

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**Allan Odden  
Lawrence O. Picus  
Mark Fermanich**

# **AN EVIDENCED-BASED APPROACH TO SCHOOL FINANCE ADEQUACY IN ARKANSAS**

## **EXECUTIVE SUMMARY**

This report prepared by the Arkansas Joint Legislative Committee on Educational Adequacy represents an important step in developing the specifications to provide adequate resources for all public elementary, middle and high schools in Arkansas. The proposals contained herein draw from research, best practices and a synthesis of findings from recent professional judgment panels in five states around the country. Over the past six months, the Joint Committee has engaged in a comprehensive process culminating in these recommendations. The recommendations have evolved from:

- a. Four meetings of the Joint Committee on Educational Adequacy, one in April and three in May, each focused on discussing the April 7 version of this report.
- b. The recommendations of two Professional Judgment Panels, comprising a total of 70 Arkansas education leaders, who met for a two-day period in June.
- c. A three day meeting of the Joint Committee on July 14, 15 and 16, 2003, at which it reviewed the original report, the recommendations of the state's Professional Judgment Panels, and proposals for a performance pay system for teachers, including proposed salary increases but through a Knowledge and Skills-Based Single Salary Schedule.
- d. A two day meeting of the Joint Committee on August 18 and 19, 2003 at which these final recommendations and cost estimates were approved along

with the outline of a funding formula to distribute resources to school districts in Arkansas.

At its meeting on August 18 and 19, 2003, the Joint Committee on Educational Adequacy approved an educational adequacy funding plan focused on accountability for student performance, performance pay for teachers, program restructuring at all levels, improved instructional practice and significant resource reallocation. If fully implemented this plan will make Arkansas a leader in the educational reform movement, and more importantly will dramatically improve student performance across the state. Five themes underscore all of the recommendations made by the committee:

1. Providing adequate funding
2. Closing the achievement gap
3. Insuring accountability for results, including performance pay for teachers
4. Emphasis on early intervention
5. All proposals are evidence based using research on what works

Specific recommendations made by the committee are described below.

### **The Evidence Based “Matrix” (\$224.6 million)<sup>1</sup>**

Central to the Joint Committee’s discussions has been the matrix describing the resources needed to provide an adequate education (See Table E.1). All educational initiatives included in the recommendations, and their funding, are **backed by research evidence on their effectiveness**. Every Committee recommendation is supported by evidence that

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<sup>1</sup> Note that this figure does not include salary increases for teachers of \$45 million to pay for increasing the length of teacher contracts by five days. That amount is included in the teacher compensation section below.

each will have an impact on student performance. Among the most important changes in the way schools would be organized are:

- A pupil/teacher ratio of 1 to 15 for grades K-3, and a pupil teacher ratio of 1 to 25 for all other grades. While the numbers were estimated for prototypical schools of 500 students, the number of teachers at each school was prorated based on the actual enrollment of the school. As a result, there is no “subsidy” to small schools or small school districts.
- Additional teachers equal to 20 percent of the number generated above to provide for enrichment programs for students, and planning time for teachers.
- Availability of instructional facilitators at each school to help teacher improve instruction using methods that research shows will lead to improvements in learning.
- Additional staff members provided to schools with high concentrations of poverty. Personnel identified as tutors and as pupil support personnel are added to a school’s faculty for each 100 children qualifying for free and reduced price lunch – with a minimum of one of each at each school in the state. In addition, each 100 children identified as English Language Learners generate an additional 0.40 FTE tutor/teacher. These individuals’ specific responsibilities can be established to meet the individual needs of the schools where they are employed.
- Adequate staff to meet the needs of children with mild and moderate disabilities
- A “catastrophic” funding program to provide special education to children with severe disabilities.
- Elimination of instructional aide and assistant principal positions.

- Additional funding for:
  - Professional development
  - Technology
  - Instructional materials
  - Supervisory aides.

In general, the staffing ratios used in the model are expected to be implemented by school districts across the state, although the committee recognized that some districts may be able to succeed with different resource allocation strategies and believed that some flexibility in the use of personnel should be allowed. This flexibility would be contingent on continued improvement in student outcomes as measured through the state's accountability system.

**To implement the effective school models on which the cost figures are calculated, most schools will need to restructure their academic programs, strengthen their core academic courses, and reallocate all resources – both old and new – to a more effective, school wide educational program.**

### **Teacher Compensation (total increase of \$356 million)<sup>2</sup>**

Central to the adequacy funding plan are substantial increases in teacher salaries, including a performance based pay system that would base salary increases on a teacher demonstrating mastery of instructional skills that lead to an increase in student achievement, rather than years of experience. The components of this increase are:

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<sup>2</sup> Note that includes \$45 million in salary increases for increasing the length of teacher contracts by five days. Although part of the matrix, the cost is reported with other teacher compensation here.

**\$183 million for a 10 percent salary increase for teachers.** This increase would bring teacher salary levels in Arkansas up to market levels for teacher pay in the surrounding southern states. In exchange for this dramatic increase, a performance based pay system that rewards teachers for what they know and can do will be put in place. Once implemented, future large increases in salary will only be available to teachers who demonstrate growth in the knowledge and skills research shows leads to improved student performance.

**\$94 million (the equivalent of a 5 percent salary increase) for “adders” to the salary formula.** These adders would be used to provide additional salary funds:

- To attract teachers to less desirable geographic areas of the state
- To provide additional salary for teachers in subject areas where there currently are shortages of qualified teachers
- To provide additional salary for teachers with advanced graduate degrees

**\$45 million to pay to extend all teacher contracts for five days** to provide additional time for high quality professional development programs. Note that in this increase in teacher pay is necessary to fully implement the matrix, but is included as with other changes in teacher compensation for clarity.

**\$30 million for a performance bonus pay system** that would enable all teachers in a school to earn annual bonuses if as a faculty they boosted student achievement from the previous year.

**\$4 million to establish an appraisal system** to implement these recommendations in a fair and impartial manner.

Under this new pay system teachers would be paid individually for their knowledge, skills, and instructional expertise, and paid collectively for improving student achievement towards state performance goals.

### **Early Childhood Education (\$100 million)**

To enhance the chances of all students moving through high school successfully, the Committee's program focused on **improving schooling in the years before high school**. The Committee's recommendations include **expanded preschool programs** for all students age 3 and 4 from families with an income at 200 percent above the poverty level or below. Research shows that combined with the **reduced class sizes in grades K-3** both strategies have substantial short and long-term positive impacts on student performance. Preschool is known to provide an \$8.00-\$10.00 return for each dollar spent.

### **Funding Formula (\$166.7 million property tax transfer)**

To distribute funds to school districts the Joint Committee recommended creation of a needs based funding formula. This formula provides each school district with an adequate level of funding to fully implement the matrix and increase teacher salaries at the constitutionally required tax rate of 25 mills.

Once the level of funding a district should receive is determined, state aid to that district is computed by subtracting from that total the amount of revenue raised with a uniform 25 mill tax rate in that district. If no action is taken to increase property taxes,

then to fully fund the program, the state will have to provide approximately \$167.7 million more to school districts to fully fund the recommended program. Alternatively, the state could increase property tax receipts through an increase in the uniform millage rate, or by increasing the assessment ratio from 20 percent to 25 percent of actual value.

At the present time, the committee has not taken action on the use of district incentive millages. Under this model, if allowed, the incentive mills would provide funding above the adequacy level defined herein. Among the options the Legislature could consider include:

- Allowing districts to levy incentive mills as they see fit (and their voters approve) without regard to how much is raised – which provides wealthy districts with a funding advantage. This advantage may not be as much of a concern if all districts receive funding for a truly adequate system.
- Allow districts to levy incentive mills but equalize them up to a certain level through power equalization. This would give each district equal access to funding per mill up to the established cap, but would increase the cost to the state.
- Determine that the adequacy level is enough and not allow districts to raise more money through incentive mills.

### **Final Points**

The Committee's **effective school models**, which determine the large part of the price tag, are **focused on dramatically improving instruction**, both through their professional development elements and their performance pay structure. This focus is

important, as it is improved classroom instruction that largely produces improved student academic achievement -- the goal of an adequate education system.

It should be remembered that while the consultants have helped the Committee shape these recommendations; the final recommendations are those of the Committee and not the consultants. Further, early in its deliberations, the Committee itself adopted a definition of educational adequacy that included the current accountability standards of 38 courses in the high school, the state's curriculum frameworks, and the state's testing system including the proficiency levels for student performance. The consultants developed recommendations for funding this definition of educational adequacy. The consultants have also pointed out that it is the state's responsibility, via a solidly enforced accountability system, to ensure high quality courses that are taught by highly qualified teachers. The Committee's model establishes a system that will allow schools to put quality teachers in core instructional courses that will lead to improved learning.

The matrix that accompanies this report (Table E.1) describes the resources necessary to provide an educational program that the Committee believes will meet the Court's requirements for providing an adequate education for all Arkansas school children. During its meeting on August 19, it adopted the following motion regarding the mandating of the program described by that matrix:

The top two items contained in the matrix are mandatory with the exception of class size which shall not be considered mandatory. That the State Board of Education shall develop rules for granting waivers for class size. Such rules shall require that waivers be granted based on the percentage of students coring at or above proficient on state benchmark exams collectively across all grade levels for which benchmark exams are administered across all grades in the school or percentage gains in achievement on state benchmark exams for the school as a whole.

That the percentage levels of students scoring at or above proficient and the percentage of gains necessary to qualify for a waiver shall be developed by the State Board of Education.

Nothing in this motion shall be construed to override rules governing Standards for Accreditation of Arkansas Public Schools.

Any money freed up by class size waivers shall be expended on teachers or support for classroom instruction.

The Committee recognizes that the definition of educational adequacy is a dynamic, not a static concept and that as research into effective educational practices continues to improve our knowledge of how children learn and what programs and methods work best, the kinds and type of resources specified in the matrix may change in response to that knowledge.

The Committee strongly supports the recommendations contained in this report and urges adoption of these recommendations along with appropriations to fund them completely. We recognize the \$847.3 million cost of the programs contained in these recommendations may require a greater tax effort than can be financed in one year. Therefore we recommend development of a plan to phase in this program over a period not to exceed two bienniums. At the same time we recognize that over time the costs of these programs will increase as a result of inflation and the need to further increase teacher salaries to remain competitive within our region. These additional costs must be included in the phase-in plan.

**Table E.1**  
**Recommendations for Adequate Resources for**  
**Prototypical Arkansas Elementary, Middle and High Schools<sup>1</sup>**

<b>School Element</b>	<b>Elementary Schools</b>	<b>Middle Schools</b>	<b>High Schools</b>
<b>School Characteristics</b>			
School configuration	K-5	6-8	9-12
Prototypic school size	500	500	500
Class size	K-3: 15 4-5: 25	6-8: 25	9-12: 25 Maximum of 150 students per semester
Full-day kindergarten	Yes	NA	NA
Pre-school	Yes, 1 Teacher and 1 Teacher Assistant for every 20 children, aged 3 or 4 from a family with income of 200% of poverty or below	NA	NA
Length of teacher work year	190 day teacher contract, so an increase of 5 days	190 day teacher contract, so an increase of 5 days	190 day teacher contract, so an increase of 5 days
% Disabled	13.1 %	13.1 %	13.1 %
% Poverty (free & reduced lunch)	47.4 %	47.4 %	47.4 %
% ELL	3.86 %	3.86 %	3.86 %
% Minority	28.8 %	28.8 %	28.8 %
<b>Personnel Resources</b>			
Principal	1	1	1
Instructional Facilitators/Mentors	2.5	2.5	2.5
Teachers	29	20	20
Specialist teachers	20% more: 6	20% more: 4	20% more: 4
Instructional aides	0	0	0
Teachers for struggling students	1/each 20% poverty or one for every 100 poverty students: 2.5	1/each 20% poverty or one for every 100 poverty students: 2.5	1/each 20% poverty or one for every 100 poverty students: 2.5
Teachers for ELL students	An additional 0.4 teachers for every 100 ELL/LEP students who are also from a poverty family	An additional 0.4 teachers for every 100 ELL/LEP students who are also from a poverty family	An additional 0.4 teachers for every 100 ELL/LEP students who are also from a poverty family

**Table E.1 (Continued)**  
**Recommendations for Adequate Resources for**  
**Prototypical Arkansas Elementary, Middle and High Schools**

<b>School Element</b>	<b>Elementary Schools</b>	<b>Middle Schools</b>	<b>High Schools</b>
<b>School Characteristics</b>			
Alternative Learning Environment	1 Teacher for every 20 ALE students	1 Teacher for every 20 ALE students	1 Teacher for every 20 ALE students
Teachers for students with moderate disabilities/speech/hearing	2.9	2.9	2.9
Severe Disabilities	Keep current Catastrophic Program but reduce expenditure threshold to the base allocation. Also deduct Federal Title VI (b) funds in calculating catastrophic aid.	Keep current Catastrophic Program but reduce expenditure threshold to the base allocation. Also deduct Federal Title VI (b) funds in calculating catastrophic aid.	Keep current Catastrophic Program but reduce expenditure threshold to the base allocation. Also deduct Federal Title VI (b) funds in calculating catastrophic aid.
Teachers for gifted students	Retain current standards, expenditure requirements and monitoring.	Retain current standards, expenditure requirements and monitoring.	Retain current standards, expenditure requirements and monitoring.
Aides for categorical students	0	0	0
Pupil support staff	1/each 20% poverty, or 1 for every 100 poverty students: 2.5	1 for every 100 poverty students plus 1.0 guidance 3.5 total	1 for every 100 poverty students plus 2.0 guidance 4.5 total
Librarians/media specialists	0; included with specialist teachers	1.0	1.5
Technology resource teachers	Included in Instructional Facilitators	Included in Instructional Facilitators	Included in Instructional Facilitators
Substitutes	10 days per teacher	10 days per teacher	10 days per teacher
<b>Dollar per Pupil Resources</b>			
Professional development	Included above: Instructional facilitators Planning & prep time 10 summer days Additional: \$50/pupil for other PD expenses – trainers, conferences, travel, etc.	Included above: Instructional facilitators Planning & prep time 10 summer days Additional: \$50/pupil for other PD expenses – trainers, conferences, travel, etc.	Included above: Instructional facilitators Planning & prep time 10 summer days Additional: \$50/pupil for other PD expenses – trainers, conferences, travel, etc.
Technology	\$250/pupil	\$250/pupil	\$250/pupil

**Table E.1 (Continued)**  
**Recommendations for Adequate Resources for**  
**Prototypical Arkansas Elementary, Middle and High Schools**

<b>School Element</b>	<b>Elementary Schools</b>	<b>Middle Schools</b>	<b>High Schools</b>
School Characteristics			
Instructional materials, equipment, student activities	\$250/pupil	\$250/pupil	\$250/pupil
Extra duty funds	NA	\$60/pupil	\$120/pupil
Funds for Supervisory Aides (lunch, playground, buses)	\$35/pupil	\$35/pupil	\$35/pupil

<sup>1</sup> The Committee recognizes that the definition of educational adequacy is a dynamic, not a static concept and that as research into effective educational practices continues to improve our knowledge of how children learn and what programs and methods work best, the kinds and type of resources specified in the matrix may change in response to that knowledge.

**Teacher Salaries:** Include an 18 percent salary increase for teachers that includes: 3 percent to increase teacher contracts by five days a year; 10 percent to bring salaries to a level that is competitive with the market in the six surrounding states through a new Knowledge and Skills-Based Single Salary Schedule; and 5 percent for “adders” to provide additional funding for geographically undesirable areas, subject areas where there are teacher shortages and for advanced educational degrees. In addition the model calls for a \$30 million school-based bonus program designed around improvements in student performance.

The importance of transforming the adequate resources identified above into powerful and effective instructional strategies that boost student achievement can not be overstated. If the resources identified above are to have more than just marginal impacts on student learning, schools need to:

1. Use the dollars to purchase and implement effective curriculum programs in all content areas.
2. Help principals organize schools so they have the instructional leadership research shows is so important to successful learning.

3. Develop leadership to help teachers create a professional school culture that focuses on continuously improving the instructional program and have teachers take responsibility for the impacts of their instruction practice.
4. An intensive and effective professional development program needs to operate in ways to continually improve the instructional program.

The resources described above are necessary for these actions to take place. The above adequate resources plus the performance pay program recommended in the accompanying report and these leadership actions include the necessary and sufficient conditions for having schools teach Arkansas students to its rigorous performance standards.

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# AN EVIDENCED-BASED APPROACH TO SCHOOL FINANCE ADEQUACY IN ARKANSAS

## Introduction

On November 21, 2002, the Arkansas Supreme Court upheld an earlier Chancery Court ruling declaring the school finance system of Arkansas to be both inequitable and inadequate. The court found that the state was not meeting its constitutional commitment to “maintain a general, suitable and efficient system of free public schools (*Lake View v. Huckabee*).<sup>3</sup> The court held that as part of remedy, the state must conduct a school finance adequacy study, pointing out that such a study had been called for in court rulings in 1994,<sup>4</sup> and again by Judge Kilgore in his 2001 ruling in this case.<sup>5</sup> Lawrence O. Picus and Associates were contracted by the Arkansas Legislature’s Joint Committee on Educational Adequacy to help conduct the adequacy study. This document represents four months of work with the Legislature to help Arkansas define an adequate education and determine its cost.

For Arkansas – and other states as well – the adequacy question is whether the state’s school finance system provides sufficient funding for each school in the state to deploy powerful enough educational strategies so that all students can meet the state’s student performance goals in the next 10-15 years. Those goals seek to have all students performing at or above the proficiency level on the state’s student testing system. This is

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<sup>3</sup> *Lake View School District No. 25 v. Huckabee*, 351 Ark. 31, 91 S.W.3d 472 (2002), cert den. sub. nom. *Wilson, J.L., et al. v. Huckabee, Gov. of Ark., et al.*, 538 U.S. \_\_\_\_ (2003) (Orders of May 19 at 5).

<sup>4</sup> See *Lake View School District No. 25 v. Tucker*, No. 92-5318 (Pulaski County Chancery Court, November 9, 1994 as modified December 21, 1994)

<sup>5</sup> *Lake View School District No. 25 v. Huckabee*, No. 92-5318 (Pulaski County Chancery Court, May 25, 2001) <http://zebra.wsc.k12.ar.us/collinswork.pdf>

a complex and substantive definition of school finance adequacy, far beyond what was expected of “minimum” foundation programs in the past. Today, school finance adequacy in Arkansas requires a more direct link between the funding base and educational strategies that have potential to allow Arkansas’ students to meet or exceed the state’s established proficiency levels.

Since 1990, a variety of methods have been developed in different parts of the country that can help identify this linkage in both programmatic and fiscal terms. Today, the school finance community has developed a number of alternative methods for determining school finance adequacy. The first section of this report describes the four primary methods for determining school finance adequacy that have been developed over the past decade, and identifies the states currently using them. Section two then takes one of the approaches – the Evidence-Based Approach, an approach with which the consultants – Lawrence O. Picus and Allan Odden – retained by the Committee have been associated (Odden, Fermanich & Picus, 2003; Odden, 2000a), and identifies how it would be used to identify the core educational resource needs of prototypical elementary, middle and high schools in Arkansas – resources that would be adequate for schools to educate their students to state performance standards. Section 3 then compares and contrasts various recommendations that have been produced by recent professional judgment panels in several states. Section 4 summarizes the changes recommended by two Arkansas Professional Judgment Panels that met on July 11 and 12, 2003 in Little Rock and reports the response of the Joint Committee to them. Section 5 takes key findings from Sections 2, 3 and 4, and presents a full set of recommendations for resources for prototypical elementary, middle and high schools. Section 6 summarizes

how these recommendations have been costed-out. Section 7 outlines a proposed funding formula for distributing these adequate resources to all districts.

