MANAGEMENT ANALYSIS & PLANNING, INC

A Professional Judgment Approach To Determining Adequate Education Funding in Maryland

Submitted to

The *New* Maryland Education Coalition

Final Report

June 5, 2001

MAP served as staff to *New* MEC in the process of developing this report. To the best of our knowledge information contained in this report is correct. Any conclusions or recommendations resulting from this report do not necessarily represent the opinions of MAP Inc, its officers or employees.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

At the request of the *New* Maryland Education Coalition (MEC), Management Analysis & Planning, Inc. (MAP) undertook the creation of a professional judgment model to estimate an adequate level of school funding for Maryland. The professional judgment approach relies on the judgment of experienced educators to establish the level of resources necessary to provide students with an adequate education. Once the base amount of funding has been determined, it can be adjusted to account for factors such as the number of students in poverty, the number of students who are not proficient in English, and other elements beyond district control.

MAP convened a panel of 22 experienced Maryland educators over a three day period to determine an adequate level of school funding for the state. Participants included teachers, principals, superintendents, and other district administrators, representing 11 of Maryland's 24 school districts. Together they had a cumulative total of 322 years of experience in K-12 education. In order to establish a degree of reliability, the panel was divided into three teams that worked independently on the same set of tasks. Given a hypothetical school district reflecting statewide average demographics (31% of students eligible for free or reduced-price meals, 46% minority), each team was asked to devise an instructional program for a prototypical elementary, middle, and high school, which would be adequate to provide student outcomes reflecting current state standards, and which they could reasonably expect to be adopted and funded by a school board or state legislature. Participants were admonished to "spend every dime you need to reach the educational outcomes, but not a dime more." The result was three separate team programs designed to provide an adequate education for the average Maryland student, accompanied by budgets proposing adequate levels of resources. In developing these budgets, the teams were asked to make several important assumptions about the condition of their hypothetical school district, such as adequate facilities, appropriate existing technology, and salaries adequate to attract competent personnel. These assumptions may not reflect the reality in some districts, so policymakers should be aware that the team budgets are estimated operating expenditures and do not necessarily cover the costs of ensuring adequate facilities, technology, or qualified personnel.

It is generally accepted that students from disadvantaged backgrounds require additional resources in order to achieve at the same levels as their more advantaged peers. In order to determine how much additional funding is necessary to successfully educate disadvantaged youth, the panels were next asked to redesign their programs to accommodate a high-poverty district (68% of students eligible for free or reduced-price meals). Two of the teams modified their programs accordingly, while the third team indicated that its initial program was flexible enough to accommodate a more at-risk student population.

This report presents the findings from the three teams. We describe the instructional programs and budgets developed by each team, along with the supplemental funding deemed necessary for high-poverty schools. We also describe the current research findings on effective interventions for at-risk youth and discuss how they relate to the team designs. Finally, we present a spreadsheet model that allows policymakers to change key aspects of the instructional program such as class size, the provision of preschool programs, full-day kindergarten, or teacher salary, and see the effects on total state funding as well as district-by-district allocations. This

spreadsheet model, dubbed MEFSim (Maryland Education Finance Simulation Model), allows policymakers to explore the fiscal consequences of implementing different team designs and effective research-based practices.

Team Instructional Program Highlights

Each team developed its own K-12 instructional program, resulting in three distinct examples of how effective school programs can be designed. The program diversity serves as a reminder that there is no one best system for education and that professional judgment models are descriptive rather than prescriptive. However, there are several common elements across team designs:

- Principals as strong instructional leaders who are not over-encumbered by operational concerns;
- Early remediation of at-risk students through targeted intervention;
- Low class size;
- An emphasis on all students reading no later than third grade (often second);
- Access to pre-kindergarten for most or all students;
- Full-day kindergarten programs;
- Adequate technology and technology support;
- The time and resources for teachers to meet the individual needs of all students and to develop relationships with students that lead to strong academic outcomes (e.g., block scheduling, looping, teaming, small classes, tutors, extended school years and days, and sufficient common planning time for teachers);
- Professional development integrated into teacher schedules; and
- Parent involvement programs.

When modifying the base program to accommodate a high-poverty population, the teams increased the number of support staff (social workers, guidance counselors, nurses, home/school coordinators), and one team extended the length of its remediation program as well. None of the teams felt substantial programmatic changes were necessary to accommodate a larger at-risk population.

Funding for Average Maryland Schools

Average per-pupil team expenditures ranged from $7,461 to $9,313 for grade K-12 students.[1] The spending difference is mainly attributable to staffing patterns and extended day/year programs. Team A, the highest-spending team, maintained relatively low class sizes throughout the grade levels, extended the school year from 180 days to 210 days, and expanded the school day by one hour.

[1] This includes the cost of full-day kindergarten for all students.

The table below shows how the team budgets compare to current state expenditures. The total additional funding for K-12 education necessary under the team plans ranges from roughly $300 million to $1.8 billion.

Summary of Team K-12 Per-Pupil Expenditures*
Compared to Current State Expenditures

Team	K-12 Per-Pupil Expenditures	Estimated K-12 Statewide Total[2]
Team A	$9,313	$7.7 billion
Team B	$7,461	$6.2 billion
Team C	$9,215	$7.7 billion
1999-00 Actual State Average	$7,132	$5.9 billion

*Note that these figures are based on the assumption that facilities and technology are adequate and that current salaries are adequate to attract and retain competent personnel.

In addition, the teams unanimously recommended establishing early childhood programs. The estimated costs for these programs ranged from $3,067 per child for a half-day preschool program, to $7,837 per child for a full-day preschool program, to $11,176 per child for a full-day program for disadvantaged three-year-olds. The estimated total cost to the state for these programs ranges from roughly $200 - $870 million.

Funding for High-Poverty Schools

When faced with a high-poverty student population, the teams did not substantially alter their programs. Team C made no modifications, and the other two teams added around $285 per K-12 pupil on average. The additional funding was concentrated at the elementary school level, with elementary school students generating roughly $370 extra per pupil, and middle school and high school students generating in the neighborhood of $200 extra per pupil. If applied statewide to schools with over 45% of students eligible for free or reduced-price meals, a supplement of $285 per pupil would total in the neighborhood of $65 million.

The relatively small amount of additional funding that the two teams designated for high-poverty schools, and the fact that one team designated no additional funding, may seem surprising. Research findings suggest that it costs more to educate students who live in poverty, because these students may face situations in their homes or daily lives that make learning more difficult. Research findings also suggest that when students attend schools with a high concentration of poverty, all students in the school, even those who are not otherwise individually at risk, need extra resources to succeed. If the base funding is already high enough to provide the necessary

[2] These numbers are based on an estimated K-12 enrollment of 827,297 (source: *Maryland School Performance Report* 2000, www.msp.msde.state.md.us).

additional resources, however, then substantial supplementary funding would be unnecessary. It is possible that the teams overfunded the average schools, in effect building programs already suitable to meet the needs of large at-risk populations. For instance, some researchers (e.g. Grissmer et al, 2000) have concluded that interventions such as small class size are most effective for poor minority students and have little measurable effect on non-poor, non-minority students. This implies that the most economical allocation of resources would be somewhat larger classes for average schools and somewhat smaller classes for high-poverty schools. However, the teams specified small classes in both cases. While this might be ideal, in a world of limited resources choices inevitably must be made about how to effectively target funds. It would not be inappropriate, then, to conclude that the teams created appropriate models to serve at-risk populations, but perhaps did not completely follow the instructions to construct the most cost-effective model possible for average student populations. Alternatively, it is equally possible that the "average" school with roughly one-third of its student population eligible for free or reduced-price meals already has a high enough concentration of at-risk students to justify intensive resources.

To accommodate these possibilities, policy makers might consider using the team recommendations as a base funding level for schools with over 30% of students eligible for free or reduced-price meals and the higher funding levels for high-poverty schools, but reducing the funding level for schools with fewer at-risk students. In addition, policymakers must decide at what point poverty concentration levels are high enough to warrant supplementary poverty funding, as recommended by two of the teams. The MEFSim model allows users to explore the fiscal impact of these types of scenarios.

Assumptions and Caveats

When considering the panel outcomes, there are a number of important issues to keep in mind.

Potential bias: Because it is possible for bias to creep into the process when panelists are aware of how their products will be used and have a stake in the outcome, it is customary for research to conduct professional judgment panels "blind," using out-of-state educators and not revealing the purpose of the study beforehand. In this case, however, Maryland educators were used and they were aware of the project purpose prior to participating. While this practice ensures that participants have maximum knowledge of the educational context in Maryland, it does raise the specter of potential bias in designating funding levels.

New state standards: The panelists were asked to design programs that would allow students to meet current state standards. However, the state standards are being revised, and panelists noted that their programs might have to be modified to meet new, tougher state standards.

Reliance on expenditure data rather than cost data for some budget components: When possible, the true costs of resources are used in building professional judgment models. However, on occasion researchers are forced to rely on expenditure data instead when reliable information on market prices is unavailable. In this case, it was outside the scope of this study to analyze costs of district-level services, special education services, and transportation. Therefore, actual average district expenditures were substituted for these areas. Actual district expenditures may mask

either inefficiencies or a lack of suitable resources, but without further study it is impossible to determine.

Unconfirmed model assumptions: In order to provide a common starting point, teams were asked to make certain assumptions about school facilities, technology, and teacher salaries. These assumptions were necessary from a practical standpoint for the teams to design programs, but to the extent that they are inaccurate, the models are incorrect. Below we briefly describe the assumptions the teams were asked to make and discuss the ramifications.

TASK ASSUMPTIONS

School facilities are adequate. In reality, the quality of school facilities is likely to vary substantially. The team programs do not cover the costs of upgrading inadequate facilities. In addition, they do not cover the costs of any additional facilities that might be needed to accommodate program features such as full-day kindergarten, preschool, or reduced class size.

Existing technology levels are adequate. Again, the actual amount of technology in schools, and teacher proficiency using it, is likely to vary substantially. The team budgets do not include the costs of upgrading all schools to a baseline level. We estimate that a one-time expenditure of $30 million would be needed to bring the students-per-computer ratio down to the state goal of 5:1. This does not include the additional cost of networking schools, or the cost of the professional development necessary to ensure that all teachers are able to effectively integrate technology into their curricula. However, the costs of maintaining and replacing this level of technology, as well as ongoing professional development, is included in the team budgets.

Salaries are adequate to attract and retain competent teachers. Despite the commonly held belief that teacher salaries are too low, we were unable to find consistent evidence that this is the case across the board. Our analysis of the teacher labor market suggests that starting salaries may be too low in particular districts that have to compete with higher-paying neighboring states or districts. We also found that salaries may be too low to attract professionals into particular teaching areas such as math or computer science. However, the structure of the salary schedule—which does not allow districts to pay higher salaries to teachers in shortage areas and which increases pay every year for all teachers based on seniority alone—may be at least partly to blame. Its inflexible structure prohibits teacher compensation from responding to current market forces. Because we were unable to justify a different approach, we used the current average teacher salary in the model, along with a benefit rate of 27%.

Funding for comprehensive healthcare services is provided separately from the education budget. Teams that wished to include mental and physical healthcare clinics as part of their designs were instructed to assume that funding for these services was covered by agencies other than the school system. Therefore, the budgets presented here focus solely on educational services and do not include funding for healthcare clinics (budgets do include funds for school nurses).

Effective Practices

Any number of education reforms have proliferated over the years, many short-lived and unsubstantiated by solid research. We have selected two reforms that are currently in vogue *and* that have a solid research base to discuss here, because of their potentially profound effects on disadvantaged youth and their equally profound potential impact on the state budget. They are reduced class size and early childhood development programs.

Class Size: The best available research suggests that small classes in the primary grades can have a lasting effect on student achievement, particularly for poor and minority students. Classroom aides, on the other hand, do not appear to have a noticeable effect on student learning. Exactly how small primary grade classes should be is still subject to debate, but somewhere in the neighborhood of 15 to 17 appears to be a suitable range. (Grissmer et al 2000; Mosteller, 1995; Odden, 1990). The professional judgment teams incorporated small classes into their program designs, with primary grade class sizes ranging from 14 to 21, depending on the team and the grade level.

Early Childhood Development Programs: Recent neuroscience research has emphasized the importance of early childhood experiences on brain development and the future capacity to learn. Studies have shown that early intervention can help reverse or prevent adverse effects for much less than it costs to provide special services later. For instance, studies on the long-term effects of preschool programs have found that children attending high-quality preschool programs score higher on performance tests through high school, spend less than half as many years in special education, have reduced absence rates, are more likely to graduate, exhibit improved attitudes and classroom behavior, and display improved attitudinal, emotional, and social development (Hoegl, 1985; Karoly et al, 1998; Schweinhart and Weikhart, 1984; Education Commission of the States, 2000). Preschool programs appear particularly effective for disadvantaged students (Grissmer, 2000). While not all researchers are so enthusiastic (see Sawhill, 1999), the preponderance of the evidence suggests that high-quality early childhood development programs appear to be a cost-effective way to not only increase student achievement, but also to improve lifetime productivity and emotional well-being of participants. The professional judgment teams appear to have taken this into account: all of the teams supported full-day kindergarten and a preschool program, and one team also included an early childhood program for three-year-olds. Of course, all of this comes at a price—a high price—but policy makers should note that they are likely to see future offsetting savings.

Implications For Policy and Further Research

The findings from the professional judgment panels suggest that Maryland is possibly underfunding its education system. According to panel recommendations, at least an additional $300 million is needed to adequately fund schools, and $200-$870 million more would be required to support potentially effective programs such as early childhood development. These

estimates do not include the costs of ensuring adequate school facilities, technology, and teacher salaries.

These estimates assume that the base level of funding for an average school with 30% of its student population eligible for free or reduced-price meals is also appropriate for a school with fewer at-risk students. The panels did not address this issue. It is therefore possible that fewer resources are necessary for less heavily-impacted schools, and by targeting resources to high-poverty schools the state can reallocate funding to maximum effect.

Using MEFSim, policy makers can explore the ramifications of these types of scenarios. It would be useful, however, to convene a follow-up professional judgment panel to design a program for schools with few disadvantaged students, in order to ascertain an appropriate level of funding for these students.

In addition, it would be useful to conduct further research establishing the true costs of factors such as school facilities, special education, transportation, and district services.

INTRODUCTION

How to determine an appropriate level of school funding is a question that has plagued legislatures, courts, and scholars for decades. There are currently two main approaches to the problem, one involving statistical analyses and the other relying on professional judgment. While there are variants of each approach, in general the statistical models involve identifying schools that are performing at satisfactory levels and using their per-pupil expenditure levels as a basis for determining adequate spending. The professional judgment models, on the other hand, rely on the opinions of education experts to design an adequate instruction program, which is then priced to determine a base cost per pupil. Both methods typically apply a series of adjustments for factors such as student characteristics, transportation, special education, and regional cost differences.

