

**CALCULATION OF THE COST OF AN ADEQUATE
EDUCATION IN MARYLAND IN 1999-2000 USING
TWO DIFFERENT ANALYTIC APPROACHES**

Prepared for

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and Excellence (Thornton Commission)

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EXECUTIVE SUMMARY

This report was prepared as part of the work Augenblick & Myers (A&M) is doing for the Maryland Commission on Education Finance, Equity, and Excellence (the Thornton Commission). The purpose of the report is to estimate the cost of an “adequate” K-12 education in Maryland.

Previously, A&M evaluated the equity of the state’s school finance system and concluded that, overall, the structure of the system was designed to promote inter-district fiscal equity by taking into consideration both the relative need and relative wealth of each school district in the distribution of state support; we also found that some components of the system, such as state retirement aid, were somewhat inequitable and that several components were designed to accomplish the same purpose, making the allocation system unnecessarily cumbersome.

The state uses a “foundation” formula for the purpose of distributing most state aid, under which a target level of revenue is established for each district, driven in large measure by the foundation level, a constant amount per student. Assuring that the system provides an adequate level of support requires that the foundation level be set at an appropriate level -- a level that has some meaning in terms of either the amount of services that can be delivered to students or the level of performance students achieve. Once a foundation level has been determined, it is common practice to adjust the level in each district so that the target revenue level is sensitive to cost pressures that are beyond the control of districts, and that vary across districts, including those associated with the cost-related characteristics of students, such as their need to receive special education services, or districts, such as geographic price differences.

Maryland, like many other states, is implementing a “standards-based” approach as part of the effort it is making to improve student performance. The standards-based approach requires a state to specify its expectations for student performance, develop procedures to measure how well students are meeting those expectations, and hold providers of education services accountable for student performance. The logic of the approach also implies that a state will assure that sufficient resources are available in school districts, if not in schools, so that they can reasonably be expected to meet state standards. In effect, this means that the foundation level should reflect the per pupil spending a district needs to make so that students without special needs can meet state performance expectations.

A few states are attempting to estimate the expenditures school districts need to make in order to fulfill state objectives. These states are using calculation procedures based on either the “professional judgement” model or on the “successful school (district)” model, which are two of the four generally recognized approaches that have been

developed to date to estimate the cost of an adequate education. The Thornton Commission asked A&M to pursue both the professional judgement approach and the successful school approaches in Maryland.

Using the professional judgement approach, A&M met with seven teams of people in order to develop the resources prototype elementary, middle, and high schools would need in order to expect that, given statewide average demographic characteristics, students would be able to meet state standards. In effect, the teams created a prototype school district of 30,000 pupils (31 percent of whom were from low income families, 13.5 percent of whom were enrolled in special education programs, and two percent of whom required LEP services) in which there were 40-50 schools with between 500 and 1,000 pupils in each school. Each prototype school was assigned specific numbers of staff as well as a specific array of technology, a set of supplementary programs related to full-day kindergarten or extended day/year, and other resources including supplies and materials. Based on a set of costs for those school resources and the cost associated with district wide services, such as administration and plant maintenance and operation, A&M estimated total costs to be \$12,060 per pupil in elementary school, \$9,004 per pupil in middle school, and \$9,599 per pupil in high school. After removing the costs associated with special education programs, services for students from low income families, and LEP programs, and combining costs across all grades, the base cost would have been \$6,612 in 1999-2000. Looking at the resources attributable to special education, we determined that the average excess cost of providing adequate services would be \$7,748 per student in a special education program, or 1.17 times the base cost figure. Similarly, we determined that added services for pupils from low income families would be expected to cost \$9,165 per such pupil, or 1.386 times the base cost figure. We made the assumption that supplemental services for LEP pupils would be equal to the base cost figure (\$6,612).

In order to implement the successful school approach, the Maryland State Department of Education (MSDE) identified a total of 59 elementary, middle, and high schools that met a set of state standards. Those schools enrolled over 46,000 pupils and were in 10 different counties. On average, the schools had a smaller percentage of pupils from low income families and a smaller proportion of pupils in special education programs than the statewide average. Since school level financial data were not available, A&M developed a data collection instrument for use by school district business officials to obtain basic expenditure information for each school based on the actual people employed in schools, their salaries, and procedures to allot district wide expenditures for services such as administration, plant maintenance and operation, and personnel benefits. Once data were received, auditors from the state legislature and MSDE reviewed the data for reasonableness. In addition, expenditures were adjusted for inter-district cost-of-education differences using factors determined by the National Center for Education Statistics. Our analysis of those data indicate that the cost of a successful elementary school was \$6,161 while the cost of a successful middle school was \$5,655 and the cost of a successful high

school was \$5,910. Combining these costs based on the statewide distribution of students by type of school produces a base cost figure of \$5,969, a level 9.7 percent lower than the base cost associated with the professional judgement approach. Because our work specifically focused on the base figure, and because the schools had very low proportions of pupils from low income families, on average, we were unable to derive pupil weights.

The statewide total cost that results from using these figures for 1999-2000 varies depending on which figures are used and how they are combined. Using only the figures derived from the professional judgement approach (a base level of \$6,612 and supplemental pupil weights of 1.17 for special education, 1.386 for pupils from low income families, and 1.00 for LEP pupils), the total cost would have been \$8.796 billion. Using the base cost figure derived from the successful school approach (\$5,969) and the pupil weights derived from the professional judgement approach, the total cost would have been \$7.939 billion in 1999-2000.

In our opinion, the supplemental pupil weights estimated for special education pupils (1.17 is slightly lower than the national average figure of 1.3 often cited as the average across all categories of special education pupils) and for LEP pupils (1.00, which we set based on our understanding of what policy makers in other states would like to happen although it is higher than what many states use) are reasonable; however the supplemental pupil weight estimated for pupils from low income families is extraordinarily high (at 1.386 it is well above the range of .25 – 1.00 that is sometimes used in other states). The supplemental pupil weight for pupils from low income families produces a total cost of \$2.352 billion when the base figure is \$6,612 (the total would have been \$2.123 billion using a base figure of \$5,969). If the supplemental weight for low income pupils were set at .900, the total cost of the entire program would have been \$7.195 billion in 1999-2000 (using a base cost of \$5,969) and the total supplemental cost for low income pupils would have been \$1.379 billion.

All of these total cost estimates exceed the total amount of revenue available in 1999-2000 from state, local, and federal sources, which was \$5.917 billion excluding state and local funds for transportation (since that function has not been considered).

It is worth noting that there are a variety of ways to apply pupil weights other than using a single number for a particular group of pupils. For example, assuming that the costs of serving pupils with different disabilities varies and that the proportions of pupils with different disabilities differs from district to district, it might make sense to use several weights for special education, the average of which should be 1.17. Too, assuming that the per pupil cost of providing supplemental services to pupils from low income families rises as their concentration in a district rises, it may make sense to use a “concentration” factor in applying that weight.

Finally, A&M conducted a survey of the 59 successful schools to determine whether they received supplemental resources, in the form of money, material, or contributed time, that would not have been reflected in their fiscal accounting. We found that: (1) almost all schools received monetary contributions, ranging from \$33 to \$97 per pupil, on average, depending on the level of the school; (2) over two-thirds of the schools received contributions of material, which had a value of between \$6 and \$24 per pupil, on average, depending on the level of the school; and (3) all schools obtained contributions of time, mostly from parents of pupils attending the schools, which ranged from 1 hour to 13 hours per student, on average, depending on the level of the school.

While the figures discussed above fulfill the objective of setting rational parameters so that an adequate amount of revenue is available to all school districts in Maryland, they do not, in and of themselves, suggest what portions of the total cost should be paid by state, local, or federal sources nor do they specify the source of any new revenue that might be needed to fully fund the total cost. More importantly, the numbers are not set in stone. All of these approaches to determining a base cost figure are evolving, having been used in states for the first time only in the past few years. The approaches should be viewed as a combination of “art” and “science.” There would be no reason to think that the results produced using two different approaches would be the same. Therefore, while the use of either the professional judgement approach or the successful school district approach is more rational than the methods that have typically been used to set the parameters of a school finance system, the figures produced should be viewed as reasonable estimates rather than as precise calculations. Policy makers should be wary of simply making changes with the sole purpose of lowering cost. In the end, the task for policy makers is to be artful -- rational and informed as much as possible by science, expertise, and experience.

I. INTRODUCTION

This report was prepared as part of the work Augenblick & Myers (A&M) is doing for the Maryland Commission on Education Finance, Equity, and Excellence (the Thornton Commission). The purpose of the report is to estimate the cost of an “adequate” K-12 education in Maryland. Previously, A&M evaluated the equity of the state’s school finance system and concluded that, overall, the structure of the system was designed to promote inter-district fiscal equity by taking into consideration both the relative need and relative wealth of each school district in the distribution of state support; we also found that some components of the system, such as state retirement aid, were somewhat inequitable and that several components were designed to accomplish the same purpose, making the allocation system unnecessarily cumbersome.

Maryland uses a “foundation” formula for the purpose of distributing most state aid, under which a target level of revenue is established for each district, driven in large measure by the foundation level, a constant amount per student. The foundation level was set at \$4,005 for 2000-2001, a level that was far less than the average per pupil spending of school districts that year. More importantly, it is difficult to say what the foundation level is supposed to mean – it is a number that is set so that, given the formula, the state allocates as much total support as the state legislature provides. Assuring that the system provides an adequate level of support requires that the foundation level be set at an appropriate level -- a level that has some meaning in terms of either the amount of services that can be delivered to students or the level of performance students are able to achieve.

Once a foundation level has been determined, it is common practice among the states to adjust the level in each district so that the target revenue level is sensitive to cost pressures that are beyond the control of districts and that tend to vary across districts. For example, some districts have higher proportions of pupils that participate in special education programs, which may cost much more than regular programs – districts with relatively higher proportions of pupils in high cost programs will have higher overall costs per student than districts with relatively lower proportions of such pupils, which requires that their target revenue levels should be higher. Other types of students may also require that districts spend more, such as students with limited-English proficiency (LEP) or students who are at risk of failing in school, which is strongly associated with the socio-economic characteristics of students’ families. Too, certain characteristics of school districts, such as their size, or location, may result in relatively higher costs that might require an adjustment in the foundation level in determining a target revenue level.

Maryland, like many other states, is implementing a “standards-based” approach as part of the effort it is making to improve student performance. In simple terms, the standards-based approach requires a state to do three things: (1) specify its expectations

for student performance; (2) develop procedures to measure how well students are meeting those expectations; and (3) hold providers of education services (school districts, schools, teachers, and so on) accountable for student performance. The logic of the approach also implies that a state will assure that sufficient resources are available in all school districts, if not in all schools, so that they can reasonably be expected to meet state standards. In effect, this means that the foundation level should reflect the per pupil spending a district needs to make so that students without special needs can meet state performance expectations.

While many states are pursuing the standards-based approach, most states, including those that use foundation formulas, have not made a concerted effort to assure that the amount of revenue available in school districts is related to the cost of meeting state standards. Although some states have created systems of rewards and/or sanctions in recognition of student performance, most states have failed to specify how their expectations for student performance might be related to the basic resource needs of school districts. In fact, it is not unusual among the states that there is little or no relationship between expected levels of performance and the availability of state aid; conversely, the level of state aid often reflects the availability of money, associated with the effort required to obtain it, not the resource needs of pupils, schools, or school districts.

A few states (Illinois, Kansas, Louisiana, Mississippi, New Hampshire, Ohio, Oregon, Wisconsin, and Wyoming), however, are attempting to estimate the expenditures school districts need to make in order to fulfill state objectives. Some of these states have been required to review their funding systems as part of school finance litigation while others are doing so as a result of gubernatorial, legislative, or state board of education interest. These states are using calculation procedures based on one of two data-based approaches that have evolved over the past few years: (1) the “professional judgment” model or (2) the “successful school (district)” model. These two approaches are among the four approaches (the other two approaches include one based on the cost of whole-school reform models and one based on statistical analysis of school district performance and expenditure data – neither one of which has actually been used by a state) that academicians and policymakers have been examining in recent years.

The professional judgement approach is a modern version of what used to be called a “resource cost model” approach (or “market-basket” approach) that asked educators to specify the resource needs of quality schools. Today, the approach asks educators to identify the resources they feel need to be in place in prototype schools in order for students to achieve a specific set of objectives. Once resources have been specified, prices are determined for the resources which, when applied to the resources, produces a hypothetical cost. Costs for elementary, middle, and high schools can be combined with district level costs (those expenditures that are in addition to school site expenditures, such as district administration, or those expenditures that cannot be disaggregated to school sites, such as plant maintenance and operation) to produce an overall cost per student.

When undertaken carefully, the approach can be used to distinguish costs of special, high cost programs from basic services, allowing the user to determine a base cost, or foundation, level as well as adjustments to the base.