Before proceeding, we should note that the Joint Committee has adopted a definition of what an adequate education is, and that definition served as a basis for identifying the resources required for adequate funding. The Committee's definition of educational adequacy is:

- a. The standards included in the state's curriculum frameworks, which define what all Arkansas students are to be taught.
- b. The standards included in the state's testing system, which include a definition of what would be considered a proficient score for each test. The goal is to have all, or all but the most severely disabled, students perform at or above proficiency on these tests.
- c. Sufficient funding to provide the resources identified in the resource matrix contained in Table 4 of this report.

Full implementation of this definition of an adequate education program with the proposed resources will require that each school rethink if not restructure its entire educational program, and reallocate all current and any new resources to this restructured and more effective educational program. Such a system will need to be accompanied by a clear accountability and monitoring program, such as that embodied in Act 1467 enacted by the 2003 Legislature.

It should be noted that this definition is in line with the statutory language quoted by the Supreme Court in *Lake View* (See *Lake View*, 351 Ark 31 at 57-58. See also Acts 1108 and 1307 of 1997.)

The Committee recognizes that the definition of educational adequacy is a dynamic, not a static concept and that as research into effective educational practices continues to improve our knowledge of how children learn and what programs and methods work best, the kinds and type of resources specified in the matrix may change in response to that knowledge.

The Committee strongly supports the recommendations contained in this report and urges adoption of these recommendations along with appropriations to fund them completely. We recognize the \$847 million cost of the programs contained in these recommendations may require a greater tax effort than can be financed in one year. Therefore we recommend development of a plan to phase in this program over a period not to exceed two bienniums. At the same time we recognize that over time the costs of these programs will increase as a result of inflation and the need to further increase teacher salaries to remain competitive within our region. These additional costs must be included in the phase-in plan.

## **1. Approaches to School Finance Adequacy<sup>6</sup>**

Determining whether a state's school finance system is adequate is the newest and most dominant issue in school finance across the country (Ladd & Hansen, 1999). To be adequate, the school finance formula must provide a sufficient amount of funds so that schools can teach all – or at least all but the most severely disabled – students to state and district proficiency standards. This approach has great appeal for both policymakers and the courts; it seeks to link a funding level to a system performance level, a long sought goal.

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<sup>6</sup>This section draws from Odden, Archibald & Fermanich, 2003.

Designing an adequate school finance system requires three interrelated decisions: identifying an adequate expenditure level for the typical student in the typical district; ensuring that the foundation base has sufficient adjustments for student needs and price differentials; and making sure that the overall system supports teacher salary levels that are sufficient to recruit and retain the level of teacher quality needed to implement standards-based educational strategies in school sites.

But attractive though the adequacy goal is, it is not easy to define in specific, programmatic and dollar terms. Nevertheless, education policy analysts have created four methodologies to determine an adequate foundation expenditure level:

1. The successful district approach
2. The cost function approach
3. The professional judgment approach (initially called the resource cost model approach)
4. The evidence-based approach.

Except for the cost function approach, different states are using various versions of the other three methods. Each is described in detail below (for longer discussions, see Guthrie & Rothstein, 1999; Odden & Picus, 2000).

### **1. The Successful District Approach**

The successful district approach, used in Ohio (Alexander, Augenblick, Driscoll, Guthrie & Levin, 1995; Augenblick, 1997), Illinois (Augenblick, 2001; Hinrichs & Laine, 1996), Maryland (Augenblick, 2001), and Mississippi identifies districts that have successfully taught their students to state proficiency standards, and sets the adequacy level at the weighted average of the expenditures of such districts. Usually, atypical

districts—often the highest and lowest spending, the highest and lowest income districts, and often the large urban and sparse rural districts – are eliminated from the analysis. Atypical districts also frequently include big city districts. Consequently, the typical sample of districts in this analysis includes non-metropolitan districts of average size and relatively homogeneous demographic characteristics, which generally spend below the state average. Critics of this approach argue that the adequate expenditure level typically identified is difficult to align with the fiscal adequacy needs of urban or sparse/rural districts, even with adjustments for pupil needs and geographic price differentials.

This approach also lends itself to manipulation. Though analysts suggest that the adequate expenditure level should be the weighted average of all the expenditures of the districts meeting the performance benchmark, some policymakers have suggested using the average of only the bottom half of that sample, using an unweighted average, or even using the value of just the lowest expenditure district in the sample – in order to drive down the value, and thus the state cost, of the adequate foundation expenditure level.

## **2. Cost Function Approach**

The second approach uses economic cost function analysis. This approach employs regression analysis with expenditure per pupil as the dependent variable, and student and district characteristics, along with *desired* performance levels as the independent variables. The question this approach seeks to answer is: how much money per pupil is needed to produce a given level of student performance? The result produces an adequate expenditure per pupil for the average district, and then, for all other districts, by producing an overall adjustment that accounts for differences in pupil need and educational prices as well as diseconomies of both large and small size. The expenditure

figure could be used, for example, as the Foundation Expenditure of the Arkansas school finance equalization formula, which for each district would be adjusted by the overall “index” to account for differences in pupil need and educational prices, as well as diseconomies of both large and small size across districts. The expenditure level is higher (lower) as the expected performance level is increased (decreased). The index adjustment would replace all current Arkansas categorical programs, except for transportation.

No state currently uses this approach to determine adequacy, though cost function research has been conducted for New York (Duncombe, Ruggiero & Yinger, 1996), Wisconsin (Reschovsky & Imazeki, 1999), Texas (Imazeki & Reschovsky, 1999; Reschovsky and Imazeki, 2001), and Illinois (Reschovsky & Imazeki, 2000). The Reschovsky and Imazeki cost function research found that the adequate expenditure levels in Wisconsin and Texas were close to the median spending levels in those states. The studies also indicated that there was substantial variation in the average adequacy level due to student and district needs, ranging from a low of 49 percent to a high of 460 percent of the average in Wisconsin, and a low of 75 percent to a high of 158 percent of the average in Texas. In both states, the large urban districts had adequate expenditure figures at the highest levels, sometimes 2-4 times the state average.

Reschovsky and Imazeki (2001) produced an overall assessment of the utility of the cost function approach, arguing that it is the only approach, using data from all districts, which links a specific spending level to a specific performance level, and thus is the preferred approach (by economists) in a standards-based environment. However, they did not note that the approach is limited by the strategies being used in extant

management and instructional systems, and does not capture efficiencies that could be produced by more dramatic re-engineering or restructuring. Further, this system is so complicated that state policymakers avoid using it; too few legislators understand how it works. Last, the procedure produces cost figures at just the *district* level, and has not been used to determine an adequate expenditure figure at the *school* level, which is what ultimately is needed.

These two different systems—the successful district approach and the cost function approach—produce widely varying estimates of an adequate expenditure level, suggesting that more research is needed to determine why these large differences emerge. Moreover, while both the successful district and the cost function approaches link spending levels to performance levels, which is what many policymakers want, neither indicates what educational strategies produce those performance levels. So at best, the approaches indicate what an adequate spending level might be at the district level, but not how those resources can be used, in general or at the school level, to produce the desired results. The next two approaches address these latter issues.

### **3. Professional Judgment Approach**

A third approach to determining school finance adequacy is known as the professional consensus or professional judgment approach. Under this methodology, the state creates several teams of local education leaders who independently identify effective school wide strategies and their key ingredients – numbers of professional staff and other resources. The ingredients are then priced out and added up to determine the adequate fiscal base for a school; the base can then be adjusted for the differing characteristics of students and districts. Originally developed by Jay Chambers and Tom

Parrish as the Resource Cost Model (Chambers & Parrish, 1994), the professional judgment model (Guthrie & Rothstein, 1999) is being used in Oregon (Calvo, Picus, Smith & Guthrie, 2000), Maine, Maryland (Management Analysis & Planning, 2001; Augenblick, 2001) and Wyoming (Guthrie et al. 1997; Management Analysis and Planning, 2002). Adequacy studies using this approach are being conducted or have just been completed in a number of other states including Kansas (Augenblick, Meyers, Silverstein & Barkis, 2002), Montana (Meyers & Silverstein, 2002), Nebraska, New York and South Carolina.

The basis of this approach is to bring together a group of educational professionals and ask them to identify the components of a “prototype” school that they believe would enable the professional staff to teach the students at that school to some predetermined standards level. Though this approach usually identifies effective educational strategies to some degree, and so provides a stronger linkage between funding levels and possible education programs, its major limitation is that it depends solely on the judgments of educational professionals in identifying strategies rather than research that actually shows a linkage between the strategy and student performance. Further, it sometimes provides for little differentiation between strategies for the average school and strategies for schools with higher concentrations of at-risk students (see for example, Management Analysis and Planning, 2001).

Although it has become one of the most popular methods states use to determine school finance adequacy, our conclusion is that several panels across the country are making proposals that are both very expensive and have little research-based evidence to bolster them. Nevertheless, it is wise to cull the similarities and differences among the

proposals for prototypical elementary, middle and high schools, in order to draw from the wisdom and expertise of these panels from other states. The approach in Arkansas was to use the professional judgments of leading Arkansas educators to review and critique a set of prototypical school models that the Joint Committee initially recommended, using the fourth methodology summarized below.

#### **4. Evidence-Based Approach**

The fourth major approach to determining an adequate expenditure level is to identify research-based educational strategies, cost them out, and then aggregate them to adequate site, district, and state expenditure levels. This system was developed in part because it identifies a set of specific educational programs and strategies that represent state-of-the-art knowledge about education effectiveness and puts a dollar figure on their costs. It combines many of the advantages of the preceding methods:

1. By referencing research evidence on various educational strategies that positively impact student learning, and combining them into an evidence-based, school wide approach, this method has an evidence-based foundation combined with a pragmatic application;
2. By drawing upon the compilation of strategies incorporated into several comprehensive school designs, it taps the best practices wisdom of some of the best educators in the country who have compiled evidence on individual educational strategies into comprehensive, school wide strategies; and
3. By using this approach it provides schools with a funding level that allows them to deploy any of a large number of school wide educational strategies. Each of those strategies represents the best of what both research and top practitioners

claim are the most effective educational strategies and represent current evidence-based and state-of-the-art professional knowledge in education.

Implementation of this approach in New Jersey. New Jersey adopted this approach to adequacy in 1998 when its Supreme Court<sup>7</sup> concluded that state's school finance system was adequate because it provided more than sufficient funds for schools to adopt and fund via resource reallocation an enriched version of a comprehensive school wide approach that then combined numerous research-based elements – the Roots and Wings/Success for All comprehensive school design. Because Roots and Wings, along with the Modern Red Schoolhouse, were and still are the most expensive comprehensive school wide strategies that now exist, funding such a strategy would undoubtedly provide sufficient resources for alternative school wide strategies as well.

When New Jersey districts began to implement the court's decision, however, they discovered that each school design apparently had a different cost. This was somewhat problematic because it was not possible and in some cases illegal for districts to provide different funding levels to schools (assuming common numbers of students and student needs) only because a school had chosen a design that was more expensive than another. Upon further analysis, though, the state discovered that the different costs actually represented different levels of service and different combinations of individual program elements. By standardizing levels of service for each program element and insuring that each design had all relevant program elements, the state produced a structure that simultaneously provided both a common way to resource all schools and to insure adequate revenues for six different designs that the state had approved, with the most expensive – Roots and Wings – the default design.

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<sup>7</sup> *Abbott by Abbott v. Burke*, 153 N.J. 480, 710 A.2d 450 (1998).

Indeed, the court in New Jersey found not only that funding levels were adequate for this design, but also that there was even money “left over” after the design was enhanced and fully funded (Odden, 1998).<sup>8</sup> Further, the level of funds provided at that time—approximately \$9,000 per child plus state and federal categorical program dollars—was sufficient to fund an enhanced version of that school design, which included smaller class sizes, more professional development, more tutors, a full family-social services support team, and ample computer technologies. The court required the state to continue providing that level of funding and mandated that schools adopt and implement a evidence-based design and fund it through resource reallocation (e.g., Odden & Archibald, 2001). It is likely that such an approach also will be part of North Carolina’s *Leandro* adequacy case and might emerge in other school finance cases as well.<sup>9</sup>

Due diligence requires us to say, though, that research on the implementation of the most recent New Jersey court decree (Erlichson, Goertz & Turnbull, 1999; Erlichson & Goertz, 2001) shows that implementation of this approach – adequate resources but in the context that necessitates significant program restructuring and reallocation of existing resources – is difficult. Many New Jersey schools simply expected more dollars as a result of the court case, and were reluctant to sunset old education strategies and adopt new ones through substantial program restructuring and resource reallocation.

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<sup>8</sup> See also *Abbott by Abbott v. Burke*, 153 N.J. 480, 636, 710 A.2d 450, \_\_\_ (1998).

<sup>9</sup> See, for example, the original case -- *Leandro v. State*, 346 N.C. 336, 488 S.E.2d 249 (1997), and then a series of additional decisions released over time -- *Hoke County Bd. of Education v. State (Hoke I)* No. 95 CVS 1158 (Wake County Superior Court October \_\_, 2000); *Hoke County Bd. of Education v. State (Hoke II)* No. 95 CVS 1158 (Wake County Superior Court October \_\_, 2000); *Hoke County Bd. of Education v. State (Hoke III)* No. 95 CVS 1158 (Wake County Superior Court March 26, 2001) modified by *Hoke County Bd. of Education v. State (Hoke III-B)* No. 95 CVS 1158 (Wake County Superior Court May 29, 2001); *Hoke County Bd. of Education v. State (Hoke IV)* No. 95 CVS 1158 (Wake County Superior Court April 4, 2002).

Researchers also documented insufficient training and the need for more management expertise to help orchestrate the process at both the district and state level.

Building on just the fiscal aspects of this approach, Odden (2000a) suggested a funding structure for a school that could accommodate all extant school designs, that ensured that each had similar service levels in all program elements, and that included all relevant program elements, including a strategy for students who are struggling to learn to proficiency standards, planning and preparation time for teachers, sufficient professional development; and adequate computer technologies.

Section 2 provides more detail for the Evidence-Based approach and shows how it uses both research findings and craft wisdom from the practitioner creators of “comprehensive school designs,” which themselves are compilations of research and best practice knowledge, into cohesive school-wide strategies (Stringfield, Ross & Smith, 1996; Northwest Regional Educational Laboratory, 1998).

### **Pricing The Ingredients**

The last step in both the professional judgment and the evidence-based approach is appropriately pricing all ingredients, and setting teacher salaries. This is a step that usually uses a statewide average teacher salary, but such a strategy potentially understates or overstates what districts and the state might need to pay for quality teacher talent.

There are two approaches to estimating a teacher salary that reflect what it actually takes in dollar terms to recruit and retain teaching talent. The first is to apply to the state’s average teacher salary a geographic cost-of-education-index that has been developed by the National Center for Education Statistics (Chambers, 1995). This district level index quantifies the different prices school districts in a state – such as

Arkansas – must pay for a given set of teacher qualities. This adjustment insures equal purchasing power of teacher salary dollars across geographic regions in the state.

But this cost-index approach just quantifies price differences across geographic regions/districts within a state; it does not indicate what the state average *should be* in relationship to the labor markets for teacher talent within which a state's districts compete for those teachers. A second pricing strategy, which the Joint Committee used, is to determine salary benchmarks for Arkansas and other states – including both surrounding states and all Southern Region Education Board (SREB) states – with which Arkansas competes for teaching talent; this approach identified not only the salary benchmark for beginning-teachers, but also benchmarks for mid-career and top-career teacher salaries. Further, this analysis also compared teacher salaries in Arkansas to those in other occupations with which the education system competes for talent.

## **2. Applying the Evidence Based Approach in Arkansas**

The Evidence-Based approach identifies a set of ingredients that are required to deliver a comprehensive set of elements of a high quality instructional program, and then determines an adequate expenditure level by placing a price (an appropriate salary level) on each ingredient and aggregating to a total cost. This approach is more explicitly based on research and extant models of comprehensive school designs (*e.g.*, Stringfield, Ross & Smith, 1996) rather than just the professional judgment of educators on the level of resources needed to meet a pre-determined performance goal (*e.g.*, Odden, 2000a). The next section does this in an integrated way for elementary, middle and high schools; distinctions among the three different school levels are made where appropriate.

## **Pre-School**

Research shows that **high quality preschool**, particularly for students from lower income backgrounds, significantly effects future student academic achievement as well as other desired social and community outcomes (Barnett, 1995, 1996, 2000; Karoly et al., 1998; Slavin, Karweit & Wasik, 1994). Indeed, these longitudinal studies show that students from lower income backgrounds who experience a high quality, full day pre-school program do better learning basic skills in elementary school, score higher on academic goals in middle and high school, attend college at a greater rate, and as adults earn higher incomes and engage in less socially undesirable behavior. The research shows that there is a return over time of *eight to ten dollars* for every one dollar invested in high quality preschool programs.

Thus, the Committee recommends that the state school finance system should allow each district to provide preschool for at least every child aged 3-4 from a family with an income at or below 200 percent of the poverty level. Pre-school standards, generally according to the National Association for the Education of Young Children, call for one teacher and one teacher assistant for each pre-school group of 15-20 students.

Because pre-school quality is linked to impact, and quality is largely a function of staff, including pre-school students in a district's pupil count for state aid purposes is the most straight forward way to fund pre-school services and require pre-school providers to pay a salary according to the salary schedule in the district in which the pre-school program is provided. In this way, pre-school teachers will earn a salary according to the district's teacher salary schedule. At the same time, districts should allow multiple institutions and organizations to provide pre-school services, not just the public schools.

## **Full Day Kindergarten**

Research further shows that **full-day kindergarten**, particularly for students from low-income backgrounds, also has significant, positive effects on student learning in the early elementary grades (Fusaro, 1997; Slavin, Karweit & Wasik, 1994). Children participating in such programs do better in learning the basic skills of reading, writing and mathematics in the primary grades of elementary school than children who receive only a half-day program or no kindergarten at all. Thus, the state school finance system should allow each district to count each kindergarten student as a full 1.0 student in the formula in order to provide a full-day kindergarten program. It should be noted that some districts in Arkansas already provide full day Kindergarten, and that at the present time, Kindergarten is not constitutionally required – the current constitutional requirement is that education programs must be provided for all children ages six to twenty-one.

## **School Size**

Research on **school size** is clearer than research on class size. However, most of the research on school size addresses the question of whether large schools – those significantly over 1,000 students – are both more efficient and more effective than smaller school units (schools of 300 to 500)– and whether cost savings and performance improvements can be identified for consolidating small schools or districts into larger entities. The research generally shows that school units of roughly 500 students are the most effective and most efficient, but both smaller and larger schools are possible, as long as secondary schools do not exceed 1,000 students.

We quote from the forthcoming Third Edition of the consultants' school finance text on this issue (Odden & Picus, 2004, forthcoming, Chapter 6):

Analysts, however, argue that the expected cost savings from the massive school and district consolidation have not been realized (Guthrie, 1979; O'Neill, 1996; Ornstein, 1990) and that consolidation might actually harm student performance in rural schools (Sher & Tompkins, 1977) as well as have broad negative effects on rural communities (Coeyman, 1998; Seal & Harmon, 1995). If small schools or districts indeed cost more, but consolidation reduces performance and disrupts communities, the better policy choice might be to resist consolidation and provide special adjustments to compensate for the higher costs.