There are advantages and disadvantages to each approach. Many of the statistical models tend to be complex "black boxes" that are not intuitive to policymakers or the public at large. Determining which schools to include in the "high-performing" category is difficult, as is controlling for socio-economic factors and school efficiency. Decisions about statistical procedures and variables can significantly affect the outcome of the study. Also troubling is the reliance on school expenditures, which may mask inefficient or idiosyncratic practices. There are sometimes practical obstacles to the statistical approach as well. The necessary school-level expenditure data may not be available, and there may not be an adequate sample of schools meeting the criteria for high performance. Finally, the "successful schools" approach tells researchers what these schools are spending, not whether that amount is optimal. Despite these difficulties, statistical analyses can be a relatively objective way to determine adequate expenditure levels, and have the advantage of "proof by existence." Real schools have actually produced the desired outcomes with the specified level of funding. Presumably other schools should be able to as well, given adjustments for student and school characteristics. Ohio, Illinois, Mississippi, Alaska, New York, and Wisconsin have all created statistical models of one sort or another, although only Ohio and Mississippi have based legislation on them.

The professional judgment method also has positive and negative aspects. As the name implies, it is based on the judgment of professional educational experts. The experts are chosen for their substantial experience in schools and proven track records of success in educating students, and therefore have the expertise to determine what programs and resources are necessary for schools to succeed. They have an in-depth knowledge of the complex issues that may be masked by the numbers in the statistical models, and can develop models that accommodate that complexity. On the other hand, the procedure is subject to the biases of the individuals involved, though its reliability can be enhanced through various means. Another problem is that it is sometimes difficult to accurately price particular components of the model, forcing researchers to rely on expenditure data rather than on market prices in these cases. However, the technique is powerful in that it actually describes a sample instructional program for a prototypical school. Rather than being prescriptive, the instructional program is intended to be an example of how the designated funding could be spent to obtain the desired outcomes. The model is transparent, and all the assumptions that are built into it are obvious. Thus it is easy for others to review, and for policymakers to see the funding impact of various interventions. For these reasons, professional judgment is a promising approach for determining adequate levels of school funding, and has

been accepted by courts as evidence in Wyoming and Arkansas. Oregon and Maine have also developed professional judgment models.[3]

At the request of the *New* Maryland Education Coalition (MEC), Management Analysis & Planning, Inc. (MAP) undertook the creation of a professional judgment model for Maryland.

MAP convened a panel of 22 expert Maryland educators over a three day period to determine an adequate level of school funding for the state. In order to establish a degree of reliability, the panel was divided into three teams which worked independently on the same set of tasks. Given a hypothetical school district reflecting statewide average demographics, each team was asked to devise an instructional program for a prototypical elementary, middle, and high school, which would be adequate to provide student outcomes reflecting current state standards. Participants were admonished to "spend every dime you need to reach the educational outcomes, but not a dime more." Teams also were asked to modify their program designs to accommodate a high-poverty population. The outcome was three separate models reflecting the professional judgment of the participants, plus supplemental amounts required to adequately fund high-poverty schools. MAP then developed a simulation model that allows policymakers to change key aspects of the instructional program such as class size, the provision of preschool programs, full-day kindergarten, or teacher salary, and see the effects on total state funding as well as district-by-district allocations. Thus this spreadsheet model, dubbed MEFSim (Maryland Education Finance Simulation Model), allows policymakers to explore the fiscal consequences of implementing different team designs and effective research-based practices.

The first section of this report details the methodology used to create the professional judgment models. The second section describes the three models generated by the teams, including program design and funding levels. We discuss the various adjustments that are necessary to account for differences in student and district characteristics, and describe how the ramifications of different approaches can be explored using the Maryland Education Finance Simulation Model. Finally, in the third section we review the research findings on several practices thought to be most effective for educating disadvantaged youth. These research findings can be used in conjunction with the recommendations from the professional judgment panels to create alternate scenarios using MEFSim.

DEVELOPING PROFESSIONAL JUDGMENT MODELS FOR MARYLAND

MEC solicited nominees for the study through various means. Interested candidates submitted resumes and profiles, and MAP selected 27 of the roughly 70 respondents on the basis of their qualifications, geographic and demographic factors. Of the 27 selected candidates, 22 were able to attend on the specified date.

Participants included teachers, principals, superintendents, and other district administrators, representing 11 of Maryland's 24 school districts. Together they had a cumulative total of 322

[3] For further information on the statistical and professional judgment approaches, see Guthrie and Rothstein (1999).

years of experience in K-12 education. A list of participants and participant profiles can be found in Appendix A.

The panel met for a total of twenty hours over three days (February 2-4, 2001). Participants were divided into three teams of 7-8 members. Each team consisted of at least one principal from each school level, one superintendent, and one teacher. A facilitator worked with each group in order to answer questions and make sure each group was on track, but did not interject opinions or make any attempt to guide the team's program design.

The teams were given a description of a hypothetical district reflecting average statewide demographics and asked to design a K-12 school program that would provide the described students with specified educational outcomes, given certain assumptions about teacher quality and facility adequacy (see Table 1 for student demographic characteristics, Table 2 for a description of the hypothetical district, Table 3 for a list of the assumptions, and Table 4 for desired educational outcomes). Each team wrote a description of the instructional program they would offer and developed an accompanying budget, using a list of components and prices provided by MAP.

Once the program designs were complete, teams were asked how confident they were that the program they had designed would be adequate to deliver the specified outcomes. All three teams responded that they were very confident.

Next the teams were presented with a revised set of demographic assumptions (see Table 1), this time reflecting Baltimore City characteristics rather than statewide averages (team members were unaware that the new demographics were those of any particular district). Teams were again asked if they felt that their programs would provide the specified outcomes for this more disadvantaged population. One team remained highly confident that its program was adequate. The other two teams lowered their confidence ratings slightly, and these teams were asked to revise their programs to meet the needs of a high-poverty school. The teams did so, noting how they would supplement their instructional program and budget.

The outcome of the panel was three separate models detailing instructional programs and budgets that were deemed adequate in the eyes of the experts to meet Maryland state standards for the average child. Two additional models were developed to provide an adequate education for students in a high-poverty school.

Complete team instructions can be found in Appendix B. Program descriptions and budgets from each team are shown in Appendix C.

Table 1:
Hypothetical District Demographics Presented to Teams

Demographic Characteristic	Maryland State Average	High-Poverty District
% Eligible for Free/Reduced meals	31%	68%
% Minority	46%	89%
% LEP	2%	0.5%

Table 2:
Prototypical District Structure

The prototypical schools are configured as follows:

- Elementary school: grades K-5 with an enrollment of 500
- Middle school: grades 6-8, with an enrollment of 800
- High school: grades 9-12, with an enrollment of 1000

The districtwide student characteristics are:

- 2% LEP
- 31% eligible for free or reduced price meals
- 46% minority

Note: These are the Maryland statewide averages.

Table 3:
Main Assumptions For Panel Tasks

1. **Personnel are competent. Salaries are adequate to attract and retain qualified faculty and staff.**

2. **Facilities are in place and are adequate for the instructional program you design. Major maintenance and repair are adequate.**

3. **There is an adequate level of supplies and equipment (including technology) on hand, but normal maintenance and replacement is necessary.**

4. **The line item budget for district administration, transportation, maintenance & operations, and special education is adequate and cannot be changed for the purposes of this panel.**

5. **Comprehensive health services may be included in the program designs if deemed necessary, but assume that funding will be provided through agencies other than the school system.**

6. **The program design should be one that you would reasonably expect to be adopted and funded by a school board or state legislature.**

Table 4:
Desired Educational Outcomes

Elementary and Middle School

At least 70% of students must receive a satisfactory score in all six content areas of the MSPAP (reading, writing, language usage, math, science, and social studies).

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; and
- 96% for Writing.
- At least 85% of graduating students must meet either the University System of MD Course requirements, the Career and Tech Ed Program requirements, or the Rigorous High School Program Indicators.

TEAM MODEL DESCRIPTIONS

Instructional Programs

The three team instructional programs have much in common. They all incorporate the following elements:

- Principals as strong instructional leaders who are not over-encumbered by operational concerns;
- Early remediation of at-risk students through targeted intervention;
- Low class size;
- An emphasis on all students reading no later than third grade (often second);
- Access to pre-kindergarten for most or all students;
- Full-day kindergarten programs;
- Adequate technology and technology support;
- The time and resources for teachers to meet the individual needs of all students and to develop relationships with students that lead to strong academic outcomes (e.g., block scheduling, looping, teaming, small classes, tutors, extended school years and days, and sufficient common planning time for teachers);
- Professional development integrated into teacher schedules; and
- Parent involvement programs.

See Table 5 for a comparison of key elements across teams.

Table 5:
Summary of Key Program Design Elements Across Teams

Elementary School Programs		
Team A	**Team B**	**Team C**
• **3 yr old program–** none	• **3 yr old program -** none	• **3 yr old program** – full day – high-poverty students eligible – class size: 10 – parent involvement/ parenting skills
• **Pre K** – half day – class size: 14 – 1 aide per class	• **Pre K** – half day – class size: 21 – 1 aide per class	• **Pre K** – full day – class size: 15 – 1 aide per class
• **Kindergarten** – full day – class size: 15-18 – 1 aide per class – ungraded K-2 classes – flexible grouping	• **Kindergarten** – full day – class size: 21 – 1 aide per class	• **Kindergarten** – full day – class size: 18 – 1 aide per class
• **Grades 1 –2** – class size: 15-17 – ungraded K-2 classes – flexible groupings	• **Grades 1-3** – class size: 21 – 1 aide per team – ungraded 1-3 classes – flexible grouping – looping	• **Grades 1-2** – class size: 21 – 1 aide per class – looping – IEPs for each student
• **Grades 3-5** – class size:15-17 – departmentalized	• **Grades 4-5** – class size: 21 – ungraded, looping	• **Grades 3-5** – class size: 21 – blocking
• **Schoolwide** – pupils per cert staff: 9.5 – parent involvement – periodic assessment – targeted intervention – common planning time – Gifted&Talented teacher – extended yr (210 days) – extended day (1 hr) – on-site curriculum specialists/prof. dev.	• **Schoolwide** – pupils per cert staff: 13.8 – parent involvement – periodic assessment – targeted intervention – planning time – summer school for students not meeting standards – 20 days prof. dev.	• **Schoolwide** – pupils per cert staff: 10.3 – parent involvement – periodic assessment – targeted intervention – common planning time – summer program – after-school enrichment – 10 days prof. dev.

Middle School Programs (Grades 6-8)		
Team A	**Team B**	**Team C**
− class size: 22 − pupils per cert. staff: 13.6 − block scheduling − teams − extended school year to 210 days − extended school day by one hour − on-site curriculum specialists/mentor teachers − in-class intervention program (co-teaching) − 1 period remediation or enrichment	− class size: 24 − pupils per cert staff: 14.5 − block scheduling − teams, looping − integrated curriculum − heterogeneous grouping − common planning time − continuous assessment using alternative evaluation techniques − intervention program − after school & Saturday remediation programs for at-risk students − summer reading remediation program − parent involvement	− class size: 20 − pupils per cert staff: 11.6 − block scheduling − interdisciplinary teams − extended day + 2 hour optional enrichment program − remediation & enrichment summer programs

High School Programs (Grades 9-12)		
Team A	**Team B**	**Team C**
− class size: 22 − pupils per cert staff: 12.7 − 4 yrs Math − 4 yrs English − 4 yrs Science − 4 yrs Social Studies − 4 period semester schedule − extended year to 210 days − teaming in 9th grade − portfolios − on-site curriculum specialists/prof. dev. − home/school connection specialist	− class size: unspecified − pupils per cert staff: 14.1 − 3 yrs Math − 4 yrs English − 3 yrs Science − 3 yrs Social Studies − "High Schools That Work" Reform Model − 4 period block schedule − interdisciplinary "clusters" − 9th grade school-within-a-school cluster − senior portfolio presentations − state-of-the-art technology − community/college/business partnerships − concept of "major"	− class size: 25 − pupils per cert staff: 9.9 − 3 yrs Math − 4 yrs English − 3 yrs Science − 3 yrs Social Studies − alternative learning school within the school − Mandatory summer program for students not passing 8th grade assessment − Summer enrichment program

All of these concerns are well documented in the research on effective schools (except, perhaps, technology). The issue for clarification is to what extent do all schools need these resources (and in what amounts) relative to the needs of schools with high concentrations of at-risk students. Research findings suggest that it costs more to educate students who live in poverty, because these students often start school less prepared than students who do not live in poverty, and because these students may face situations in their homes or daily lives that make learning more difficult. Research findings also suggest that when students attend schools with a high concentration of poverty, all students in the school, even those who are not otherwise individually at risk, need extra resources to succeed.

When asked how they would modify their programs to accommodate a school with a high concentration of at-risk students, one team reported that no changes were necessary. This team felt that the program it had developed was sufficient for a school with a free/reduced-price meals population of 30% or 70%. The other two teams increased the number of support staff (social workers, guidance counselors, nurses, home/school coordinators), and one team extended the length of its remediation program as well. None of the teams felt substantial programmatic changes were necessary to accommodate a large at-risk population.

While the teams have created model programs that tend to be supported by research and are fairly consistent with each other, they seem to have balanced resources across populations in a way that is not necessarily research-based. The teams appear to see the added numbers of at-risk students as simply more students with individual level-risks instead of, as research suggests, an extra layer of risk for all students in the school, including those with no individual-level risk. The teams may well have over-projected the needs of the regular school population or under-projected the needs of the at-risk school population. For instance, research suggests that reduced class size is most effective for poor and minority students, as are interventions such as preschool and early childhood development programs. Such programs have had little demonstrable effect on the achievement of non-poor white students. However, the teams provided these resources for all students in their regular school program. While there is certainly nothing to suggest that this is in any way detrimental, in a world of limited resources decision makers should allocate resources in ways that are most cost effective, i.e., by targeting additional resources to students who are at risk.

An additional programmatic feature that should be noted is that all three teams regarded physical and mental health services as an important component of an adequate education program. Given the boundaries of the task at hand, the teams were instructed <u>not</u> to include these costs in their models, and so they assumed that the provision of these services occurred through county services or partnerships with local clinics. To the extent that this is not true in individual districts, the costs of providing an “adequate” education that included this component would be higher than those stated here. For logistical and practical reasons, schools may or may not be an appropriate place to house physical and mental health services, but health services probably should not come from education budgets.

Budgets

In this section of the report we describe the funding levels recommended by the teams. We first address the funding recommended for average K-12 students and for preschool students, and discuss the differences in how the teams allocated funding. We then describe the team funding for high-poverty schools, and ways in which different interventions could be targeted to at-risk students. Finally, we compare the team funding levels with current expenditures in Maryland.