The successful school (district) approach relies on a different logic than the professional judgement approach, seeking to infer a base cost figure from the actual spending of school districts, or schools, determined to be successful because they meet whatever standards are used by a state to evaluate student and school performance. Using this approach, a set of school districts (or schools) are selected from among all school districts (or schools) that meet a variety of criteria related to their level of success in meeting state standards, their normalcy in terms of socio-economic characteristics such as district wealth or proportion of pupils from low income families, and their efficiency in terms of spending. Once districts have been selected, their basic spending (excluding spending for capital purposes, transportation, special education, other special programs, and any service funded by federal revenue) is examined to determine a base cost level. While this approach is best used to determine a base cost figure, it may be possible to use the approach to determine adjustments to the base cost if a sufficient number of cases can be found with varying levels of special needs to determine the relationship between the proportion of pupils with those needs and the excess spending associated with serving those pupils.

In addition to using these two approaches, A&M undertook a survey of successful schools to determine what resources might be available to them that would not be recognized through fiscal accounting, including monetary contributions they receive from sources other than local, state, or federal government and contributions of time from volunteers.

The remainder of the report is organized as follows: Section I provides additional background about alternative ways of determining the costs of an adequate education; Section II describes the way A&M implemented the professional judgement approach and its results; Section III describes the way we pursued the successful school approach and its results; Section IV describes the survey of successful schools; and Section V describes some of the implications of the results.

II. ALTERNATIVE APPROACHES TO CALCULATING A BASE COST LEVEL

In most states, the base cost figure that “drives” the foundation program represents a political judgment, reflecting how much revenue is available or how much might become available through higher levels of taxation.¹ In the past few years, some states have begun to develop new approaches to calculating the base cost that are designed to reflect a particular set of services or a particular level of performance, or both, so that the base cost has a meaning beyond simply reflecting available revenue.² The effort to develop these approaches is necessitated by the fact that no research exists that demonstrates a straightforward relationship between how much is spent to provide education services and student, school, or school district performance -- if such a relationship existed, then state policy makers could simply determine the level of performance they wanted, and provide the appropriate amount of revenue or, conversely, determine how much revenue was available and know the level of performance that could be attained. In the absence of such

¹ See *A New Millennium and a Likely New Era of Education Finance* by James W. Guthrie and Richard Rothstein, a chapter in the 2001 Annual Yearbook of the American Education Finance Association (edited by Stephen Chaikind and William F. Fowler) for a discussion of the history of state attempts to deal with adequacy in the distribution of state aid.

² More is being written about the issue of education funding adequacy, including, for example: “Enabling Adequacy to Achieve Reality: Translating Adequacy into State School Finance Distribution Arrangements” by James W. Guthrie and Richard Rothstein in *Equity and Adequacy in Education Finance*, edited by Helen F. Ladd, Rosemary Chalk, and Janet S. Hansen (National Research Council, National Academy press, Washington DC, 1999); “The Empirical Argument for Educational Adequacy, the Critical Gaps in the Knowledge Base, and a Suggested research Agenda.” in *Selected Papers in School Finance, 1995* (National Center for Education statistics, Washington DC, 1997); “Defining Adequacy: Implications for School Business Officials,” by Lawrence O. Picus (*School Business Affairs*, January 1999); “The Costs of Sustaining Educational Change Through Comprehensive School Reform,” by Allan Odden (*Phi Delta Kappan*, February 2000); “Alternative Approaches to Measuring the Cost of Education,” by William Duncombe, John Ruggiero, and John Yinger in *Holding Schools Accountable: Performance-based Reform in Education*, edited by Helen F. Ladd (The Brookings Institution, Washington DC 1996); and “Recommendations for a Base figure and pupil-Weighted Adjustments to the Base Figure for Use in a New School Finance System in Ohio,” by John Augenblick (School Funding Task Force, 1997).

a simple relationship, and in light of the fact that some people believe that there is no clear association between spending and performance, four rational approaches have emerged as ways to determine a base cost level: (1) the professional judgment approach; (2) the successful school (district) approach; (3) the comprehensive school reform approach; and (4) the statistical approach. These approaches differ in terms of underlying philosophy, assumptions, data needs, reliance on research, and ease of understanding. They should not be viewed as competing approaches but, rather, as alternatives that might be appropriate depending on particular circumstances. Too, while any of these approaches might be used to calculate a base cost figure, they might be more or less useful in calculating one or another adjustment to the base cost to account for the varying uncontrollable costs pressures that different districts face.

The professional judgment approach relies on the views of experienced service providers to specify the kinds of resources, and the quantities of those resources, that would be expected to be available in order to achieve a set of specified objectives (where the objectives are not determined by the service providers). This approach has been used in Wyoming to calculate a base cost amount in response to the state Supreme Court's requirement that the school finance system reflect the cost of the "basket" of goods and services needed to assure that a high school graduate could be admitted to an institution of higher education in the state. The approach uses multiple panels of "experts" to specify the way education services should be delivered in prototypical elementary, middle, and high schools (which together form a prototype school district).

Once the services have been specified, with a focus on needed numbers of different types of personnel, costs are attached and a prototype per pupil cost is determined. This approach best reflects the experiences of people who are actually responsible for delivering education services and may be combined with research results as the basis of a rational way to specify the magnitude of resources that are expected to produce some level of results. As the approach has been implemented, it is designed to distribute funds through a "block grant," without specifying exactly how money should be spent, despite the fact that the prototype schools designate what the experts believe is the best combination of resources. The advantages of the approach are that it reflects the views of actual service providers and it is easy to understand; the disadvantages are that it tends to be based on current practice and there is little evidence that the provision of money at the designated level, or even the deployment of resources as specified by the prototype models, will produce the anticipated outcomes.

The successful school district approach is based on the simple premise that any district should be able to be as successful at meeting a set of objectives as those schools that actually meet those objectives provided that every district has the same level of funding that has been available to the successful districts and that differences in student characteristics have been taken into consideration. This approach has been used in

Mississippi, New Hampshire, and Ohio to establish base cost levels. For example, in Ohio, the average “basic” spending (excluding spending for capital purposes and for transportation, expenditures funded by federal revenues, and expenditures for purposes for which adjustments would be expected to be calculated) of the districts that met almost all of the state’s 18 measurable objectives is the foundation level; in New Hampshire, the approach was modified to include only those districts that were among the lower spending of those that were within a narrow range of meeting the state’s objectives (excluding those that far exceeded the state’s objectives). In Mississippi, separate groups of districts were identified to calculate base cost figures for instruction, administration, and plant maintenance and operation, which were then combined to produce a single base cost level.

This approach is best used when the state has specified its objectives and districts can be identified that meet them on the basis of acceptable criteria. The strengths of the approach are that it is based on actual evidence that districts can be successful at a certain resource level and that the ways that resources are used can vary among successful districts; a weakness of the approach is that the state must be sure that appropriate adjustments are made to the base cost to reflect uncontrollable cost pressures since the characteristics of some districts might be different from those that have been successful.

The comprehensive school reform approach is based on the estimated costs of implementing whole-school, systemic reform models, such as those developed by the New American Schools Development Corporation (NAS). The assumption is that such models reflect the best thinking about how to organize schools to assure their success, particularly with the most difficult students, and that any school that had the same resources as the model school would have the ability to put the model into effect and be equally successful. No state has actually pursued this approach, which may simply reflect the fact that the models are not in widespread use and that they have not had a chance to prove their success yet.

The statistical approach is based on understanding those factors that statistically explain differences in spending across school districts while “controlling” for performance. In some sense, the statistical approach is the most powerful of the alternatives and is subject to the least manipulation. However, it has proven difficult to explain how the approach works in situations other than academic forums. The approach requires the availability of lots of data, much of which needs to be at the school or student level in order to be most useful. No state has used the statistical approach to determine the parameters in a school finance formula. However, the statistical approach has been used to establish some of the adjustments states use to make the allocation of support sensitive to uncontrollable cost pressures (such as setting the “weights” for students enrolled in special education programs or creating the formulas to reflect the costs associated with different enrollment levels).

All of these approaches are evolving, having been used in states for the first time only in the past few years. The approaches should be viewed as a combination of “art” and “science,” particularly in the case of the professional judgement approach. For that approach, different groups of experienced people, given the same objective and using the same process, might specify different sets of resource needs, which might or might not have the same costs. In the case of the successful school district approach, results are replicable only when precisely the same choices are made — making different choices may result in somewhat different figures. And there would be no reason to think that the results produced using two different approaches would be the same. Therefore, while the use of either the professional judgement approach or the successful school district approach is more rational than the methods that have typically been used to set the parameters of a school finance system, the figures produced should be viewed as reasonable estimates rather than as precise calculations. Unfortunately, insufficient work has been done in the states to gauge how much flexibility surrounds the results. Our best guess at this point is that the figures should be within plus or minus 10 percent of being correct — that is, a base cost figure of \$5,000 suggests that using a number between \$4,500 and \$5,500 would be appropriate.

III. IMPLEMENTING THE PROFESSIONAL JUDGEMENT APPROACH IN MARYLAND

Introduction

There are numerous ways to fulfill the objectives of the professional judgement approach, which vary based on both the particular circumstances that exist in a state and the level of detail for which results are required. In this case, we were primarily interested in estimating an overall per pupil base cost figure that could be used as the foundation level in a foundation program, which is the kind of distributional approach Maryland uses to allocate the majority of its state aid to school districts. This was true in particular because we hoped to compare the base cost figure derived from the professional judgement approach to the one that would result from using the successful school approach. In addition, we hoped to estimate pupil weights for special education and for at-risk pupils (represented by pupils from low income families and measured by the number of students eligible for free and reduced-price lunches) although we had no intention of comparing results to the successful school approach since we did not expect that approach to produce pupil weights. Too, we knew that another study was being conducted for the *New Maryland Education Council (MEC)*, using the professional judgement approach, and our understanding was that, among other things, it would be focused on developing more precise estimates of pupil weights, or other approaches, to recognize the added costs of serving pupils in special education programs or pupils from low income families. In fact, we hoped that the results of the two studies could be merged with the possibility of using components from one study in conjunction with components from the other study in developing a set of factors that could be used in allocating state aid.

The Use of Expert Panels

Based on our experience using the professional judgement approach in other situations, we felt that that the best way to implement it was to: (1) use different teams of educators to develop the resource needs of elementary, middle, and high school prototypes; (2) use multiple teams to develop each prototype; and (3) use an overview team, or "expert panel," to review the work of the prototype teams as well as to develop district level resource estimates. In order to meet these requirements, we created seven eight-member teams of educators, two teams for each prototype level of school and a single expert panel. After A&M provided selection criteria based on education and experience in the field, the Maryland State Department of Education (MSDE) publicized a request for people to serve as members of the teams, established a review group to evaluate the candidates, and selected 56 team members (team members are listed in Appendix A).

In order for the teams to specify the resource needs of prototype schools, they needed to know two things: (1) the demographic characteristics of schools and (2) the standards students are expected to meet (see Appendix B for the materials team members received). We made the decision that the teams would focus their attention on schools, and on a school district, with statewide average characteristics in terms of school sizes, district size, and student demographics. And we determined a set of performance objectives in terms of the proportion of pupils expected to “pass” the Maryland State Performance Assessment Program (MSPAP), the rate of attendance, and the drop out rate. Background information about some of these characteristics are shown in Table 1. The data suggested that: the average size of an elementary school was 500 pupils; the average size of a middle school was 800 pupils; the average size of a high school was 1,000 pupils; the average district had 30,000 students and 40-50 schools; 13.5 percent of all pupils were enrolled in special education programs; 31 percent of all pupils were eligible for free or reduced price lunches; and two percent of all pupils were in need of limited-English proficient (LEP) services.

The standards used to determine that a school was successful were:

- | | |
|---------------------|--|
| elementary schools: | 70 percent of all students must receive a satisfactory score, on average across all subject areas, on both the 3 rd and 5 th grade tests and attendance must be at or above 94 percent |
| middle schools: | 70 percent of all students must receive a satisfactory score, on average across all subject areas, on the 8 th grade test and attendance must be at or above 94 percent. |
| high schools: | pass rates for the Grade 9 Functional Tests must be at least 99 percent for reading, 89 percent for mathematics, and 96 percent for writing; attendance must be at or above 95 percent; the drop-out rate should be below 3.75 percent; and at least 85 percent of graduating students must meet either the University System of Maryland course requirements, the Career and Technical Education Program requirements, or the Rigorous High School Program Indicators |

It should be noted that both professional judgement studies agreed to use this basic information.

The six prototype groups met with A&M during the weeks of February 5 and February 12, 2001 with each group meeting for one day to develop an underlying

philosophical approach and a specification of the resource needs of prototype schools, including the number and size of classes that should be offered during the school year, the availability of supplemental learning opportunities for some students during the regular school year and during the summer, the availability of services for some children before kindergarten, equipment, additional amounts of professional development, technology, support services, and non-academic activities. In fact, groups were divided into two teams, which worked independently before coming together to create a consensus resource list. Following those six day-long meetings, A&M summarized the approaches, without estimating their costs, for presentation to the overview panel. The overview panel met for one and a half days during the week of April 2, 2001. That panel reviewed the work of the prototype panels, developed a final list of resources for the prototype schools, and created a resource list for central district activities that not been included in the prototype schools. None of the panels considered the resources related to student transportation or food services.

Based on the work of the overview panel, A&M assigned prices to the resources (primarily driven by statewide average salaries and benefits for different kinds of personnel), calculated per student costs for the prototype elementary, middle, and high schools, calculated district office costs, and combined all costs based on the statewide average distribution of enrollment in elementary, middle, and high schools in order to create a single cost figure. Once our original work was done in pricing out the model, MSDE and Department of Legislative Services (DLS) staff worked with us in making adjustments to our work. The information below reflects these adjustments.