The research on diseconomies of small and large scale generally does not support a consolidation policy. From an economic perspective, the concept of diseconomies of scale includes both costs and outputs. The issue is whether costs per unit of output are higher in small schools or districts, or put differently, whether costs can be reduced while maintaining output as size rises. In an extensive review of the literature, Fox (1981) concluded that little research had analyzed output in combination with input and size variables, and Monk (1990) concluded after assessing the meager extant research that there was little support for either school or district consolidation.

For elementary schools, research knowledge is thin, but data suggest that size economies that reduce costs by more than one dollar per pupil exist up to but not beyond 200 pupils (Riew, 1986). Thus, very small schools experience diseconomies of small size and, except in isolated rural areas, potentially could be merged into larger ones. But the real opportunities for cost savings from school consolidation from these small sizes are not great, precisely because many such schools are located in isolated rural areas and there are no other schools nearby with which to consolidate.

At the secondary level, the data are more mixed. Few studies exist that simultaneously assess both size and output, so scale diseconomies have not been adequately studied. Riew (1986) found that there were cost savings, below one dollar per pupil, for middle schools with enrollments above 500; again, many middle schools already enroll more than this number. In analyzing whether larger secondary schools actually provided more comprehensive programs, an argument for larger size, Monk (1987) concluded in a study of New York that program comprehensiveness increased consistently in secondary schools only for size increases up to but not beyond about 400 students. In subsequent research, Haller, Monk, Spotted Bear, Griffith, & Moss (1990) found that while larger schools offered more comprehensive programs, there was wide variation among both smaller and larger schools, and there was no clear [size] point that guarantees program comprehensiveness. Further, Hamilton (1983) shows that social development is better in small high schools.

Studies of district size generally analyze expenditures per pupil as a function of size without an output variable, such as student achievement (Fox, 1981). To document diseconomies of district size, however, expenditures, size, and output

need to be analyzed simultaneously, since the goal is to determine if costs per unit of output decrease as the number of students in the district increases. Again, in reviewing the literature, Monk (1990) concluded that definitive statements could not be made about district consolidation.

In the most recent review of scale economies and diseconomies, Andrews, Duncombe & Yinger (2002) assessed both cost function and production function research. The studies reviewed generally assessed costs in tandem with student achievement outputs. The authors concluded that there were potential but modest cost savings that could be realized by consolidating districts smaller than 500 students into districts with 2,000-4,000 students; of course this would be an option only for small districts a short distance from each other and not for rural, isolated small districts. The authors also found that the optimum size for elementary schools was in the 300-500 pupil range, and for high schools was in the 600-900 range (see also, Lee & Smith, 1997, on high school size). Both findings suggest that our very large urban districts and schools are far beyond the optimum size and need to be somehow downsized.

Based on the above, we conclude that research suggests that elementary school units be in the range of 300-500 students and that secondary school units be in the range of 600-900 students (Lee & Smith, 1997; Raywid, 1997/1998). Evidence from comprehensive school designs, however, generally propose school sizes of about 500 students for both elementary and secondary schools, which we would argue falls within the range of the research findings (Odden, 1997; Stringfield, Ross & Smith, 1996). Such school designers also suggest that larger schools be divided into “sub-schools” of approximately these same sizes. So an elementary or secondary school with 1,000 students would be organized into two, 500-student “sub-schools,” each with a separate student body, separate principal, and separate entrance, if possible (see also Murphy, Beck, Crawford, Hodges & McGaughy, 2001).

For secondary schools, moreover, research also finds that curriculum offerings should emphasize a solid core of academic classes for all students (Bryk, Lee & Holland, 1993; Lee, Croninger & Smith, 1997; Newmann & Associates, 1996). Indeed, this

research shows that the most effective strategy for having all students perform to proficiency on state standards and to close the achievement gap between minorities and non minorities is for high schools to offer a strong set of core academic courses in mathematics, science, language arts, history/social science and foreign language and require all students to take the bulk of their courses from this core (Clune & White, 1992; Lee, Croninger & Smith, 1997; Madigan, 1997; Public Agenda, 1997; Steinberg, 1997). Indeed, the Education Trust argues that one of the top two strategies for closing the achievement gap between low-income students and students of color from other adolescent Americans is having high schools prepare all students for college, i.e., to take a core of solid academics (Education Trust, 2003). It also means an end to future construction of large school buildings.<sup>10</sup>

All subsequent resource figures are for a prototypic school unit of 500 students at the elementary (K-5), middle (6-8) and high school (9-12) levels.

### **Class Size**

Research on class size shows that **small classes of 15** (not 18, not 20, and not a class of 30 with an instructional aide or two teachers) **in kindergarten through grade 3** have significant, positive impacts on student achievement in mathematics and reading (Achilles, 1999; Gerber, Finn, Achilles & Boyd-Zaharias, 2001; Grissmer, 1999; Mishel & Rothstein, 2002). The impact is perhaps even larger for students from low-income and minority backgrounds (Finn & Achilles, 1999; Krueger & Whitmore, 2001). Thus, class sizes should be 15 in grades kindergarten through grade 3. This policy might arguably be limited to schools that serve primarily lower income and minority students, but recent

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<sup>10</sup> The other strategy is to provide a quality teacher in every classroom, a topic addressed later in this report.

research argues that the student performance impact of small class sizes is substantial for all students (Nye, Hedges & Konstantopoulous, 2002), thus suggesting that such a limiting approach to smaller class size may not be the best policy.

We recognize that different analysts have reached different conclusions on the role of resources generally and specifically the role of class size on student achievement. In a late 1970s meta-analysis of the class size research, Glass and Smith (1979) concluded that class sizes needed to be reduced to at most 15 students before an impact on achievement could be produced. However, in a re-analysis of that research, Odden (1990) noted that Glass and Smith had no sample studies of class sizes of 14-17 that actually improved student achievement, and that the class size of 15 finding was a statistical artifact of little if any impact of class size until individual tutoring was provided. And Hanushek (2002) has always questioned small class size.

But research in the late 1980s and early 1990s provided new evidence of the impact of class size on achievement. The “gold” standard of educational (or any other impact) research is randomized experiments, which provide scientific evidence on the impact of a certain treatment (Mosteller, 1995). Thus, the primary evidence on the impact of small classes today is the Tennessee STAR study, which was a large scale, randomized experiment on class sizes of 15 for kindergarten through grade 3 (Achilles, 1999; Finn, 2002; Grissmer, 1999; Krueger, 2002). The results showed that students in the small classes achieved at a significantly higher level than those in regular class sizes. The same research showed that a regular class of 24-25 with a teacher and an instructional aide did not produce a discernable positive impact on student achievement,

and thus undercut proposals to place instructional aides in elementary classrooms (Gerber, Achilles, & Boyd-Zaharias, 2001).

Though some have argued that the class size impact was produced only in the Kindergarten years (Hanushek, 2002), that argument can only be a conjecture since the experiment was for small class sizes for all of grades Kindergarten through grade 3.

Subsequent research showed that the positive impacts of the small classes in the Tennessee study persisted into middle and high school years, and even the years beyond high school (Finn, Gerger, Achilles & J.B. Zaharias, 2001; Krueger, 2002; Mishel & Rothstein, 2002; Nye, Hedges & Konstantopulos, 2001a, 2001b). Thus, although differences in analytic methods and conclusions characterize some of the debate over class size (see Hanushek, 2002 and Krueger, 2002), we side with those concluding that class size does make a difference; but we conclude that the research shows only that class sizes of 15 students and only for kindergarten through grade 3 boost student performance (Achilles, 1999; Finn, 2002; Grissmer, 1999; Krueger, 2002).

Similar research with similar findings on the effect of class of 15 for students in kindergarten through grade 3 was produced for Project Prime in Indiana (Chase, Mueller and Walden, 1986).

Class sizes in other grades should be no larger than an average of 25, which is about the national average and the size on which most comprehensive school reform models are based (Odden, 1997; Odden & Picus, 2000; Stringfield, Ross & Smith, 1996).

Current Arkansas standards require that there be no more than 20 students in Kindergarten classrooms, that the average pupil/teacher ratio for grades 1-3 in a district be no more than 23 with no more than 25 students in any actual class, that the

student/teacher ratio for grades 4-6 in a district be no more than 25 with no more than 28 students in any actual class, and that in grades 7-12, individual classes can have no more than 30 students and teachers shall not be assigned to more than 150 students in any semester. The Committee recommends resources to staff classes at the following ratios:

- K-3: 1 teacher for every 15 students
- Grades 4-8: 1 teacher for every 25 students
- Grades 9-12: 1 teacher for every 25 students with no teacher having more than 150 students for a semester.

Therefore, a K-5 elementary school of 500 students would need about 22 teachers for grades K-3 and 6-7 teachers for grades 4 and 5; middle and high school units of 500 students would need 20 content area teachers.

### **Principal**

**Each school unit needs a principal.** This simply reflects current practice. All comprehensive school designs, and all prototypic school designs from professional judgment studies around the country, include a principal for every school unit. However, few if any comprehensive school designs include assistant principal positions. Drawing on the above findings, we recommend that instead of one school with a large number of students, school buildings with large numbers of students should be sub-divided into school units within the school, with each unit having a principal. This implies that one principal would be required for each group of 500 students in a school building.

Schools with 2 or more groups of 500 students could organize themselves so there was one “super-ordinate” principal in charge. And larger schools with several schools within a school could field combined athletic teams. Our point in providing resources is

simply to provide resources for groupings of 500 students, with such resources to include a principal-level position for each group.

### **Instructional Facilitators/School-Based Coaches/Mentors**

Most comprehensive school designs, and the professional judgment panels conducted by the consultants in Kentucky (Picus, Odden & Fermanich, 2003), call for **school-based instructional facilitators** (mentors or site coaches); and the technology intensive designs also require a technology coordinator. Further, several designs suggest that while one facilitator might be sufficient for the first year implementation of a school wide program, in subsequent years an additional 0.5 to 1.0 facilitator would be needed. In addition, the technology designs recommend a full-time facilitator, who spends at least half-time as the site's technology expert. Thus, drawing from all programs, we conclude that about 2.5 instructional facilitators/technology coordinators are needed for each school unit of 500 students. This resourcing strategy works for elementary as well as middle and high schools. High schools could turn these resources into several part-time department chairs, or use them as school-wide instructional support resources.

These individuals would coordinate the instructional program, and provide the important ongoing coaching and mentoring that the professional development literature shows is so critically necessary for teachers to change and improve their instructional practice (Garet, Porter, Desimone, Birman, & Yoon, 2001; Joyce & Showers, 2002). We expand on the rationale for these individuals in our professional development section below. The technology staff would provide the technological expertise to fix small problems with the computer system, install all software, connect computer equipment so

it can be used for both instruction and management issues, and provide professional development to embed computer technologies into the curriculum.

### **Planning and Preparation Time/Collaborative Professional Development**

Teachers need some time during the regular school day for collaborative planning, job-embedded professional development, and ongoing curriculum development and review. Schools also need to teach art, music, library skills, and physical education. Providing each teacher one period a day for collaborative planning and professional development focused on the school's curriculum requires an additional 20 percent allocation of teachers to those needed to provide the above class sizes. This assumes a five-hour teacher instructional day at the elementary level and a five period day at the high school. Alternative school organization models might require modification of the 20 percent figure. In our view, the adequate resource model should recommend an appropriate percentage – in this case 20 percent – and schools that seek to implement alternative schedules or class schedules need to work those out within the resources provided. For example, “block scheduling” for high schools require an additional 33 percent of specialist teachers, assuming the school creates a four-period, 90 minute block schedule, with teachers providing instruction for just three of those 90-minute blocks.

Note also that the primary way to provide job-imbedded professional development is to provide for and use a significant portion of planning and preparation time within the normal school day for this purpose (see Odden & Archibald 2001 for examples). Such professional development should provide between 100 and 200 hours of professional development annually for each teacher (we would recommend closer to 200 hours), should include extensive coaching in the teacher's classroom (provided by the

site-based instructional facilitators/coaches/mentors discussed above), should include all faculty in a school, should focus heavily the content and curriculum that each teacher teaches, and should be aligned with state/district content standards and student tests (Birman, Desimone, Porter & Garet, 2000; Cohen & Hill, 2001; Desimone, Porter, Garet, Yoon, & Birman, 2002, Desimone, Porter, Birman, Garet & Yoon, 2002; Garet, Birman, Porter, Desimone & Herman, 1999). Again, we expand on the structure and costs of effective professional development below.

### **Strategy for Struggling Students**

Every school should have a **powerful and effective strategy for struggling students**, *i.e.*, students who must work harder and who need more time to achieve to proficiency levels. Such students generally include those from lower income backgrounds, those struggling to learn English, and those with learning and other mild disabilities. The most powerful and effective strategy is individual one-to-one tutoring provided by licensed teachers (Shanahan, 1998; Wasik & Slavin, 1993). The standard of many comprehensive school designs is a ratio of one fully licensed teacher-tutor for every 20 percent of students in poverty, with a minimum of one for every school. Thus, school units of 500 students should have from one to five professional teacher tutor positions. Schools could deploy these resources in ways other than individual tutoring, though considerable research suggests tutoring is the most effective strategy.<sup>11</sup>

With the exception of having extra teachers to teach English as a Second language to students for whom English is not their primary language, this resource strategy is

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<sup>11</sup> In the matrix recommended by the Committee, funding for these staff are estimated using a ratio of one teacher tutor position for every 100 students who qualify for free and reduced price lunch. Thus schools with enrollments that differ substantially from 500 receive the same level of resources for children from low-income families regardless of school size.

almost but not quite sufficient for schools with English language learners. Research shows that it is the English language learners from lower income, and generally less educated backgrounds, that struggle in school and need extra help. Triggering tutoring resources on the basis of the economic background of students would provide most of the extra help resources needed for such struggling English language learners.

However, best practices and experience also show that when students are both from a low-income background and Limited-English proficient (LEP), some additional assistance is needed beyond that just for poverty. Thus the Committee recommends that every 100 students that are both LEP and from a poverty family trigger an additional 1.4 teacher positions, rather than the 1.0 if just from a poverty family.

This allocation for poverty and LEP students would need to be augmented with additional teacher positions to provide extra help for students with mild and moderate disabilities, as well as with speech and hearing handicaps. Arkansas has been a national leader in designing and implementing state-of-the-art funding approaches for students with disabilities. The most progressive approach today is called a “census” approach to providing such resources. This approach, which is embodied in the current school finance formula, assumes the incidence of these categories of disabilities is approximately equal across districts and schools and includes resources for providing needed services at an equal rate to all districts in the base allocation. Testimony from the Arkansas Department of Education, and experience around the state, shows that all districts and schools are able to provide students with mild and moderate disabilities, including students with speech and hearing handicaps, an appropriate and adequate level

of services with current resources. Thus the Committee recommends that each prototypic school of 500 students be provided an additional 2.9 positions for these services.

Schools should be free to use these resources for struggling students for whatever strategy they select, but they should be held accountable for having these students learn to state proficiency levels.

The small category of students with severe and multiple disabilities, *i.e.*, the low incidence and very high cost disabled students, are not found in equal percentages in all districts and their excess costs need to be fully funded by the state. Arkansas' current Catastrophic Funding Program for the Multiply Disabled seeks to accomplish this objective, but provides state aid only after the first \$30,000 of district expenditures for such students. Because this expenditure threshold is far above what any district receives in state equalization aid, a considerable financial burden is placed on districts for these students. An adequate approach would be for the state to reduce the expenditure threshold to about the new base expenditure level plus the amount the district receives for the student from Federal Title VI (b) funds, and to provide catastrophic funding for any expenditures above this amount. The Committee recommends these changes be made to the current catastrophic reimbursement program.

### **Gifted and Talented Students<sup>12</sup>**

A sound analysis of educational adequacy should **include the gifted and talented student**, most of whom perform above state proficiency standards. Research shows that developing the potential of such students requires:

- Effort to discover the hidden talent of low income and/or culturally diverse students.

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<sup>12</sup> Most of the material in this section was provided by Dr. Ann Robinson, Professor, University of Arkansas at Little Rock.

- Curriculum materials designed specifically to meet the needs of talented learners.
- Acceleration of the curriculum.
- Special training in how teachers can work effectively with talented learners.

Discovering Hidden Talents in Low-Income and/or Culturally Diverse High Ability Learners. Research studies on the use of performance assessments (Baum, Owen & Oreck, 1996; VanTassel-Baska, Johnson & Avery, 2002), nonverbal measures (Naglieri & Ronning, 2000; Naglieri & Ford, 2003), open-ended tasks (Scott, Deuel, Jean-Francois & Urbano, 1996), extended try-out and transitional periods (Borland & Wright, 1994; Maker, 1996), and inclusive definitions and policies (Gallagher & Coleman, 1992) document increased and more equitable identification practices for high ability culturally diverse and/or low-income learners. However, identification is not sufficient; it must be accompanied by services (Rito & Moller, 1989). Access to specialized services for talented learners in the elementary years is especially important for increased achievement among vulnerable students. For example, high ability culturally diverse learners who participated in three or more years of specialized elementary and/or middle school programming had higher achievement at high school graduation than a comparable group of high ability students who did not participate (Struck, 2003). Gains on other measures of school achievement were reported as well.

Access to Curriculum. Overall, research shows that curriculum programs specifically designed for talented learners produce greater learning than regular academic programs. Increase in the complexity of the curricular material is a key factor (Robinson & Clinkenbear, 1998). Large-scale curriculum projects in science and mathematics in the 1960s, such as the Biological Sciences Curriculum Study (BCSC), the Physical Science

Study Committee (PSSC), and the Chemical Bond Approach (CBA), benefited academically talented learners (Gallagher, J., 2002). Further, curriculum projects in the 1990s designed to increase the achievement of talented learners in core content areas such as language arts, science, and social studies produced academic gains in persuasive writing and literary analysis (VanTassel-Baska, Johnson, Hughes & Boyce, 1996; VanTassell-Baska, Zuo, Avery & Little, 2002), scientific understanding of variables (VanTassel-Baska, Bass, Ries, Poland & Avery, 1998), and problem generation and social studies content acquisition (Gallagher & Stepien, 1996; Gallagher, Stepien & Rosenthal, 1992).

Access to Acceleration. Because academically talented learners learn quickly, one effective option for serving them is acceleration of the curriculum. Many educators and members of the general public believe acceleration always means skipping a grade. However, there are at least 17 different types of acceleration ranging from curriculum compacting (which reduces the amount of time students spend on material they already know) to subject matter acceleration (going to a higher grade level for one class) to high school course options like Advanced Placement or concurrent credit (Southern, Jones & Stanley, 1993). In some cases, acceleration means content acceleration, which brings more complex material to the student at his or her current grade level. In other cases, acceleration means student acceleration, which brings the student to the material by shifting placement. Reviews of the research on different forms of acceleration have been conducted across several decades and consistently report the positive effects of acceleration on student achievement (Kulik & Kulik, 1984; Southern, Jones & Stanley, 1993), including Advanced Placement classes (Bleske-Rechek, Lubinski & Benbow, in

press). Other studies, report participant satisfaction with acceleration (Swiatek, 2002) and benign effects on social and psychological development (Rogers, 2002).