For K-12 funding in average schools, Team A recommended spending $9,313 per pupil, while Team B recommended $7,461 and Team C recommended $9,215. These averages mask funding differences across school levels. The teams tended to spend more at the elementary school level than at the middle school level, in keeping with the current thinking that targeted resources in the early grades can prevent the later need for remediation. Funding levels are summarized in Table 6.

Table 6: Per-Pupil Expenditures for the Prototypical Maryland School*
(31% of students eligible for free/reduced-price meals)

School Level	Team A	Team B	Team C
Preschool[4]	$3,276	$3,067	$8,950
Elementary School	$10,524	$7,732	$9,033
Middle School	$7,848	$7,062	$8,946
High School	$8,501	$7,337	$9,732
Average (K-12)	$9,313	$7,461	$9,215
Statewide Total	$7.9 billion	$6.4 billion	$8.5 billion
Increase over Current	$2.0 billion	$0.5 billion	$2.6 billion

*Note that these figures are based on the assumption that facilities and technology are adequate and that current salaries are adequate to attract and retain competent personnel.

Teams A and C proposed average K-12 funding levels that are within $100 of each other, while Team B's recommended budget was about $1,850 per pupil less. What accounts for the difference in spending levels? Table 7 provides a summary comparison of cost elements across teams. Much of the difference in spending levels is attributable to staffing levels and the amount of instruction time. Team A, the highest-spending team at the K-12 level, maintained low class sizes throughout all grades and extended both the school day and the school year. Team C similarly relied on small classes, and also allocated a greater number of pupil support staff and a higher budget for instructional materials and supplies. It is worth noting that although Team A and C's total spending levels are similar, their allocation of funding is quite different. A more

[4] For Teams A and B, preschool funding is for a half-day preschool program for 4-year-olds. For Team C, funding includes a full-day program serving 50% of 3-year-olds (priced at $11,176 per participating child) and a full-day program for all 4-year-olds (priced at $7,837 per participating child). Since precise data on the number of preschool-age children were not available, we used the number of first graders (65,006 in 1999) as an admittedly imprecise estimate. Preschool funding does not include transportation costs.

detailed comparison of team budgets for prototypical elementary, middle, and high schools is presented in Tables 14-16.

Table 7: Comparison of Team Expenditure Patterns

Expenditure Category	Team A	Team B	Team C
School Base Cost Total	**$6,113**	**$5,287**	**$6,848**
School Personnel	$5,670	$4,632	$5,841
Instructional Materials & Supplies	$158	$131	$462
Equipment & Technology	$115	$221	$237
Student Activities	$45	$32	$82
Professional Development	$89	$241	$217
Student Assessment	$35	$30	$9
Fixed Costs Total	**$1,992**	**$1,992**	**$1,992**
Transportation	$336	$336	$336
Special Education	$704	$704	$704
District-Level Expenditures	$953	$953	$953
Targeted Interventions Total	**$1,207**	**$181**	**$375**
Kindergarten Expanded to Full Day[5]	$201	$167	$192
Extended Day/After School	$469	$0	$82
Extended Year/Summer School	$536	$14	$100
Total Average K-12 Funding*	**$9,313**	**$7,461**	**$9,215**
Total Funding Per:			
Regular Education Pupil	$8,609	$6,757	$8,511
FARM Pupil	$8,898	$7,038	$8,511
Special Education Pupil	$14,025	$12,173	$13,927

*Note that these figures are based on the assumption that facilities and technology are adequate and that current salaries are adequate to attract and retain competent personnel.

Since class size accounts for so much of the difference in team spending, it is worth examining teacher staffing patterns across teams more closely. Table 8 below shows the class size, pupil-teacher ratio, and requisite funding for each team's allocations. Teams A and C both recommend about 13.5 pupils per teacher, which is well below the state average of 15.9. However, they allocate teachers differently across grade levels and functions (core classroom teachers versus intervention and other specialist teachers). It would cost over $500 million to implement a pupil-teacher ratio of 13.5:1.

[5] All three teams recommended expanding kindergarten from half day to full day and therefore included the costs of full-day kindergarten in their elementary school budgets. In order to show the marginal costs of full-day kindergarten, we have attempted to separate out the costs for the program here. Since the teams did not include a separate line item for expanding kindergarten, the numbers shown here are estimates derived from the team budgets and may not include full costs. The elementary school budget as a whole does reflect the full cost of providing full-day kindergarten, as specified by the teams.

Team B recommended an average of 16.8 pupils per teacher, a figure higher than the current state average. Moving to the pupil-teacher ratio suggested by Team B would result in a statewide savings of about $160 million.

It is important to note, however, that the team ratios are not directly comparable to the state average because the state figure includes special education teachers, while the team figures do not (special education was included in a separate line item on the team budgets). When taking into account special education teachers, the team pupil-teacher ratios would be reduced. Therefore, the funding estimates for changing the pupil-teacher ratios to those recommended by the teams are estimates only and do not consider the adequacy of the special education budget.

There are two important factors to consider regarding class size reduction: the availability of sufficient facilities, and the availability of qualified teachers. Lowering class size creates the need for additional classroom space, and it is likely that additional funding would be required to provide adequate facilities. In addition, the demand for teachers would increase. The Team A and C plans would call for over 9,000 additional teachers. This increased demand would likely raise teacher salaries, resulting in higher costs than projected here. It might also have the unintended and undesirable consequence of draining qualified teachers away from districts with large numbers of hard-to-teach children. For instance, when California mandated class size reduction in the primary grades, wealthy school districts hired credentialed teachers away from poorer districts, leaving the poorest districts with the least experienced, least qualified teachers. The question then becomes whether at-risk students are better off in larger classes with credentialed teachers, or smaller classes with uncredentialed teachers. There are ways to ameliorate these problems, such as offering salary supplements or signing bonuses to teachers in particular districts, and providing funding for enlarged facilities. However, these considerations and the additional funding that is likely to be necessary must be taken into account when considering class size reduction.

Table 8: Comparison of Class Size, Pupil-Teacher Ratios, and Funding Levels

	Team A	**Team B**	**Team C**
Grades K-5 (500 students)			
Class Size	Class Size: 17	Class Size: 21	Class Size: 21
Special subjects	Number of special subject teachers: 14.7 Targeted intervention, curriculum specialists, gifted & talented program teacher, ESL teacher, home/school liaison, PE, computers, music, art	Number of special subject teachers: 6 Music, art, technology, PE, reading specialists	Number of special subject teachers: 12.25 Language development specialists, music, art, PE, media, computers, computer tech, parenting liaison, reading intervention/academic support personnel
Total Teachers	42.2	28.0	34.3
Pupils per Teacher	10.9	16.4	13.4

Grades 6-8 (800 students)			
Class Size	Class Size: 22	Class Size: 24	Class Size: 18
Special subjects	Number of special subject teachers: 14 PE, music, band, art, computers, enrichment, tech ed, 2 curriculum specialists, 3 targeted intervention	Number of special subject teachers: 13 Computer tech, reduced teaching load for dept. heads, curriculum coordinator, tech ed, family studies, art, music, PE, reading specialist	Number of special subject teachers: 9 Art, music, PE, tech, personal development, school wide resource, computer tech, staff development coordinator (note that core teachers include foreign language)
Total Teachers	50.0	46.0	53.0
Pupils per Teacher	16.0	17.4	15.1
Grades 9-12 (1000 students)			
Class Size	Class Size: 22	Class Size Unspecified	Class Size: 25
Special subjects	Number of special subject teachers: 20 4 curriculum specialists, 16 elective teachers	Unspecified	Number of special subject teachers: 40 Business, family/consumer science, tech ed, art, band, resource teachers, journalism, computers, school/business partnership coordinator, ROTC, early childhood dev, reading specialists, Work to School coordinator, student activities coordinator
Total Teachers	65.0	60.0	80.0
Pupils per Teacher	15.4	16.7	12.5
Pupil-Teacher Ratio Funding Summary			
Pupils per Teacher (average)	13.5	16.8	13.4
Total Teachers Indicated	61,160	49,139	61,647
Additional Teachers Needed	9,129	-2,893	9,616
Cost of Additional Teachers[6]	$506,885,785	-$160,614,958	$533,913,782
Cost per pupil	$613	-$194	$645

Current statewide students per teacher: 15.9
Current estimated number of teachers: 52,031

[6] Assumes an average teacher salary of $43,720 with a 27% benefit rate.

Another substantial difference in team funding can be found in the provision of preschool programs. While all three teams emphasized the importance of preschool for all children, they designed different programs to serve this population. Teams A and B recommended a half-day preschool program open to all four-year-old children, costing $3,276 and $3,067 per child respectively. Total costs for these programs statewide would amount to $199 to $213 million. Team C, on the other hand, recommended a full-day program for all four-year-olds at a cost of $7,837 per child, as well as a full-day program for low-income three-year-old children ($11,176 per child, for 50% of the state's three-year-olds). Statewide, the total funding required would be $509 for the full-day program for four-year-olds, and $363 million for the half-day program for low-income three-year-olds. See Table 9 for a summary of preschool costs.

Table 9: Funding for Preschool Programs
Estimated Cost Per Participating Child

Program	Team A	Team B	Team C	Estimated Total Cost*
Full-Day Prog. for at-risk 3-yr-olds			$11,176	$363 million
Full-Day Program for 4-yr-olds			$7,837	$509 million
Half-Day Program for 4-yr-olds	$3,276	$3,067		$199-$213 million

*Note that these estimates do not include the cost of providing facilities for preschool programs.

When asked to revise their programs and budgets to accommodate a high-poverty district (68% of students eligible for free or reduced-price meals), Team A provided an average supplement of $289 per pupil and Team B provided a supplement of $281 (see Table 10 and Table 11). In keeping with the theory that an ounce of prevention is worth a pound of cure, more funding was targeted to at-risk children at the elementary level. Team C believed the resources allocated in their initial program were sufficient to accommodate the larger at-risk population without additional funding.

Table 10: Per-Pupil Expenditures for High-Poverty Schools
(68% of students eligible for free/reduced-price meals)

School Level	Team A	Team B	Team C
Elementary	$10,893	$8,096	$9,033
Middle School	$8,051	$7,298	$8,946
High School	$8,726	$7,517	$9,732
Average	$9,601	$7,742	$9,215

Table 11: Additional Funding For Students in High-Poverty Schools
(at least 68% of students eligible for free/reduced-price meals)

School Level	Team A		Team B		Team C
	Per pupil[7]	Per FARM pupil[8]	Per pupil	Per FARM pupil	
Elementary	$370	$543	$364	$536	$0
Middle School	$203	$298	$236	$347	$0
High School	$225	$331	$181	$265	$0
Average	$288	$425	$281	$413	$0
Total Statewide[9]	$65 million		$65 million		$0

As discussed above, the three teams recommended programs such as preschool, extended instruction, and small class size for all students. While indeed beneficial for most students, research suggests that these programs may be most effective for disadvantaged students, and therefore the most cost-effective use of resources would involve targeting interventions to these students. To illustrate, Table 12 shows a number of different targeting scenarios for each intervention.

[7] This column shows the total additional funding for a high-poverty school divided across the total number of pupils in the school.
[8] This column shows the total additional funding for a high-poverty school divided across the number of students eligible for free or reduced-price meals. In other words, it is the grant amount per FARM pupil.
[9] Statewide amount if supplemental funding was provided to all schools with at least 45% of students eligible for free or reduced-price meals. MEFSim allows users to change the grant amount as well as the cut-off percent of eligible schools.

How do the team budgets compare to current education operating expenditures in Maryland? The Maryland average per-pupil current expenditure for 1999-2000 was $7,132. Baltimore City, the highest-poverty district, spent $7,439 per pupil.[10] Compared to actual 1999-2000 operating expenditures, the panels recommended an additional $329 to $2,181 in K-12 average per-pupil funding (see Table 13), with a supplement of $0 to $288 for students in high-poverty schools. Statewide, that amounts to additional K-12 expenditures ranging from roughly $300 million to $1.8 billion, plus $65 million in supplemental funding for high-poverty schools, plus $200 - $870 million in preschool funding.

Table 13: Team Funding Compared to Current State Funding: Recommended Increase

Team	K-12 Education		Preschool Funding	High-Poverty Schools Supplement	Total Increase
	Per Pupil Increase	Total Increase			
Team A	$2,181	$1.8 billion	$213 million	$65 million	$2.1 billion
Team B	$329	$0.3 billion	$199 million	$65 million	$0.5 billion
Team C	$2,083	$1.7 billion	$873 million	--	$2.6 billion

A detailed comparison of the team budgets for the prototypical elementary, middle, and high schools can be found in Tables 14-16.

A number of important assumptions are built into the funding estimates shown here. These assumptions and their implications are discussed in the next section.

[10] Maryland State Department of Education 2000 data file downloaded from http://www.msp.msde.state.md.us/. Figures do not include debt service or capital construction.

Assumptions and Cautions

Several caveats are in order when considering the professional judgment teams' programs and budgets. First, in order to eliminate as much bias as possible it is common practice to conduct professional judgment panels "blind." That is, to the extent possible participants are not informed about the purpose of their work, and out-of-state panelists are often selected to ensure that they do not have a vested interest in the outcome. In this case, however, participants were all Maryland educators and were all aware of the purpose of the study. On the one hand, it is beneficial to have Maryland educators since they are more cognizant of the Maryland context than outside educators would be. On the other hand, a potential validity problem is introduced when the panelists are aware of how their work product can be used and when they have a stake in the outcome. Readers should keep this potential bias in mind.

A second caveat is necessary regarding the desired educational outcomes shown in Table 3. These desired achievement levels reflect current state standards,[11] and the teams were instructed to build programs that would meet these standards. Panelists noted that the state is in the process of implementing new, tougher standards. At least some of the panelists felt that their program designs would need to be modified to accommodate the more stringent standards that are expected soon. The programs presented here were designed with particular educational goals in mind; if the goals changed, the programs might need to be revised as well.

The third caveat involves the assumptions that are built into the panel tasks. In designing their programs, the teams were instructed to use a set of assumptions (see Table 2). These assumptions were necessary to provide the panelists with a starting point and to ensure a common basis for discussion. However, to the extent that the assumptions are inaccurate, the output of the models is incorrect. For instance, special education expenditures were assumed to be adequate, but may in fact be too high or too low. Teacher salaries were assumed to be satisfactory, but if salaries in reality are too low, then the model underestimates costs. Five of the listed assumptions are particularly important: the adequacy of district-level costs, facilities, technology, special education costs, and teacher salaries. Each of these factors is discussed in turn below.

District-Level Costs

District-level costs cover categories such as office of the superintendent, the board of education, maintenance and operations, and district-level student support services. The true costs of these services are best ascertained through management and fiscal studies. Ideally, comprehensive district audits would be undertaken to determine adequate levels of district expenditures, which could then be adjusted for district size and geographic factors. Such a study is beyond the scope of the current project, and as a consequence we used average district expenditures as an estimate of district costs. These numbers may conceal either gross inefficiencies or a lamentable paucity of resources; it is equally likely that they realistically capture true district costs.