Resource Needs of Elementary, Middle, and High School Prototype Schools

The figures shown in Table 2 indicate the personnel needs of a prototype elementary school, middle school, and high school based on the work of the panels. In Table 3, those personnel are compared in terms of people per 1,000 pupils. The figures suggest that the panels thought that more personnel, in some cases dramatically more, were needed in schools serving lower grades and that slightly more administrative personnel were needed in schools serving upper grades. In the end, the middle school (120) and high school (121) have nearly an identical number of personnel per 1,000 students while the elementary school has nearly 50 percent more personnel per 1,000 students (173). This generally reflects the fact that the panels were attempting to address learning deficiencies as early as possible although they recognized that some students would require significant support throughout their time in school and that higher levels of pupil turnover would result in students entering Maryland middle schools and high schools with needs that would have to be addressed at those levels.

The figures in Table 4 show the technological equipment needs of schools identified by the panels. A&M provided each panel with a master list of technological equipment

based on a report being prepared by the Education Commission of the States (ECS) concerning the cost of replacing technology in public schools. The panels selected the equipment they wanted based on the role of technology in their school designs and the need for both academic and administrative computers.

Table 5 shows the other programs and services the panels felt schools should have to support the basic programs they had specified. The panels felt that elementary schools should have full day kindergarten for all students and pre-school opportunities for pupils from low income families while they believed that both elementary and middle schools should have extended day and extended year programs for at-risk pupils. No such programs were thought to be necessary at in high school. In addition, the panels felt that funds needed to be available for student activities, equipment, supplies and materials, student assessment, and for the professional development of staff.

Resource Prices

The prices of personnel and technological equipment are shown in Table 6A. Prices for personnel are based on both salaries and benefits – the figures shown in the table are only salary levels and reflect the 1999-2000 average salary paid to specific personnel in Maryland adjusted by a 1.56 percent increase. The increase, shown in Table 6B, reflects the fact that, after controlling for several factors that impact inter-state comparisons (cost-of-living, the proportion of teachers with at least a masters degree, and the average number of years of experience), the average teacher salary in Maryland is slightly lower than the average salary paid to teachers in neighboring states (the states with which Maryland is most likely to compete). In our view, it makes sense to adjust Maryland average salaries so that they are comparable to those paid in neighboring states. Maryland does not collect information on the benefits provided to personnel. Therefore, we estimated the statewide average cost of benefits by determining the percentage that “fixed costs” were of total salaries -- 34.5 percent. Technology equipment prices are those used in the report ECS is preparing. Finally, we estimated the cost of one day of professional development for teachers to be \$314, which is the adjusted salary for teachers, plus 34.5 percent of that figure for benefits, divided by 190 days (the current length of the average contract).

The figures in Table 7 indicate the cost of central office (district level) activities that were not taken into consideration in developing the resource needs of the prototype schools, including district administration, plant maintenance and operation, professional development, security, information technology, alternative school, career technology services, special education, and pupil personnel services. The estimated total of these costs would have been \$1,549 per pupil in 1999-2000. In some cases, we used statewide average expenditure figures, inflated by three percent from 1998-99 to 1999-2000, to reflect costs since the overview panel did not feel comfortable developing detailed

personnel and other cost specifications for functions such as administration and plant maintenance and operation. In the panel's view, there are many alternative ways to provide these services, none of which is necessarily better than another. In other cases, the panel estimated a figure based on its experience or developed a rationale for estimating a cost that is identified in the table.

Prototype Cost Estimates

Table 8 shows the prototype school costs that result from applying the prices discussed above to the resources specified by the panels of experts. Per pupil figures were calculated by multiplying numbers of things (such as personnel or technological equipment) by prices and dividing by the number of pupils in each prototype school. Clearly, the largest cost item is basic program personnel [row (1)], which would have ranged from \$6,479 per pupil in middle school, to \$7,029 per pupil in high school, to \$8,798 per pupil in elementary school in 1999-2000. Technology costs were calculated by taking 25 percent of the total cost of technological equipment, assuming that such equipment can be amortized over four years. Professional development costs are based on the daily cost of teachers, multiplied by 10 days and then divided by the numbers of pupils in the prototype schools. Program costs are based on the resources and prices associated with serving all students (as in all-day kindergarten) or only the 31 percent of pupils estimated to be from low income families in the average school. District level costs were added to each prototype school at the same rate since they apply uniformly to all pupils. The grand total prototype cost would have ranged from \$9,004 per pupil in middle school, to \$9,599 per pupil in high school, to \$12,060 per pupil in elementary school.

A note of caution is in order concerning these costs. They represent estimates based on the best judgements of many people, reviewed multiple times, and on estimated prices, often based on statewide average figures with some adjustments. We present them as precise figures reflecting the assumptions that were used to calculate them. But it is probably wiser to view them as indicative of an order of magnitude that might be slightly low or slightly high and that could change more substantially if other people, informed by experience, research, and expertise thought that the objectives that had been identified to the panels could be met even if some components were modified or eliminated.

It also should be noted that no member of our panels would suggest that resources be deployed precisely in the way the panels did for the purpose of estimating cost. First, the final figures represent a series of trade-offs among the experts themselves – trade-offs not required by an expenditure limit placed on panel members (none of the panels saw cost figures, although we did discuss the prices of some elements) but by the fact that there is no one best way to provide services. Second, the panels focused on schools and a district with “average” characteristics – no such school or district actually exists in Maryland. Finally, even if such a school existed, the panel members suggested that other

factors, outside the scope of their discussions, would affect the way they would use resources in an actual school.

Finally, it is worth noting that these cost estimates do not include transportation, food services, other services schools provide such as adult education, or capital outlay and debt service related to facilities. In particular, panel members noted that existing facilities might not be able to accommodate the numbers of personnel they assigned to schools although that did not affect their recommendations about personnel.

Determining a Base Cost Figure

The figures discussed above represent the total cost of a prototype school and specifically apply to a school with the characteristics described above (namely, statewide average characteristics). If all schools, or even all districts, in the state had these characteristics then it would be possible to combine them to create a single per pupil amount that could serve as the base cost (or foundation) level. Based on the distribution of pupils in elementary, middle, and high schools (47.6 percent in elementary schools, 23.5 percent in middle schools, and 28.8 percent in high schools), the figure would be \$10,631. But since there may be no school, or district, with statewide average characteristics and since schools, and districts, vary in such things as the proportion of pupils in special education programs, the proportion of pupils from low income families, and the proportion of LEP pupils, it is necessary to eliminate the costs of those programs from the total in order to develop an appropriate base cost figure and then to create a procedure to add those costs back in a way that is sensitive to the differing proportions of such students that exist.

The figures in Table 9 indicate the excess costs associated with special education, at-risk pupils, and LEP students that were included in the total costs of prototypes discussed previously. These costs are estimated on the basis of the direct costs panel members assigned as well as inferences we made based on our discussions with panel members; in the case of LEP pupils, given the low proportion of such pupils in the prototypes, it was difficult for panel members to assign specific costs – we estimated the excess costs for LEP students to be the same as the base cost (that is, an LEP student costs twice as much as a “regular” pupil). We also felt that some of the costs included as central, district costs had some costs for special education and at-risk pupils built into them, which needed to be eliminated. As indicated in the table, we estimate that the costs associated with special education, programs for pupils from low income families, and LEP services represent \$5,395 per pupil in elementary schools, \$2,905 per pupil in middle schools, and \$2,893 per pupil in high schools, resulting in base cost figures of \$6,726 per pupil at elementary schools, \$6,160 per pupil at middle schools, and \$6,791 per pupil at high schools. Combining these figures using the proportions specified above, the overall base cost figure would have been \$6,612 in 1999-2000.

It is also possible to calculate an excess cost per special student using the figures in Table 9. That excess cost would have been \$7,748 per student in a special education program, \$9,165 per pupil from a low income family, and \$6,612 per LEP pupil (by definition). Given these excess cost figures and the base cost figure, average pupil weights could also be determined, which would be 1.17 for special education, 1.386 for pupils from low income families, and 1.00 for LEP pupils. The use of these weights assumes that the cost of providing different special education services to pupils with different disabilities are similar and that the cost of serving pupils from low income families does not vary as the concentration of such pupils varies.

The statewide total cost that results from using a base cost figure of \$6,612 and supplemental pupil weights of 1.17 for special education, 1.386 for pupils from low income families, and 1.00 for LEP pupils would have been \$8.796 billion (this is based on using the statewide enrollment figures shown in Table 1). In our opinion, the supplemental pupil weights estimated for special education pupils (which at 1.17 is slightly lower than the national average figure of 1.3 often cited as the average across all categories of special education pupils) and for LEP pupils (1.00, which we set based on our experience) are reasonable; however the supplemental pupil weight estimated for pupils from low income families is extraordinarily high (at 1.386 it is well above the range of .25 – 1.00 that is used in other states). The supplemental pupil weight for pupils from low income families produces a total cost of \$2.352 billion when the base figure is \$6,612. If the supplemental weight for low income pupils were set at .900 (a high level but lower than the figure derived from the professional judgement approach), the total cost of the entire program would have been \$7.971 billion in 1999-2000 and the total supplemental cost for low income pupils would have been \$1.527 billion.

IV. IMPLEMENTING THE SUCCESSFUL SCHOOL (DISTRICT) APPROACH IN MARYLAND

Introduction

The purpose of the successful school (district) approach is to determine a base cost figure on the basis of the actual spending of school districts that are successful. While the approach could be used to investigate the supplemental costs associated with special education, or other programs for students with special needs, our experience is that the approach is less reliable when used for that purpose. To implement the approach it is necessary to do three things: (1) specify the school districts that are successful; (2) examine the basic expenditures of those districts (excluding spending for capital purposes and for transportation, special education, LEP programs, and programs and services for at-risk pupils); and (3) calculate a base cost figure using the basic expenditure figures of successful districts, which might involve adjusting basic expenditure figures for factors such as cost-of-living differences or excluding certain districts, even though they are successful, to address issues such as efficiency.

The normal assumption is that a large number of districts will be scrutinized so that any conclusions drawn will not be based on the spending patterns of just a few places. Since Maryland has only 24 districts, we did not feel comfortable focusing our analysis on all of them, much less a subset of them. Therefore, we decided to examine the spending of a group of successful *schools* within Maryland. The problem with taking this approach is that expenditure data is not routinely available at the school site level in Maryland (or any other state), requiring us to develop a procedure to obtain such information. This section describes the procedures we used to identify successful schools, collect expenditure data from them, and use that information to calculate a base cost figure comparable to the one that is associated with the professional judgement approach.

Selecting Successful Schools

In order to identify successful schools, we asked MSDE to identify a set of elementary, middle, and high schools that met existing state performance standards. The standards are based on schoolwide average performance on the Maryland School Performance Assessment Program (MSAPP) as well as other indicators (attendance, drop-out rate, and curriculum) that are components of the School Performance Index (SPI) used by MSDE to evaluate schools. Using these standards, MSDE identified 104 schools that it considered to be successful. However, since we felt that it would be difficult to obtain fiscal data from that many schools within the time available, we asked MSDE to reduce the number to 60 or fewer. MSDE, therefore, selected a subset of 59 schools that included elementary schools, middle schools, and high schools that were representative of the state

in terms of geographic location (see Appendices C, D, and E for lists of the schools selected).

The characteristics of the 59 schools are shown in Table 10. Of the total, 33 schools are elementary schools, 10 schools are middle schools, and 16 schools are high schools. These successful schools represent about four percent of all elementary schools, five percent of all middle schools, and seven percent of all high schools in the state. The elementary schools come from seven different counties while the middle schools come from four different counties and the high schools come from nine different counties. Taken together, the schools come from 10 different counties across the state.

On average, the successful schools have a slightly lower proportion of pupils in special education programs, a much lower proportion of pupils eligible for free or reduced price lunches, and about the average proportion of LEP students as compared to statewide averages. The average MSPAP scores of elementary and middle schools are far higher than statewide average figures. Based on the SPI, successful schools average several points above the level of 100 considered to be the minimum score required to be considered successful. It is worth noting that some of the schools identified as being successful have higher than average, if not much higher than average, proportions of pupils with special needs.

Finally, the cost-of-education index of successful schools is very slightly above the statewide average of 1.00 although the range in the index varies from below .900 to 1.037. Since this is the first time we have referred to a cost index in this report, and since we intend to use it in this section, it is worth noting what the index means. The index is a figure that indicates the relative cost of providing a similar amount of service in different geographic locations. For example, it may cost more to employ a teacher with a particular set of qualifications in one part of the state than in another part of the state due to factors beyond the control of school districts. We use an index to measure such differences that has been developed by the National Center for Education Statistics (NCES) for every school district in the country. We have normed the index so that Maryland's statewide average is 1.000 (the figures developed by NCES are normed to a national average of 1.000). As a result, a district with a cost index of .900 has costs that are 10 percent below the statewide average while a district with a cost index of 1.100 has costs that are 10 percent above the statewide average. Below, we will use the index to adjust the actual spending figures of schools, based on the school districts in which they are located, so that figures are both comparable across the state and can be combined to produce an appropriate average. One final note: the use of a cost index to adjust expenditure figures in creating a base cost figure implies that the index should be used to modify the state aid each school district receives.