Access to Trained Teachers. Research and teacher reports indicate that general classroom teachers make very few, if any, modifications for academically talented learners (Archambault et al, 1993; Westberg, Archambault, Dobyms & Salvin, 1993), even though talented students have mastered 40 to 50 percent of the elementary curriculum before the school year begins (Reis et al, 1993). In contrast, teachers who receive appropriate training are more likely to provide classroom instruction that meets the needs of talented learners; students report differences and independent observers in the classroom document them (Hansen & Feldhusen, 1994). Curriculum and instructional adaptation requires the support of a specially trained coach at the building level, which could be embedded in the instructional facilitators recommended above (Reis et al, 1993; Reis & Purcell, 1993). Overall, learning outcomes for high ability learners are increased when they have access to programs whose staff have specialized training in working with high ability learners (Delcourt, Loyd, Cornell & Golderberg, 1994), which could be accomplished with the professional development resources recommended below.

The Committee strongly recommends that the needs of Arkansas' gifted and talented students be met. The state already has standards for such programs, the staff that teach in them, and minimum expenditures for them. Testimony by Department of Education staff concluded that current resources have resulted in all districts meeting the gifted and talented standards, the program provision requirements and resourcing. The Committee thus recommends that these standards and requirements be retained. Because the general per pupil funding base will rise given the overall recommendations of this

report, the minimum expenditure requirement for gifted and talented students will insure that more is spent on them as well.

### **Student Support/Family Outreach**

Schools also need a **student support and family outreach strategy**. Various comprehensive school designs have suggested different ways to provide such a program strategy (Stringfield, Ross & Smith, 1996; for further discussion, see Brabeck, Walsh & Latta, 2003). In terms of ingredients, the more disadvantaged the student body, the more comprehensive the strategy needs to be. The general standard is one licensed professional for every 20-25 percent of students from a low-income background, with a minimum of one for each school.<sup>13</sup>

Although there are many ways schools can provide outreach to parents, or involve parents in school activities – from fund raisers to governance – research shows that school sponsored activities that impact achievement address what parents can do to help their children learn. For example, if the system has clear content and performance standards, which Arkansas does, helping parents and students to understand both what needs to be learned and what constitutes acceptable standards for academic performance would be helpful. Put succinctly, parent outreach that explicitly and directly addresses what parents can do to help their children learn, and to understand the standards of performance that the school expects, are the types of school-sponsored parent activities that produce discernible impacts on student’s academic learning (Steinberg, 1996, 1997).

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<sup>13</sup> In the matrix recommended by the Committee, funding for these staff are estimated using a ratio of one teacher tutor position for every 100 students who qualify for free and reduced price lunch, with a minimum of one per school. Thus schools with enrollments that differ substantially from 500 receive the same level of resources for children from low-income families regardless of school size.

At the secondary level, the goal of such activities should be to have parents learn about what they should expect of their children in terms of their learning and academic performance in secondary school. If a district or a state required a minimum number of such courses for graduation, that requirement should be made clear. Further, if there were similar or more extensive course requirements for admission into state colleges and universities, those requirements should be addressed. Finally, if either average scores on end-of-course examinations or a cut-score on a comprehensive high school test were required for graduation, they too should be discussed. The point is that secondary schools need to help many parents know how to more aggressively assist their children in determining both an academic pathway through middle and high school, expectations for acceptable standards for performance, and at the high school, an understanding of the course work necessary for college entrance.

At the elementary school level, the focus for parent outreach and involvement programs should concentrate on what parents can do at home to help their children learn work for school. Too often parent programs focus on fund raising through the parent-teacher organization, involvement in decision making through school site councils, or other non-academically focused activities at the school site. Although these school-sponsored parent activities might impact other goals – such as making parents feel more comfortable being at school or involving parents more in some school policies – they have little effect on student academic achievement. Parents actions that impact learning would be to: 1) read to them at young ages, 2) discuss stories and their meanings, 3) engage in open ended conversations, 4) set aside a place where homework can be done, and 5) insure that their child completes homework assignments.

In addition, middle and high schools need some level of guidance counselor resources. We generally recommend one guidance counselor for the middle school and two for the high school, each of 500 students, based on professional standards for staffing. Indeed, at the secondary level, the American School Counselor Association recommends one counselor for every 250 students.

### **Intensive Professional Development<sup>14</sup>**

All school faculties need **ongoing professional development**. Indeed, improving teacher effectiveness through high quality professional development is arguably as important as all of the other resource strategies identified; better instruction is the key aspect of the education system that will improve student learning (Rowan, Correnti & Miller, 2002; Sanders & Horn, 1994; Sanders & Rivers, 1996; Webster, Mendro, Orsak & Weerasinghe, 1998).

Moreover, all the resources recommended in this report need to be transformed into high quality instruction in order to transform them into increases in student learning (Cohen, Raudenbusch & Ball, 2002). And effective professional development is the primary way those resources get transformed into effective and productive instructional practices.

Fortunately, there is recent and substantial research on effective professional development and its costs (e.g., Elmore, 2002; Joyce & Showers, 2002; Miles, Odden, Archibald, Fermanich & Gallagher, 2002). Effective professional development is defined as professional development that produces change in teachers' classroom-based instructional practice, which can be linked to improvements in student learning. The practices and principles researchers and professional development organizations use to

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<sup>14</sup> This draws from Odden, Archibald, Fermanich & Gallagher, 2002.

characterize “high quality” or “effective” professional development draw upon a series of empirical research studies that linked program strategies to changes in teachers’ instructional practice and subsequent increases in student achievement. These studies include, among others, the long-term efforts of Bruce Joyce (Joyce & Calhoun, 1996; Joyce & Showers, 2002), research on the change process (Fullan, 2002), a longitudinal analysis of efforts to improve mathematics in California (Cohen & Hill, 2001), Elmore’s study of District #2 in New York City (Elmore & Burney, 1999), the Consortium for Policy Research in Education longitudinal study of sustained professional development provided by the Merck Institute for Science Education (Supovitz & Turner, 2000), studies of comprehensive professional development to improve science teaching and learning (Loucks-Horsley, Love, Stiles, Mundry & Hewsen, 2003), and an evaluation of the federal Eisenhower mathematics and science professional development program (Garet, Birman, Porter, Desimone & Herman, 1999).

Combined, these studies identified six structural features of effective professional development:

- 1) The **form** of the activity – that is, whether the activity is organized as a study group, teacher network, mentoring collaborative, committee or curriculum development group. The above research suggests that effective professional development should be school-based, job-embedded and focused on the curriculum taught rather than a one-day workshop.
- 2) The **duration** of the activity, including the total number of contact hours that participants are expected to spend in the activity, as well as the span of time over which the activity takes place. The above research has shown the importance of continuous, ongoing, long-term professional development that totals a substantial number of hours each year, at least 100 hours and closer to 200 hours.
- 3) The degree to which the activity emphasizes the **collective participation** of teachers from the same school, department, or grade level. The above research suggests that effective professional development should be organized

around groups of teachers from a school that over time includes the entire faculty (e.g., Garet, Birman, Porter, Desimone & Herman, 1999).

- 4) The degree to which the activity has a **content focus** – that is, the degree to which the activity is focused on improving and deepening teachers’ content knowledge as well as how students learn that content. The above research concludes that teachers need to know well the content they teach, need to know common student miscues or problems students typically have learning that content, and effective instructional strategies linking the two (Bransford, Brown & Cocking, 1999; Kennedy, 1998).
- 5) The extent to which the activity offers opportunities for **active learning**, such as opportunities for teachers to become engaged in the meaningful analysis of teaching and learning; for example, by scoring student work or developing and “perfecting” a standards-based curriculum unit. The above research has shown that professional development is most effective when it includes opportunities for teachers to work directly on incorporating the new techniques into their instructional practice (e.g., Joyce & Showers, 2002).
- 6) The degree to which the activity promotes **coherence** in teachers’ professional development, by aligning professional development to other key parts of the education system such as student content and performance standards, teacher evaluation, school and district goals, and the development of a professional community. The above research supports tying professional development to a comprehensive, inter-related change process focused on improving student learning.

Form, duration, and active learning together imply that effective professional development includes some initial learning (e.g. a two-week – 10 day – summer training institute) as well as considerable longer-term work in which teachers incorporate the new methodologies into their actual classroom practice. Active learning implies some degree of coaching during regular school hours to help the teacher incorporate new strategies in his/her normal instructional practices. It should be clear that the longer the duration, and the more the coaching, the more time is required of teachers as well as professional development trainers and coaches. Content focus means that effective professional development focuses largely on subject matter knowledge, what is known about how students learn that subject, and the actual curriculum that is used in the school to teach

this content. Collective participation implies that the best professional development includes groups of and at some point all teachers in a school, who then work together to implement the new strategies, and in the process, help build a professional school community. Coherence suggests that the professional development is more effective when the signals from the policy environment (federal, state, district, and school) reinforce rather than contradict one another or send multiple, confusing messages. Coherence also implies that professional development opportunities should be given as part of implementation of new curriculum and instructional approaches. Note that there is little support in this research for the development of individually oriented professional development plans; the research implies a much more systemic and all-teachers-in-the-school approach.

Each of these six structural features has cost implications. Form, duration, collective participation, and active learning require various amounts of both teacher and trainer/coach/mentor time, during the regular school day and year and, depending on the specific strategies, outside of the regular day and year as well. This time costs money. Further, all professional development strategies require some amount of administration, materials and supplies, and miscellaneous financial support for travel and fees. Both the above programmatic features and the specifics of their cost implications are helpful to comprehensively describe specific professional development programs and their related costs.

From this research on the features of effective professional development, we conclude that the resources needed to deploy this kind of professional development, which is key to transforming all the resources we recommend into student learning, are:

a. **Some time during the summer for intensive training institutes.** This can most easily be accomplished by insuring that approximately 10 days of the teacher's normal work year will be dedicated to professional development. Due to the fact that the current Arkansas teacher year is 185 days, and includes 5 days for professional development, this recommendation requires an increase of 5 days to the contract, to produce the minimum number of 10 days.

b. **On-site coaching for all teachers** to help them incorporate the practices into their instructional repertoire. The instructional facilitators described above would provide this function.

c. **Collaborative work with teachers in their school during planning and preparation periods** to improve the curriculum and instructional program, thus reinforcing the strategic and instrumental need for planning and preparation time during the regular school day. This will require smart scheduling of teachers during the regular school day and week.

d. **Funds for training** during the summer and for some ongoing training during the school year, the cost of which is about \$25,000 for a school unit of 500 students, or \$50/pupil.

Thus, the teacher year should be extended by 5 days to provide a total of 10 days for intensive summer institutes, coaching should be provided by the instructional facilitators included above, collaborative work should be conducted during the planning and preparation time that is included above, and an additional \$50 per student, or about \$25,000 in a 500 student school unit, would be needed for trainer and other miscellaneous professional development costs.

## **Technology**

Over time, schools need to **embed technology in instructional programs and school management strategies**. Recent research reviews, moreover, have documented a positive impact on student test scores of curriculum programs that embed technology into the instructional delivery system. The reviews documented effect sizes from a 0.30 (Waxman, Connell & Gray, 2002) to a 0.38 standard deviation improvement in test scores (Murphy, Penuel, Means, Korbak, Whaley & Allen, 2002), thus approximating the effects of class size reduction in the early grades.

Based on school designs that include such technology, the costs for a school unit of 500 students are about \$125,000, or \$250/student, for purchase, updating, and maintenance of hardware and software, which for at least the next decade should be viewed as an annual operating cost (Odden, 1997).

Fortunately, Arkansas has developed a substantial technology infrastructure over the years, so most if not all schools are linked to the Internet and to district offices and/or a state network. At school sites, however, investments in computer hardware and software are too often conceived as one-time capital expenditures, whereas in reality most computer related-technologies need to be maintained, fixed, upgraded and replaced over time.

From estimates of these costs, both from several technology heavy comprehensive school designs (Odden, 1997) and from estimates in the state of Kentucky (see Odden, Fermanich & Picus, 2003), the Committee recommends a figure of about \$250 per student. This should be sufficient to keep local technology working and updated and for schools to have an overall ratio of one computer for every 3 students. For clarity, the

latter ratio would be sufficient to provide every teacher, the principal and other key school level staff with a computer, and to have an actual ratio of about 1 computer for every 4 students in each classroom. This level of funding would also allow for the technology infrastructure needed for distance learning programs.

### **Other Resources**

As should be clear, the above recommendations do not include all the resources that schools require. This section makes recommendations on the following items:

- Additional positions for librarians in middle and high schools
- Resources for substitute teachers
- A per pupil amount for instructional materials, supplies, equipment, and student activities, including athletics for middle and high schools.
- Operations and maintenance, clerical staff, and perhaps food services, although food services should be a self-sustaining accounted for in a separate enterprise fund.

Librarians. According to state regulations, every school must have a library. However, modern technologies allow schools to operate a library with more computer technologies, included above, and less staff. Further, many elementary librarians teach students for much of the day as part of special subject offerings. Thus, the Committee recommends that librarian resources be taken from the specialist teacher allocation for elementary schools, and that a 1.0 and 1.5 allocation for library/media staff be provided for middle and high schools, respectively.

Substitute teachers. Schools need some level of substitute teacher allocations. Based on other studies, the Committee recommends that each school receive an amount

of money equal to 10 days for each regular classroom and specialist teacher, funded at the level of \$100 per day, with social security and state retirement benefits, for a total of \$121 per day.

Instructional materials and supplies. Based on recommendations in other states, the Committee recommends that each school be provided with \$250 per pupil for instructional materials and supplies.

Instructional aides. Note that there are no instructional aides in the above model, mainly because research generally shows they do not add value, *i.e.*, do not positively impact student academic achievement (Achilles, 1999; Gerber, Finn, Achilles & Boyd-Zaharias, 2001). At the same time, districts may want to consider a possible use of instructional aides that is supported by research. Farkas (1998) has shown that if aides are selected according to clear and rigorous literacy criteria, are trained in a specific reading tutoring program, provide individual tutoring to students in reading, and are supervised, then they can have a significant impact on student reading attainment. Some districts have used Farkas-type tutors for students still struggling in reading in the upper elementary grades.

Operations and maintenance, and clerical staff. The Committee recommends that current amounts spent for these functions be retained and included in each school's resources. Any other modifications in operations and maintenance costs would derive from the parallel study of facility needs, which is being conducted by another legislative Committee.

## **Benchmarking Teacher Salaries in an Adequate School Finance System**

The last step in both the professional consensus and the evidence-based approaches to determining adequacy is appropriately pricing all ingredients. This includes setting teacher salary levels. At this step, both procedures often use a statewide average teacher salary, which significantly mis-specifies what districts need to pay for quality teacher talent. Adjusting the statewide average by the geographic cost of education index developed by the National Center for Education Statistics (Fowler & Monk, 2001), which generally shows the variation districts need to pay for teacher quality in the context of a given set of teacher qualities, is an improvement over using just the statewide average. These cost indices usually show that metropolitan districts need to spend more than other districts to recruit a comparable level of teacher quality. For example, in a recent study in Wisconsin, Imazeki (2000) found this to be the case for Milwaukee vis-à-vis its surrounding suburbs. She concluded that Milwaukee would need to pay teachers 30 percent more than its surrounding suburbs in order to recruit and retain the same level of teacher talent.

A second and more comprehensive strategy would be to **determine salary benchmarks for competing states**. This approach would identify not only the salary benchmark for beginning teachers, but also the benchmarks for mid-career and top-career teacher salaries. Surrounding states or some other grouping of states, including the Southern Regional Education Board (SREB) states, could define competing states. In addition, salary benchmarks could be developed by comparisons with both the education and the non-education private sector labor market, which increasingly is recruiting education talent. Indeed, at some point the Arkansas education system will need to

recognize that all teachers do not compete in the same labor markets, and that schools may have to **pay higher salaries for mathematics, science**, and other teachers with sought-after specialties or lose their ability to retain high-quality individuals in these subject-matter areas (Goldhaber, 2001; Milanowski, 2002b; Murnane, 1996). It also may take additional incentives to recruit and retain teachers in rural school districts.

In addition, the typical **single salary structure**, which provides salary increases on the basis of years of experience (steps) and education units/degrees (columns), is ineffective in recruiting and paying high-quality teachers (Ballou & Podgursky, 1997; Odden & Kelley, 2002). Several researchers (Goldhaber, 2001; Kelley, 1997; Milanowski, 2002a; Mohrman, Mohrman & Odden, 1996; Murnane, 1996; Odden and Kelly, 1997, 2002) argue that the single salary schedule is no longer aligned with the goals and strategies of standards-based education reform and does not pay for teacher qualities that are linked to teacher effectiveness. By contrast, a new base pay structure called **knowledge and skills-based pay (KSBP) programs** could reward teachers for acquiring and deploying the knowledge and the skills needed to successfully teach a standards-based curriculum (Odden, 2000b, 2001a, 2003).

Knowledge and skills-based salary schedules would link teacher pay levels to teacher knowledge, skills, classroom performance, and effectiveness in the classroom. If instructional practice – teacher clinical expertise – were the basis of key salary increases, instead of years of experience and education units, the salary structure would link salary hikes to enhanced classroom effectiveness. Indeed, preliminary evidence of the knowledge and skills-based teacher salary schedules in Cincinnati and the Vaughn Charter school, and in the standards-based teacher evaluation system in Washoe County

(Reno, Nevada) indicate that the higher the teacher evaluation score, which indicates instructional expertise, the greater value-added student learning produced in the individual teacher's classroom (Gallagher, H.A., 2002, 2004 forthcoming; Holtzapple, 2001, 2002; Kimball, White, Milanowski & Borman, 2004, forthcoming; Milanowski, 2003). In addition, Wayne and Youngs (2003), Goldhaber (2001), and Murnane (1996) conclude that additional salary differentials should be provided for teachers with majors or master's degrees in mathematics or science, with higher GRE scores, and with degrees from higher quality colleges and universities, as these qualities are linked to improved student learning.

The Joint Committee undertook a special set of studies on these salary issues. At its July and August, 2003 meetings, it decided to raise teacher salaries through a new knowledge- and skills-based structure, with additional incentives for teachers in rural areas and in subject area shortages such as mathematics and science. It also approved a recommendation for a school-based bonus program that would provide annual bonuses for all staff in a school if it – the school – meets preset targets for improved student performance. These analyses and recommendations are included in an accompanying report on these issues.

Linking teacher compensation levels to school finance formulas. States such as Arizona, Iowa, Florida, and Minnesota are experimenting with ways to include alternative salary structures in new state school finance systems.

The most straightforward approach is to have minimum salary figures attached to each level of teacher performance, as well as minimum differentials or “adders” for mathematics and science degrees, and perhaps for teaching in a rural school as well. All

salary figures should be benchmarked to a level that allows all districts in the state to compete in the education and broader labor market for necessary teacher talent. The foundation expenditure level in the school finance formula, then, needs to be calibrated so that the average district, with the average staffing level, would be able to pay those minimum but benchmarked salary levels. This would make both the structure of teacher pay more appropriate and the level of teacher pay adequate. In this way, the finance structure promotes adequacy as well as teacher quality: teacher salary levels high enough to allow districts and schools to recruit and retain the quality of teachers they need.