[11] A variant of current state standards was used, reflecting recommendations by the Thorton Commission.

A difficulty with using average actual expenditures is that they potentially mask spending differences among districts. As can be seen in Table 17, there is a considerable range in per-pupil expenditures across districts in categories such as administration. Some of these differences may reflect district characteristics rather than inefficiencies. For instance, we would expect transportation costs to be high in districts covering large geographic areas with sparse population. Similarly, districts with both very large and very small enrollments might be expected to have higher administration costs than average.

A preliminary analysis of Maryland district-level costs does not reveal either expected trends or inefficiencies. There was no correlation between per-pupil district wealth and any of the district-level expenditure categories. Such a correlation might have hinted at inefficient or idiosyncratic spending practices. On the other hand, we also did not find the expected correlation between district size and district-level expenditures. In the absence of better information, in order to accommodate contextual district differences we used actual expenditures for each district when projecting adequate district funding levels.

Table 17: Range of Per-Pupil Expenditures Across Maryland Districts for District-Level Expenditures and for Special Education

Expenditure Category	Per-Pupil Expenditures			
	Lowest	Highest	Average	St. Dev.
Administration	$200 (Allegany)	$487 (Somerset)	$312	$72
Transportation	$204 (Talbot)	$539 (Somerset)	$336	$83
Maint. & Operations	$417 (Caroline)	$759 (Kent)	$641	$76
TOTAL	$1,056 (Wicomico)	$1,775 (Somerset)	$1,288	$169
Special Education	$465 (Caroline)	$1,169 (Baltimore City)	$704	$142

Facilities

Facilities present a special problem in a model of this type. The quality of school facilities can vary both within and between districts. Some schools may have modern, state-of-the-art facilities with every amenity, while others may be decrepit and inadequate for 21st century instruction. Without conducting a separate study on facilities, it is impossible to know the condition of school buildings in Maryland, or to estimate how much it would cost to upgrade all facilities appropriately. Complicating matters further, there is no generally accepted standard for instructional facility adequacy beyond health and safety. This is a key issue, since facilities costs can run into the billions of dollars and represent a significant cost to the state and districts. However, as with district expenditures, it is outside the scope of this report to separately audit the state of Maryland's school buildings. For the purposes of this model, facilities are assumed to be adequate. Any expenditures necessary to update facilities would be additional to those presented here.

It should also be noted that lowering class size and offering preschool programs, as all three teams did, would require additional classroom space. Districts may or may not have the requisite space available. New construction costs to meet the increased space demand could be substantial.

Technology

Technology is another area of concern. Panelists were instructed to assume adequate existing levels of technology in order to provide a standardized starting point for each team's design. In reality technology levels and usage differ across Maryland schools, though the state is making rapid strides in developing technology infrastructure. The state has set a goal of no more than 5 students per computer in every school, and is close to realizing that goal. Currently the statewide ratio is 6:1, with no school exceeding an 8:1 ratio. Over 70% of Maryland classrooms are connected to the Internet. Despite this progress, a "digital divide" is reported to exist within the state: high-poverty schools have less access to technology and a less sophisticated approach to its use than do their lower-poverty counterparts. According to the latest "Where Do We Stand" report on technology (Maryland Business Roundtable for Education, 2001), the state needs to focus on providing teachers with adequate professional development and ensuring that technology is integrated into the curriculum in a way that utilizes students' high-order thinking skills. Fortunately, the state has created an on-line technology inventory system that allows it to track technology resources as well as teacher and student use at the school level. This instrument will be very beneficial in helping the state monitor technology levels, address any digital divide, and ensure that technology is being used in a manner most conducive to student learning.

Roughly 30,000 additional computers are needed to bring the students-per-computer ratio down to the 5:1 ratio goal. Estimating computer and accompanying software costs at $1,000 per computer, an additional $30 million would be needed. This translates into a one-time expenditure of $36 per pupil (ongoing costs for upgrading this computer equipment is already included in the team budgets). Additional funding would be necessary to complete connecting all classrooms to the internet (sufficiently accurate estimates of internet infrastructure costs were not readily available for inclusion here). The MEFSim model can be used to project the impact of additional technology funding on the budget (for instance, users can explore the ramifications of estimating computer costs at $1,000 per computer versus $1,500 per computer).

MAP has not assessed the adequacy of the state's goal of 5 students per computer. Team A accepted the 5:1 ratio in its model. Team B did not specify a ratio, and Team C used a ratio of roughly 3:1 in elementary school, 6:1 in middle school, and 2:1 in high school. A one-time expenditure of roughly $119 million ($144 per pupil) would be needed to accomplish the ratios proposed by Team C. MAP has not analyzed the additional costs associated with office computers.

It is important to note that putting technology in the classroom without training teachers how to effectively integrate it into their curriculum and teaching is an irrational but all too common practice. Maryland has scaled up its technology so quickly that it seems unlikely that teacher training has kept pace. Intensive professional development must accompany the advent of computers in the classroom, or the funding spent on technology may be wasted.

Special Education

Special education is another area that requires separate consideration. The issues surrounding special education are so complex that determining an adequate level of funding for this area would necessitate a separate study. Within the timeframe of the weekend meeting, it is not possible for teams to design a special education component. Hence statewide averages have been used for the prototypes instead, even though this presents problems similar to those of district expenditures. In determining adjusted per-pupil expenditures for each district, we replaced the average per-pupil special education expenditure with that district's actual 1998-99 special education expenditure (see Table 17 for variation in per-pupil special education spending across districts).

Teacher Salaries

Teachers are probably the single most important resource engaged in producing educational outcomes, and teacher compensation is the largest single cost category for school districts. For these reasons the precision of an estimate of the cost of an adequate educational program is dependent upon the precision of the estimate of teachers' salaries. Unfortunately it is very difficult to estimate the true economic cost of teachers.

For most workers, including college-educated professionals, wages and salaries are set primarily by market forces, i.e. the interaction of supply and demand. When there are many employers in a region competing for the services of many workers with a certain skill set, an employer that paid salaries below the market rate would find that current and potential employees were bid away by competitors. Alternatively that employer would be forced to accept reduced quality and hire less than fully qualified employees. Also in a competitive market employers would have no incentive to pay more than the salary necessary to hire and retain qualified employees. An employee who demanded a salary higher than the market rate would not find employment.

The labor market for education professionals is not fully competitive. In many locations school districts are the dominant purchaser of college-educated labor, so there is little competition among employers. Teacher unions tend to exert monopolistic control over the supply of teachers in most communities, regulating salary schedules. Also, elected school boards and those appointed by elected officials frequently must respond to teachers not only as employees but often as constituents as well. Because of the interaction of these forces in the teacher employment market, it is not possible to determine with much precision the market salary necessary to attract and retain qualified teachers.

Most Maryland educators with whom we spoke were convinced that in the current market demand for teachers far outstripped supply and that there were significant shortages of qualified teachers.[12] Also, there seemed to be consensus that the quality of the applicant pool has declined in recent years. Only 55% of the panelists thought that the applicant pool in their district was at least adequately qualified. Many panelists reported a shortage of applicants for openings, though this appeared to vary substantially by district and by subject and school level. If these

[12] In addition to surveying the panelists, we spoke with human resource administrators from several districts.

impressions are correct, then a case could be made that current salaries paid to Maryland teachers are inadequate. The evidence to support these impressions is, however, somewhat mixed.

Is there a teacher shortage in Maryland? Yes and no. According to the State's most recent report on teacher supply (Maryland State Department of Education, 2000), there are 7 percent more teachers in the applicant pool than there are projected new hires. Reflecting a national trend, there are substantial surpluses of early childhood teachers (216) and elementary teachers (528). However, in Maryland as in most other states, there are critical shortages in certain specialties. For example, projected new hires for mathematics teachers exceed the applicant pool by 120 teachers (77%) and the demand for special education teachers exceeds supply by 326 (74%). These state level trends may not be experienced identically in every school district for reasons we will discuss below.

Population projections imply that the demand conditions described above are likely to continue and probably become slightly more pronounced for the next five years.[13] Nationally elementary school enrollments are projected to peak this year and decline through 2008, while secondary enrollments are projected to continue to grow through 2007 (U.S. Bureau of Labor Statistics, 2000). Taking into account changes in enrollment and rates of retirement, the Bureau of Labor Statistics predicts that the overall employment of elementary and secondary teachers will grow at about the same rate as all other occupations through 2008.

Overall supply is not likely to be a critical problem for the foreseeable future. The number of college graduates has exceeded the number of jobs requiring a college degree for the past decade, a condition that is projected to continue, although somewhat attenuated, through 2008 (Fleetwood & Shelley, 2000). The supply of teachers is likely to continue to increase in response to improved job prospects and heightened public interest in public education (U.S. Bureau of Labor Statistics, 2000). Also, several states have created various incentives and initiatives, such as those employed in Maryland (Maryland State Department of Education, 2000), that are likely to further increase the supply of teachers. In spite of these favorable demographic trends, critical shortages of specific specialties are likely to continue.

In competitive markets salaries are ultimately linked to employees' productivity. Employers seek to hire more productive workers. More productive workers can command higher salaries, and when specific skills are in short supply employers bid up salaries to attract persons who possess the desired skills. For example, not all engineers are paid the same. Civil engineers are paid less than computer engineers. In public education in the United States, however, teachers are treated as if they were fungible and largely undifferentiated. Within a district, all teachers with a BA and five years of teaching experience receive the same pay regardless of curriculum specialty or effect on student achievement. A high school math teacher is paid the same as an elementary school teacher with similar experience and years of education, even though the former has many more lucrative opportunities outside the teaching field.

[13] The following analysis is predicated on the assumption that pupil teacher ratios will remain relatively constant over the next decade.

Another anomaly in teacher labor market is that teachers receive higher pay for each additional year of experience. Education is one of only a few occupations that grants automatic salary increases for each added year of employment. This practice continues and is widespread throughout the nation, even in the face of scant evidence that a teacher's instructional performance is enhanced by classroom experience in excess of seven years.[14] Also, it is a conventional pattern in the United States that a teacher is regarded as somehow more effective and receives additional compensation for having taken additional college credits, regardless of the course nature, subject matter, institutional caliber, instructional rigor, or relationship to an individual teacher's school or classroom assignment. There is little objective research to support this supposition.

The practice of setting an individual teacher's salary on the basis of seniority and college credits rather than on the demand for their talents exacerbates the problem of teacher shortages in some areas. Supplemental pay in shortage areas would likely help ameliorate the uneven teacher supply by attracting more teachers into particular subject areas.

Maryland school districts must compete with school districts in surrounding states for teachers. Even if every teacher trained in Maryland chose to stay in the state, Maryland districts would have to recruit out of state, because in-state teacher training institutions graduate only slightly more than half of all teachers hired in the state (Maryland State Department of Education, 2000). Even if this were not the case, the teacher employment market tends to be regional.

An examination of teacher salaries in the region where most Maryland school districts are likely to compete reveals that Maryland average beginning salaries lag those of Virginia, Pennsylvania, Delaware and District of Columbia, and are higher than West Virginia and Ohio (see Table 18). For comparison purposes, Table 18 also displays the federal pay for government positions that require similar training to that of teachers. Since there are so many government job opportunities in the Maryland area, in some sense this is also a market with which school districts must compete. If for a similar investment in training individuals could enter government service and earn substantially more than they could as teachers, school districts would have to raise salaries in order to compete effectively. However, it appears that both beginning and average teacher salaries are higher than comparable government positions.

Teachers consider other factors in addition to salaries when deciding on employment, but significant differences in salaries certainly affect decisions at the margin. It is not possible to predict with any certainty whether an additional $2,395 would entice a beginning teacher to Washington, DC rather than Maryland, or what other incentives might be necessary to attract competent people into the field.

[14] Analyses of 1966 Equality of Educational Opportunity data revealed a modest positive correlation between teacher seniority and student achievement for the first seven years of teacher experience (Guthrie, Levin, Kleindorfer, & Stout, 1970). No dependable subsequent analyses have discovered a significantly different relationship.

Table 18: 1998-99 Beginning and Average Teacher Salaries in the Maryland Region

State	Average Beginning Salary	Average Salary[15]
District of Columbia	30,000	48,275
Delaware	29,981	43,223
Pennsylvania	29,793	48,457
Maryland	27,605	42,545
Virginia	25,777	37,709
West Virginia	23,316	34,248
Ohio	23,087	40,734
U.S. Average	26,639	40,547
Federal GS-7[16]	24,971	
Federal GS-9		39,707
MD per capita income[17]		29,943

Teachers do not come to work for the state average salary; they choose to work for a particular district, within that district's salary schedule. In addition to competing with other states, Maryland school districts compete with one another for qualified teachers. How do intra-state salaries compare? Table 19 shows the beginning teacher salary for each district, as well as the salary for teachers with a master's degree and 30 additional education credits. Beginning salaries range from $26,433 in Allegany County to $33,416 in Montgomery County. Salaries for teachers with a master's degree are even more discrepant, ranging from $47,841 in Garrett County to $72,790 in Montgomery County.

[15] Although we present average teacher salaries here, this is generally not a good measure for comparison. To a large extent, average salaries are a function of teacher seniority: states or districts with higher proportions of more experienced teachers will have higher average salaries, since these teachers are paid more. For this reason, average salary comparisons are relatively meaningless and beginning salaries provide a better indication of how states or districts compare.

[16] The Federal Government General Schedule is the salary schedule for federal employment. Grades 7 and 9 can be considered roughly comparable to a beginning teacher position and a more advanced teaching position: GS-7 requires one year of graduate-level education, and GS-9 requires a master's degree or two years of graduate education (United States Office of Personnel Management, 2000). The GS salary figures shown here are from the 2001 Salary Table for the locality pay area of Washington-Baltimore (www.opm.gov), pro-rated for a 10-month salary. The GS-7 salary figure is for Step 1 (so as to be comparable to a beginning teacher position), and the GS-9 figure is for Step 10 (so as to be comparable to an average teacher position).

[17] U.S. Bureau of Labor Statistics, www.bls.gov.

Table 19: Comparison of District Teacher Salaries

District	Bachelor's Step 1	Master's +30
Maryland	**30,334**	**58,083**
Allegany	26,433	48,149
Anne Arundel	30,635	61,519
Baltimore County	31,722	59,538
Baltimore City	31,000	61,191
Calvert	31,160	66,711
Caroline	29,124	52,971
Carroll	30,000	62,071
Cecil	30,300	54,432
Charles	31,200	59,702
Dorchester	29,914	54,927
Frederick	30,042	59,283
Garrett	26,941	47,841
Harford	30,776	58,585
Howard	31,050	65,148
Kent	31,145	58,441
Montgomery	33,416	72,790
Prince George's	31,950	63,710
Queen Anne's	32,000	57,684
Somerset	31,510	58,048
St. Mary's	28,000	50,868
Talbot	31,000	56,000
Washington	29,926	53,915
Wicomico	28,770	53,910
Worcester	30,000	56,562

Some of the variation in salary may be justified by regional cost differences. For instance, if it is substantially more expensive to live in Montgomery County than in Garrett Count, it is reasonable to pay teachers more in Montgomery County. Additionally, locations that have difficulty recruiting certified teachers may need to pay more to attract qualified teachers. But how much more? Although researchers have begun to develop regional cost indices, the scarcity of detailed data and complicated measurement issues have rendered this a difficult task. Ideally education funding should be adjusted for regional cost differences, but practically it is difficult to do so.