Collecting the Data

Since no school level financial data is collected by the state, we had to create a collection instrument, a “template,” that school districts could use to organize data for those schools identified as being successful. The template examined four financial areas: school instruction; school administration; district administration; and other costs. School instruction focused on each school’s expenditures for personnel providing instruction as well as for supplies and materials, extracurricular activities, and substitutes. Districts were asked to determine the people who actually worked in each school, and their salaries, to determine the cost of instructional personnel. The district could then either provide specific school expenditures for instructional textbooks/supplies and other instructional costs or provide a district-wide expenditure for these two areas that would then be allocated to the school based on their percent of district-wide enrollment. School administration focused on the office of the principal for the school -- districts determined the number of personnel, their salaries, and the other related costs for the principal’s office at each successful school. District administration looked at central office costs including general support services, business support services, centralized support services, and instructional administration and support; the district administration costs were given in total district expenditures and then allocated to the school based on the school’s percent of district-wide enrollment. The final area, other costs, included student personnel services, student health, operation of plant, maintenance, community services and fixed charges. For the first five cost areas the district was, again, asked to supply either the specific expenditures for the school in the area or the district-wide expenditures, with the district-wide expenditures being allocated to the school on the basis of the proportion of pupils. For fixed charges we asked for district-wide expenditures only. The fixed charges were then allocated in the same manner as all other district-wide expenditures. The template also included a general information page that collected data about the school and about the district’s personnel and pupils.

We met with representatives of the 10 counties with successful schools in December to review a draft of the template and to discuss the schedule for processing the information. While we had hoped that if districts received the templates by early January they could be completed within a month, the process took longer than expected; we did not receive all of the templates until April. Once all the templates were returned, we gave copies of them to auditors at the legislature and at MSDE. The auditors reviewed the templates for obvious errors; they did not audit any data or determine whether the templates were completed correctly. They did identify a few problems that were then addressed with the districts and rectified.

Cost Estimates

Once A&M had collected the data and made the initial cost estimates, MSDE and DLS staff reviewed our work. In reviewing the work a number of changes were made. MSDE and DLS staff were concerned that fringe benefits for instructional personnel had not been tied to the actual salaries of identified personnel. To account for this, an instructional fringe benefit rate was created for each district in the successful school study. This rate was then applied to all salaries in the instructional expenditure cost area. This necessitated an adjustment in the other costs area. The total fixed charges needed to be adjusted down to account for the fringe benefits that were now accounted for in the instructional costs area. To do this, MSDE and DLS staff identified a rate to account for the non-instructional fixed costs, which was then applied to the total fixed costs to get to fixed costs not associated with instruction. The last adjustment was made to allocate teacher retirement costs to each of the schools. The four original categories did not account for teacher retirement payments made by the state. MSDE and DLS staff were able to identify the per pupil amount of teacher retirement for each school district. We were then able to use this amount with the four cost area amounts to create per pupil costs for each school. These numbers can be found in Table 11.

Elementary schools had an average district administration spending of \$290 with a minimum of \$191 and a maximum of \$526. The minimum for elementary school, school administration was \$223, with a maximum of \$639 and an average of \$391. Instructional expenditures for the elementary schools had an average of \$4,020 with a minimum of \$2,325 and a maximum of \$7,913. The expenditures for elementary other costs had a minimum of \$541, a maximum of \$1,237 and an average of \$929. Teacher retirement amounts ranged from a minimum of \$445 to a maximum of \$589 with an average of \$532. The 33 elementary schools had an average total spending of \$6,161 with a minimum of \$4,435 and a maximum of \$10,100.

Middle schools had an average district administration spending of \$263 with a minimum of \$208 and a maximum of \$349. The minimum for middle school, school administration was \$199, with a maximum of \$860 and an average of \$377. Instructional expenditures for the middle schools had an average of \$3,66 with a minimum of \$2,464 and a maximum of \$5,013. The expenditures for elementary other costs had a minimum of \$518, a maximum of \$1,074 and an average of \$836. Teacher retirement amounts ranged from a minimum of \$445 to a maximum of \$589 with an average of \$514. The 10 middle schools had an average total spending of \$5,655 with a minimum of \$4,429 and a maximum of \$7,277.

High schools had an average district administration spending of \$272 with a minimum of \$191 and a maximum of \$349. The minimum for high school, school administration was \$248, with a maximum of \$600 and an average of \$379. Instructional expenditures for high schools had an average of \$3,801 with a minimum of \$3,229 and a

maximum of \$4,839. The expenditures for high school other costs had a minimum of \$629, a maximum of \$1,269 and an average of \$944. Teacher retirement amounts ranged from a minimum of \$435 to a maximum of \$589 with an average of \$514. The 16 high schools had an average total spending of \$5,910 with a minimum of \$4,966 and a maximum of \$7,084.

Spending in school districts, and in individual schools, can be affected by the cost-of-living of the school district. A higher cost-of-living can lead to higher personnel, equipment, and supply costs. To account for this, the above numbers are adjusted by the district's cost-of-living figure, as described above. The cost-of-living figure for each of the ten districts can be found in Appendix B. Using these adjusted numbers, we found the average basic spending for elementary schools to be \$6,161, middle schools to be \$5,655, and high schools to be \$5,910. Based on the distribution of pupils in elementary, middle, and high schools (47.6 percent in elementary schools, 23.5 percent in middle schools, and 28.8 percent in high schools), the base cost figure would be \$5,969.

Using the base cost figure derived from the successful school approach and the weights determined in the professional judgment approach (since the successful schools approach was not used to identify weights), the total cost would have been \$7.939 billion (this is based on using the statewide enrollment figures shown in Table 1). As we discussed above, in our opinion, the supplemental pupil weights estimated for special education pupils (which at 1.17 is slightly lower than the national average figure of 1.3 often cited as the average across all categories of special education pupils) and for LEP pupils (1.00, which we set based on our experience) are reasonable; however the supplemental pupil weight estimated for pupils from low income families is extraordinarily high (at 1.386 it is well above the range of .25 – 1.00 that is used in other states). The supplemental pupil weight for pupils from low income families produces a total cost of \$2.123 billion when the base figure is \$5,969. If the supplemental weight for low income pupils were set at .900 (a high level but lower than the figure derived from the professional judgement approach), the total cost of the entire program would have been \$7.195 billion in 1999-2000 and the total supplemental cost for low income pupils would have been \$1.379 billion.

V. OTHER RESOURCES AVAILABLE TO SUCCESSFUL SCHOOLS IN MARYLAND

As part of its work for the Thornton Commission, A&M agreed to attempt to learn more about the resources successful schools have available to them that are not taken into consideration through normal accounting practices. Members of the Commission believed that some schools in Maryland, particularly those in wealthy communities, might have significant resources donated by those communities, which could play some role in whatever success their students might achieve.

A&M created a survey instrument which was sent to the 59 successful schools discussed in the previous section (the survey is shown in Appendix B). We focused on these schools because they were the only ones for which we would have estimates of resource levels at the site. This means, of course, that we are unable to compare successful schools to unsuccessful ones in order to examine resource differences.

The survey was sent to contacts in schools (based on information provided by MSDE) in early February 2001 with a request that it be returned by the end of the month. We received some surveys by the end of February but not a majority and we discovered that some districts have policies about surveys that preclude a school from responding until approval to do so has been granted by the district. We called non-respondents on at least two occasions in March, sent additional copies of the survey, sometimes to a different contact person, and by early April we had received 53 responses. In fact, 32 of the 33 elementary schools responded, all ten of the middle schools responded, and 13 of the 16 high schools responded to the survey.

We organized responses into eight areas, which are shown in Table 13. The first area focused on monetary support from non-governmental sources. We found that 97 percent of elementary schools received some kind of support, which had an average of \$56 per student but varied widely (from nothing to \$261 per student). We also found that 90 percent of middle schools received such support, which averaged \$33 per pupil, while all high schools received some support, which was \$97 per student, on average. Very little money is coming from private foundations or corporate/commercial sources while most money comes from PTA/booster clubs (in elementary and middle schools) or other sources (at high schools).

Schools also receive contributions of equipment. About 74 percent of elementary schools receive such contributions, which are valued at \$16 per pupil, while 89 percent of middle schools obtain donations of equipment valued at \$6 per pupil. Although only 67 percent of high schools are the recipients of donated equipment, its value is \$24 per pupil. In elementary and middle schools, most donated equipment is technology/media while in high schools it tends to be in the form of supplies, such as athletic equipment.

Almost all schools receive volunteer support in terms of time, which ranged from 1.2 hours per pupil in middle schools, to 6.1 hours per pupil in high schools, to 13.4 hours per pupil in elementary schools. Assuming a 40 hour week and 38 weeks in a year, a 500 pupil elementary school obtains the services of the equivalent of 4.4 full-time people each year. The vast majority of volunteers have children in school.

We also examined the number of days teachers worked in successful schools. We found that teachers have about 181 days of contact with pupils (very slightly higher in elementary schools than in middle or high schools) and about nine additional days without students (with fewer added days in elementary schools in comparison to middle and high schools). Teachers also tend to devote 6.5-7.5 days to professional development.

We asked several questions about school facilities and equipment. We found that the vast majority of buildings are air-conditioned. We also found that there are 9-10 students per computer, with fewer students per computer in high school. A majority of classrooms have access to the internet and a school-wide network. The numbers of specialized facilities, such as laboratories and studios, increases as grade level rises as does the number of books in the school library.

The average size of successful schools is somewhat different from the average size of schools in the state. Successful elementary schools are slightly smaller than average while successful middle and high schools are somewhat larger than average. Schools identified as being successful have slightly lower proportions of pupils in special education programs but significantly lower proportions of pupils from low income families. The number of pupils in each classroom is between 24 and 26.5, depending on the level of the school.

Most successful schools offer some kind of programs that operate outside of the normal school day or during the summer. Most elementary schools offer after school academic and non-academic programs as well as child care, although very few of them operate pre-schools. Almost all middle schools also offer after school programs as well as summer school. The vast majority of high schools also offer after school programs and a majority offer summer school.

Finally, successful schools have a variety of other school activities and nearly half of all students participate in athletic or non-athletic activities. A large proportion of schools work with a college or university, with the proportion rising as grade level rises (much of this involves student teachers).

While it is difficult to say which of these characteristics is associated with, much less a cause of, success, it is clear that successful schools do obtain some added support in the form of funds, equipment, and volunteer time, and that they offer a wide array of academic and non-academic activities that supplement the regular program.

VI. USING FIGURES DERIVED FROM THE ANALYSIS FOR POLICY PURPOSES

Having described the procedures we used to collect information and to calculate base cost figures and pupil weights, we felt it was important to address a variety of other topics that arise in doing this kind of work. The purpose of this section is to briefly discuss three topics: (1) how the personnel resources associated with the professional judgement approach as it has been used in Maryland compare to those that have been used in other states using the professional judgement approach; (2) why there may be differences between the base cost figures different approaches produce or different studies using the same approach produce; and (3) how the figures we have calculated can be used in distributing state aid to school districts.

Comparing Maryland's Professional Judgement Personnel Resources to Other States

The figures in Table 2, discussed above, indicate the personnel resources that emerged from using the professional judgement approach to create prototype elementary, middle, and high schools that had particular demographic characteristics and that would meet state standards. This kind of work has been undertaken in a few other states, sometimes sponsored by state policy makers and sometimes initiated by interested parties hoping to influence state policy makers. To our knowledge, the professional judgement approach has been used in four other states for purposes not related to a particular side in school finance-related litigation: Oregon, South Carolina, Wisconsin, and Wyoming. In Oregon, the work was done under the auspices of a gubernatorial study group and in Wyoming the work was done for the state legislature in response to that state's supreme court finding the school finance system unconstitutional. In South Carolina, the work was sponsored by the state school boards association as the legislature was considering school performance standards and in Wisconsin the work was done for the state teachers' association.

The figures in Tables 14, 15, and 16 compare the personnel resources associated with the professional judgement approach in Maryland to those of the other four states at the elementary, middle, and high school levels, respectively. In the case of elementary schools (Table 14), the number of teachers needed in a 500 pupil elementary school are comparable to the numbers used in three of the four other states, with Oregon's figures being much lower. The other instructional staff needed in such a school is higher than those specified in two of the states and lower than those specified in two states. While the number of library and media specialists is relatively low in Maryland, the number of pupil support personnel is relatively high in comparison to the four other states. Maryland's prototype elementary school also is slightly higher than the other states in terms of school

administrative personnel, teacher aides and para-professionals, and permanent substitute teachers.

As far as the middle school prototype is concerned (Table 15), Maryland uses a relatively low number of teachers, a mid-range number of other instructional staff, a low number of library and media specialists, and a higher than average number of pupil support personnel. As in the case of the elementary school prototype, Maryland's middle school prototype is comparatively rich in administrative personnel and substitutes, although moderate in terms of teacher aides and para-professionals.

For the high school prototype (Table 16), Maryland uses more teachers, a comparable number of pupil support personnel and teacher aides and para-professional, a relatively low number of library and media specialists, and comparatively high numbers of administrative staff and permanent substitute teachers.