### **3. Other State Professional Judgment Panel Recommendations**

In this section, we compare the staffing and resources proposed above with similar prototypical school proposals that emerged from several recent professional judgment approaches to determining adequacy in several states around the country. We have selected five other studies, one that our consultants Picus, Odden and Fermanich (2003) recently completed for the state of Kentucky, and four completed by the firm of Augenblick and Meyers during the past 3 years for Kansas, Nebraska, Montana, and Maryland. Tables 1, 2 and 3 display the characteristics for each of prototypical elementary, middle and high schools.

There are several differences and similarities between the proposed adequate resources in Table E.1 above and the professional judgment studies. The following summarizes these points:

- All models have a principal.
- The proposed Arkansas models have instructional facilitators rather than assistant principals.

- The professional judgment models have smaller class sizes; the proposed Arkansas models have class sizes of 15 for only K-3, and the report argues that there is no research supporting class sizes of 22, 20 or lower at the secondary levels.
- The Arkansas model proposes 20 percent more teachers for specialist subjects, while the other models often provide more than that amount.
- The Arkansas model proposes a more parsimonious but still adequate level of resources for struggling, disabled and ELL students, while the professional judgment panels propose several additional special education teachers.
- The Arkansas model proposes pupil support resources that vary with poverty, while the other models do not.
- The Arkansas model has a more integrated and comprehensive professional development strategy.
- The professional judgment models include specific library staff resources for middle and high schools, which led to the librarian proposals above.
- The Arkansas model is more skeptical about instructional aides, and would only propose, if any, Farkas-type tutoring while most professional judgment panels include an assortment of instructional aides.
- The professional judgment panels that recommended about 10 days per teacher of substitute resources are about right; a small survey found about that level in Kentucky. The Committee has accepted this recommendation.
- All models essentially agree that the computer technologies require an annual expenditure of about \$250/pupil.

- The professional judgment models suggest various levels of dollars per pupil for instructional materials, equipment, supplies and student activities, including athletics in secondary schools. The Committee recommends a figure of \$250 per pupil as an adequate number for Arkansas.

At this point, the Joint Committee accepted the proposals from the various professional judgment panels in other states to enhance the guidance counseling resources, for librarian staff in middle and high schools, at least 10 days of substitute time for each teacher, and for some level of dollars per pupil for instructional materials, equipment, supplies and student activities, with larger amounts for secondary schools to include resources for the athletic program.

The consultants did not recommend the addition of assistant principals; in their view, the proposals for instructional facilitators obviate these staff. The consultants also did not recommend the addition of more instructional aides, and the Committee concurred. After Arkansas Department of Education input, the Committee augmented the initial level of special education staffing from 2.0 to 2.9.

The consultants and the Committee maintain a commitment to the proposed resources for comprehensive professional development, because it will be improved instruction that will translate these adequate school level resources into improved student achievement (Cohen, Raudenbush & Ball, 2002).

**Table 1**  
**Summary of Resources for Prototypic Elementary**  
**Schools from Professional Judgment Panels in Several States**

<b>School Element</b>	<b>April 7 Arkansas Proposal</b>	<b>Kentucky, Picus &amp; Odden</b>	<b>Kansas, Augenblick &amp; Meyers</b>	<b>Nebraska, Augenblick &amp; Meyers</b>	<b>Montana, Augenblick &amp; Meyers</b>	<b>Maryland, Augenblick &amp; Meyers</b>
School configuration	K-5	K-5	K-5	K-6	K-5	K-5
School size	500	400	430	350	360	500
Class size	K-3: 15 4-5: 25	~20	~20	~17.5	~21	~15
Full day kindergarten	Yes	Yes	Yes	Yes	Yes	Yes
Length of teacher work year	10 extra days	200 days				
% Disabled	13.1 %	10 % moderate	14 %	13 %	12 %	13.5%
% Poverty (free & reduced lunch)	47.7 %	50 %	36 %	32 %	24%	31 %
% ELL	~ 4 %	~ 4 %	4 %	5 %	5 %	3 %
% Minority	28.8 %	--	---	---	5 %Native American	46 %
Principal	1	1	1	1	1	1
Assistant Principal	0	0	0	0	0	1
Instructional Facilitators/Mentors	2.5	1	0	0	0	1
Teachers	29	24	22	20	17	33
Specialist teachers	20 % more: 6	~5	4.4	2	3	6
Instructional aides	0	8	1	0	3.5	15
Teachers for struggling students	1/each 20% poverty: 2.5	1/each 25% poverty: 2	4	1	0	0
Teachers for students with disabilities	2	5	6	3.5	3.2	5.5

**Table 1 (Continued)**  
**Summary of Resources for Prototypic Elementary**  
**Schools from Professional Judgment Panels in Several States**

<b>School Element</b>	<b>April 7 Arkansas Proposal</b>	<b>Kentucky, Picus &amp; Odden</b>	<b>Kansas, Augenblick &amp; Meyer</b>	<b>Nebraska, Augenblick &amp; Meyer</b>	<b>Montana, Augenblick &amp; Meyer</b>	<b>Maryland, Augenblick &amp; Meyer</b>
Teachers for ELL students	Included in struggling students category	1	1	1	Extra 24 % for each Native American student	0
Teachers for gifted students	0	0	0	0	0	0
Aides for categorical students	0		10	6	4	6
Pupil support staff	1/each 20% poverty: 2.5	3	3	2.1	1.6	7
Librarians/media specialists	Included in specialists	Included in specialists	1	1	1	1.5
Technology resource teachers	Included in Inst. Facilitators	1	1	0.5	1	2
Substitutes	10 days for each professional staff	1 permanent plus additional funds for typical use	2 permanent	10 days for each professional staff	\$19,800	3 permanent
Professional development	10 days plus \$50/pupil	10 summer days included in 200 day year, plus \$500/teacher	5 days plus \$500/teacher	5 days plus \$200/teacher	8 days	10 days
Technology	\$250/pupil	\$265/pupil	\$250/pupil	\$250/pupil	\$275/pupil	\$160/pupil
Instructional materials, equipment, student activities	\$250/pupil	\$250/pupil	\$270/pupil	\$90/pupil	\$300/pupil	\$205/pupil
Teacher salary levels	To be determined	National Average	State average	State average	State average + 4.4 % to comparative state average	State average + 1.6 % to comparative state average

**Table 2**  
**Summary of Resources for Prototypical Middle**  
**Schools from Professional Judgment Panels in Several States**

<b>School Element</b>	<b>April 7 Arkansas Proposal</b>	<b>Kentucky, Picus &amp; Odden</b>	<b>Kansas, Augenblick &amp; Meyer</b>	<b>Nebraska, Augenblick &amp; Meyer</b>	<b>Montana, Augenblick &amp; Meyer</b>	<b>Maryland, Augenblick &amp; Meyer</b>
School configuration	6-8	6-8	6-8	7-8	6-8	6-8
School size	500	500	430	680	630	800
Class size	25	20	~22	~20	~25	~22
Length of teacher work year	10 extra days	200				
% Disabled	13.1 %	10 %	14 %	13 %	12 %	13.5%
% Poverty (free & reduced lunch)	47.7 %	50 %	36 %	32 %	24%	31 %
% ELL	~4 %	~4 %	4 %	5 %	5 %	3 %
% Minority	28.8 %		---	---	5 %Native American	46 %
Principal	1	1	1	1	1	1
Assistant Principal	0	0	1	1	1.5	3
Instructional Facilitators/ Mentors	2.5	1	0	0	0	0
Teachers	20	25	19.5	24	25	36
Specialist teachers	20% more: 4	20 % more: 5	6.5	20	10	9
Instructional aides	0		1	0	6	10
Teachers for struggling students	1/each 20% poverty: 2.5		4	3	0	0

**Table 2 (Continued)**  
**Summary of Resources for Prototypical Middle**  
**Schools from Professional Judgment Panels in Several States**

<b>School Element</b>	<b>April 7 Arkansas Proposal</b>	<b>Kentucky, Picus &amp; Odden</b>	<b>Kansas, Augenblick &amp; Meyer</b>	<b>Nebraska, Augenblick &amp; Meyer</b>	<b>Montana, Augenblick &amp; Meyer</b>	<b>Maryland, Augenblick &amp; Meyer</b>
Teachers for students with disabilities	Extra weight of 2.35 for each student	7, plus 1 more if % poverty > 75%	7	5	6.25	7
Teachers for ELL students	Included in struggling students category	1	1	2	Extra 24 % for each Native American student	0
Teachers for gifted students	0	0	0	0	0	0
Aides for categorical students	0	0	13	8	7	6
Pupil support staff	1/each 20% poverty + 1 guidance: 3.5	4.5	3.8	4.8	3.2	10
Librarians/media specialists	1	1	1.5	1	1.5	2
Technology resource teachers	Included in instructional facilitators	1	1	1	1.5	2
Substitutes	10 days for each professional staff	1 permanent Plus dollars for more	3 permanent	10 days for each professional staff	\$34,650	3 permanent
Professional development	10 days plus \$50/pupil	10 summer days included in 200 day year, plus \$500/teacher	5 days + \$500/teacher	5 days + \$200/teacher	8 days	10 days
Technology	\$250/pupil	\$265/pupil	\$250/pupil	\$250/pupil	\$275/pupil	\$137/pupil
Instructional materials, equipment, student activities	\$250/pupil +	\$250/pupil + \$60/pupil for extra duties for teachers	\$465/pupil	\$190/pupil	\$600/pupil	\$305/pupil
Teacher salary levels	To be determined	National Average	State average	State average	State average + 4.4 % to comparative state average	State average + 1.6 % to comparative state average

**Table 3**  
**Summary of Resources for Prototypical High**  
**Schools from Professional Judgment Panels in Several States**

<b>School Element</b>	<b>April 7 Arkansas Proposal</b>	<b>Kentucky, Picus &amp; Odden</b>	<b>Kansas, Augenblick &amp; Meyer</b>	<b>Nebraska, Augenblick &amp; Meyer</b>	<b>Montana, Augenblick &amp; Meyer</b>	<b>Maryland, Augenblick &amp; Meyer</b>
School configuration	9-12	9-12	9-12	9-12	9-12	9-12
School size	500	800	1150	1900	1300	1000
Class size	25	20	~23	~19	~20	~17
Length of teacher work year	10 extra days	200 days, including 10 summer PD days				
% Disabled	13.1 %	10 %	14 %	13 %	12 %	13.5%
% Poverty (free & reduced lunch)	47.7 %	50 %	36 %	32 %	24%	31 %
% ELL	~4 %	~4 %	4 %	5 %	5 %	3 %
% Minority	28.8 %	--	---	---	5 %Native American	46 %
Principal	1	1	1	1	1	1
Assistant Principal	0	1	3	6.5	3	5
Instructional Facilitators/ Mentors	2.5	2	0	0	0	0
Teachers	20	40	49.5	120	81	69
Specialist teachers	20% more: 4	20% more: 8	14.5	--	--	--
Instructional aides	0		2	--	6.5	4
Teachers for struggling students	1/each 20% poverty: 2.5	8	10	8	0	0

**Table 3 (Continued)**  
**Summary of Resources for Prototypical High**  
**Schools from Professional Judgment Panels in Several States**

<b>School Element</b>	<b>April 7 Arkansas Proposal</b>	<b>Kentucky, Picus &amp; Odden</b>	<b>Kansas, Augenblick &amp; Meyers</b>	<b>Nebraska, Augenblick &amp; Meyers</b>	<b>Montana, Augenblick &amp; Meyers</b>	<b>Maryland, Augenblick &amp; Meyers</b>
Teachers for students with disabilities	Extra weight of 2.35 for each student		15	14	12	8
Teachers for ELL students	Included in struggling students category	2	2	5	Extra 24 % for each Native American student	0
Teachers for gifted students	0	0	0	0	0	0
Aides for categorical students	0	--	24	13	14	7
Pupil support staff	1/each 20% poverty + 2 Guidance: 4.5	8	7	11	7	8
Librarians/media specialists	1.5	2	2	2	2	2
Technology resource teachers	Included in Instructional Facilitators	2	1	1	2	2
Substitutes	10 days for each professional staff	2 permanent + typical use for illness and PD	9 permanent	10 days for each professional staff	\$80,000	6 permanent
Professional development	10 summer days plus \$50/pupil	10 summer days included in 200 day year, plus \$500/teacher	5 days + \$500/teacher	5 days + \$200/teacher	8 days	10 days
Technology	\$250/pupil	\$264/pupil	\$250/pupil	\$250/pupil	\$275/pupil	\$162/pupil
Instructional materials, equipment, student activities	\$250/pupil +	\$150/pupil plus \$120/pupil for extra duties for teachers	\$635/pupil	\$530/pupil	\$900/pupil	\$850/pupil
Teacher salary levels	To be determined	National Average	State average	State average	State average + 4.4 % to comparative state average	State average + 1.6 % to comparative state average

#### **4. Key Arkansas Professional Judgment Panel Recommendations**

On June 11 and 12, 2003, 70 leading Arkansas educators met in Little Rock in two Professional Judgment Panels. The members of the panels, their charge, and copies of the materials provided to them are included in Appendices B and C of this report. The charge to the Professional Judgment Panels was to review the preliminary recommendations that were proposed by the consultants in the April 7<sup>th</sup> draft report, together with the changes tentatively approved by the Joint Committee during its May 21, 2003 meeting. At the May 21 meeting, the Joint Committee tentatively decided to:

- a. Include a statement that would retain current gifted and talented standards and expenditure requirements
- b. Increase the disabilities staffing for the prototypical school from 2.0 to 2.9 positions
- c. Enhance resources for students who were both poor and LEP from 1.0 staff for every 100 such students, to 1.4 staff for every 100.
- d. Develop the funding of some kind of Alternative Learning Environment (ALE) program and its required resources.

The Professional Judgment Panels accepted all the recommendations in the April 7, 2003, draft report, together with the above-recommended changes developed by the Committee, and recommended four additional changes:

## **1. Change the class size formulas as follows:**

- a. Elementary
  - i. K-3 → Remain at 15
  - ii. Grades 4-5 → Reduce to 20
- b. Middle School, Grades 6-8 → Reduce to 22
- c. High School, Grades 9-12 → Keep at 25 but indicate a maximum of 150 students per teacher per semester

## **2. Assistant Principals and Instructional Facilitators**

For all school levels, change the wording to reflect a total of 3.0 for each level, with a maximum of 1.0 for the position of assistant principal.

## **3. Supervisory Aides**

In order to comply with a recent state law to reduce teacher non-instructional duties to at most 1 hour a week, and to insure that students were supervised during the morning when they disembarked from buses, during lunch and recess, and in the afternoon when they left school and boarded buses, include \$35 per pupil for supervisory services at all three school levels.

## **4. Extra Duty Funds**

One panel recommended that extra duty funds be provided at the rate of \$30 per student for the elementary school level.

After extensive discussion of each recommendation at its July 14-16, 2003 meetings, the Joint Committee decided to reject the class size reduction proposal but to retain the 150 maximum students for the high school, to reject the transformation of and additional funding for, assistant principals, and approved the proposal for the supervisory aides. The extra duty funds for just elementary schools were not debated.

## **5. Pro-ration**

Due to the fact that resources are developed for prototypical schools of 500 students, the resources need to be tailored to the actual enrollments in and characteristics of each Arkansas school, so thus need to be proportionately prorated up for school units with more than 500

students (for example, doubled for a secondary school with 1000 students) and prorated down proportionately for school units with than 500 fewer students. More complex pro-rating mechanisms would need to be developed for schools with fewer than 200 or so students.

One Professional Judgment Panel addressed this complex issue of prorating the numbers in the Prototypical School Models to the actual enrollment of each school in Arkansas. The following are the recommendations, which generally follow what the consultants have done in other contexts, with the exceptions noted:

For all schools:

Numbers of teacher positions will be prorated up or down depending on actual enrollment, and the class size formula for each grade level.

For “small” schools:

The following will be the minimum number of positions regardless of school size, and generally the minimums are the numbers for a school with 200 students:

- 1.0 Facilitators/mentors
- 1.0 Tutor
- 1.0 Pupil support staff
- 0.5 Teachers for disabilities
- 0.5 Librarian (just for middle and high schools).

Minimum number of teachers:

There was discussion of a minimum number of teachers for schools with less than 200 students. This discussion centered around the basic school configuration for small districts of one K-6 school, and one 7-12 school.

For the K-6 school, the discussion was whether there should be a minimum number of teachers of seven, i.e., at least one teacher for each grade. The Panel voted about 50-50 on this recommendation. Those opposing said multi-age groupings could accommodate classroom organization if there were a smaller number of teachers.

For the 7-12 school, the discussion was whether there should be a minimum number of teachers in grades 9-12 so that all 38 required courses could be taught by a certified teacher at the school. This number was about 10.

At the same time, others have said there are alternative ways to teach courses than having an actual teacher in the school. Alternatives include:

- a. distance education
- b. sharing teachers with other schools/districts
- c. cooperative programs, especially dual enrollment.

If these options were selected, teachers could simply be pro rated to whatever the student enrollment would provide. The panel voted about 50-50 for a minimum number of teachers at the high school level.

During its July 14-16, 2003 meetings, the issue of a minimum number of teachers was debated extensively. At the end, the Joint Committee voted not to provide a minimum number of teachers, for either elementary or secondary schools, but simply to provide teachers that would be triggered by the class size ratios. The Committee did, however, approve the minimum number of instructional facilitators, tutors, support staff, teachers for children with disabilities and librarians at a total of 4.0 positions.

## **5. Proposed Resources for Prototypical Arkansas Elementary, Middle and High Schools**

Given the conclusions reflected in Section 2, input and testimony from the Arkansas Department of Education, the proposals from the professional judgment panels in other states accepted in Section 3, and the Arkansas Professional Judgment Panel recommendations accepted in Section 4, the Committee's draft recommendations are as follows in Table 4.

As described above, the numbers would be proportionately prorated up and down to the actual enrollments of each Arkansas school, with the minimums as just described above for small schools. Further, the resources shown in Table 4 would enable schools to deploy any of the more than a dozen comprehensive school reform strategies currently in use (Odden, 2000a; Erlichson, Goertz & Turnbull, 1999).