MAP has not undertaken the extensive economic analyses necessary to assess the adequacy of teacher salaries in Maryland. As discussed above, our preliminary review of the teacher labor market suggests that starting salaries may be too low in particular districts that have to compete with higher-paying neighboring states or districts. We also found that salaries may be too low to attract professionals into particular teaching areas such as math or computer science. However, the structure of the salary schedule—which does not allow districts to pay higher salaries to teachers in shortage areas and which increases pay every year for all teachers based on seniority alone—may be at least partly to blame. Its inflexible structure prohibits teacher compensation from responding to current market forces. Because we were unable to justify a different approach, we used the current average teacher salary in the model, along with a benefit rate of 27%.

Adjustments

The professional judgment teams created programs and budgets for prototypical schools in prototypical districts attended by prototypical students. What happens when schools, districts, or students do not match the prototype? To account for real costs faced by districts, it is necessary to adjust funding levels accordingly to account for factors beyond district control. These would include the number of disadvantaged students, the number of students who do not speak English well, and regional cost differences. There are a number of ways to employ adjustments, and in this section of the report we will discuss several. It should be noted that in many instances funding will be adjusted upwards to take into account a higher concentration of at-risk students or geographic features that result in higher transportation costs. On the other hand, in some instances funding will be adjusted downwards to account for a lower-than-average cost of living or a population with few disadvantaged students.

Ideally a model of adequate education funding would also include adjustments for special education, transportation, and district-level functions. However, each of these aspects is a highly specialized area requiring a separate detailed study, and analyzing them properly is outside the scope of this report. Therefore instead of developing a formula adjustment for these three areas, we used statewide average expenditures for each category when calculating total per-pupil costs. When projecting individual district costs, we removed the state average and substituted actual 1998-99 district expenditures for each category for each district. We realize that this practice confounds expenditures with costs. To the extent that districts are currently over- or under-funding special education, transportation, and district-level functions, the adequate funding levels presented here are over- or under-estimated. Until more detailed studies are conducted, district expenditures are the best estimates for projecting adequate funding. For further discussion of these issues, see the Assumptions section.

Another adjustment potentially worth considering is for teacher seniority. This is a factor that is largely outside district control but has a substantial impact on expenses, since experienced teachers command higher salaries. In some states like Wyoming, the department of education collects information on the years of teaching experience for individual teachers (where they are on the salary schedule steps), and adjusts district funding accordingly. Since this information is unavailable in Maryland, we were unable to calculate the costs of such an adjustment, but policy makers may want to consider doing so in the future.

Below we describe methods for adjusting funding for economically disadvantaged youth and for students with limited English proficiency. Determining which adjustment methods and levels to utilize ultimately is a policy decision, because there is as yet no science that specifies optimal adjustments. The MEFSim spreadsheet model is included as a policy tool to allow users to run their own scenarios and compare the effects of different adjustment levels.

Economically-Disadvantaged Youth (EDY)

Research findings clearly indicate that additional costs are associated with educating disadvantaged youth, particularly when there is a high concentration of such students in one school, but how much additional funding is necessary and for what concentration levels is less evident. There is no conclusive research on adjustment amounts for disadvantaged youth. State practices vary widely and the amount spent on compensatory education tends to be based on available revenues or political considerations rather than analyses of the actual cost of providing an adequate education to at-risk students. Over half of the states provide some variety of compensatory funding, typically in the form of a flat grant per eligible pupil or through a pupil weighting system. In some states all eligible students are weighted, while in other states only schools with high concentrations of poor students receive additional funding. In Illinois, the amount of the grant increases as the concentration level increases. Other states target particular programs to schools with high at-risk populations, rather than employing a weighting system or flat grant. For instance, Tennessee provides funding to reduce class size in grades K-3 for free-lunch students.

It is difficult to compare grant amounts or pupil weights across states, since compensatory funding is related to base funding. To the extent that the base level of funding is generous (e.g. small class sizes), the need for the adjustment is reduced. For this reason, adjustment amounts in other states have little meaning without further information about context.

In an effort to at least partly address the question of how many additional resources are necessary for disadvantaged students in Maryland, MAP instructed teams to create programs and budgets for both average student populations and high-risk student populations. On average, the teams suggested that an additional $285 per pupil was required for disadvantaged students, amounting to about 3% above regular per-pupil funding. The size of this increase is likely attributable to the high level of resources that the teams designated for average students. For instance, small class sizes in the primary grades is one of the interventions that is commonly thought to be helpful for at-risk students. However, all the teams specified small class sizes in their initial models for average students, so they did not perceive a need to include additional resources to create smaller classes when faced with a more heavily disadvantaged student population.

In Maryland, the percentage of students eligible for free/reduced meals varies from 8% in Carroll County to 68% in Baltimore City. Rates can vary substantially from school to school within the same district as well. For instance, in Baltimore County schools the percent of eligible students ranges from under 1% to over 70%. Other districts consistently face high poverty rates across schools. In Baltimore City almost 100% of the schools have at least 30% of students eligible for free/reduced meals, and a substantial percent have over 75% of their students eligible. Given this

variation and the research findings on the concentrated effects of poverty, it is logical to base the distribution of targeted EDY funding on the percent of eligible students within a school, rather than on aggregate district numbers. This practice is followed in the MEFSim model.

The MEFSim model allows users to target additional funding to at-risk students in several ways.[18] First, there is a flat grant for students eligible for free/reduced-price meals. Users can change the amount of the grant and the eligibility requirements: is it generated by all free-meals students, or only those who attend schools with high concentrations of eligible students? Second, full-day kindergarten programs can be provided to eligible students (again, the user can change the eligibility requirements). Third, half- or full-day preschool programs can be included. And finally, funding for comprehensive school reform models can be supplied. These reform models are often thought to be especially advantageous for at-risk youth. Users can change each of these mechanisms to explore the impact on state and district funding.

Note that the MEFSim model does not adjust average per-pupil expenditures downward for schools with lower-than-average EDY populations, although such an adjustment is defensible and could be incorporated.

Limited English Proficient Students

Even less is known about adequate funding for students with limited English proficiency (LEP). Additional funding is assumed to be necessary, but estimates of the amount required range from 5% to 100% above regular student funding. Much of the variance is due to the type of instructional program. According to one of the more recent studies (Parrish, 1994), supplemental funding for LEP students ranges from $131 for "sheltered English" programs, to $1,066 for English as a Second Language (ESL) programs. According to Picus' (2000) review of the literature, typical costs probably fall within a range of 25% to 35% above regular funding.[19] An LEP adjustment can be made either as a flat grant per identified child or through a weighting system. Funding can be targeted to all LEP students, or especially to those in schools with large LEP populations. Grants for each student can be ongoing or limited to a certain number of years, after which the child is expected to have achieved proficiency in the English language.

Maryland has a small but growing number of LEP students, concentrated in just a handful of districts. Statewide about 2% of students are LEP, and the vast majority of these students are located in Montgomery, Prince George's, Howard, and Baltimore counties. As of 1996, districts received $500 for each LEP student, with no student being eligible for more than two years. In 1998, legislation was revised to allocate $1,350 per LEP student and the two-year cap was removed. Districts with an LEP enrollment of greater than 5% qualify for an additional $250,000. Presently only Montgomery County receives this supplemental grant.

MAP has not analyzed the adequacy of LEP funding in Maryland. The MEFSim model allows users to explore how different grant amounts and eligibility criteria impact the statewide education budget.

[18] In all instances, eligibility for the federal free or reduced-price meals program is used as the measure of student poverty.
[19] For more information on LEP costs, see Guthrie & Smith (1998).

EFFECTIVE PRACTICES: WHAT WORKS? WHAT DOES IT COST?

In designing instructional programs, the teams relied on their extensive educational experience and on their knowledge of effective practices research. In general, the research supports the programs and interventions they recommended.

In this section of the report, we summarize the research findings in two areas that potentially have a substantial impact on funding: class size and early childhood education. Our main focus is on practices that have proven effective for disadvantaged students.

The information presented here is intended to be used in conjunction with the MEFSim model. For instance, policymakers can use the model to examine the funding impact of a class size of 22 versus a class size of 17.

Before turning to the research, we need to note an important caveat. Research on effective education programs and practices is still imprecise. It is usually impossible to appropriately control for the myriad variables that affect a child's learning, and it is equally difficult to randomly assign children to double-blind "treatment" programs or control groups as one would do in medical experiments. Also, it is difficult to generalize from one setting to another; what proves effective in one school for one set of children might disappoint in another setting. Often the success of a program is due to a particular teacher or principal and cannot be replicated on a large scale. As a result, what we "know" about effective practices is still more art than science. Research methods and data availability are improving, and in coming years we may be able to predict with much more precision what interventions are worthwhile in specific contexts, but that more advanced knowledge is still decades away. In the meantime, decision makers are forced to make choices about education policy and finance using the best information available. With that in mind, we turn to current information on best practices.

The most recent and perhaps most comprehensive analysis of how states can improve student achievement was conducted by RAND (Grissmer et al, 2000). Researchers compared student scores on the National Assessment of Educational Progress (NAEP) tests across states to determine what practices and resource allocations led to higher student achievement. They concluded that, other factors being equal, NAEP scores were higher in states with:

- Higher per-pupil expenditures;
- Lower pupil-teacher ratios in lower grades;
- Higher public preschool participation;
- Lower teacher turnover; and
- Higher levels of teacher-reported adequacy of resources for teaching. (p. xxv)

However, while Grissmer found that these additional resources were effective for minority and disadvantaged students, they were *not* effective for more-advantaged students, who constitute the majority of the school population. These findings suggest that it would be prudent to target additional resources to disadvantaged students.

Of the interventions found by Grissmer to be effective, two are most germane here: lower pupil-teacher ratios, and higher public preschool participation. Since these programs potentially have such a profound impact on the state budget, we discuss them here in more detail.

Class Size

Class size reduction has become a popular reform in recent years, with around 20 states passing legislation that encourages or mandates lower class sizes in the primary grades. Smaller classes are popular with parents, teachers, many educators, and the general public: According to a March 1997 *Wall Street Journal* poll, 70% of adults believe that reducing class size will lead to significant improvements in public schools (Lewit and Baker, 1997).

The literature on class size is extensive but inconclusive. While many argue that lower class size leads to higher student achievement, there is no professional consensus on optimal class size or what grades should be affected. Much of the research to date has concentrated on the primary grades. An early study by Glass and Smith (1979) found that class size needs to be reduced to fewer than 20 students, preferably to 15, if strong impacts on student learning are to be seen. Odden (1990) also suggests that only dramatic class size reductions are worthwhile, and advocates 15 to 17 students per class. Ferguson and Ladd (1996) believe that class size should be in the vicinity of 23 to 25, and that lowering class size beyond that point will not lead to systematic improvement in student achievement.

To date, only one study on class size reduction has used an experimental design. The Tennessee STAR study randomly assigned children to either a class of 15, a class of 22 with an aide, or class of 22 without an aide. After third grade, all students were assigned to a regular classroom, and their progress was measured each year. Researchers found that students who had been in the smaller classrooms showed lasting achievement gains through the seventh grade, and that the benefit was especially marked for minority students and students eligible for free/reduced-price meals (Mosteller, 1995). Classroom aides did not appear to have an effect on student achievement.

As compelling as the STAR report is, it is important not to overgeneralize from one study. At the very most one can conclude that a class size of 15 in the primary grades is superior to a class size of 22. It would not be appropriate to assume, based on this report alone, that a class size of 15 is optimal, or that lowering class size in upper grades would also lead to an increase in achievement.

The general belief among most educators and policymakers is that smaller classes are effective in improving student performance. Even those who are not convinced that there is a strong supporting research base are willing to concede that smaller classes can lead to more individualized instruction, higher morale among teachers, and more opportunities for teachers to implement instructional programs that research shows work well. Therefore, it is a worthwhile initiative for policymakers to consider. However, it is important to keep in mind that this is a very high-cost reform, and ultimately may not be the most effective use of resources. For example, Darling-Hammond (1998) argues that dollar for dollar, professional development is a

substantially more effective reform than class size reduction. While we are not able to report the relative cost-effectiveness of these two interventions, we do point out that reducing class size is among the most expensive of all interventions, and that teachers' skill and knowledge are probably the most important determinants of the value schooling adds to student outcomes.

The MAP teams each established low class sizes (15 to 21 at the elementary level, and 22 to 25 in the secondary grades). None of the teams changed class sizes when designing programs for high-poverty schools. The research indicates that small classes provide the most benefit to disadvantaged children, suggesting that from a policy perspective it would be more economical to have somewhat larger classes in average schools and smaller classes in high-poverty schools.

Instead of lowering the already-low class sizes for the high-poverty schools, the teams added pupil support staff such as social workers and guidance counselors. This in effect lowered the ratio of students per certified staff without changing class size. The pupil-staff ratio is important to consider in addition to class size, since class size can mask choices that administrators make regarding personnel allocation. For instance, a school may have large classes but a low pupil-teacher ratio, suggesting that the school has an ample number of teachers (or personnel who *could* be teaching) but has chosen to deploy them outside the regular classroom. Therefore, when comparing the team programs to each other as well as to actual district staffing patterns, it is important to examine the ratio of pupils to certified staff, in addition to class size.

Early Childhood Development[20]

Early childhood education programs are increasingly common across the country. Nationally, almost 40% of 3-year-olds, 70% of 4-year-olds, and 90% of 5-year-olds attend a preschool or kindergarten program, and the numbers are growing (National Center For Education Statistics, 2000). Thirty-seven states fund preschool programs or supplement the federal Head Start program (Education Commission of the States, 1997).

The popularity of early childhood education has increased as educators have come to understand the importance of early intervention. Neuroscience research has shown that the first years of life are the most critical in developing future capacity to learn; that interactive environments can enhance brain development; and that early intervention can help reverse or prevent adverse effects for much less than it costs to provide special services later (Education Commission of the States, 2000).

Research has shown both preschool and kindergarten programs to be beneficial and cost-effective. Studies on the long-term effects of preschool programs have found that children attending high-quality preschool programs score higher on performance tests through high school, spend less than half as many years in special education, have reduced absence rates, are more likely to graduate, exhibit improved attitudes and classroom behavior, and display improved attitudinal, emotional, and social development (Hoegl, 1985; Schweinhart and Weikhart, 1984; Education Commission of the States, 2000). For instance, one study found that by age 14, the achievement scores of students who had attended preschool were 1.2 grade-

[20] This section is adapted from Smith and Guthrie (2000).

equivalent units higher than those of a control group that had not attended preschool (Hoegl, 1985). Children from economically disadvantaged families have been found to benefit the most from early childhood education programs.