While we present these figures as a way to help people feel more comfortable with the professional judgement approach – since the approach produces somewhat similar results in other states – we need to make it very clear that it is almost impossible to do an “apples to apples” comparison of these kinds of figures across states for several reasons: (1) the demographic characteristics of the prototype schools may be very different so that one state may have a higher or lower proportion of at-risk pupils, LEP pupils, or pupils in special education programs as compared to other states, which could dramatically alter the resource needs of the prototype schools – for example, the proportion of at-risk pupils in South Carolina was 50 percent, much more than in Maryland, while the proportion of such pupils in Wisconsin was 27 percent, somewhat lower than in Maryland; (2) the ways states approach providing services may be very different – for example, in Oregon, most special education services are provided in larger, cooperative districts that include multiple school districts and are not included in large measure in the prototype schools; (3) the standards that are expected to be met may vary dramatically, if they can be compared at all; (4) where students are now in terms of meeting the standards may vary significantly so that the resources needed to move students from current levels of achievement to expected levels might be very different and almost impossible to compare; (5) states differ in the number of school districts they have, the size of those districts, district wealth, and other factors that might affect the need for or the availability of resources and (6) states differ in terms of cost-of-living, teacher salary levels, the structure of state aid systems, and other features that affect resources.

Differences in Reported Base Cost Figures Within Maryland

Given that we used two different approaches to analyze base costs and that another study was also being undertaken that could produce a base cost figure, it is important to understand why multiple figures might result from different studies so that differences can

be resolved. The fact is that there is no reason to think that different studies would produce the same results unless certain basic characteristics of the studies were exactly the same. For example, studies that use different sets of student performance objectives might be expected to produce different results. But even if two studies use the same performance objectives (as was the case in Maryland given that the two groups undertaking the studies agreed to use the same objectives), it is possible to obtain different results because of the way resources are specified or because of the prices that are used in costing out those resources. One study might attempt to specify the resource needs of a particular function, such as district-level administration, while another study uses existing figures, such as the statewide average, as a proxy for the cost of that function. Too, one study might use statewide average teacher salary levels while another might modify the statewide average (as we did) or use entirely different figures based on a perfectly appropriate rationale.

Certainly there is no reason to believe that the figures associated with two different approaches will produce the same result. As far as we know, the professional judgement approach tends to produce higher base cost figures than the successful school approach, which can be explained, in part, by the different philosophical underpinnings of the two approaches. The professional judgement approach attempts to create a whole school that may include any number of components that are viewed as being necessary, but may not actually be necessary, to accomplish a specific result. Our observation is that participants in the professional judgement approach find it very difficult to focus exclusively on those resources, and only those, that are needed so that a school might meet a particular outcome, such as a level of pupil performance or a rate of attendance. It would be nearly impossible for participants to be able to differentiate the resources needed so that 65 percent of students pass a 3rd grade science test as compared to a requirement that 70 percent of students pass that test. Our experience is that participants in the professional judgement approach tend not to be Machiavellian. Although they could be – they could choose to provide very few resources to pupils who might be expected to meet a standard without much help and focus other resources only on the additional pupils who need to pass a test so that a school meets a state standard.

One shortcoming of the successful school approach is that it looks only at the resources that are actually available in a school – even if the school is successful, we do not know much about how the school manages its resources to achieve the desired result (it may be trying to maximize its results with limited resources, resulting in some pupils receiving a very narrow set of services).

On the face of it, the primary reasons why the base cost figure produced by the professional judgement approach is higher than the base cost figure produced by the successful school approach is related to differences in: (1) numbers of personnel (our sense is that the number of personnel used in the professional judgement approach is high due to the emphasis on providing services to pupils from low income families); (2) salary levels (we raised the statewide average salary by 1.56 percent in the professional

judgement approach, although that level may or may not be higher than the actual salary level in the 59 successful schools); and (3) programs and services (we would guess that the cost of technology may be relatively high in the professional judgement approach, we believe that the added contract days paid for professional development in the professional judgement approach exceed the number actually used by successful schools – based on the survey of those schools, and we expect that some other programs – although not those for at-risk students, since their cost is excluded from the base cost – may exceed what is currently available in successful schools).

We believe that it is perfectly appropriate to view the base cost associated with the successful school approach as a floor and the base cost associated with the professional judgement approach as a ceiling – that is to choose a figure somewhere between the two by either adding the cost of certain services included in the professional judgement model to the successful school figure or subtracting the cost of certain services from the total cost of the figure associated with the professional judgement approach. In our view, taking that approach is a reasonable way to make policy.

The fact is that, ultimately, some set of figures is needed to “drive” a school finance system. Any discussion based on actual evidence and the views of people considered to be experts designed to produce such figures is far better than one based solely on available revenue. Expecting that the reports will, in and of themselves, determine the precise figures is overly optimistic. Thinking that a lack of agreement between the reports makes it impossible to select figures is overly pessimistic. Hopefully, the reports of any groups studying these issues can provide some information that can be useful in setting figures.

Using Figures In a School Finance System

While the purpose of the work we did could be described as “determining the cost of an adequate education,” the knowledge of which might be valuable to different groups of people in a variety of different contexts, we hope that the results of the work can be used for state policy purposes and, specifically, in developing procedures to allocate state aid to school districts. For all the effort involved, this study can be viewed as producing a few figures that can serve as the key elements of a school finance system: (1) a base cost figure that can serve as the foundation level in a foundation program and (2) a set of adjustments to the base cost that attempt to consider the most important, uncontrollable factors that affect the cost of providing education services in different school districts.

Since Maryland uses a foundation program as the basis of allocating a large proportion of state aid to school districts, it would be possible to simply use the base cost figure (from the professional judgement approach, from the successful school approach, or based on an analysis of the differences between the two figures – and whatever figures are

produced by other studies) as the foundation level. By doing so, the state would be giving a particular meaning to the foundation level – it would become the amount of money, per pupil, thought to be necessary so that a school district could meet state standards, assuming that the district had no special needs. Once that money were provided, from a combination of state and local sources, school districts with no special needs could reasonably be expected to meet state standards and could be held accountable to do so (that is, the state would have a legitimate basis for taking some kind of action if the district did not meet standards).

Of course, most districts face uncontrollable cost pressures that are related either to the characteristics of the students they serve (such as the proportion of pupils in need of special education, the proportion of at-risk pupils, or the proportion of LEP pupils) or to the characteristics of the districts themselves (such as their size or geographic cost-of-living differences). This report provides some guidance in making these adjustments but, as we have stated, additional discussion needs to take place. For example, while we have developed pupil weights for special education and at-risk pupils, our feeling is that these weights need to be refined before they could be applied appropriately. In our view, the special education weight should be subdivided into two or three weights and the weight for pupils from low income families is too high. Further, we assumed a weight for LEP pupils, which might be reasonable but certainly requires more discussion, and we used a cost-of-living adjustment (in the successful school analysis) that we believe could be used in its current form. These weights can be used to adjust the foundation level as follows: multiply the weight by the proportion of pupils to which the weight applies (all pupils in the case of the cost-of-living factor) and add the resulting amount to the base cost figure – the resulting figure becomes the adjusted cost per pupil for each district, which, when multiplied by the number of pupils in each district, is the total revenue a district needs. Once the total is known, a procedure needs to be developed that splits it into state and local components, which could be done using the current wealth-based approach.

Based on enrollments for 1999-2000, the total cost would have been \$8.796 billion using the base cost figure (\$6,612) and pupil weight figures (1.17 for special education, 1.386 for students from low income families, and 1.00 for LEP pupils) from the professional judgement approach and \$7.939 billion using the base cost figure from the successful school approach (\$5,969) and pupil weight figures from the professional judgement approach. Had a lower weight for pupils from low income families been used (.900), the cost would have been \$7.971 billion using the base cost figure from the professional judgement approach and \$7.195 billion using the base cost figure from the successful school approach. These figures compare to the total actually spent in 1999-2000 of \$5.917 billion, as shown in Table 1.

The use of this approach does not deal with capital outlay and debt service or with transportation and does include teacher retirement, which would need to be separated out

in order to avoid double counting if the state wanted to continue using its current retirement program.

It is worth commenting on one other issue that arises in using the results of the professional judgement approach. Despite the fact that the base cost figure produced by the professional judgement approach is based on a very specific set of resources, it would not be appropriate to require school districts, or schools, to spend the money in accordance with the resource list. That is, even though the prototype elementary school is designed to employ 33 teachers, it is not expected that all 500 pupil elementary schools should be required to employ 33 teachers. In Wyoming, the only state that has actually used the professional judgement approach to determine the revenue needs of school districts, the state aid system operates as a “block grant” -- the system determines how much revenue is needed but does not require districts to spend the money in a particular way.

There are several reasons why this is the case. First, it is consistent with the theory that underlies the whole concept of the state determining an adequate level of resources; under that theory, the state’s role is to establish performance expectations, measure how well schools and districts are doing, assure that they have adequate resources, give them wide flexibility in how they spend those resources, and hold them accountable for meeting state expectations – in some sense, if the state required schools and districts to spend funds in a specific way, the state could only hold them accountable for doing so, not for the performance of students. Second, it is unlikely that many schools are the same size as the prototypes and, more importantly, that they have the same demographic characteristics as the prototype schools. This would make it almost impossible to determine what resources each school actually should have and, even if that calculation could be made, it would result in the use of full-time-equivalent, or partial, people. Third, there are some components of the total cost, such as plant maintenance and operation, that are based on dollar figures only and do not specify personnel, equipment, and other needs.

However, there is one condition under which it makes sense to require districts to spend funds in a particular way: if a district, having received the appropriate amount of revenue, is unable to meet state expectations, it may make sense for the state to require the district to change the way it spends its funds to be more consistent with the resource components of the prototypes. The whole point of this approach is to place the burden on school districts to figure out how best to organize themselves to achieve state standards and, under that philosophy, it is perfectly acceptable for districts to use their resources in different ways, consistent with their circumstances, as long as they accomplish state objectives.

TABLE 1

**BACKGROUND DATA RELEVANT TO THE STUDY OF
ADEQUATE FUNDING FOR PUBLIC SCHOOLS IN MARYLAND**

	Elementary <u>(K-5)</u>	Middle <u>(6-8)</u>	High School <u>(9-12)</u>	<u>Total</u>
(1) Fall 1999 Count of Students¹	393,979	194,797	238,521	827,297
<i>% Distribution</i>	47.6%	23.5%	28.8%	100.0%
(2) Students with Special Needs				
<i>Special Education</i>				110,742 ²
Speech/Language and Specific Learning Disability				76,330 ²
<i>Eligible for Free/Reduced Price Lunch</i>				256,622 ²
<i>Limited-English Proficient (LEP)</i>				17,568 ²
(3) 1999-2000 Number of Schools³	822	228	227	1,277
<i>Average School Size</i>	443	831	1,079	
(4) School Evaluation (1999)				
Percentage of Students Meeting/Exceeding MSPAP Standard	42.8% (3 rd) 46.9% (5 th)	46.1% (8 th)	?	
Percentage of Students Passing Functional Tests	?	?	92.0% (Writ.) 85.1% (Math) 97.2% (Read.)	
Attendance	95.4%	93.8%	91.5%	

TABLE 1 (Continued)

	Elementary <u>(K-5)</u>	Middle <u>(6-8)</u>	High School <u>(9-12)</u>	<u>Total</u>
(5) 1999-2000 Revenue (Millions)⁴				
<u>State</u>				
Foundation				\$1,568
Other (including Retirement But excluding Transportation)			\$921	
<u>Local</u>				
Non-Capital, Non-Transportation				\$3,164
<u>Federal</u>				\$264
<i>Total</i>				\$5,917
<i>(Total per Pupil)</i>				(\$7,407)

¹ September 30, 1999 enrollment for K-12

² Figures are taken from the Technical Supplement to the Thornton Commission's Interim Report (December, 2000): special education total, p. 214; speech/language and learning disability, p. 218; free/reduced price lunch, p. 301; and LEP, p. 307.

³ Excludes combined schools (49) and other schools (49).

⁴ Figures are from the Technical Supplement to the Thornton Commission's Interim Report (December, 2000): state figures, pp. 191, 205, 245, 257, 261, 265, 277, 285, 293, 303, 310, 321, 329, 335, 355, 363, and 373 with an adjustment to the "other" figure of an additional \$18 million based on a review of the figures by Hiram Burch of the Maryland Department of Legislative Services; local figures, pp. 504 and 25 (for calculation of local transportation expenditure exclusion); and federal figure, p. 184 inflated from 1998 for two years at 4.5 percent per year.