**Table 4**  
**Recommendations for Adequate Resources for**  
**Prototypical Arkansas Elementary, Middle and High Schools<sup>1</sup>**

<b>School Element</b>	<b>Elementary Schools</b>	<b>Middle Schools</b>	<b>High Schools</b>
<b>School Characteristics</b>			
School configuration	K-5	6-8	9-12
Prototypic school size	500	500	500
Class size	K-3: 15 4-5: 25	6-8: 25	9-12: 25 Maximum of 150 students per semester
Full-day kindergarten	Yes	NA	NA
Pre-school	Yes, 1 Teacher and 1 Teacher Assistant for every 20 children, aged 3 or 4 from a family with income of 200% of poverty or below	NA	NA
Length of teacher work year	190 day teacher contract, so an increase of 5 days	190 day teacher contract, so an increase of 5 days	190 day teacher contract, so an increase of 5 days
% Disabled	13.1 %	13.1 %	13.1 %
% Poverty (free & reduced lunch)	47.4 %	47.4 %	47.4 %
% ELL	3.86 %	3.86 %	3.86 %
% Minority	28.8 %	28.8 %	28.8 %
<b>Personnel Resources</b>			
Principal	1	1	1
Instructional Facilitators/Mentors	2.5	2.5	2.5
Teachers	29	20	20
Specialist teachers	20% more: 6	20% more: 4	20% more: 4
Instructional aides	0	0	0
Teachers for struggling students	1/each 20% poverty or one for every 100 poverty students: 2.5	1/each 20% poverty or one for every 100 poverty students: 2.5	1/each 20% poverty or one for every 100 poverty students: 2.5
Teachers for ELL students	An additional 0.4 teachers for every 100 ELL/LEP students who are also from a poverty family	An additional 0.4 teachers for every 100 ELL/LEP students who are also from a poverty family	An additional 0.4 teachers for every 100 ELL/LEP students who are also from a poverty family

**Table 4 (Continued)**  
**Recommendations for Adequate Resources for**  
**Prototypical Arkansas Elementary, Middle and High Schools**

<b>School Element</b>	<b>Elementary Schools</b>	<b>Middle Schools</b>	<b>High Schools</b>
<b>School Characteristics</b>			
Alternative Learning Environment	1 Teacher for every 20 ALE students	1 Teacher for every 20 ALE students	1 Teacher for every 20 ALE students
Teachers for students with moderate disabilities/speech/hearing	2.9	2.9	2.9
Severe Disabilities	Keep current Catastrophic Program but reduce expenditure threshold to the base allocation. Also deduct Federal Title VI (b) funds in calculating catastrophic aid.	Keep current Catastrophic Program but reduce expenditure threshold to the base allocation. Also deduct Federal Title VI (b) funds in calculating catastrophic aid.	Keep current Catastrophic Program but reduce expenditure threshold to the base allocation. Also deduct Federal Title VI (b) funds in calculating catastrophic aid.
Teachers for gifted students	Retain current standards, expenditure requirements and monitoring.	Retain current standards, expenditure requirements and monitoring.	Retain current standards, expenditure requirements and monitoring.
Aides for categorical students	0	0	0
Pupil support staff	1/each 20% poverty, or 1 for every 100 poverty students: 2.5	1 for every 100 poverty students plus 1.0 guidance 3.5 total	1 for every 100 poverty students plus 2.0 guidance 4.5 total
Librarians/media specialists	0; included with specialist teachers	1.0	1.5
Technology resource teachers	Included in Instructional Facilitators	Included in Instructional Facilitators	Included in Instructional Facilitators
Substitutes	10 days per teacher	10 days per teacher	10 days per teacher
<b>Dollar per Pupil Resources</b>			
Professional development	Included above: Instructional facilitators Planning & prep time 10 summer days Additional: \$50/pupil for other PD expenses – trainers, conferences, travel, etc.	Included above: Instructional facilitators Planning & prep time 10 summer days Additional: \$50/pupil for other PD expenses – trainers, conferences, travel, etc.	Included above: Instructional facilitators Planning & prep time 10 summer days Additional: \$50/pupil for other PD expenses – trainers, conferences, travel, etc.
Technology	\$250/pupil	\$250/pupil	\$250/pupil

**Table 4 (Continued)**  
**Recommendations for Adequate Resources for**  
**Prototypical Arkansas Elementary, Middle and High Schools**

<b>School Element</b>	<b>Elementary Schools</b>	<b>Middle Schools</b>	<b>High Schools</b>
School Characteristics			
Instructional materials, equipment, student activities	\$250/pupil	\$250/pupil	\$250/pupil
Extra duty funds	NA	\$60/pupil	\$120/pupil
Funds for Supervisory Aides (lunch, playground, buses)	\$35/pupil	\$35/pupil	\$35/pupil

<sup>1</sup> The Committee recognizes that the definition of educational adequacy is a dynamic, not a static concept and that as research into effective educational practices continues to improve our knowledge of how children learn and what programs and methods work best, the kinds and type of resources specified in the matrix may change in response to that knowledge.

**Teacher Salaries:** Include an 18 percent salary increase for teachers that includes: 13 percent to increase teacher contracts by five days a year and bring salaries to a level that is competitive with the market in the six surrounding states through a new Knowledge and Skills-Based Single Salary Schedule; 5 percent for “adders” to provide additional funding for geographically undesirable areas, subject areas where there are teacher shortages and for advanced educational degrees. In addition the model calls for a \$30 million school-based bonus program designed around improvements in student performance.

Missing from this table is preschool for children aged 3 and 4 from families with an income at or below 200% of the family poverty level. At its August 2003 meetings, the Committee decided to enhance and broaden its current A Better Chance (ABC) pre-school program. It recommended that all children aged 3 and 4 residing in families with an income at or below 200 percent of the poverty program have access to pre-school services in an ABC program. These programs are full day, operate for 36 weeks a year, staff at a ratio of one teacher

and one aide for every 20 students, and pay teachers at an annual level close to the proposed level for public school teachers.

Finally, at its meetings July 14-16, 2003, the Joint Committee addressed the issue of the teacher salary levels to be used in determining costs. The Committee discussed the Geographic Cost of Education Index, which has been developed for all districts in the country including all in Arkansas by the National Center for Education Statistics, but voted not to use the cost adjustment. The Committee did, however, vote to increase teacher salaries across the board by at least 11 percent, which would bring the average salary about to the average of the SREB states. The Committee also approved an additional 5 percent salary increase to accommodate the other increases in the newly proposed knowledge and skills-based salary schedule that will allow:

- Faster movement up to higher salary levels
- The possibility of “jumping” steps based on improved teacher performance
- “Adders” for subject area shortages (mathematics, science, etc.) and teaching in a rural location.

The Committee also approved setting aside \$4 million to develop and operate a performance assessment system for the new performance-based salary structure, and dedicating a total of \$30 million for a school-based performance award program, the details of which need to be further developed. But this bonus program, based on improvements in a school’s student performance, would provide four levels of an annual bonus, that would have to be re-earned each year by continuously improving student performance, of: nothing, \$1,000/teacher, \$2,000/teacher and \$3,000 per teacher.

## **6. The Costs of These Proposals**

The following section details how the additional costs of the draft recommendations included in Table 4 were calculated. First, a number that represented total current operating expenditures was identified. We began with a base level of expenditures. In this case we used the figure identified as net current expenditures as reported to us by the Arkansas Department of Education (ADE). This number consists of the expenditures of the 308 school districts in the state and their component schools along with one charter school that is counted as a separate district, and the expenditures for the 15 co-op districts across the state. For this base figure, we also included the costs of adult education.

In building up new expenditures from the school level, several functional expenditures were replaced by the resources in our three prototypic school models: instruction, instructional support (curriculum supervision), pupil support (social work, health/psychology support), school administration, media services, and staff development support. The prototypic school models cover all these functional areas.

Functional expenditures, that were not redesigned, but were carried forward at current levels include: fiscal services, board and legal services, executive administration (superintendent), athletics, facilities and capital other than debt, community services, food services, other non-instructional services, operations & maintenance, transportation, technology services, certain instructional support such as drug and crime prevention, and tuition paid to other local school districts.

Then certain expenditures for central office staff that were assumed to be included in instructional and student support functions replaced by the prototypical school models were added-back. In terms of a strategy, the same “add-back” used in the consultants’ Kentucky

Professional Judgment report was employed, which for a district of 3,500 students included 1.0 Assistant Superintendent for Curriculum and Instruction, 1.0 director of special education, 2.0 additional program directors, and 2.5 clerical. To price these central office administrative resources, we used the principal salary and benefits for the assistant superintendent position and the assistant principal salary and benefits for the other administrative positions other than clerical. We assumed no minimum or maximum number of staff when prorating these positions for actual district size, and we should note, we used this strategy simply on a formula basis. The final expenditure figures are displayed in Table 5.

**Table 5**  
**State-wide Expenditures for Adequacy Computations: FY 2001-02**

<b>Expenditure Category</b>	<b>Amount in Millions 2001-2002</b>
Total Current Expenditures from ADE database (millions):	\$3,248.1
Total Current Federal Expenditures from ADE:	\$ 223.2
Total Current Net of Federal:	\$3,024.9
Less Debt Service:	\$ 130.5
Total Net of Debt:	\$2,894.4
Plus adult education expenditures	\$ 8.9
Total current expenditures used for comparison to models	\$2,903.3
Total of functions replaced by model	\$1,950.6
Total of functions carried forward at current spending levels	\$ 943.8
Add-back replaced functions for schools excluded from model (co-ops, voc-techs)	\$ 28.2
Add-back for school clerical staff	\$ 35.6
Add-back for central office staff from replaced functions	\$ 48.0
Add-back adult education	\$ 8.9
Add-back summer school	\$ 1.9
Add-back cost of catastrophic Special Education	\$ 1.0
Total carry forward with add-backs	\$1,067.9

At this point, a major assumption in the cost model needs to be described. Astute analysts will note that in the above calculations, operation and maintenance expenditures funded by local levies above the required 25 mills have been included; this amount totals at least \$130 million and perhaps more. These monies, however, are purely local incentive monies and cannot be shared across other districts. However, for the funding model, the Committee recommends that all districts levy a full 25-mills, with no amount of the 25 mills allowed for debt and no mill-credits given for revenues from other sources. It is estimated that this more restricted 25-mill rate requirement would raise an additional amount of M & O funds that would at least partially compensate for the minimum \$130 million included above. For initial costing purposes, it has been assumed that these two changes equally offset each other, but this issue is discussed further in the accompanying formula section.

Following are some additional details of the costing approach:

1. Average salaries used in the model before applying any teacher salary increase:

Principal:	$\$58,215 + 23.4\% \text{ fringe} = \$71,837$
Asst. Principal:	$\$53,900 + 23.6\% \text{ fringe} = \$66,620$
Teacher:	$\$36,025 + 25.0\% \text{ fringe} = \$45,031$
Aide:	$\$13,500 + 32.3\% \text{ fringe} = \$17,860$
Sub:	$\$100/\text{day} + 20.7\% \text{ fringe} = \$121/\text{day}$

The fringe benefit percentage was determined by the average salary and the following: 13 percent for state retirement, 6.2 percent for social security, 1.45 percent for Medicare, and \$131 per month for a minimum health insurance benefit.

2. Using the class size formulas in the matrix, the number of teachers and specialist teachers are determined on a full-time equivalent basis (FTE) to the nearest tenth of a decimal.
3. The five additional days for the teacher contract, to be used for professional development, are calculated for all certified staff other than the principal.

4. The ten substitute days are calculated for only regular classroom teachers and the specialist teachers (art, music, physical education, etc.), not for every professional staff member in the school.
5. All ELL/LEP students are considered to be from families with an income at or below the poverty level.
6. The ALE pupil counts (5,500) are headcounts and indicate the number of students enrolled in an ALE program for at least 20 consecutive days. This ALE count, moreover, is also included in a school's regular ADM and enrollment figures, therefore all ALE students first receive the base funding in the prototypic school models and then the additional ALE funding of 1 teacher for every 20 ALE pupil counts.
7. For preschool, we were provided the following numbers:
  - At 200 percent of the poverty level (\$36,200) or below, which is 81 percent of median family income in Arkansas, there are 21,700 four year olds (59.2 percent of four year olds), and 21,561 three year olds (59.2 percent of three year olds) for a total of 43,261.
  - Of these, 20,964 are already served in a current ABC program, Head Start or a CCDF-federally funded childcare program.
  - The Committee recommends that the remaining 22,297 children be served in either a HIPPI home care program or an enhanced ABC program, and to increase teacher compensation to a total of \$50,000 annually in salary and benefits. The program would be staffed at the ratio of 1 teacher and 1 child development associate for every 20 children. In addition, ABC provides \$500 per staff member

for professional development, and \$135 per student for developmental screening, parent and community engagement, and proven curricula.

- With this recommendation, the Committee proposed to increase state support for the enhanced ABC program by \$100 million.

With these assumptions and methods, we began to calculate the additional costs. To do so, we took total expenditures of school districts (minus expenditures for debt and expenditures supported by federal sources) and divided them into two parts. The first were those expenditures that would be “carried forward” unchanged, and included such things as fiscal services, board and legal services, executive administration (superintendent), athletics, facilities and capital other than debt, community services, food services, other non-instructional services, operations & maintenance, transportation, technology services, certain instructional support such as drug and crime prevention, and tuition paid to other local school districts. The second part consisted of those expenditures that were replaced by the resources in our three-prototypical school models: instruction, instructional support (curriculum supervision), pupil support (social work, health/psychology support), school administration, media services, and staff development support. The prototypical school models cover all these functional areas.

The elements of these prototypical schools were considered over a four-month period by the Joint Committee and subjected to scrutiny by two professional judgment panels composed of distinguished Arkansas educators before being finalized. The features of the model, along with a description of the process used to develop it, are described in detail above. The “adequacy model” is summarized in Table 4 above. We estimate that this prototypical model along with the recommended changes for teacher compensation will cost the state an additional \$680.6 million per year – above current (2001-02) expenditures from state and local sources for operation and

maintenance. Table 6 summarizes the components of these increased costs. We should note here, as we also note in the next section on the proposed formula, that the above extra cost figure is relative to actual expenditures in 2001-2002. When the cost is compared just to the yield of a 25 mill tax rate in a foundation program, the additional costs are higher, as will be explained in the next section.

**Table 6**  
**Summary of the Components of the Adequacy Model's Cost Increases**

Category	Amount (\$ millions)
<b>Adequacy Model</b>	
Costs of the Final Matrix (Table 4)	224.6
Pre-school for 3-4 year olds below 200% of poverty	100.0
Sub-total	324.6
<b>Teacher Compensation</b>	
15% salary increase	277.0
Lengthening teacher contracts by 5 days `	45.0
Teacher performance assessment system	4.0
Performance bonus	30.0
Sub-total	356.0
<b>Total Increase</b>	<b>\$680.6</b>

## **7. Designing a School Funding Formula for Arkansas in Response to *Lake View***

This section describes the Committee's recommendations for the design and implementation of a funding formula to distribute funds to Arkansas school districts in an equitable and adequate manner. Relying on the cost estimates of an adequate funding system developed above, and our report on teacher compensation,<sup>15</sup> this section provides suggestions for the redesign of the state's funding formula. Under the adequacy model developed by the Joint Committee during its meetings in July and August 2003, we estimate that total spending for K-12 education should be increased by a total of \$680.6 million. This section describes a formula for distributing adequate funds to the 308 school districts across the state in a manner that will meet the Court's requirements. (These estimates exclude the cost of 15 regional educational service cooperatives, which are assumed to carry forward, unchanged.)

The balance of this section provides an overview of the standards used to design the funding formula, and a description of how the foundation program based formula might work. Our work relied on the extant school finance literature on the design of school funding formulas, the requirements of the *Lake View* ruling and experiences in other states in recent years. The formula itself is described in the last part of this section, which includes a detailed assessment of the impacts of various alternative permutations of the formula.

### **Designing a School Funding Formula**

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<sup>15</sup> See Wallace and Odden (2003). *Developing Differentiated Compensation for Teachers: Final Recommendations*. Prepared for the Arkansas General Assembly's Joint Committee on Educational Adequacy. (August).

When the consultants first met with the Joint Committee in February 2003 to discuss how they would approach this study, they said that a good school finance formula must be “simple, transparent and easy to understand.” To achieve this goal, we have attempted to meet the following standards – which were agreed upon by the Joint Committee – for the design of the formula:

- As much of the total resources in the system as possible should be in the formula.
- Districts should have a uniform tax rate to fund their share of the adequate level of revenue.
- Existing statutory and constitutional requirements for taxation must be adhered to.
- It should be easy to understand how the formula works.
- The formula should meet generally accepted standards of school funding models (see Odden & Picus, 2004, forthcoming for details).<sup>16</sup>
- The funding model should establish an equitable distribution of resources that will meet the equity requirements of the *Lake View* decision.

Although there are several different approaches to designing a school funding formula, the Joint Committee – based on consultants’ recommendations – believes that a foundation program is most appropriate in this situation. A foundation program is designed to provide funding to meet a base “foundation” or “adequate” level of funding for all school districts with an equal level of property tax effort. The adequacy model plus the carry forward amount defines what an adequate foundation expenditure level is. State aid is then determined by subtracting the local revenue raised from a required tax rate. In Arkansas that required tax rate is the yield from a constitutionally required 25-mill local property tax rate.

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<sup>16</sup> Odden, A.R. and Picus, L.O. (Forthcoming in 2004). *School Finance: A Policy Perspective, 3<sup>rd</sup> Edition*. New York: McGraw Hill.

At this point, we need to note that the cost estimate of \$847.3 million displayed in Table 8 is the cost above that supported by current (2001-2002) state aid and local revenues—including excess property tax levies. A major issue for Arkansas – or any state for that matter – is whether all existing local revenues are to be included when the cost to the state of insuring adequate revenues for all districts is computed, or if in addition to those additional costs – \$680.6 million in the current Arkansas model – some of the currently raised local funds are also replaced by state revenues. The latter has the effect of further increasing the cost of the model to the state. In most states that have adopted a foundation program to provide adequate funding to school districts, this issue is resolved through a combination of higher state funding as well as a slightly higher local contribution, generally implemented through a higher required local tax rate in the new formula. The option of raising the local contribution in Arkansas is limited because the 25-mill uniform rate of taxation is established in the constitution and cannot be changed without a vote of the Arkansas electorate at a general election.<sup>17</sup>

As described in more detail below, when we converted the district-by-district estimates of adequate funding levels into a foundation formula with a required tax rate of 25 mills (at the current 20 percent ratio of assessed to market value of property) the cost to the state to fully fund the model increased by an additional \$166.7 million. As shown below, a higher foundation tax rate (about 30 mills) or a higher assessment ratio (25 percent) reduces this additional funding requirement. Arkansas' constitutional requirement for a 25 mill required local tax effort in the foundation program creates one more fiscal decision point for the Joint Committee and the Legislature as the new adequacy based funding formula is designed.

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<sup>17</sup> See Ark. Const. Amend. 74(b)(4) (“The General Assembly may by law propose an increase or decrease in the uniform rate of tax and submit the question to the electors of the state at the next general election.”)

In sum, we are proposing that Arkansas revise its wealth only based program that provides a guaranteed stream of revenue for a tax rate of 25 mills, and replace it with a needs based foundation program. The foundation formula will include the following:

- i. The revenues produced by the prototypical school models for each school in each district.
- ii. Plus the revenues from a uniform \$1,152 per pupil carry forward for functions not covered in the school model.
- iii. From these totals in i and ii will be subtracted the local revenue requirement consisting of a property tax levy and 75 percent of a district's Miscellaneous Funds. As noted below, this local levy requirement could be a 25 mill rate levied on property assessed at 20 percent of market value– the current approach – or a higher mill rate (which will require a state-wide vote) or a higher assessment ratio (which can be accomplished statutorily).<sup>18</sup>

### **The Distribution of Revenue to Arkansas School Districts**

The process used in our funding model is outlined step-by-step below.

1. The total funds that are carried forward are estimated. This represents those expenditures that were not changed in the adequacy model as described above and in our first report. We estimated this figure to be \$799 million net of Federal funds, debt service and capital/facilities funds.

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<sup>18</sup> We should note that although the assessment ratio can be increased by statute, the assessed value can increase by only 5 percent a year on homesteads and 10 percent a year on other property, so this approach would gradually phase in higher local revenues. See Ark. Const. Amend. 79 § 1.