In their review of nine early childhood initiatives, Karoly et al (1998) also found substantial benefits.

> The Early Training Project, Perry Preschool, and the Infant Health and Development Project found IQ differences between treatment participants and controls at the end of program implementation that approached or exceeded 10 points, a large effect by most standards. The difference in rates of special education and grade retention at age 15 in the Abecedarian project participants exceeded 20 percentage points. In the Elmira, New York, Prenatal/Early Infancy Project (PEIP), participating children experienced 33 percent fewer emergency room visits through age 4 than controls, and their mothers were on welfare 33 percent less of the time. In the Perry Preschool program, children's earnings when they reached age 27 were 60 percent higher among program participants. (p.xvi)

The effects of preschool appear to continue into adulthood. One longitudinal study found that at age 27, compared to the control group that did not attend preschool, the group that had attended preschool had half the number of arrests, four times as many earning over $24,000 per year, three times as many owning their own homes, one third more graduating from high school on time, one fourth fewer requiring welfare services as adults, and one third fewer out-of-wedlock births (Kendall, 1995). Schweinhart attempted to quantify these benefits, and estimated that every dollar invested in the preschool program resulted in a savings of $7.16 to the state. Hoegl (1985) came to a similar conclusion:

> A cost-benefit analysis of the Perry Preschool Program for socioeconomically disadvantaged children estimates economic benefits over the lifetime of the participants to have a present value of seven times the cost of one year of the program. Savings from reduced special education placements alone, calculated on a per child basis, paid for the cost of one year of the preschool program. (p.17)

Other studies have found the net savings from preschool programs to be $13,000 to $19,000 per pupil (Sawhill, 1999). Karoly et al (1998) analyzed the cost-effectiveness of two early childhood initiatives and found that the savings exceeded the costs for the higher-risk families, but not the lower-risk families. They note that not all benefits can be measured in dollars, and that the programs may be worthwhile whether or not they result in a net savings to the state.

Not all researchers are so enthusiastic. Critics claim that the academic benefits decline over time, that successful programs are difficult to replicate, and that the research lauding the cost-effectiveness of preschool programs is methodologically flawed (Sawhill, 1999). While it is certainly true that program effects are difficult to prove conclusively, the preponderance of the evidence suggests that preschool appears to be a highly cost-effective way to not only increase student achievement, but also to improve lifetime productivity and emotional well-being of participants.

Early childhood education seems to be especially effective for special needs students. In 1986, the federal government passed legislation designed to assist states in developing comprehensive early childhood intervention programs as part of what later became known as the Individuals with Disabilities Education Act (IDEA). States report a substantial financial benefit from these programs (NDCPD, 1995):

- Massachusetts saved $2,705 per child in a single year after deducting the cost of early intervention services.
- Montana saved $2 for every $1 spent on early intervention by the time the child was age 7, and projects a savings of $4 for every $1 spent by age 18.
- Florida estimates a savings of $20,887 per child after 20 years.
- Texas found that 20% of children receiving services did not later require special education services.
- Montana found that 36% of children receiving services did not require special education services through at least 2nd grade, and that another 33% required only limited services.
- North Carolina reported that after 10 years, children receiving services were only half as likely to be referred for institutional or group-home services over time.

It must be emphasized that these types of benefits accrue only when programs are of high quality. Too often, preschool and daycare programs are overcrowded and staffed by minimum-wage workers who lack knowledge of early brain development and effective educational practices (Sawhill, 1999).

It is difficult to obtain accurate estimates of preschool costs. One 1995 study (Kendall) estimates that the full cost of preschool center care services is $2.83 ($3.38 adjusted for inflation)[21] per child hour.

Kindergarten programs have been shown to be similarly effective. Studies consistently find that students who attend kindergarten have higher average achievement scores at least through third grade, are less likely to be retained, and have higher attendance rates. Students from low-income families and neighborhoods benefit the most. The greatest benefits were accrued by children who attended both preschool and kindergarten programs, although kindergarten alone was also effective (Howard, 1987; Offenberg and Holden, 1996). Forty states require districts to offer kindergarten programs, and attendance is mandatory in fifteen of those states.

Stinard (1982) reviewed the literature on the effectiveness of full-day versus half-day kindergarten programs, and found strong evidence that full-day programs are more academically advantageous than half-day programs. A more recent meta-analysis by Fusaro (1997) came to the same conclusion. However, research could not be found on the cost-effectiveness of the full-day versus half-day programs.

[21] Inflated at 3% per year to equal $3.38 in FY 2002.

In designing their instructional programs, all three professional judgment teams emphasized early childhood programs. They all included full-day kindergarten and a preschool program, and one team also added a full-day program for 3-year-olds from low-income families. The cost of these early childhood programs ranged from about $4,400 per pupil to over $6,500, depending on staffing levels and program duration.

IMPLICATIONS FOR POLICY AND FURTHER RESEARCH

As of 1999-2000, Maryland's minimum foundation funding level was set at $3,901 per pupil. Actual district expenditures (not including debt service or capital construction) averaged $7,132 per pupil. The findings from the professional judgment panels suggest that Maryland is possibly underfunding its education system. Based on panel recommendations, at least an additional $300 million is needed to adequately fund schools, and more would be required to support potentially effective programs such as early childhood development.

This conclusion assumes that the base level of funding for an average district with 30% of its student population eligible for free or reduced-price meals is also appropriate for a district with fewer at-risk students. The panels did not address this issue. It is therefore possible that fewer resources are necessary for less heavily-impacted districts, and by targeting resources to high-poverty districts the state can reallocate funding to maximum effect.

Using MEFSim, policy makers can explore the ramifications of these types of scenarios. It would be useful, however, to convene a follow-up professional judgment panel to design a program for districts with few disadvantaged students, in order to ascertain an appropriate level of funding for these districts.

In addition, it would be useful to conduct further research establishing the true costs of factors such as school facility upgrades, special education, transportation, and district services. Augenblick & Meyers, a Denver-based consulting company, is currently conducting a study of Maryland funding adequacy using the "Successful Schools" approach, which statistically examines funding patterns of successful schools and districts. Once their report becomes available, their findings on district-level services may provide useful estimates for the district expenditure categories in MEFSim. The new estimates can then be used to update the professional judgment teams' recommendations.

Special education is a particularly important area for review, since proper diagnoses and intervention plans tend to be subjective and since costs are so high. Special education is the second highest expenditure category in Maryland, accounting for almost 14% of operating expenses. Special education funding is currently allocated based on total enrollment and a 1976 special education cost index, as well as on a more recent system that provides additional funding based on the number of special education students adjusted for county wealth (Maryland State Department of Education, 2000b). Given the changes in special education programs over the last two decades, it is probably worthwhile to update the 1976 index.

One way of doing so would be to participate in the Special Education Expenditure Project (SEEP), operated by the Center for Special Education Finance (CSEF) at the American Institutes for Research. SEEP is a national inquiry into special education revenues and expenditures, allocation patterns, and modes of service delivery. While all 50 states are included in the sample, not enough information is collected from any one state to provide a representative state sample. CSEF has helped nine states[22] conduct parallel state-level examinations of their special education revenues and expenditures and service programs, and has extended a similar offer to the remaining 41 states.[23] Since the development costs of the national SEEP have already been covered through a federal grant, the cost to the state for an expanded study is reduced by about one-half.[24] Participation in the state-level SEEP would allow decision makers to begin to relate special education spending to student outcomes, and provide sufficient information for informed policymaking.

[22] Alabama, Delaware, Indiana, Kansas, Missouri, New Jersey, New York, Ohio, and Rhode Island.
[23] See the Summer 2000 issue of *The CSEF Resource*, newsletter of the Center for Special Education Finance.
[24] Total cost would depend on the level of effort required by the contract with CSEF. Current contracts in nine states vary in size from about $70,000 to $350,000. Actual cost to Maryland would largely depend on how many districts the state decided to include in the sample and how much subsequent analysis it required. For $212,000, the Rhode Island contract includes all school districts (the only state to do this) plus a policy analysis project. (Correspondence with Tom Parrish of CSEF.)

BIBLIOGRAPHY

Chambers, J. and Fowler, W.J., Jr. (1995). *Public School Teacher Cost Differences Across the United States*. NCES 95-758. Washington, DC: National Center for Education Statistics.

Darling-Hammond, L. (1998). *Teaching for High Standards: What Policymakers Need to Know and Be Able to Do*. Philadelphia, PA: National Commission on Teaching and America's Future and the Consortium for Policy Research in Education.

Education Commission of the States (1997). *Early Childhood Education: State Programs*. ECS Information Clearinghouse. On-line article available at http://www.ecs.org/ecs/ecsweb.nsf.

Education Commission of the States (2000). *Brain Research and Education: Neuroscience Research Has Impact for Education Policy*. Denver, CO.

Ferguson, R. F. and H. Ladd (1996). "How and Why Money Matters: An Analysis of Alabama Schools." *Holding Schools Accountable*. H. Ladd. Washington, DC, Brookings Institute: 265-298.

Fleetwood, C. and K. Shelley (2000). *The Outlook for College Graduates, 1998-2008*. United States Bureau of Labor, Occupational Outlook Quarterly, Fall 2000.

Fusaro, J. A. (1997). "The Effect of Full-Day Kindergarten on Student Achievement: A Meta-Analysis." *Child Study Journal* v27 n4: 269-277.

Glass, G. V. and M. L. Smith (1979). "Meta-Analysis of Research on Class Size and Achievement." *Educational Evaluation on Policy Analysis* 1(1): 2-16.

Grissmer, D., A. Flanagan, et al. (2000). *Improving Student Achievement: What State NAEP Test Scores Tell Us*. Santa Monica, CA, RAND.

Guthrie, James W.; Levin, Henry M.; Kleindorfer, Benjamin W.; and Stout, Robert S. (1970). *Schools and Inequality*, Cambridge: MIT Press

Guthrie, J. and R. Rothstein (1999). Enabling "Adequacy" to Achieve Reality: Translating Adequacy into State School Finance Distribution Arrangements. In *Equity and Adequacy in Education Finance :Issues and Perspectives*. H. Ladd, Chalk, R. & Hansen, J. Washington, D.C., National Research Council**:** 209-259.

Guthrie, J. W. and J. R. Smith (1998). *Wyoming Education Finance Issues Report: Programs for Students with Special Needs (Disadvantaged, Limited English Proficient, Gifted)*. Davis, CA: Management Analysis & Planning, Inc.

Hoegl, J. (1985). *Effectiveness of Early Childhood Education Programs: A Review of Research*. Illinois State Board of Education, Department of Planning, Research and Evaluation (ERIC Document Reproduction Service No. ED260825).

Howard, E. M. (1987, February). *A Longitudinal Study of Achievement Associated with Participation in a Public School Kindergarten.* Annual Meeting of the Association of Teacher Educators, Houston, TX. ERIC Document Reproduction No. ED321849.

Karoly, L., P. Greenwood, S. Everingham, J. Hoube, M.R. Kilburn, C.P. Rydell, M. Sanders & J. Chiesa. (1998). *Investing In Our Children: What We Know and Don't Know About the Costs and Benefits of Early Childhood Interventions*. Santa Monica, CA: RAND.

Kendall, E. D. (1995). *Long-Term Economic Benefits of Preschool Services and the Potential Impact of Privatization*. Meeting on Social Protection and Social Care, (Komotini, Thrace, Greece). ERIC Document Reproduction Service No. ED386323, Peabody College, Vanderbilt University.

Lewit, E. and L. Schuurmann-Baker (1997). "Class Size." *The Future of Children* v7: 112-121.

Maryland Business Roundtable for Education/Committee on Technology in Education (2001). *Where Do We Stand in 2001? A Progress Report on Technology Resources in Maryland Schools*. Baltimore, MD.

Maryland State Department of Education (2000). *Maryland Teacher Staffing Report 2000-2002*. Baltimore, MD.

Maryland State Department of Education (2000b). "Structure of School Finance in Maryland", Appendix A in *The Commission on Education Finance, Equity, and Excellence Preliminary Report January 2000*. Baltimore, MD.

Mosteller, F. (1995). "The Tennessee Study of Class Size in the Early School Grades." *The Future of Children: Critical Issues for Children and Youths* 5(summer/fall): 113-27.

National Center for Education Statistics (2000). *Digest of Education Statistics, 1999.* Washington, DC: U.S. Department of Education. NCES 2000-031.

NDCPD (1995). Briefing Paper on Part H of the Individuals with Disabilities Education Act (IDEA) 1986-1995. Report to the Federal Interagency Coordinating Council. http://ndcd.org/ndcpd/nectas.html#achieved.

Odden, A. (1990). "Class Size and Student Achievement: Research-Based Policy Alternatives." *Educational Evaluation and Policy Analysis* 12(2): 213-227.

Odden, A. and L. Picus (2000). *School Finance: A Policy Perspective (2nd edition)*. Boston, MA, McGraw-Hill Higher Education.

Offenberg, R. and B. Holden (1996). *Accountability & Assessment: A Cohort Study of the Effects of Prekindergarten and Kindergarten on Promotion and Third Grade Achievement*. School District of Philadelphia, PA.

Parrish, T. (1994). "K-12 Categorical Programs" in *Advances in Educational Productivity*. Chapter 6, Volume 4: Cost Analysis for Education Decisions: Methods and Examples. Ed. W. Steven Barnett. Greenwich, CT: JAI Press, Inc.

Rothstein, R. and J. R. Smith (1997). *Adjusting Oregon Education Expenditures for Regional Cost Differences: A Feasibility Study*. Davis, CA: MAP, Inc.

Sawhill, I. (1999). *Kids Need an Early Start: Universal Preschool Education May Be the Best Investment Americans Can Make in Our Children's Education—and Our Nation's Future*. The Brookings Institution.

Schweinhart, L. and D. Weikart (1984). *Changed Lives: The Effects of the Perry Preschool Program on Youths Through Age 19.* Ypsilanti, MI: High/Scope Press.

Slavin, R.E., N.A. Madden, and B.A. Wasik. (1998). *Success for All and Roots and Wings: Summary of Research on Achievement Outcomes*. Center for Research on the Education of Students Placed at Risk, Johns Hopkins University. Available at http://successforall.com/sumresearch.html.

Smith, J.R. and James W. Guthrie (2000). *An Exploration of Educational and Demographic Conditions Affecting New Hampshire's Adequacy Aid*. Davis, CA: MAP, Inc.

Stinard, T. A. (1982). *Synopsis of Research on Kindergarten Scheduling*. Grant Wood Area Education Agency (ERIC Document Reproduction Service No. ED 219151).