TABLE 2**PERSONNEL REQUIREMENTS OF PROTOTYPE
SCHOOLS TO ACHIEVE DESIRED RESULTS
GIVEN SPECIFIED SCHOOL CHARACTERISTICS**

	<u>Elementary</u>	<u>Middle</u>	<u>High School</u>
<u>Specified Characteristics</u>			
Size	500	800	1,000
% of Students in Special Education	13.5%	13.5%	13.5%
% of Students Eligible for Free/Reduced Price Lunch	31.0%	31.0%	31.0%
% LEP Students	2.0%	2.0%	2.0%

Personnel(1) Teaching Staff

Classroom Teacher	33	36	69
Other Teacher	6	9	-
Reading Teacher	1	-	-
Substitute Teacher	3	3	6
Instructional Aide	15	10	4

(2) Special Education Staff

Teacher	4.5	6	7
Aide	6	6	7
Other	1	1	1

TABLE 2 (Continued)

	<u>Elementary</u>	<u>Middle</u>	<u>High School</u>
<u>Personnel (Continued)</u>			
(3) <u>Pupil Support Staff</u>			
Guidance Counselor	2	4	5
Nurse	1	1	2
Health Technician	1	1	-
Psychologist	2	1	-
Juvenile Service Worker	-	1	-
Social Worker	-	1	1
(4) <u>Other Staff</u>			
Librarian/ Media Specialist	1	2	2
Media Aide	1	-	-
Parent Liaison	1	1	-
Technology Specialist	2	3	-
Technicians	-	-	3
(5) <u>Administration</u>			
Principal	1	1	1
Assistant Principal	1	3	4
Business Manager	-	-	1
Technical Facilitator	-	-	1
Clerical/Data	4	6	6

TABLE 3
PERSONNEL PER 1,000 STUDENTS
FOR PROTOTYPE SCHOOLS

	<u>Elementary</u>	<u>Middle</u>	<u>High School</u>
<u>Personnel by Type</u>			
(1) <u>Teaching Staff</u>			
Teacher	80	56.25	69
Instructional Aide	30	12.5	4
All Teaching Staff	116	72.5	79
(2) Special Education Staff	23	16.25	15
(3) Pupil Support Staff	12	11.25	8
(4) Other Staff	10	7.5	6
(5) Administration	12	12.5	13
(6) <i>Total Staff</i>	<i>173</i>	<i>120</i>	<i>121</i>

TABLE 4**TECHNOLOGY NEEDS OF PROTOTYPE SCHOOLS**

	<u>Elementary</u>	<u>Middle</u>	<u>High School</u>
(1) <u>Classroom</u>			
Computer	80	75	150
Printer (Inkjet)	40	45	70
TV/VCR	40	45	70
(2) <u>Computer Lab</u>			
Computer	25	75	100
Scanner	2	6	8
Printer (Laser)	2	6	8
(3) <u>Media Center</u>			
Computer	10	15	20
Printer	2	3	3
Digital Video Camera	2	2	4
Digital Camera	2	4	4
Video Editing Complex	1	1	1
Projector	2	3	3
DVD-ROM Tower	1	1	1
CD Writer	2	3	3
(4) <u>Admin./Support/Other Staff</u>			
Computer	16	26	25
Printer (Laser)	8	12	12
(5) <u>Other</u>			
Faculty Laptop	44.5	51	76
Server	2	2	2

TABLE 5

**OTHER PROTOTYPE SCHOOL PROGRAMS
AND SUPPORT SERVICES**

	<u>Elementary</u>	<u>Middle</u>	<u>High School</u>
<u>Programs</u>			
(1) Full-Day Kindergarten for All Pupils	U		
(2) Full-Day Pre-K For At-Risk Pupils	U		
(3) Extended Day for At-Risk Pupils	U	U	
(4) Extended Year for At-Risk Pupils	U	U	
<u>Support Services</u>			
(1) Student Activities	\$30/pupil	\$30/pupil	\$300/pupil
(2) Assessment	\$20/pupil	\$20/pupil	\$20/pupil
(3) 10 Days of Professional Development	U	U	U
(4) Equipment	\$50/pupil	\$75/pupil	\$275/pupil
(5) Instructional Supplies And Materials	\$125/pupil	\$200/pupil	\$275/pupil

TABLE 6A

PRICES FOR PROTOTYPE RESOURCE ELEMENTS AND COMPONENTS

Resource Element

<u>Salary Levels (1999-2000)</u>	<u>Price</u>
Teacher (Classroom, Other, Special Education, Reading, and Substitute)	\$44,402
Therapist	\$48,674
Librarian and Media Specialist	\$49,684
Guidance Counselor	\$50,864
Nurse	\$34,336
Aide (Instructional and Special Education)	\$19,512
Media Aide	\$21,330
Health Technician	\$21,257
Psychologist	\$55,918
Social Worker (Juvenile Service Worker)	\$62,547
Parent Liaison	\$21,330
Technology Specialist (Technician)	\$37,524
Principal	\$78,702
Assistant Principal (and Business Manager and Technical Facilitator)	\$66,658
Clerical/Data	\$29,906

Note: Figures are Maryland statewide averages adjusted by 1.56% (see Table 6B).

Salary Benefits

Set at 34.5% of salary level

TABLE 6A (Continued)

<u>Technology (2000)</u>	<u>Price</u>
Computer	\$1,571
Printer (Inkjet)	\$168
Printer (Laser)	\$729
TV/VCR	\$700
Scanner	\$210
Media Center Computer	\$1,048
Media Center Printer	\$168
Digital Video Camera	\$874
Digital Camera	\$567
Video Editing Complex	\$2,299
Projector	\$3,175
DVD-ROM Tower	\$3,500
CD Writer	\$206
Faculty Laptop	\$2,207
Server	\$2,502

Note: Technology prices are those used by A&M in determining the replacement cost of equipment for the Education Commission of the States.

Support Service

Professional Development: 1 day =\$314

TABLE 6B

COMPARISON OF 1998-99 STATEWIDE AVERAGE TEACHER SALARY IN MARYLAND TO FIVE NEIGHBORING STATES WITH ADJUSTMENTS FOR GEOGRAPHIC COST-OF-LIVING, EDUCATION, AND EXPERIENCE DIFFERENCES

<u>State</u>	<u>1998-99 Statewide Average Salary</u>	<u>Cost- of-Living Relative to National Average</u>	<u>% with Masters Degree or Higher</u>	<u>Average Number of Years of Experience</u>	<u>Adjusted Salary Relative to Maryland</u>
Maryland	\$42,526	105.5	56.5%	14.6 yrs.	\$42,526
Delaware	\$43,164	101.1	53.6%	15.0 yrs.	\$44,749
District of Columbia	\$47,150	123.4	58.8%	16.7 yrs.	\$38,981
Pennsylvania	\$48,457	98.8	52.8%	16.1 yrs.	\$50,725
Virginia	\$37,475	98.5	34.2%	13.9 yrs.	\$41,450
West Virginia	\$34,244	88.7	57.4%	15.6 yrs.	\$40,051
<i>Five State Simple Average</i>	<i>\$42,098</i>				<i>\$43,191 (+ 1.56%)</i>

Note: Cost-of-living is from the American Federation of Teachers (aft.org).

Percent of teachers with a masters degree or higher and average years of experience are for 1993-94 (National Center for Education Statistics).

Calculation of adjusted average salary is based on the following steps:

1. Divide Maryland's cost-of-living by each state's cost-of-living and multiply the result by the 1998-99 average salary.
2. Divide the percent with masters degrees or higher by 1000 and add the result to one. Then divide Maryland's figure by each state's figure and multiply the result by the figures in step 1.
3. Multiply the average number of years of experience by 2.0, divide the result by 100, and add the result to one. Then divide Maryland's figure by each state's figure and multiply the result by the figures in step 2.

TABLE 7

PROTOTYPE DISTRICT CENTRAL OFFICE COSTS (EXCLUDING TRANSPORTATION)

Specified Characteristics of Prototype District

Size of District: 30,000 students

Number of Schools: 40-50 schools (24-30 elementary, 8-10 middle,
8-10 high schools)

% of Students Eligible for Free/Reduced Price Lunch: 31% (9,300 pupils)

% of Students in Special Education: 13.5% (4,050 pupils)

% LEP Students: 2% (600 pupils)

Prototype Costs

- (1) District Administration \$327 per pupil

Based on statewide average spending for central administration plus 20 percent of statewide spending for school administration in 1998-99 inflated by 3% to 1999-2000 including associated fixed charges

- (2) Plant Maintenance and Operation \$746 per pupil

Based on statewide average spending for plant maintenance and operation in 1998-99 inflated by 3% to 1999-2000 including associated fixed charges

- (3) Professional Development \$20 per pupil

Based on Expert Panel estimate of cost of providing services

TABLE 7 (Continued)

Prototype Costs (Continued)

- (4) Security \$12 per pupil

Based on Expert Panel estimate of cost

- (5) Information Technology \$150 per pupil

Based on Expert Panel estimate of cost of providing technology support, hardware, and software at the district level

- (6) Alternative School \$200 per pupil

Based on serving 750 students (250 middle and 500 high school) at the average cost of middle and high schools excluding central office costs

- (7) Career Technology Services \$20 per pupil

Based on more than doubling the current average amount being spent (\$9 per pupil) for this purpose

- (8) Special Education \$29 per pupil

Based on Expert Panel estimate of cost of personnel not counted in site personnel lists, including one compliance officer, one supervisor, three assistant supervisors, one expense recovery specialist, five therapists, and one augmented communication specialist.

- (9) Pupil Personnel Services \$45 per pupil

Based on Expert Panel estimate of cost of providing services

Total Cost

\$1,549 per pupil

TABLE 8

**PER STUDENT COSTS OF PROTOTYPE ELEMENTARY,
MIDDLE, AND HIGH SCHOOLS IN 1999-2000**

	<u>Elementary</u>	<u>Middle</u>	<u>High School</u>
(1) Basic Program Personnel	\$8,798	\$6,479	\$7,029
(2) Technology	\$160	\$137	\$162
(3) Professional Development (Personnel Time)	\$123	\$200	\$239
(4) Other School Costs	\$225	\$325	\$720
(5) Supplemental Programs			
<i>Full-Day Kindergarten for All Pupils</i>	\$238		
<i>Full-Day Pre-K For At-Risk Pupils</i>	\$369		
<i>Extended Day for At-Risk Pupils</i>	\$92	\$140	
<i>Extended Year for At-Risk Pupils</i>	\$506	\$174	
(6) Central Office Costs	\$1,549	\$1,549	\$1,549
Total Cost	\$12,060	\$9,004	\$9,599

TABLE 8 (Continued)

Notes:

Basic program personnel costs are based on the resource specified in Table 2 and the salary figures shown in Table 6A, which have been raised by 1.56% to make them comparable to neighboring states (see Table 6B). Figures also assume a benefit rate of 34.5 percent on all salaries.

Technology costs are based on the resources specified in Table 4 and the prices shown in Table 6A. The figures shown represent 25 percent of the actual total, assuming a four year replacement schedule.

Professional development costs are the full cost (salary and benefits, at 34.5%) for 10 additional days of time, assuming a 190 day contract now.

Other school costs include instructional supplies and materials, equipment, assessment, and student activities.

Supplemental program costs are based on salaries raised by 1.56% and benefits at 34.5%. Costs are expressed as dollars per *all* pupils in a school, not per pupil participating in the program.

Central office costs are taken from Table 7.

TABLE 9

1999-2000 TOTAL COST (EXCLUDING TRANSPORTATION) AND BASE COST FOR ELEMENTARY, MIDDLE, AND HIGH SCHOOL PROTOTYPES AND FOR ALL SCHOOLS COMBINED

	<u>Elementary</u>	<u>Middle</u>	<u>High School</u>	<u>Combined Statewide</u>
Total Cost	\$12,060	\$9,004	\$9,599	\$10,631
<u>Excess Costs of Special Programs</u>				
Site Costs				
<i>Special Education</i>	\$1,301	\$797	\$727	\$1,017
<i>At-Risk Program</i>	\$3,669	\$1,695	\$1,716	\$2,641
<i>LEP Program</i>	\$135	\$123	\$136	\$132
District Level Costs	\$229	\$229	\$229	\$229
Total of Special Programs	\$5,395	\$2,905	\$2,893	\$4,087
Basic Cost	\$6,726	\$6,160	\$6,791	\$6,612
<u>Cost per Special Pupil</u>				
Special Education				\$7,748
At-Risk				\$9,165
LEP				\$6,612

TABLE 9 (Continued)

Notes:

School costs are combined using the following proportions (see Table 1): elementary, 47.6%; middle, 23.5%; high school, 28.8%

Site costs for special programs are based on actual resources designed to be used to provide particular services in the cases of special education and services for at-risk pupils. In the case of LEP, the assumption was made that the excess cost for each pupil would be equal to the base cost.

District level costs for special programs come from Table 7, which includes \$200 for an alternative school (at-risk) and \$29 for special education. These figures are added to the site costs to determine the total cost per special pupil.