However, a portion of these carry forward expenditures used for this calculation includes expenditures for enterprise programs that are largely self-funded through local sources such as fees or tuition. Including those expenditures would overstate the expenditure amount funded through the formula. To account for this, we excluded those expenditures from our carry forward expenditures to the degree possible. Programs and activities included in this adjustment are food services, student activities, tuition from individuals and other LEAs, and miscellaneous programs funded by other local sources. For the food service program, we were able to identify and subtract expenditures directly. For the others, the expenditures could not be identified so we assumed that the programs were self-funding and subtracted the revenue amount. This adjustment totaled \$283.4 million. The legislature has the option of making further adjustments to offset the cost of locally funded programs not included in this analysis. The details for this adjustment are shown below:

- Food service expenditures -- \$143.2 million
- Student activity fees -- \$80.5 million
- Other local revenues -- \$53.6 million
- Tuition from other LEAs and from individuals \$6.0 million

This produced a total carry forward of \$515.7 million or \$1,152 per pupil. As indicated above, this total is for the following functions: fiscal services, board and legal services, executive administration (superintendent), athletics, community services, other non-instructional services, operations & maintenance,

transportation, technology services, and selected instructional support such as drug and crime prevention

2. To that figure we added the funds each district generates through the adequacy model. To do this we estimated the resources each school within each district would receive based on the prototypical school models in Table 4. Since a number of components of that model are determined on the basis of student and/or district characteristics, the final per pupil revenue allocation differs for each district – in some instances by considerable amounts. Overall, a total of \$2.273 billion is distributed to school districts in this component of the model.
3. The two figures are added together resulting in a revenue allocation for each district. Total estimated funding requirements for the adequacy model amount to \$2.789 billion.
4. Local revenues are initially estimated by applying 25 mills to the assessed value, adjusted for a 98 percent collections rate, of each school district. This mill rate is a “pure” rate, as it does not allow for any debt service nor does it allow a district to impute a mill rate from other miscellaneous local revenues, both options that are allowed as part of the current 25-mill required rate. As such, the 25-mill rate in this formula raises somewhat more than in the current formula.
5. To the local levy is added 75 percent of a school district’s Miscellaneous Funds as is the current practice in calculating a district’s State Equalization Aid.
6. State foundation aid is then computed by subtracting the funds raised by the 25 mills and 75 percent of Miscellaneous Funds from the total revenue needs estimated for each district.

Total state aid to the school districts amounts to \$2.196 billion. To this figure the following additional expenditures must be added to determine total adequacy costs<sup>19</sup>:

- i. Pre-K funding \$100 million
- ii. Current Summer School funding \$2.04 million
- iii. Current special education catastrophic funding \$1.10 million
- iv. Additional special education catastrophic funding \$7.70 million
- v. The teacher salary performance bonus of \$30 million, and \$94 million held back for the “adders” in the new performance pay schedule for subject area shortages, geographically challenged areas and for advanced degrees.
- vi. Funding for the performance assessment system of \$4 million

This produces a total state commitment of \$2.435 billion which represents an increase of \$680.6 million for the new system plus a transfer of \$166.7 million of local revenues to state resources for a total increase in state aid of about \$847.3 million.

These figures compare to a current (2001-2002) total state aid of \$1.588 billion. This figure consists of equalization aid plus several other major state categorical funds. Table 7 lists the state funds included in the base state aid amount used for comparisons. For the purposes of this analysis we did not include debt service aid, state grants, and other smaller, targeted funds. Note that in all cases we have generated expenditures and reported per pupil figures on the basis of enrollment, not ADM. This is because we were unable to get ADM figures by school and grade level.

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<sup>19</sup> The amounts for current summer school and catastrophic special education funding have been adjusted to reflect the proposed 10% increase in teachers' salaries.

**Table 7**  
**Current (2001-2002) State Funds Used in Comparisons with Estimated State Funding Requirements to Fully fund the Adequacy Model**

State Funds	Amount (\$ millions)
Equalization	\$1,427.0
Additional base	\$51.2
Incentive	\$24.9
Isolated school	\$7.4
Revenue loss	\$3.6
Student growth	\$20.4
Poverty index	\$8.5
LEP	\$3.7
ALE	\$1.5
Transportation	\$4.3
Special education	\$11.8
Desegregation	\$23.3
Total State Aid <sup>20</sup>	\$1,587.9

<sup>20</sup> The Committee discussed at length, and the consultants have looked extensively at, how state funds paid to certain school districts for desegregation expenses should or should not be accounted for in the model. The majority of these “desegregation funds” are paid by the state to the three school districts in Pulaski County as a result of a 1989 settlement of desegregation litigation, *Little Rock School District v. Pulaski County Special School District*, United States District Court, Eastern District of Arkansas No. 4:82 CV 00866 WRW. In the 1989 Settlement Agreement, which was approved by the courts and has been converted into a consent decree, the State agreed to pay certain funds to the three school districts in Pulaski County in addition to the funds those districts would otherwise receive as state aid under the prevailing laws that provide for state aid to school districts. Those additional revenues go to support the “inter-district” programs required by the Settlement Agreement, including certain Magnet Schools in the Little Rock School District, a Majority to Minority Transfer Student Program, and student transportation for both programs. Under the terms of the Settlement Agreement, these funds are supposed to “supplement, and not supplant any existing or future funding[,] which is ordinarily the responsibility of the state” (Settlement Agreement, ¶ II.E). Furthermore, Majority to Minority Transfer Students are not to be included in the calculations of regular state aid, whereas students in Magnet Schools are. For the 2001-02 school year, the State paid approximately \$31 million for these programs.

In later years, the school districts alleged that certain changes in state funding violated various provisions of the Settlement Agreement. Of those challenges, only one is relevant to this report. Until the 1996-97 school year, the State paid the costs of Teacher Retirement and Health Insurance for school districts. When this practice was changed and school districts were required to pay these costs themselves, the school districts argued, and the courts agreed, that this change violated the Settlement Agreement. See *Little Rock Sch. Dist. v. N. Little Rock S. D.*, 148 F.3d 956 (8<sup>th</sup> Cir. 1998). Since that ruling, the State has been required to pay the three school districts additional funds to make them “whole” in this area. For the 2001-02 school year, retirement and health insurance payments to the three districts collectively totaled approximately \$13 million.

Deciding how to account for these desegregation funds when generating estimates of the costs of the model has been a difficult endeavor. The problems were compounded by confusion of which children were in the dataset. The consultants could not conclusively determine whether or not Majority to Minority Transfer Students were in the enrollment data supplied to them. This is how the consultants have handled the problem. The \$31 million for the inter-district programs have been removed from the analysis completely. This will have the effect of increasing the cost of the model by a certain amount. If the Majority to Minority Transfer Students are in the enrollment numbers, this figure drops to \$21 million. On the other hand, the consultants believe that because the matrix and the funds that flow from it pay the complete cost of employee benefits for each school district, the \$14 million should remain as part of the analysis. While we realize that the federal court *could* require the state to continue paying some

Table 8 summarizes the statewide impact of the model. The table shows state's increased funding commitment is the \$680.6 million cost of the adequacy model, plus \$166.7 million in local revenues covered by state revenues because of the constitutionally required uniform tax rate of 25 mills.

An alternative way to fund this \$166.7 million shift of funds from local revenues to state sources is to increase local property tax collections either through an increase in the required millage rate, or by increasing the property value assessment ratio from the current 20 percent of market value to 25 percent. Table 9 shows the effects of these local property tax options on the cost of the program to the state. As the table shows, increasing the assessment ratio on taxable property from the current 20 percent to 25 percent can reduce the cost of covering the \$166.7 million in local revenues by the state to \$20 million. The impact of this on individual districts will depend on the extent to which current levies for Maintenance and Operations exceed the current 25 mills and also on the local property wealth of a district. Those districts with higher tax rates today will experience lower property tax increases under either of the two proposed increases than will districts that only levy the 25 mills. It is possible that some districts will experience property tax reductions.

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amount for teacher retirement and health insurance even if it resumes its pre-litigation practice of paying the full cost of teacher retirement and health insurance benefits for the three school districts in Pulaski County, we believe that is unlikely.

**Table 8**  
**Estimated Funding Requirements of the Adequacy Model**  
**Teacher Salary Increase of 10 Percent Included in the Formula**

Category	Amount (\$ millions)
Carry Forward Costs	515.7
Adequacy Model Costs	2,273.2
<b>Total Proposed Costs</b>	<b>2,788.9</b>
Pre K funding <sup>a</sup>	100.0
Current Summer School	2.0
Current Special Education Catastrophic Aid <sup>a</sup>	1.1
Additional Special Education Catastrophic Aid <sup>a</sup>	7.7
Salary “Adders”	94.0
Performance Bonus	30.0
Assessment System	4.0
<b>Total Costs of Model</b>	<b>3,027.7</b>
Proposed State Aid	2,435.3
Current State Aid	1,587.9
Additional State Aid	680.6
Covering Additional Local Revenues with State Funding	166.7
<b>Total Additional Funding Required</b>	<b>847.3</b>
<b>Total State Aid Funding Required</b>	<b>2,435.3</b>
Local Property Tax Funding	586.9
Local Miscellaneous Funds	5.5

<sup>a</sup>Includes teacher salary increase

**Table 9**  
**Impact of Alternative Property Tax Options**  
**On State Aid Requirements to Fund the Adequacy Model**

<b>Category</b>	<b>Current System at 25 mills and 20% assessed value ratio</b>	<b>30 mills and 20 % assessed value ratio</b>	<b>25 mills and 25% assessed value ratio</b>
Total Proposed Costs	\$3,027,700,000	\$3,027,700,000	\$3,027,700,000
New State Funds	\$680,600,000	\$680,600,000	\$680,600,000
Absorbing Other Local Revenues by the State	\$166,700,000	\$ 49,400,000	\$ 20,000,000
Total State Cost	\$847,300,000	\$730,000,000	\$700,600,000

## 8. Conclusion

As Arkansas policy makers know very well, school finance issues and structures are changing, largely in response to the more rigorous demands of state education systems and adequacy-oriented school finance court mandates. Today, a new Arkansas school finance system must provide districts and sites with adequate education dollars so education leaders can deploy resources to more powerful education strategies that produce higher levels of student academic performance. In general terms, the key role for the state is to determine an adequate level of education spending for each of its school districts. Districts must then allocate these dollars to schools via a needs based per pupil formula that ensures that each school has adequate dollars for the needs of each of its students. Schools need to use these adequate resources for the most effective education strategies, which generally will require substantial program restructuring and resource reallocation. Then, each school should be held accountable for educating students to the state's student performance standards and for using its adequate resource levels effective and efficient ways.

The importance of transforming the adequate resources identified above into powerful and effective instructional strategies that boost student achievement can not be overstated. As Cohen, Raudenbush and Ball (2002) so eloquently argue, school resources are “inert” unless and until they are transformed into high quality instructional practices. If the resources identified above are to have more than just marginal impacts on student learning, schools need to:

1. Use the dollars to purchase and implement effective curriculum programs in all content areas.
2. Help principals organize schools so they have the instructional leadership research shows is so important to successful learning (Hallinger & Heck, 1996, 1998).

3. Develop leadership to help teachers create a professional school culture that focuses on continuously improving the instructional program and have teachers take responsibility for the impacts of their instruction practice (Louis, Kruse & Marks, 1996; Louis, Marks & Kruse, 1996; Louis & Marks, 1998; Newmann, 1996).
4. An intensive and effective professional development program needs to operate in ways to continually improve the instructional program.

The resources described above are necessary for these actions to take place. The above adequate resources plus the performance pay program recommended in the accompanying report and these leadership actions include the necessary and sufficient conditions for having schools teach Arkansas students to its rigorous performance standards.

The funding formula section of the report documents the development and initial modeling of a formula for the distribution of funds to Arkansas school districts under the proposed adequacy model developed by the Joint Committee on Educational Arkansas. The main goal of this effort has been to develop a funding model that is “simple, transparent and easy to understand,” and that meets the requirements of the Arkansas Supreme Court’s ruling in *Lake View v. Huckabee*. We believe this model achieves both goals.

The proposed adequacy model calls for increased spending of \$680.6 million to be fully funded. This will provide for an enhanced early childhood education program, substantially smaller classes in grades K-3, a comprehensive mixture of additional school personnel to meet the special needs of school children, and a teacher salary increase that totals 18 percent. This salary increase includes a shift to a knowledge- and skills-based pay system, along with the establishment of funding for performance based pay incentives for schools. It includes the cost

of increasing the length of teacher contracts by five days per year, along with funding for the development of a performance assessment system for teachers is also included in the estimates.

In addition to the \$680.6 million in new funding, the model also includes about \$166.7 million in local revenues not covered by a 25 mill required tax rate on assessed values at 20 percent of market value. However, if the uniform rate of taxation is increased (an action that requires an election) or if the property assessment ratio is increased from the current 20 percent to 25 percent, this cost can be substantially shifted back to property tax revenues. The final recommendation on this funding transfer is a decision the Legislature must make.

Finally, it should be noted that this model was estimated using revenue and expenditure data for fiscal year 2001-02. Ideally these figures should be updated with fiscal year 2002-03 data when available. In addition, in order to maintain a adequate level of funding, an annual inflation adjustment needs to be considered. We would also recommend that the entire cost model be re-estimated every five years to insure that the system remains adequate and that it addresses student learning issues based on the growing body of research on how to improve student performance. In sum, we are confident that this model will provide a straightforward system for distributing funds to Arkansas schools in a fair and efficient manner.

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**Appendix A**  
**Members of Professional Judgment Panels**

**Table A 1**  
**Members of Professional Judgment Panels**

<b>Title</b>	<b>First Name</b>	<b>Last Name</b>	<b>City</b>	<b>Panel</b>
Mr.	Billy	Adams	Lake Village	Panel 2
Mr.	Jerry	Adams	Conway	Panel 1
Ms.	Belinda	Akin	Monticello	Panel 1
Mr.	Elo	Anderson	Cotton Plant	Panel 2
Mr.	Nathan	Barber	Newport	Panel 2
Ms.	Judy	Blackwood	Donaldson	Panel 1
Mr.	Ross	Bolding	Swifton	Panel 2
Mr.	Harry	Branch	Harrison	Panel 1
Ms.	Amy	Braswell	Texarkana	Panel 2
Mr.	Albert	Brown	Corning	Panel 2
Ms.	Carol	Brown	Wynne	Panel 2
Ms.	Teresa	Burl	North Little Rock	Panel 1
Mr.	Richard	Carvell	Jonesboro	Panel 1
Ms.	Deborah	Coffman	Pocahontas	Panel 2
Dr.	Kellie	Cohen	Fort Smith	Panel 2
Ms.	Alicia	Cotabish	Conway	Panel 2
Mr.	Damon	Dean	Crossett	Panel 1
Mr.	Willie	Easter	Stephens	Panel 2
Mr.	Junior	Edgmon	Deer	Panel 2
Mr.	J. M.	Edington	Reyno	Panel 1
Ms.	Ronnie Kay	Erwin	Newport	Panel 1
Ms.	Judy	Fields	Mena	Panel 2
Mr.	Bill	Fisher	Paragould	Panel 1
Mrs.	Elizabeth	Fulton	Little Rock	Panel 2
Ms.	Artie	Furlow	Camden	Panel 2
Ms.	Judy Baker	Goss	Little Rock	Panel 2
Ms.	Lavina	Grandon	Everton	Panel 1

**Table A 1 (Continued)**  
**Members of Professional Judgment Panels**

<b>Title</b>	<b>First Name</b>	<b>Last Name</b>	<b>City</b>	<b>Panel</b>
Dr.	Jerry	Guess	Camden	Panel 2
Ms.	Nelene	Harris	Fouke	Panel 1
Ms.	Cathy	Holman	Jonesboro	Panel 2
Dr.	Frank	Holman	Cabot	Panel 1
Ms.	Eloise	Hudson	Sherwood	Panel 2
Ms.	Alma	Jackson	Pine Bluff	Panel 2
Ms.	Linda	Joshua	Pine Bluff	Panel 1
Dr.	Diana	Julian	Benton	Panel 1
Ms.	Joyce	Lofton	North Little Rock	Panel 1
Ms.	Kathy	McFetridge	Springdale	Panel 1
Ms.	Lou Ethel	Nauden	Little Rock	Panel 1
Ms.	Melanie	Nichols	Hot Springs	Panel 2
Mr.	Joe Don	Parris	Clarksville	Panel 2
Ms.	Lola	Perritt	Mabelvale	Panel 1
Ms.	Yolanda	Prim	Pine Bluff	Panel 1
Mr.	Ken	Ramey	Siloam Springs	Panel 1
Ms.	Joyce	Randall	Camden	Panel 1
Mr.	Jimmy	Reed	El Dorado	Panel 2
Mr.	Roderick	Rembert	Eudora	Panel 1
Mr.	Keith	Richey	Rector	Panel 1
Ms.	Kar Lynn	Roberts	Pine Bluff	Panel 2
Dr.	Jim	Rollins	Springdale	Panel 2
Mrs.	Delania Kay	Ryan Smith	Magazine	Panel 1
Mr.	Jerry	Shipp	Texarkana	Panel 1
Ms.	Kathy Ann	Short	Fayetteville	Panel 1
Ms.	Vicki	Smith	Springdale	Panel 2
Mr.	Ken	Stamatis	Searcy	Panel 2
Ms.	Tracy	Streeter	Hamburg	Panel 1
Ms.	Karen	Thompson	Alma	Panel 1

**Table A 1 (Continued)**  
**Members of Professional Judgment Panels**

<b>Title</b>	<b>First Name</b>	<b>Last Name</b>	<b>City</b>	<b>Panel</b>
Ms.	Lisa	Todd	Searcy	Panel 2
Mr.	Arthur	Tucker	Warren	Panel 2
Mr.	Milton	Washington	Osceola	Panel 1
Mr.	Bob	Watson	El Dorado	Panel 1
Ms.	Julie	Western	Benton	Panel 1
Mr.	Wesley	White	Russellville	Panel 1
Ms.	Valerie	Wilson	Camden	Panel 1
Ms.	Peggy	Woosley	Stuttgart	Panel 2
Ms.	Charlotte	Wright	Weiner	Panel 1
Ms.	Katherine	Wright-Knight	Little Rock	Panel 2

We would also like to express our appreciation to Zena Rudo of the Southwest Educational Development Laboratory and Bill Glenn from USC for their help in moderating the two Professional Judgment panels.

Thanks are also due to staff members from the Arkansas Department of Education who facilitated the identification and participation of the many individuals from across the state.

**Appendix B**  
**Materials Prepared for Professional Judgment Panels**  
**June 11 and 12, 2003**

## Lawrence O. Picus and Associates

June 11, 2003

Dear Professional Judgment Panel Members:

Thank you for agreeing to participate in the Arkansas adequacy study's professional judgment panels today and tomorrow. You were selected as one of the state's leading educators to help the Joint Committee on Educational Adequacy determine the resources necessary to provide an adequate education to all of Arkansas' public school children.

Over the next two days, you will be asked to review an "evidence based" model of adequacy that, in conjunction with the Joint Committee, we have put together for Arkansas. As you know, we have met with the Joint Committee on a number of occasions to explain and refine this model. Today and tomorrow you will be asked to review the model and to provide input to the Joint Committee as to how well the resources identified in the model can meet the needs of providing an adequate education in your state.

We hope you received a copy of the draft report that we prepared for the Joint Committee -- *An Evidence Based Approach to School Finance Adequacy In Arkansas*. Relying on the best current research in education, this report identifies the resources we believe are needed to provide an adequate education. It forms the basis of our work over the next two days. During that time, we will take you through a process that will result in a set of recommendations to the Joint Committee on how – if at all – the models specified in the attached report should be modified.