U.S. Bureau of Labor Statistics (2000). *Occupational Outlook Handbook, 2000-01 Edition*. Office of Employment Projections, Bulletin 2520.

U.S. Office of Personnel Management (2000). Operating Manual: Qualification Standards for General Schedule Positions. www.opm.gov/qualifications/SEC-IV/A/GS-PROF.HTM.

APPENDIX A: Professional Judgment Team Participant List

The *New* MEC School Finance Adequacy Project
Panel Participant List
February 2-4, 2001

1. **Laura Barbee,** ES Principal, Prince George's County, *Team B*
2. **Oretha Bridgwaters,** ES Principal, Prince George's County, *Team A*
3. **Patricia Burrell,** ES Principal, Baltimore City Public Schools, *Team C*
4. **Thomas Davis,** HS Principal, Somerset County, *Team C*
5. **Marta Droddy,** ES Teacher, Frederick County, *Team A*
6. **William Ecker,** former superintendent, Caroline County, *Team B*
7. **Robert Allan Gorsuch,** Director, Eastern Shore of MD Educational Consortium, *Team C*
8. **Donald Horrigan,** HS Principal, Prince George's County, *Team B*
9. **Patrick Johnson,** former ES and MS principal, Talbot County, *Team A**
10. **Melvin Johnson,** MS Principal, Prince George's County, *Team B*
11. **Kathleen Kurtz,** Executive Director, Region IV Office, Prince George's County, *Team A*
12. **Susan Lancaster,** ES Teacher, Allegany County, *Team C*
13. **David Lloyd,** MS Principal, Baltimore County, *Team B*
14. **Janet Lopez,** ES Principal, Prince George's County, *Team C*
15. **Larry Lorton,** Superintendent, Caroline County, *Team A*
16. **Gary McCabe,** Supervisor of Business Operations, Worcester County, *Team A*
17. **John Pfister,** Chief Financial Officer, Dorchester County, *Team A*
18. **Craig Spilman,** Executive Director, CollegeBound Foundation, *Team B*
19. **Linda Storey,** HS Teacher, Howard County, *Team B*
20. **Barbara Walker,** MS Principal, Baltimore City Public Schools, *Team C*
21. **Barry Williams,** District Administration, Baltimore City Public Schools, *Team C*
22. **Joseph Wilson,** HS Principal, Baltimore City Public Schools, *Team A*

**Attended only first day, due to illness.*

The *New* MEC School Finance Adequacy Project
Participant Profiles

Laura Barbee
- Principal of a school of 760 students in grades Pre-K through 6 in Maryland for the past 4 years; 78% of the students in her school are eligible for free or reduced-price meals; 15 years experience as a teacher; cumulative 22 years of experience in K-12 education
- Masters Degree
- Member of the Association for Supervision and Curriculum Development, the National Association of Elementary School Principals, and the National Staff Development Council
- Study Assignment: Team B

Oretha Bridgwaters
- 31 years experience in K-12 education, including13 years as a teacher and 14 years as a principal; currently the principal of a Maryland school with an enrollment of 603, grades K-6; 30% eligible for free or reduced-price meals
- Masters Degree in Education, Guidance and Counseling, and is currently working on a Doctoral Degree in Educational Administration
- Former Prince Georgian of the Year; Outstanding Educator and Outstanding Teacher in 1982; recipient of the Distinguished Educational Leadership Award, National Gifted Administrator's Award and the Odyssey of the Mind Award; is a member of the NAESP
- Study Assignment: Team A

Patricia Burrell
- Principal of a school of 356 students in Baltimore for the past 2 years; 95% of the students grades pre K-5 are eligible for free or reduced-price meals; 7 years teaching experience and 14 years total in K-12 education
- Masters Degree
- Member of the Public School Administrators and Supervisors Association and the Association for public School Administrators
- Teacher of the Year; Teacher Creativity Award
- Study Assignment: Team C

Thomas Davis
- 12 years experience in K-12 education; 5 years teaching; 3 years as the current principal of a Maryland high school of 365 students (grades 9-12), 36% eligible for free or reduced-price meals
- Masters in Educational Administration (Secondary)
- Member of the ASCD and the NASSP
- Study Assignment: Team C

Marta Droddy
- 22 years experience in K-12 education as a teacher
- Masters of Education
- Frederick County Teacher of the Year

- Member of the FCTA, MSTA and the NEA; Teacher-in-Charge for 2 years; Gifted and Talented Representative for 2 years
- Study Assignment: Team A

William Ecker
- 35 years experience in K-12 education, 5 years in teaching and 8 years as a principal; 8 years as superintendent; currently self employed as a consultant; involved in school funding issues for 20+ years
- Masters of Education; plus additional graduate course work
- Published three articles in professional journals
- Outstanding Young Educator of Maryland, Maryland Middle Level Educator of the Year; named "Unsung Hero of Maryland" by Newsweek; recipient of Toastmasters International's "Accredited Speaker" Award
- Member of MEC; Chair of the Eastern Shore Economic Development Task Force; President of the Public School Superintendents' Association of Maryland and the Eastern Shore of Maryland Superintendents' Association
- Study Assignment: Team B

Robert Allan Gorsuch
- 7 years experience as superintendent; current Director of Eastern Shore of Maryland Educational Consortium; 35 years cumulative K-12 education experience with 3 years as a high school teacher and 3 years as a high school principal
- Doctorate Degree in Education and Masters in Education
- 1999 Maryland State Superintendent of the Year Award; member of the AASA, ASBO and PDK; appointed to governor's Task Force on School Construction; has testified before state legislative committees
- Study Assignment: Team C

Donald Horrigan
- Recently became the principal of a Maryland high school with 2000 students; 36.5% of the enrolled students are eligible for free or reduced-price meals; has 32 years experience in K-12 education, 15 years of that experience as teacher
- Doctorate degree in Education, Masters of Education in Biology/Secondary Education, and a Masters of Arts
- Member of the NASSP, MASSP, PDK, ASCD, and MASCD
- Study Assignment: Team B

Patrick Johnson
- 8 years as principal; 8 years as a teacher; cumulative of 18 years in education, and currently works for three treatment centers in the Maryland area
- Masters of Science in Administration and is currently working on EDD
- Certified in elementary, secondary, elementary/secondary special education, as a principal and superintendent in six different states
- Study Assignment: Team A

Melvin Johnson
- 6 years experience as a principal and 24 years as a teacher; currently principal of a Maryland middle school (grades 7 & 8) with 750 students; 42% of whom are eligible for free or reduced-price meals
- Masters in Education
- "Who's Who Among Outstanding Leaders"
- Study Assignment: Team B

Kathleen Kurtz
- 17 years principal/administrator; 12 years in teaching; 28 years in K-12 education; currently the Regional Executive Director of a district with 131,059 students; Students eligible for free or reduced-price meals: 49.2% elementary, 44.4% middle school, and 23.3% high school
- Has a Masters in Education
- Named Outstanding Educator in Prince George's County
- Presenter/Facilitator of many education/leadership conferences
- Study Assignment: Team A

Susan Lancaster
- 16 years experience as a teacher
- Masters in Education and is currently working on a Masters in administration/supervision
- Member of the Association for Supervision and Curriculum Development; Member of the Content Coordinating Team for the Maryland School Performance Assessment Program
- National Board Certified; Fulbright Memorial Fund recipient to Japan in 1999
- Study Assignment: Team C

David Lloyd
- 6 years experience as a principal; cumulative of 26 years experience in K-12 education with 16 years teaching; currently principal of 1000 student school; 41% eligible for free or reduced-price meals
- Masters of Arts; and secondary school principal certification
- Coordinated creation of school wide literacy program for teaching reading and writing in the content areas; served on State MGSSPI committee for three years; published author; served on many committees and boards revising and improving educational plans and programs
- Recipient of Ray Kroc Teacher Achievement Award, Baltimore County Educational Award for Excellence, and MASSP Outstanding Service to Education Award
- Study Assignment: Team B

Janet Lopez
- Principal of an elementary school with 757 students grades K through 6; 65.5% eligible for free or reduced-price meals; 27 years experience as a teacher
- Masters of Science degree with additional graduate credits
- School was recognized as a National Distinguished Title 1 School; received honorable mention for Blue Ribbon 2000; recipient of MAESP Leadership Award, American Legion Award and PPW Association Humanitarian Award; featured in "Hope for Urban Education" USDE report.
- Study Assignment: Team C

Larry Lorton

- 20 years experience as a school superintendent, including 15 years superintendent in Maryland; 3 years experience as Director of Curriculum and Research in Ohio; 31 cumulative years experience in education; adjunct professor for 23 years in Statistics, Research and Social foundations
- Ph.D. in Curriculum and Instruction, Statistics/Research, and Masters of Science in Education in Secondary School Administration
- Established writer with many published papers on education, learning and school finance.
- Recipient of Kennedy Center/Alliance for the Arts School Administrator Award
- President of Public School Superintendents Association of Maryland; lifetime member of Parent Teacher Association; member of Career Education Advisory Committee for the Maryland State Department of Education; Chairman on Maryland State Department of Education Task Force on Instruction
- Study Assignment: Team A

Gary McCabe

- 19 years experience in K-12 education; currently the Supervisor of Business Operations for Board of Education of Worcester County, with an enrollment of 6,460 students within the district; 35.2% of the students in district eligible for free or reduced-price meals
- Certified School Business Official of Association of School Business Officials; served two terms as Vice Chairman and Chairman of Maryland Association of Boards of Education Group Insurance Pool
- Masters of Education in Educational Administration
- Study Assignment: Team A

John Pfister

- Controller for Dorchester County Board of Education in Maryland; 10 years experience in accounting for public schools in Maryland
- Bachelor of Arts in Business Administration
- Study Assignment: Team A

Craig Spilman

- 9 years experience as a middle school principal; 3 years experience as Associate Superintendent for Baltimore City Public Schools
- Executive Director for CollegeBound Foundation; Director of Maryland Center for Middle Level Education; Executive Director for Maryland Middle School Association; Maryland State Affiliate Director for National Middle School Association; Consulting Principal for Carnegie Corporation National Network of Middle Schools
- Directed the conversion of three schools into nationally recognized institutions; administered the curriculum and instructional division of the Baltimore City Public Schools
- Has published several articles on middle schools and urban school systems
- Ph.D. and a Masters in Education
- Study Assignment: Team B

Linda Storey
- 27 years experience as a high school teacher.
- Holds a Masters degree and has completed additional graduate level credits in Educational Administration
- Maryland Teacher of the Year, Howard County Teacher of the year; recipient of Educator of the Year Award from the Howard County Chamber of Commerce, Washington Post Supervising Teacher Award, and the Teacher of the Year Award from the Maryland Council of Teachers of Language Arts; presented with the Howard High School Honorary Faculty Award for the National Honor Society
- Study Assignment: Team B

Barbara Walker
- 4 years principal of middle school of 1100 students; 26% eligible for free or reduced-price meals
- Cumulative total of 30 years experience in K-12 education with 23 years experience as a teacher;
- Masters in Education; has completed all requirements for Ph.D. in Curriculum and Instruction except dissertation
- Holds an advanced professional certificate; certified by Maryland in English 5-12, Reading K-12, as a secondary principal and supervisor and as an administrator II.
- Published articles on reading and literacy.
- Presenter at many workshops regarding teaching, middle schools and motivation in the classroom
- Study Assignment: Team C

Barry Williams
- 24 years experience in K-12 education, including 10 years as a teacher, 5 years as a principal, and 3 years as an area superintendent; currently a superintendent of a district of 101,000 students; 80% of the students in his district are eligible for free or reduced-price meals
- Holds 2 Masters degrees
- Named Baltimore County Administrator of the Year; was a finalist for Principal of the Year for MASSP
- Member of the PDK, ASCD, MAPS, and ASBO
- Study Assignment: Team C

Joseph Wilson
- Juris Doctorate, Masters of Science in Education, Masters in Public Administration.
- 7 years as a principal of a high school of 1233 students; 39.3% eligible for free or reduced-price meals; 1 year high school teaching experience and 8 years cumulative experience in K-12 education.
- 7 years as elected school board member in San Jose (CA) Unified School District.
- High school has earned recognition as a Maryland Blue Ribbon High School, as Maryland Character Education High School of the Year and certification as an International Baccalaureate School; USDE designated his high school a National School of Excellence in 2000
- Study Assignment: Team A

APPENDIX B: Instructions to Professional Judgment Teams

INSTRUCTIONS

Introduction

Please read this introduction entirely before beginning any of the tasks.

The purpose of this project is for your team to describe educational programs that, in the professional judgement of its members, will provide an adequate opportunity for the specified student populations to meet the expectations described in Exhibit 1. The program design should define the type and quantity of resources (e.g. personnel, supplies, equipment) necessary to deliver the program you design. MAP will impute prices for these resources based on the best available market data.

Specifically, your task is to design adequate instructional and support programs for students in kindergarten through 12th grade that you are confident will meet the expectations specified in Exhibit 1 for the student populations described in the assumptions listed below. You should approach this task as if it were a real assignment, in a real school district in which you were employed. The program design should be one that you would reasonably expect to be adopted and funded by a school board or state legislature comprised of knowledgeable, well intentioned lay persons.

With the exception of the constraints imposed by these instructions, you are free to configure your programs in any way that you are confident will deliver the capacities. The programs should be founded on your professional judgement and to the extent possible, high quality research. They should be practical and have a reasonable chance of being implemented successfully by competent educators.

You must take the assumptions as given, even if they are not consistent with conditions in your district.

Do not take into account sources of funding as you design your program. For example, the fact that some of the costs of the program you design may be funded through federal categorical programs should not influence your design.

In all but Task #1, teams will work independently. You should not discuss the work of your team with members of other teams until instructed to do so by a facilitator.

Pacing

From our experience working with other educators on similar projects, the most effective groups first decide the nature of the program they would provide and then proceed with staffing the program and allocating resources accordingly. For example, class size is derived from program design rather than vice versa.

A second characteristic of the more effective groups is that they estimate the total time necessary to complete all of the exercises and allocate their time as necessary. This is particularly important to avoid giving short shrift to secondary program design, which, by its nature can be very complex, particularly given the need to design a master schedule for the high school. As a rule of thumb, by the end of the first day you should have completed the design of your elementary school program and at least to have begun design of the middle school program. You should have completed tasks 1-3 by mid-afternoon of the second day, and tasks 4-7 by noon on the third day.

Task #1: Confirming Elements

The table below tentatively lists elements of typical elementary, middle and high school educational programs. Your first task is to review these elements and suggest any additions, deletions or revisions. For this task only, all teams collaborate. In order to make the products of your work more generalizable we prefer more generic descriptions. For example, in many cases it will be possible and desirable to subsume specific elements under a more general category (e.g. reading specialist under pupil support). Our goal is to capture all resources, but not necessarily list them in great detail.