TABLE 10**CHARACTERISTICS OF THE 59 SCHOOLS IDENTIFIED
AS BEING SUCCESSFUL IN MARYLAND**

	<u>Elementary</u>	<u>Middle</u>	<u>High School</u>
(1) Number of Schools	33	10	16
(2) Number of Counties Represented	7	4	9
(3) Number of Students	15,381	10,002	20,829
(4) <u>Average Size</u>			
Minimum	276	609	406
Maximum	653	1,823	1,814
Average	466	1,000	1,302
(5) <u>Proportion of Pupils in Special Education Programs</u>			
Minimum	3.2%	6.2%	2.8%
Maximum	21.2%	16.3%	13.7%
Average	10.4%	9.6%	8.2%
(6) <u>Proportion of At-Risk Pupils</u>			
Minimum	0.8%	0.8%	0.8%
Maximum	55.8%	13.2%	33.6%
Average	9.3%	5.2%	5.3%

TABLE 10(Continued)

	<u>Elementary</u>	<u>Middle</u>	<u>High School</u>
(7) <u>Proportion of Pupils in LEP Programs</u>			
Minimum	0.0%	0.0%	0.0%
Maximum	28.7%	14.6%	7.6%
Average	4.0%	2.4%	1.3%
(8) <u>Cost-of Education Index</u>			
Minimum	.8956	.9898	.9055
Maximum	1.0370	1.0370	1.0370
Average	1.0147	1.0129	1.0076
(9) <u>Performance Information</u>			
<i>State Performance Index</i>			
Minimum	100.4	100.6	104.0
Maximum	116.6	107.7	106.5
Average	107.2	103.3	104.7
MSPAP			
Minimum	70.3	69.0	--
Maximum	82.5	75.4	--
Average	75.4	71.4	--

TABLE 11**ADJUSTED PER PUPIL SPENDING OF THE 59 SCHOOLS
IDENTIFIED AS BEING SUCCESSFUL IN MARYLAND**

	<u>Elementary</u>	<u>Middle</u>	<u>High School</u>
(1) <u>Instruction</u>			
Minimum	\$2,325	\$2,464	\$3,229
Maximum	\$7,913	\$5,013	\$4,839
Average	\$4,020	\$3,666	\$3,801
(2) <u>District Administration</u>			
Minimum	\$191	\$208	\$191
Maximum	\$526	\$349	\$349
Average	\$290	\$263	\$272
(3) <u>School Administration</u>			
Minimum	\$223	\$199	\$248
Maximum	\$639	\$860	\$600
Average	\$391	\$377	\$379
(4) <u>Other</u>			
Minimum	\$541	\$518	\$629
Maximum	\$1,237	\$1,074	\$1,269
Average	\$929	\$836	\$944
5) <u>Teacher Retirement</u>			
Minimum	\$445	\$445	\$435
Maximum	\$589	\$589	\$589
Average	\$532	\$514	\$514

TABLE 11(Continued)

(6) Total

Minimum	\$4,435	\$4,429	\$4,966
Maximum	\$10,100	\$7,277	\$7,084
Average	\$6,161	\$5,655	\$5,910

TABLE 12

**COMPARISON OF BASIC COST FIGURE PRODUCED BY
THE PROFESSIONAL JUDGEMENT APPROACH TO THAT
PRODUCED BY THE SUCCESSFUL SCHOOL APPROACH**

<u>Base Cost Figure</u>	<u>Elementary</u>	<u>Middle</u>	<u>High School</u>	<u>Combined Statewide</u>
Professional Judgement Approach	\$6,726	\$6,160	\$6,791	\$6,612
Successful School Approach	\$6,161	\$5,655	\$5,910	\$5,969
Percentage Professional Judgement is Above Successful School Approach	9.2%	8.9%	14.9%	10.8%
Dollar Amount Professional Judgement is Above Successful School Approach	\$565	\$505	\$881	\$643

TABLE 13

**SUMMARY OF RESPONSES TO MARYLAND SCHOOL-LEVEL
QUESTIONNAIRE CONCERNING RESOURCES**

Question	Elementary School	Middle School	High School
1. <u>Per Pupil Extent of Non-Governmental Monetary Support</u>			
<i>Private (Foundation) Grants (01)</i>			
Percent with Any	44%	30%	8%
Highest Level	\$48	\$58	\$2
Average of All	\$4	\$6	\$0
<i>PTA/Booster Club, etc. (02)</i>			
Percent with Any	88%	90%	92%
Highest Level	\$125	\$60	\$160
Average of All	\$29	\$19	\$36
<i>Corporate/Commercial (03)</i>			
Percent with Any	38%	20%	42%
Highest Level	\$12	\$8	\$12
Average of All	\$2	\$1	\$3
<i>Other (04)</i>			
Percent with Any	41%	40%	33%
Highest Level	\$136	\$43	\$637
Average of All	\$23	\$7	\$57
Total			
Percent with Any	97%	90%	100%
Highest Level	\$261	\$112	\$637
Average of All	\$59	\$33	\$97
Standard Deviation	\$56	\$33	\$177

TABLE 13(Continued)

Question	Elementary School	Middle School	High School
2. <u>Per Pupil Dollar Value of Contributions of Equipment</u>			
<i>Technology/Media (05)</i>			
Percent with Any	71%	78%	50%
Highest Level	\$112	\$11	\$12
Average of All	\$14	\$4	\$3
<i>Non-Technology/Supplies (06)</i>			
Percent with Any	26%	40%	50%
Highest Level	\$8	\$1	\$167
Average of All	\$1	\$0	\$18
<i>Other (07)</i>			
Percent with Any	16%	33%	17%
Highest Level	\$16	\$9	\$26
Average of All	\$1	\$1	\$3
Total			
Percent with Any	74%	89%	67%
Highest Level	\$114	\$12	\$167
Average of All	\$16	\$6	\$24
Standard Deviation	\$27	\$4	\$48

TABLE 13(Continued)

Question	Elementary School	Middle School	High School
3. <u>Volunteer Assistance</u>			
<i>Number of Hours per Pupil of Volunteer Assistance (08)</i>			
Percent with Any	100%	100%	92%
Highest Level	51.9 hours	4.0 hours	20.3 hours
Average of All	13.4 hours	1.2 hours	6.1 hours
Standard Deviation	11.4 hours	1.3 hours	7.5 hours
 <i>Distribution of Average Volunteer Hours by Area</i>			
Student Tutoring (09)	19%	19%	3%
Classroom Assist. (10)	48%	9%	1%
Lunchroom (11)	2%	1%	0%
Office/Admin. (12)	8%	23%	12%
Library (13)	12%	22%	3%
Extra-curricular (14)	3%	5%	17%
Other (15)	10%	23%	56%
 <i>Percent of Volunteers With Students in School (16)</i>			
Lowest Level	70%	75%	0%
Highest Level	100%	100%	100%
Average Level	93.4%	95.5%	87.2%
Standard Deviation	8.6%	8.0%	28.1%

TABLE 13(Continued)

<u>Question</u>	<u>Elementary School</u>	<u>Middle School</u>	<u>High School</u>
4. <u>Teacher Time</u>			
<i>Number of Days per Year of Student Contact (16a)</i>			
Low	180	180	180
High	192	185	185
Average	182.0	181.3	180.9
Standard Deviation	2.8	2.1	1.7
 <i>Total Number of Days per Year in Contract (17)</i>			
Low	180	185	187
High	195	192	192
Average	189.6	189.6	190.1
Standard Deviation	2.9	2.1	1.3
 <i>Number of Days of Professional Development (18)</i>			
Low	1	3	4
High	15	16	12
Average	6.4	7.5	6.9
Standard Deviation	3.3	5.1	2.8

TABLE 13(Continued)

Question	Elementary School	Middle School	High School
5. <u>School Facilities</u>			
<i>School is Air Conditioned (19)</i>	81%	90%	83%
<i>Number of Students per Computer (20)</i>			
Low (highest pupils/computer)	27	20	38
High (lowest pupils/computer)	2	4	4
Average	9.9	9.5	8.8
Standard Deviation	5.8	4.6	9.1
<i>Proportion of Classrooms with Internet Access (21)</i>			
Low	0%	0%	0%
High	100%	100%	100%
Average	70.6%	52.0%	78.8%
Standard Deviation	44.1%	50.8%	38.6%
<i>Proportion of Schools with A School-Wide Network (22)</i>			
	72%	50%	46%
<i>Number of Specific Kinds of Facilities per School</i>			
Science Lab (23)	0	5.5	7.8
Art Studio (24)	.7	1.7	2.5
Band/Music Room (25)	.9	2.3	2.2
Computer Lab (26)	1.0	2.6	4.7
Library (27)	1.0	1.0	1.1
<i>Number of:</i>			
Computers in Lab (28)	22.0	28.1	26.7
Books in Library (29)	9,225	11,195	11,665

TABLE 13(Continued)

<u>Question</u>	<u>Elementary School</u>	<u>Middle School</u>	<u>High School</u>
6. <u>School/Student Characteristics</u>			
<i>Average Size of School</i>	467	995	1,261
<i>Proportion of Students with an IEP (30)</i>	11.3%	10.0%	10.0%
<i>Proportion of Students Eligible for Free or Reduced Price Lunches (31)</i>	9.9%	5.1%	8.4%
<i>Average Number of Students in Classrooms (32)</i>			
Low	16	21	23
High	27	30	28
Average	24.1	26.5	25.6
Standard Deviation	2.0	3.7	1.4

TABLE 13(Continued)

<u>Question</u>	<u>Elementary School</u>	<u>Middle School</u>	<u>High School</u>
7. Percent of Schools with Programs Offered Outside <u>the Regular School Day</u>			
After School Academic Programs (33)	66%	90%	85%
After School Non-Academic Programs (34)	81%	100%	100%
Child Care (35)	66%	20%	0%
Adult Education (36)	6%	30%	38%
Preschool (37)	13%	0%	8%
Summer School (38)	38%	70%	54%
Other (39)	23%	40%	23%

TABLE 13(Continued)

Question	Elementary School	Middle School	High School
8. <u>Other School Activities</u>			
<i>Athletic Activities Offered (40)</i>			
Low	n/a	3	12
High	n/a	25	52
Average	n/a	11.9	33.4
Standard Deviation	n/a	6.2	12.5
<i>Percentage of Students Participating in Athletics (41)</i>			
Low	n/a	10%	25%
High	n/a	75%	85%
Average	n/a	31.6%	45.3%
Standard Deviation	n/a	21.2%	16.5%
<i>Non-Athletic Activities Offered (42)</i>			
Low	n/a	10	0
High	n/a	35	68
Average	n/a	18.6	29.9
Standard Deviation	n/a	8.3	17.4
<i>Percentage of Students Participating in Non-Athletic Activities (43)</i>			
Low	n/a	20%	0%
High	n/a	80%	85%
Average	n/a	49.8%	42.9%
Standard Deviation	n/a	19.2%	24.8%

TABLE 13(Continued)

<u>Question</u>	<u>Elementary School</u>	<u>Middle School</u>	<u>High School</u>
8. <u>Other School Activities (Cont.)</u>			
<i>Number of Field Trips Taken by the Average Student</i>	2.7	2.4	1.5
<i>School works with a College or University*</i>	50.0%	80.0%	100.0%

* Most of this involves student teachers.

TABLE 14

COMAPRISON OF NUMBER OF PERSONNEL ASSIGNED TO PROTOTYPE ELEMENTARY SCHOOLS
(AT 500 PUPILS) IN MARYLAND, SOUTH CAROLINA, WISCONSIN, WYOMING, AND OREGON

<u>Personnel</u>	<u>Maryland</u>	<u>South Carolina</u>	<u>Wisconsin</u>	<u>Wyoming</u>	<u>Oregon</u>
Classroom Teachers	33.0	32.0	31.9	33.0	23.5
Other Instructional Staff	7.0	10.0	4.3	8.7	6.6
Special Education and Other Teachers	4.5	6.0	--	--	2.9
Library and Media Specialists	1.0	2.5	2.8	1.7	--
Pupil Support	9.0	3.0	5.1	1.7	8.1
<i>Subtotal</i>	<i>54.5</i>	<i>53.5</i>	<i>44.1</i>	<i>45.1</i>	<i>41.1</i>
Principal and Assistant Principal	2.0	2.0	1.4	1.7	1.5
Teacher Aide and Para-Professional	16.0	9.0	11.0	3.5	--
Permanent Substitute	3.0	1.5	1.4	1.6	?

Source: The figures shown are based on the following: Maryland, see the figures in Table 2; South Carolina, "Determining an Adequate Per Pupil Funding Level for Public K-12 Education in South Carolina in Relationship to Pupil Performance Objectives: Creating A Basis for an Agreement Between the State and Local School Districts with Appropriate Accountability at Both Levels." (South Carolina School Boards Association, July 2000); Wisconsin, documents from the Institute for Wisconsin's Future (May 2001), IWF is currently revising numbers from the 1999 work; Wyoming, "Redbook" prepared by MAP, Inc. for the Wyoming Legislature (1998); and Oregon, "The Oregon Quality Education Model" (Oregon Legislative Assembly, June 1999.)

TABLE 15

COMAPRISON OF NUMBER OF PERSONNEL ASSIGNED TO PROTOTYPE MIDDLE SCHOOLS (AT 800 PUPILS) IN MARYLAND, SOUTH CAROLINA, WISCONSIN, WYOMING, AND OREGON

<u>Personnel</u>	<u>Maryland</u>	<u>South Carolina</u>	<u>Wisconsin</u>	<u>Wyoming</u>	<u>Oregon</u>
Classroom Teachers	36.0	41.6	50.7	50.7	36.0
Other Instructional Staff	9.0	12.8	7.2	8.7	1.6
Special Education and Other Teachers	6.0	8.5	--	--	4.1
Library and Media Specialists	2.0	2.1	4.8	2.6	3.2
Pupil Support	13.0	5.3	7.2	7.8	13.6
<i>Subtotal</i>	<i>66.0</i>	<i>70.3</i>	<i>69.9</i>	<i>69.8</i>	<i>58.5</i>
Principal and Assistant Principal	4.0	4.3	3.2	2.6	3.2
Teacher Aide and Para-Professional	10.0	10.7	11.2	7.8	2.4.
Permanent Substitute	3.0	2.1	1.6	2.6	?