Your comments and suggestions are a critical part of this process. To the extent you feel changes are necessary, it will be helpful if you can provide the other panel members, and us, with both the rationale for any changes and the research base to support your recommendation. To be acceptable, we believe the model must be grounded in current educational research findings.

Following the Joint Committee's review of your recommendations, our team will estimate the costs of the adequacy model that emerges and report back to the Committee. We will then work with the committee to formulate a funding system to support that model.

Thank you for taking time to work with us over the next two days. Your dedication to this task will help improve schools for all children in Arkansas.

# AGENDA

**Arkansas Adequacy Study  
Professional Judgment Panel Meeting  
June 11-12, 2003  
Little Rock, Arkansas**

## **WEDNESDAY JUNE 11, 2003**

- 10:00 AM** Welcome and Introductions (Salon D)
- Purpose of Professional Judgment Panels  
Role of panelists in an Adequacy Study  
Overview of activities
- 10:30 –  
12:30 PM** Breakout sessions  
Group 1 in Salon B and Group 2 in Salon C
- Review initial task (school design)  
Review of evidence based model prepared by Picus and Associates  
Initial discussion regarding adequacy of the model to meet Arkansas Standards
- 12:30 –  
1:30 PM** Lunch (Salon D)
- 1:30 –  
4:00 PM** Continue meetings in panel groups (Salons B and C)
- Refine prototype models  
Specify resources needed to operate the school  
Begin discussions of adjustments for schools with different student and/or school characteristics
- 4:00 –  
5:00 PM** Reconvene both panels for review of progress (Salon D)
- 5:00 PM** Adjourn
- 6:00 PM** Dinner – On your own

**Continued on next page**

# AGENDA

**Arkansas Adequacy Study  
Professional Judgment Panel Meeting  
June 11-12, 2003  
Little Rock, Arkansas**

**THURSDAY JUNE 12, 2003**

- 9:00 –** Reconvene in breakout panels (Group 1 in Salon D and Group 2 in Salon C)  
**11:30 AM** Discuss adjustments for student and school characteristics  
Consider district support functions needed to make prototype school functional
- 11:30 –** Final full group discussion (Salon D)  
**12:00 Noon** Reflection on outcomes  
Evaluation of process
- 12:00 Noon** Adjourn

## **INSTRUCTIONS TO PROFESSIONAL JUDGMENT PANEL MEMBERS**

You are a member of one of two panels meeting today. Each panel is being asked to review evidence based models of prototypical schools. The models presented for your review are hypothetical; the schools do not currently exist, and may never actually be built. The purpose of developing the prototype school is to specify the resources that these schools should have if they are to meet the Arkansas goal of proficiency in the state's goals and standards by the year 2014.

In addition to the members assigned to your group, two representatives from Lawrence O. Picus and Associates will help facilitate your discussion and take notes.

We have prepared models of three prototypical schools (Elementary, Middle and High School) for your review. We have used enrollments of 500 students for each school. It is up to you to decide if this figure is appropriate or if you want to recommend an adjustment. A copy of the grid we use to present the prototypical models is included in your folder.

You will have an opportunity later in the day to discuss how the resources you recommend might be adjusted for smaller and larger schools. You should assume that the school has an average percentage of children requiring special education services, and who come from low income families. Average percentages of school children who qualify for free and reduced price lunch, receive special education, or are English Language Learners are included in the prototypical model.

Included in your folder is a list of the seven capacities of an efficient system of common schools as identified by the Kentucky Supreme Court, and adopted by the Arkansas courts as an appropriate standard.

We want you to use your knowledge and experience to organize personnel, supplies and materials, technology and any other resources in a way your group is confident will produce student learners who can meet the standards of the Arkansas accountability system.

Any assumptions that your group makes should be clearly delineated in your model description. In addition, you should assume the following:

- The percentage of students with special needs or who come from families with low incomes is reflective of the state average. This information is provided on the attached grid containing the prototypical school models.
- The school can attract and retain qualified personnel and you can employ them on a part time basis if necessary.
- The prototype school has sufficient space to meet the facility needs of your plan. Don't worry about the need to build new facilities, assume they are available, but be sure to

carefully specify exactly what the school needs so we can estimate the costs of actually providing those facilities for schools.

- You are not concerned with the revenue side of the equation. For now, just build the best school you can, and don't focus on local/state/federal funds and/or the requirements for receiving them.
- Feel free to consider new programs and/or services that you believe are needed to address the needs of Arkansas' school children. Assume that those programs are in place today.
- We encourage you to be creative in your design. Don't feel constrained by the current organization of schools if you think alternative designs or structures would better serve the needs of Arkansas' children.
- It will be helpful if you can provide the other panel members, and us, with both the rationale for any changes and the research base to support your recommendation.
- In your deliberations, be sure to consider the following factors:
  - Administration (school site and central district)
  - Regular classroom instruction, including staff and materials
  - Specialist instruction in art, music, library, etc.
  - Planning and preparation time for teachers, including staff and materials
  - Extra help for:
    - Students from low income backgrounds
    - ESL students
    - Disabled students
    - Other categories of special needs, if any
  - Pupil support (guidance, psychologists, social workers, etc.)
  - Professional development
  - Office help
  - Operations and maintenance
  - Food services
  - Other materials, technology, if any
  - Other
- At the high school level, you might also consider:
  - Clubs and other extra curricular activities
  - Athletic program

**Draft Proposals for Adequate Resources for  
Prototypical Arkansas Elementary, Middle and High Schools**

School Element	Elementary Schools	Middle Schools	High Schools
<b>School Characteristics</b>			
School configuration	K-5	6-8	9-12
School size	500	500	500
Class size	K-3: 15 4-5: 25	25	25
Full-day kindergarten	Yes	NA	NA
Pre-school	Yes	NA	NA
Length of teacher work year	10 extra summer PD days	10 extra summer PD days	10 extra summer PD days
% Disabled	13.1	13.1	13.1
% Poverty (free & reduced lunch)	47.4%	47.4%	47.4%
% ELL	3.86	3.86	3.86
% Minority	28.8%	28.8%	28.8%
<b>Personnel Resources</b>			
Principal	1	1	1
Assistant Principal	0	0	0
Instructional Facilitators/Mentors	2.5	2.5	2.5
Teachers	29	20	20
Specialist teachers	20% more: 6	20% more: 4	20% more: 4
Instructional aides	0	0	0
Teachers for struggling students	1/each 20% poverty: 2.5	1/each 20% poverty: 2.5	1/each 20% poverty: 2.5
Teachers for students with moderate disabilities/speech/hearing	2	2	2
Severe Disabilities	Extra weight of 2.35	Extra weight of 2.35	Extra weight of 2.35
Teachers for ELL students	Included in struggling students category	Included in struggling students category	Included in struggling students category
Teachers for gifted students	0	0	0
Aides for categorical	0	0	0

students			
Pupil support staff	1/each 20% poverty: 2.5	1/each 20% poverty + 1 Guidance: 3.5	1/each 20% poverty + 2 Guidance: 4.5
Librarians/ media specialists	0; included with specialist teachers	1.0	1.5
Technology resource teachers	Included in Instructional Facilitators	Included in Instructional Facilitators	Included in Instructional Facilitators
Substitutes	10 days per teacher	10 days per teacher	10 days per teacher
<b>Dollar per Pupil Resources</b>			
Professional development	Included above: Instructional facilitators Planning & prep time 10 summer days Additional: \$50/pupil for trainers	Included above: Instructional facilitators Planning & prep time 10 summer days Additional: \$50/pupil for trainers	Included above: Instructional facilitators Planning & prep time 10 summer days Additional: \$50/pupil for trainers
Technology	\$250/pupil	\$250/pupil	\$250/pupil
Instructional materials, equipment, student activities	\$250/pupil	\$250/pupil	\$250/pupil
Extra duty funds	--	\$60/pupil	\$120/pupil

**Seven Capacities of an Efficient System of Common Schools**  
**As established by the Kentucky Supreme Court in**  
***Rose v. Council for Better Education, Inc.*,**

**AND ADOPTED BY THE ARKANSAS COURTS**

In its ruling, the Kentucky Supreme Court said that all students should have access to an adequate education program, and included the following language about what such a program would include:

- Sufficient oral and written communication skills to enable students to function in a complex and rapidly changing civilization;
- Sufficient knowledge of economic, social and political systems to enable the student to make informed choices;
- Sufficient understanding of governmental processes to enable the student to understand the issues that affect his or her community, state, and nation;
- Sufficient self-knowledge and knowledge of his or her mental and physical wellness;
- Sufficient grounding in the arts to enable each student to appreciate his or her cultural and historical heritage;
- Sufficient training or preparation for advanced training in either academic or vocational fields so as to enable each child to choose and pursue life work intelligently; and
- Sufficient levels of academic or vocational skills to enable public school students to compete favorably with their counterparts in surrounding states, in academics or in the job market.

**Appendix C**  
**Historical Record of the**  
**Joint Committee on Educational Adequacy**

## **Historical Record of the Joint Committee on Educational Adequacy**

In the wake of the *Lake View* decision, the Arkansas General Assembly created the Joint Committee on Educational Adequacy (“Committee”) via Act 94 of 2003. The legislature gave the Committee six specific charges:

- (1) Review the opinion of the Arkansas Supreme Court in the matter of *Lake View School District No. 25 of Phillips County, Arkansas, et al., vs. Governor Mike Huckabee, et al.* issued on November 21, 2002, and use the opinion and other legal precedent cited by the court in the committee’s deliberations;
- (2) Recommend what constitutes an adequate education in Arkansas;
- (3) Recommend a method of providing equality of educational opportunity, which must include as basic components, substantially equal curricula, substantially equal teacher salaries, substantially equal facilities, and substantially equal equipment for obtaining an adequate education;
- (4) Recommend the costs of an adequate education for all students in Arkansas, taking into account cost of living variances, diseconomies of scale, transportation variability, demographics, school districts with a disproportionate number of students who are economically disadvantaged or have educational disabilities, and other factors as deemed relevant;
- (5) Recommend the amount of per student expenditure necessary to provide an equal educational opportunity and the amount of state funds to be provided to school districts, based upon the cost of an adequate education as recommended in subdivision (f)(4) of this section, and a method of monitoring the expenditures and distributing the state funds; and,
- (6) Recommend a system or method to assess, evaluate, and monitor the entire spectrum of public education across the state to determine whether equal educational opportunity for an adequate education is being substantially afforded to Arkansas’ school children.<sup>21</sup>

In accordance with the Act, the Committee was appointed and consisted of Co-chairmen Senator Jim Argue, Chairman of the Senate Education Committee and

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<sup>21</sup> See Act 94 of 2003 § 2(f)(1) through (6).

Representative Calvin Johnson, Chairman of the House Education Committee. The following individuals made up the rest of the ten-member committee: Senators David Bisbee, Steve Bryles, Brenda Gullett, and Jimmy Jeffress, and Representatives Herschel Cleveland, Speaker of the House of Representatives, LeRoy Dangeau, Jodie Mahony, and Robert White. Mr. Ray Simon, Director of the Arkansas Department of Education, was an Ex-Officio member of the Committee.

The Committee met on March 5, March 12, April 11, May 2, May 9, May 20-21, June 12, July 14-16, and August 18-19, 2003. Furthermore, the Committee established a Subcommittee on Accountability consisting of Senator David Bisbee, Co-Chairman, Representative Jodie Mahony, Co-Chairman, Senator Steve Bryles, and Representative LeRoy Dangeau (with the Committee Co-Chairmen serving Ex-Officio) that met on July 29 and August 12, 2003. All meetings of the Committee and Subcommittee were open to the public, and public comment was accepted at the final meeting of the Committee and the second meeting of the Subcommittee on Accountability.

The members of the Joint Committee on Educational Adequacy wish to thank the following individuals and organizations for the valuable assistance they provided as the work of the Joint Committee progressed.

**March 5, 2003**

**Mr. Timothy G. Gauger**, Senior Assistant Attorney General, Office of the Attorney General

**Mr. Tristan D. Greene**, Special Assistant to the Director, Arkansas Department of Education

**April 11, 2003**

**Dr. Allan Odden**, Professor of Educational Administration, and Co-Director, Consortium for Policy Research in Education, Wisconsin Center for Education Research, University of Wisconsin-Madison

**Dr. Larry Picus**, Professor, Division of Educational Policy, Planning, and Administration, Rossier School of Education, University of Southern California

**May 2, 2003**

**Dr. Allan Odden**, Professor of Educational Administration, and Co-Director, Consortium for Policy Research in Education, Wisconsin Center for Education Research, University of Wisconsin-Madison

**Dr. Larry Picus**, Professor, Division of Educational Policy, Planning, and Administration, Rossier School of Education, University of Southern California

**Dr. Marc J. Wallace**, Center for Workforce Effectiveness, Lake Bluff, Illinois.

**May 9, 2003**

**Dr. Allan Odden**, Professor of Educational Administration, and Co-Director, Consortium for Policy Research in Education, Wisconsin Center for Education Research, University of Wisconsin-Madison

**Dr. Larry Picus**, Professor, Division of Educational Policy, Planning, and Administration, Rossier School of Education, University of Southern California

**Dr. Marc J. Wallace**, Center for Workforce Effectiveness, Lake Bluff, Illinois.

**May 21, 2003**

**The Honorable Janet Johnson**, State Representative, District 29

**Dr. Allan Odden**, Professor of Educational Administration, and Co-Director, Consortium for Policy Research in Education, Wisconsin Center for Education Research, University of Wisconsin-Madison

**Dr. Larry Picus**, Professor, Division of Educational Policy, Planning, and Administration, Rossier School of Education, University of Southern California

**Dr. Marc J. Wallace**, Center for Workforce Effectiveness, Lake Bluff, Illinois.

**June 12, 2003**

**Dr. Allan Odden**, Professor of Educational Administration, and Co-Director, Consortium for Policy Research in Education, Wisconsin Center for Education Research, University of Wisconsin-Madison

**July 14, 2003**

**Mr. Mark Fermanich**, Consortium for Policy Research in Education, University of Wisconsin-Madison

**Dr. Allan Odden**, Professor of Educational Administration, and Co-Director, Consortium for Policy Research in Education, Wisconsin Center for Education Research, University of Wisconsin-Madison;

**Dr. Larry Picus**, Professor, Division of Educational Policy, Planning, and Administration, Rossier School of Education, University of Southern California

**July 15, 2003**

**Mr. Mark Fermanich**, Consortium for Policy Research in Education, University of Wisconsin-Madison

**Dr. Allan Odden**, Professor of Educational Administration, and Co-Director, Consortium for Policy Research in Education, Wisconsin Center for Education Research, University of Wisconsin-Madison;

**Dr. Larry Picus**, Professor, Division of Educational Policy, Planning, and Administration, Rossier School of Education, University of Southern California

**Dr. Marc J. Wallace**, Center for Workforce Effectiveness, Lake Bluff, Illinois.

**July 16, 2003**

**Mr. Mark Fermanich**, Consortium for Policy Research in Education, University of Wisconsin-Madison

**Dr. Allan Odden**, Professor of Educational Administration, and Co-Director, Consortium for Policy Research in Education, Wisconsin Center for Education Research, University of Wisconsin-Madison;

**Dr. Larry Picus**, Professor, Division of Educational Policy, Planning, and Administration, Rossier School of Education, University of Southern California

**Dr. Marc J. Wallace**, Center for Workforce Effectiveness, Lake Bluff, Illinois

**August 18, 2003**

**Dr. Mark Fermanich**, Consortium for Policy Research in Education, University of Wisconsin-Madison.

**Dr. Allan Odden**, Professor of Educational Administration, and Co-Director, Consortium for Policy Research in Education, Wisconsin Center for Education Research, University of Wisconsin-Madison;

**Dr. Larry Picus**, Professor, Division of Educational Policy, Planning, and Administration, Rossier School of Education, University of Southern California

**Dr. Marc J. Wallace**, Center for Workforce Effectiveness, Lake Bluff, Illinois

**August 19, 2003**

**Dr. Mark Fermanich**, Consortium for Policy Research in Education, University of Wisconsin-Madison.

**Dr. Benny Gooden**, Superintendent, Fort Smith School District

**Mr. Ron Harder**, Study Circles/Policy Service, Arkansas School Boards Association

**Mr. Don Johnson**, Legislative Chair, Arkansas Patent Teacher Association

**Mr. Charles Knox**, Assistant Executive Director, Arkansas Association of Educational Administrators

**Mr. Ben Mays**, School Board Member, Clinton School District

**Dr. Allan Odden**, Professor of Educational Administration, and Co-Director, Consortium for Policy Research in Education, Wisconsin Center for Education Research, University of Wisconsin-Madison;

**Dr. Larry Picus**, Professor, Division of Educational Policy, Planning, and Administration, Rossier School of Education, University of Southern California

**Dr. Marc J. Wallace**, Center for Workforce Effectiveness, Lake Bluff, Illinois

## **EDUCATOR COMPENSATION SUBCOMMITTEE**

May 2, 2003

**Dr. Larry Picus**, Professor, Division of Educational Policy, Planning, and Administration, Rossier School of Education, University of Southern California

**Dr. Allan Odden**, Professor of Educational Administration, and Co-Director, Consortium for Policy Research in Education, Wisconsin Center for Education Research, University of Wisconsin-Madison;

**Dr. Marc J. Wallace**, Center for Workforce Effectiveness, Lake Bluff, Illinois

**May 20, 2003**

**Dr. Allan Odden**, Professor of Educational Administration, and Co-Director, Consortium for Policy Research in Education, Wisconsin Center for Education Research, University of Wisconsin-Madison

**Dr. Marc J. Wallace**, Center for Workforce Effectiveness, North Brook, IL

## **ACCOUNTABILITY SUBCOMMITTEE**

**July 29, 2003**

**Mr. James Boardman**, Assistant Director, Information Technology, Arkansas Department of Education

**Dr. Woodrow E. "Woody" Cummins, Jr.**, Deputy Director, Arkansas Department of Education

**Ms. Stacy Pittman**, President, Arkansas State Chamber of Commerce

**Dr. Charity Smith**, Assistant Director, Accountability, Arkansas Department of Education

**Mr. Scott Smith**, General Counsel, Arkansas Department of Education

**August 12, 2003**

**Dr. Ben Brown**, Executive Director, Evaluation and Assessment Division, Tennessee Department of Education

**Dr. Dan Challener**, Executive Director, Fund for Excellence, Chattanooga, Tennessee

**Dr. Thomas H. Fisher**, Director (Retired), Student Assessment Services, Florida Department of Education

**Mr. Tommy Foltz**, Executive Director, Arkansans for Education Reform

**Mr. Walter Hussman**, Publisher, Arkansas Democrat-Gazette

**Mr. Sid Johnson**, President, Arkansas Education Association

**Mr. Ben Mays**, School Board Member, Clinton School District

**Ms. Kathy Moreledge**, Assistant Executive Director, Arkansas School Boards Association

**Ms. Stacy Pittman**, President, Arkansas State Chamber of Commerce

## **Appendix D**

### **Estimated Change in Total Revenue Per Pupil**

### **And State Aid Per-Pupil Under Proposed Adequacy Model**

The following pages contain a list of all 308 school districts in Arkansas along with the estimated total revenue per pupil generated by the adequacy model developed in this report. The change in state aid for each district is also included in this table. Because the funding model proposed by the Committee assumes the model will be funded by a uniform property tax rate of 25 mills, revenues that are currently raised by local districts – or could be raised by local districts in the future – are not included in these totals.