Source: The figures shown are based on the following: Maryland, see the figures in Table 2; South Carolina, "Determining an Adequate Per Pupil Funding Level for Public K-12 Education in South Carolina in Relationship to Pupil Performance Objectives: Creating A Basis for an Agreement Between the State and Local School Districts with Appropriate Accountability at Both Levels." (South Carolina School Boards Association, July 2000); Wisconsin, documents from the Institute for Wisconsin's Future (May 2001), IWF is currently revising numbers from the 1999 work; Wyoming, "Redbook" prepared by MAP, Inc. for the Wyoming Legislature (1998); and Oregon, "The Oregon Quality Education Model" (Oregon Legislative Assembly, June 1999.)

TABLE 16

COMAPRISON OF NUMBER OF PERSONNEL ASSIGNED TO PROTOTYPE HIGH SCHOOLS (AT 1000 PUPILS) IN MARYLAND, SOUTH CAROLINA, WISCONSIN, WYOMING, AND OREGON

<u>Personnel</u>	<u>Maryland</u>	<u>South Carolina</u>	<u>Wisconsin</u>	<u>Wyoming</u>	<u>Oregon</u>
Classroom Teachers	69.0	52.2	63.3	68.7	49.0
Other Instructional Staff	--	18.9	3.8	8.7	3.5
Special Education and Other Teachers	7.0	11.1	--	--	3.8
Library and Media Specialists	2.0	3.3	2.5	5.0	1.0
Pupil Support	8.0	8.9	7.5	8.3	9.0
<i>Subtotal</i>	<i>86.0</i>	<i>94.4</i>	<i>77.1</i>	<i>90.7</i>	<i>66.3</i>
Principal and Assistant Principal	5.0	5.6	2.5	3.3	3.5
Teacher Aide and Para-Professional	11.0	10.0	15.0	10.0	--
Permanent Substitute	6.0	2.2	--	2.8	?

Source: The figures shown are based on the following: Maryland, see the figures in Table 2; South Carolina, "Determining an Adequate Per Pupil Funding Level for Public K-12 Education in South Carolina in Relationship to Pupil Performance Objectives: Creating A Basis for an Agreement Between the State and Local School Districts with Appropriate Accountability at Both Levels." (South Carolina School Boards Association, July 2000); Wisconsin, documents from the Institute for Wisconsin's Future (May 2001), IWF is currently revising numbers from the 1999 work; Wyoming, "Redbook" prepared by MAP, Inc. for the Wyoming Legislature (1998); and Oregon, "The Oregon Quality Education Model" (Oregon Legislative Assembly, June 1999.)

APPENDIX A

LIST OF PARTICIPANTS IN PROFESSIONAL JUDGEMENT PANELS

Name	District	Position
<u>Elementary 1</u>		
Spicer Bell	Dorchester	principal
Cheryl Bost	Baltimore	teacher
Eileen Coppel	Baltimore	principal
Marta A. Droddy	Frederick	teacher
John T. Riley	Allegany	association
Jeff Webb	Dorchester	teacher
Ann Carlson Weeks	Prince George's	professor
Eva Wetten	Montgomery	principal
<u>Elementary 2</u>		
Gilbert R. Austin	Montgomery	professor
Barbara H. Banks	Prince George's	teacher
E. Dianne Braddock	Prince George's	principal
MacArthur Jones	Calvert	association
James Linde	Baltimore City	principal
Susan Kay Price	Dorchester	teacher
Karen T. Smith	Allegany	principal
<i>George Whitehead</i>	<i>Wicomico</i>	<i>professor</i>
Donna Marie Zavacky	Harford	teacher
<u>Middle School 1</u>		
Stacey R. Cooper	Baltimore	teacher
William A. Determan	Allegany	teacher
Robert A. Gorsuch	Caroline	principal
Idalyn Hauss	Baltimore City	principal
Pamela Hoffler-Riddick	Montgomery	association
Catherine Bates Knight	Caroline	teacher
Craig E. Spilman	Baltimore City	principal
Randy Sotomayer	Charles	business official
<u>Middle School 2</u>		
Judith G. Cephas	Howard	teacher
Lucille L. Ellis	Montgomery	principal
Patrick Johnson	Talbot	other
Debra L. Klobucar	Queen Anne's	teacher
Sarah J. Sayles	Baltimore	teacher
Wendell Teets	Garrett	principal
Gary Thrift	Baltimore City	principal
Anthony Wong	Cecil	professor

Name	District	Position
<u>High School 1</u>		
Laura Grace	Prince George's	teacher
Leonard Habersham	Baltimore	teacher
Robert Magee	Harford	association
Anne Mychalus	Calvert	principal
J.C. Parker	Wicomico	teacher
Carmen V. Russo	Baltimore City	superintendent
Kenneth Strike	Montgomery	professor
Louis Taylor	Worcester	principal

High School 2

Ken Baxter	Allegany	teacher
Kevin Fleming	Harford	principal
Phillip Gainous	Montgomery	principal
Andrew Hubner	Baltimore City	principal
David Jackson	Baltimore	association
Carol Kilby	Prince George's	teacher
Linda Storey	Howard	teacher
<i>George Whitehead</i>	<i>Wicomico</i>	<i>professor</i>

Expert Panel

Raymond H. Brown	Montgomery	business official
Lorraine A. Costella	Kent	superintendent
Jack D. Dale	Frederick	superintendent
Warren C. Hayman	Baltimore	professor
Gary A. McCabe, Sr.	Worcester	business official
Iris T. Metts	Prince George's	superintendent
Edward L. Root	Allegany	association
Samuel C. Stringfield	Baltimore City	professor

* Those in Bold did not attend their session

** George Whitehead is listed for both Elementary 2 and High School 2.
He was not able to attend HS 2 and came to ES 2 instead.

APPENDIX B

MATERIALS DISTRIBUTED TO MEMBERS OF THE PROFESSIONAL JUDGEMENT PANELS

Background

The work you are doing today is part of a project being undertaken by Augenblick & Myers, Inc. (A&M) for the Commission on Education Finance, Equity, and Excellence (the Thornton Commission). The purpose of the project is to estimate the cost of an “adequate” education program. A&M is taking two approaches to estimating costs: (1) we are using what some people refer to as the “professional judgement” approach and (2) we are examining the actual spending of schools considered to be successful. You should know that another consultant — Management, Analysis, and Planning (MAP) of Sacramento, CA — has been hired by another client in Maryland to do similar work and that they are using the professional judgement approach.

In pursuing the professional judgement approach, A&M has formed seven teams of experts: (1) two teams will focus on creating prototype elementary schools; (2) two teams will focus on creating prototype middle schools; (3) two teams will focus on creating prototype high schools; and (4) a single overview panel will both review the work of the other teams and develop cost estimates for district central office functions. Your job as a member of one of the prototype teams is to identify the resources needed by a particular type of school (elementary, middle, or high school) so that the school’s students, who are described below, will be able to meet a specific set of performance objectives. Once all the prototype teams have completed their work (in the next two weeks), A&M will

determine the cost of elementary, middle, and high schools, which will be combined, along with the costs associated with the overview panel, to produce a single per pupil cost.

In your work today we will be discussing alternative ways to organize schools and the kinds of resources those schools need to have in place. You do not need to think about the costs of those resources. We hope you will think broadly about how schools should be organized and what programs and services need to be provided. You do not need to restrict yourself to the ways the schools you know operate today. We encourage you to draw on your experience and expertise. Use whatever you think will work to produce the desired results. Feel free to be innovative. The only constraint is that this is a group exercise and you will need to come together as a group in the recommendations you make.

Instructions

The first thing we will ask you to do is to get together with your small group (four people) to design a prototype school. After you have done that, we will bring the two teams together to discuss their approaches so that you can reach consensus on a single approach. Later, we will want to delve a bit more into the ways you deal with pupils with different needs. Finally, we will ask you to evaluate the session.

The prototype school has certain characteristics in terms of its student population, which are described in the assumptions you will be given. All students need to be able to perform at certain levels, which are also described in the assumptions you will be given.

In addition to filling in the resource specification sheets, we need your team to

describe the way your school will be organized, which should include: (1) how students will be grouped (for example, by age, by ability, in different ways during the course of the day, etc.); (2) how special education services will be provided; (3) how the needs of students at risk of failing will be met; (4) how the needs of those students with limited English proficiency will be met; (5) all of the components of your core curriculum; and (6) any other services the school needs to provide.

Desired Educational Outcomes

Elementary

- ! The attendance rate must be at least 94%.
- ! On average 70% of the school's students must receive a satisfactory score for both the 3rd and 5th grade MSPAP (reading, writing, language usage, math, science, and social studies) tests.

Middle School

- ! The attendance rate must be at least 94%.
- ! On average 70% of the school's students must receive a satisfactory score for the 8th grade MSPAP (reading, writing, language usage, math, science, and social studies) tests.

High School

- ! The attendance rate must be at least 95%.
- ! The dropout rate must be below 3.75%.
- ! Pass rates on the Grade 9 Functional Tests must be at least:
 - 99% for Reading
 - 89% for Math
 - 96% for Writing
- ! At least 85% of graduating students must meet either the University System of Maryland Course requirements, the Career and Tech Ed Program requirements, or the Rigorous High School Program Indicators.

Assumptions

1. The proportion of the student population eligible for special education is 13.5%.
 - 9.5% of the student population has been identified as Learning Disabled or Speech and Language Disabled.
 - 4% of the student population has been identified with disabilities other than Learning Disabled or Speech Language Disabled.
2. The proportion of the student population eligible for Free/Reduced price lunches is 31%.
3. The proportion of the student population that is limited English proficient is 2%.
4. The prototype elementary school (K-5) enrolls 500 pupils, the middle school (6-8) enrolls 800 pupils and the high school (9-12) enrolls 1000 pupils.
5. The prototype school is in a district of 30,000 pupils.
6. You do not have to consider transportation or maintenance and operations expenses.
7. All school personnel are competent and salaries are adequate to attract and retain qualified personnel.
8. The facilities can accommodate any program design you create.
9. If you feel programs outside the normal school day are needed, please specify who will receive these programs, the staff needed to operate the programs and any other costs associated with these programs.

APPENDIX C

SUCCESSFUL ELEMENTARY SCHOOLS BASED ON MSDE ANALYSIS OF STATE PERFORMANCE INDEX

District	School
Anne Arundel	Bodkin
Anne Arundel	Mayo
Anne Arundel	Oak Hill
Baltimore	Fifth District
Baltimore	Fort Garrison
Baltimore	Hampton
Baltimore	Kingsville
Baltimore	Padonia International
Baltimore	Riderwood
Baltimore	Summit Park
Baltimore	Timonium
Harford	Jarrettsville
Harford	Ring Factory
Howard	Centennial Lake
Howard	Clarksville
Howard	Hammond
Howard	Manor Woods
Kent	Rock Hall
Kent	Worton
Montgomery	Bells Mill
Montgomery	Beverly Farms
Montgomery	Burning Tree
Montgomery	Chevy Chase
Montgomery	Darnestown
Montgomery	Fallsmead
Montgomery	Farmland
Montgomery	Garrett Park
Montgomery	Kensington-Parkwood
Montgomery	Somerset
Montgomery	Travilah
Montgomery	Wayside
Montgomery	Wyngate
Washington	Salem Avenue

APPENDIX D

**SUCCESSFUL MIDDLE SCHOOLS BASED
ON MSDE ANALYSIS OF STATE
PERFORMANCE INDEX**

District	School
Baltimore	Cockeyville
Baltimore	Dumbarton
Baltimore	Hereford
Harford	Bel Air
Harford	Southampton
Howard	Burleigh Manor
Howard	Clarksville
Montgomery	Cabin John
Montgomery	Herbert Hoover
Montgomery	Thomas W. Pyle

APPENDIX E

**SUCCESSFUL HIGH SCHOOLS BASED ON
MSDE ANALYSIS OF STATE
PERFORMANCE INDEX**

District	School
Allegany	Westmar
Anne Arundel	Severna Park
Baltimore	Dulaney
Baltimore	Franklin
Baltimore	Hereford
Baltimore	Loch Raven
Calvert	Northern
Carroll	South Carroll
Harford	Fallston
Howard	Glenelg
Montgomery	Paint Branch
Montgomery	Thomas Wooten
Montgomery	Walt Whitman
Montgomery	Walter Johnson
Washington	Clear Spring
Washington	Williamsport

Appendix F

COST-OF-EDUCATION INDEX FOR 10 SCHOOL DISTRICTS WITH SUCCESSFUL SCHOOLS

District	Cost-of- Education Index
Allegany	0.9055
Anne Arundel	1.0071
Baltimore	1.0013
Calvert	0.9932
Carroll	0.9821
Harford	0.9898
Howard	1.0318
Kent	0.8956
Montgomery	1.0370
Washington	0.9673
State	1.0000

* Figures from the National Center for Education Statistics.
Figures represent the Geographic Cost of Education (GCEI).