Program Elements

A. Personnel	B. Supplies & Materials
1. Teachers	C. Equipment & Technology
2. Substitutes	D. Student Activities
3. Aides	E. Professional Development
4. Guidance Counselors	F. Assessment
5. Social Workers	G. Food Service
6. School Psychologists	H. Special Education
7. Therapists	I. District Expenditures
8. Nurses	1. Maintenance & Operations
9. Librarians	2. Administration
10. Principals	3. Mid-Level Administration
11. Assistant Principals	4. Fixed Charges
12. Clerical/Data Entry	5. Transportation
13. Other Prof. Staff	

Exhibit 1
Desired Educational Outcomes

Elementary

At least 70% of students must receive a satisfactory score in all six content areas of the MSPAP (reading, writing, language usage, math, science, and social studies).

Secondary

- 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; and
- 96% for Writing.
- At least 85% of graduating students must meet either the University System of MD Course requirements, the Career and Tech Ed Program requirements, or the Rigorous High School Program Indicators.

Assumptions

1. The elementary school is comprised of kindergarten through grade 5, with an enrollment of 500. Enrollments are approximately the same at each grade level.

2. The middle school is comprised of grades 6 through 8, with an enrollment of 800. Enrollments are approximately the same at each grade level.

3. The high school is comprised of grades 9 through 12, with an enrollment of 1000. Enrollments are approximately the same at each grade level.

4. The student population in the district:
   - 2% of the student population is identified LEP
   - 31% of the student population is eligible for free or reduced price meals
   - 46% of the student population is minority
   - 9.5% of the student population has been identified as Learning Disabled or Speech & Language Disabled
   - 4% of the student population is identified special education with handicaps other than Learning Disabled (LD) and Speech and Language (SL)

   Assume that the student population in each school reflects these district averages.

5. Personnel are competent. Salaries are adequate to attract and retain qualified faculty and staff.

6. Facilities are in place and are adequate for the instructional program you design. Major maintenance and repair are adequate.

7. Ongoing facilities maintenance and operations are considered a district expense, are adequate and can not be changed.

8. There is an adequate level of supplies and equipment (including technology) on hand, but normal maintenance and replacement is necessary.

9. Special education funding for all students identified with a handicap other than LD or SL is adequate to meet the needs of the students in these schools and you can not reallocate special education funding.

10. The program you design for SL and LD students must meet the needs of this population, but it is not necessary that these students be labeled or receive services outside of the regular classroom unless it is your professional judgement that such a program is appropriate.[25]

11. The line item budget for district administration is the amount that the district charges these schools, is adequate for district level operations and can not be changed.

12. The line item budget for transportation is adequate to transport students to and from school and for student activities and can not be changed.

13. Multi-grade, multi-level classes, block schedules and other non-traditional organization structures are permissible.

14. You may design preschool, full day kindergarten or extended day programs or other support programs if they are necessary to produce the required outcomes. You must define the population who would receive such services, and you must justify such services by describing why they are necessary and how they will contribute to the specified outcomes. Refer to research results wherever possible. Assume that the total number of preschool age children is equal to the number of kindergarten students and that their demographic characteristics are as described in assumption 4 above.

Task #2: Develop Programs

In the simplest terms, your team is to develop and describe elementary, middle and high school educational programs and specify the resources necessary to deliver them. Schools are configured K-5, 6-8, and 9-12. Enrollment is 500 elementary, 800 middle, 1000 high school. For

[25] Panelists were given oral instructions revising this assumption. They were instructed *not* to include services for special education students in their program designs. Instead, they were to assume that funding in this area was adequate.

each school describe the nature of the instructional and support programs and the specific skills and knowledge that would be introduced or reinforced in each grade or course. Be as specific as possible given the time available. From your description, professional educators who are not part of your discussion should be able to understand the nature of the program you have designed and how it relates to the expectations in Exhibit 1.

Products for Task #2

Use the computer provided to your team to record your work.

Each team is provided with Exhibits 2-4 (resource allocation for each school level) in the form of an electronic spread sheet. You will use this spread sheet to record the quantities of each resource necessary to deliver the program you design. Record all other work on the word processing program provided.

1. Describe the kindergarten through grade 5 educational program your team developed. Assign teachers and students to grade levels. Describe how other instructional employees (including administrators and pupil support) would be deployed.

   In instances where an employee works in this school less than full time, allocate only the fraction of full time (FTE) necessary to deliver the educational program with the resources available. For example a teacher who teaches half time would count as .5 FTE. Keep in mind all assumptions listed above.

2. Describe the grade 6 through grade 8 educational program your team developed. Include a course schedule and assign enrollment or class sizes in sufficient detail to determine how teachers and other instructional employees (including administrators and pupil support) would be deployed.

3. Describe the grade 9 through grade 12 educational program your team developed. Include a course schedule and assign enrollment or class sizes in sufficient detail to determine how teachers and other instructional employees (including administrators and pupil support) would be deployed.

4. Describe any preschool, extended day programs or other support programs necessary to produce the required outcomes. You must define the population who would receive such services, and you must justify such services by describing why they are necessary and how they will contribute to the specified outcomes. Refer to research results wherever possible.

5. List any additional assumptions or concerns that are necessary to understanding the educational program developed by your team.

Task #3: Programs for Prototypical Students

As a check on the adequacy of the program you have designed, describe the educational experience of three prototypical students who would be educated in this school district. Beginning with kindergarten (or preschool) and progressing through grade 12, describe specifically where and how the opportunity to meet the expectations described in Exhibit 1 will be provided to each of the students described below. Keep in mind that *all* students are entitled to an educational program consistent with these expectations.

Prototypical Students

Student X does not plan to attend a four year college. X may begin working immediately after high school or may attend a post secondary vocational program. X's academic test scores are typically in the 40th to 70th percentile.

Student Y is disadvantaged and struggles with academics. Y's academic test scores are typically somewhere near the 10th to 30th percentile.

Student Z is college bound. Z is highly motivated and plans to enroll at a major university. Z's test scores are consistently at or above the 80th percentile.

Products for Task #3

1. Describe the elementary, middle and high school educational program experienced by students X, Y, and Z indicating where each would acquire the skills and knowledge specified in the Exhibit 1.

2. Provide team answers to the following questions.

   a) On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:* How confident are you (team), given the assumptions listed in 1 through 14 above, that the K-5 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to the all of the school's students? _____

   b) On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:* How confident are you (team), given the assumptions listed in 1 through 14 above, that the grade 6-8 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to all of the school's students? _____

   c) On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:* How confident are you (team), given the assumptions listed in 1 through 14 above, that the grade 9-12 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to all of the school's students? _____

Comments:

Task #4: New Assumptions

Assume that all of the conditions described in the Assumptions 1-14 remain unchanged except Assumption 4 is changed as follows:

The student population in the district:

- 0.5% of the student population is identified LEP
- 68% of the student population is eligible for free or reduced price meals
- 89% of the student population is minority
- 11.4% of the student population has been identified as Learning Disabled or Speech & Language Disabled
- 6% of the student population is identified special education with handicaps other than Learning Disabled (LD) and Speech and Language (SL)

Assume that the student population in each school reflects these district averages.

Do these changes in assumptions affect your confidence levels stated in task 3?

____yes ____no

If no, please proceed to Task #6. Otherwise, please continue with tasks 4 and 5.

Products for Task #4 (Use Exhibits 5-7 as appropriate)

What changes, if any, would you make to the programs you have just designed as a result of this changed assumption? Specifically:

1. Describe the kindergarten (or preschool) through grade 5 educational program your team developed. Assign teachers and students to grade levels. Describe how other instructional employees (including administrators and pupil support) would be deployed.

2. Describe the grade 6 through grade 8 educational program your team developed. Include a course schedule and assign enrollment or class sizes in sufficient detail to determine how teachers and other instructional employees (including administrators and pupil support) would be deployed.

3. Describe the grade 9 through grade 12 educational program your team developed. Include a course schedule and assign enrollment or class sizes in sufficient detail to determine how teachers and other instructional employees (including administrators and pupil support) would be deployed.

4. Describe any preschool, extended day programs or other support programs necessary to produce the required outcomes. You must define the population who would receive such services, and you must justify such services by describing why they are necessary and how they will contribute to the specified outcomes. Refer to research results wherever possible.

5. List any additional assumptions or concerns that are necessary to understanding the educational program developed by your team.

Task #5: Programs for Prototypical Students
(*Complete only if there were program changes under the new assumptions*)

As a check on the adequacy of the program you have designed, describe the educational experience of three prototypical students who would be educated in this school district. Beginning with kindergarten (or preschool) and progressing through grade 12, describe specifically where and how the opportunity to meet the expectations described in Exhibit 1 will be provided to each of the students described below. Keep in mind that *all* students are entitled to an educational program consistent with these expectations.

Prototypical Students

Student X does not plan to attend a four year college. X may begin working immediately after high school or may attend a post secondary vocational program. X's academic test scores are typically in the 40^{th} to 70^{th} percentile.

Student Y is disadvantaged and struggles with academics. Y's academic test scores are typically somewhere near the 10^{th} to 30^{th} percentile.

Student Z is college bound. Z is highly motivated and plans to enroll at a major university. Z's test scores are consistently at or above the 80^{th} percentile.

Products for Task #5

1. Describe the elementary, middle and high school educational program experienced by students X, Y, and Z, indicating where each would acquire the skills and knowledge specified in the Exhibit 1.

2. Provide team answers to the following questions:

   a) On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:* How confident are you (team), given the assumptions listed in 1 through 14 above, that the K-5 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to the all of the school's students? _____

   b) On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:* How confident are you (team), given the assumptions listed in 1 through 14 above, that the grade 6-8 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to all of the school's students? _____

   c) On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:* How confident are you (team), given the assumptions listed in 1 through 14 above, that the grade 9-12 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to all of the school's students? _____

Comments:

Task #6: Teacher Factors

This task is to be completed independently by individual participants.

1. In your school or district, how many openings for regular classroom teachers were there this year? _____

2. About how many applicants were there for each position? _____

3. In general, how well qualified would you say the applicant pool was? (Circle one)

   Well Adequately Marginally

4. In general, do you feel that you were able to fill openings with candidates well qualified to teach in the position for which they were hired?

   _____

   _____

   _____

5. In general, how competent and well qualified do you consider your existing teaching force? (Circle one)

   Exceptional Good Adequate Fair Poor

6. Over the past five years, has the number of teachers leaving your school/district for reasons other than retirement, intradistrict transfer, or promotion:

   Increased Decreased Remained about the same

Comments: _____

_____

_____

_____

Task #7: Evaluation and Feedback

This task also is to be completed independently by individual participants.

Each participant is asked to answer the following questions. On a scale of 1 to 5, with 5 being *strongly agree* and 1 being *do not agree.*

a) The facilities and other meeting arrangements were adequate. _____

b) This was a rewarding professional experience. _____

c) The programs designed and the responses to the various questions represent the professional consensus of the team members. _____

d) I was given the opportunity to express my professional opinion on all of the products produced by my team. _____

e) The facilitators did not impose their values or opinions on me. _____

f) No one, other than team members, tried to influence the team's deliberations or its conclusions. _____

g) The programs developed by my team would be realistic in the context of the school district where I work. _____

If your answer to any of the above was less than 3, please explain.

Comments:

_____

Name

APPENDIX C: Professional Judgment Team Programs & Budgets

TEAM A PRODUCTS

Elementary School Program

There needs to be a 1/2 day Pre-K program available for all 4 year olds. We anticipate that 85% of the incoming students will participate. A Scope and Sequence will be developed to create a continuum. The MSDE Kindergarten Standards can be used as a readiness diagnostic tool. A Home/School coordination system needs to be implemented for parents who are having parenting difficulties. This will include 1 Home/School Liaison teacher (Parent Service Providers) to service grades Pre-K through 1. There needs to be 2.5 full-time teachers in Pre-K. Each of their classes will have 14 students and 1 para-professional (instructional assistant).

Kindergarten needs to be full day and mandatory. There should be 15-18 students with 1 teacher and 1 para-professional. That would mean 5 full-time teachers and 5 full-time para-professionals. With full-day kindergarten, students need to have physical education, computer lab, library , music, and art. All of these programs need to be implemented by trained teachers. Benchmarks/Diagnostic tools need to be in place so that every child going to First Grade has passed all of the readiness skills (i.e. letter recognition, number recognition). Students who don't meet the goals will receive services by a Targeted Academic Intervention Teacher.

Our goal is that every child has the ability to read on grade level by the end of second grade. In order to do this, there should be Targeted Intervention Teachers who will serve the students who need intensive reading, writing, or math help. Included in this would be enrichment (for students who have met the goals) and remediation programs. An ungraded K-2 model. Flexible grouping is necessary.

There will be an extended school year of 210 days for all students. 30 of those days would be dedicated to enrichment (for students who have met the goals) and remediation. The school day should be extended by an hour. There will be a snack break. In grades 1-5, there should be 15-17 students per classroom. That would be 5 teachers per grade level, for a total of 25 teachers.

All teachers on a team have common planning time. Use of a block schedule would provide teachers with common time to plan and integrate for curriculum outcomes.

Every classroom teacher in grades 1-5 will teach reading. In grades 1-2, the teachers will use flexible groupings to meet the students' needs.

In grades 3-5, the teachers will departmentalize in math, science and social studies. Each of these areas will integrate reading and writing strategies in daily lessons and assessments.

Teachers would meet at least once a week to plan together and assess student growth.

We would also need a Targeted Academic Intervention teacher for each grade 1-5. These teachers would instruct small groups in reading or math. Each grade would need a para-professional (total of 5). There should be curriculum specialists in Reading/Language and Math who would focus on in-service, staff development, and teacher support. We will need a ESL teacher one day a week and a full time G/T teacher to provide enrichment activities. A principal and an assistant principal are needed. An assistant principal would manage student concerns and discipline. Two Guidance Counselors, a School Nurse, 2 physical education teachers, 2 music teachers, and 1.5 art teachers. We need 2 Computer Technology Specialists. One of them should teach classroom lessons. The other specialist would maintain the hardware, software, and webpage. 2 clerical staff members are needed. One would handle book keeping and administrative upkeep. The other would handle attendance and phones. A school operations manager will coordinate the care and upkeep of the building. This will allow the principal to attend to educational leadership responsibilities.

Middle School Program

We will have a student/teacher ratio of 22 to 1 in core classes. There will 36 core teachers (math, language arts, science, social studies).

The school year will be 210 days long.

Increase the school day by an hour. We will have a block schedule where Language Arts, Math, Science, & Social Studies are taught in 84 minute periods. The Creative Arts (Physical Education, Music, Art, Computer, Enrichment, & Tech Ed) periods would be 84 minutes long. The Creative Arts classes would run on an A/B day schedule. (Health issues will be addressed by the science and physical education classes.) There will be 3 teams per grade, 4 teachers on a team. (That equates to 12 teachers per grade level.)

3 guidance counselors are needed. The guidance counselors will teach classroom lessons, individual guidance, parent workshops, scheduling concerns, school to career workshops, and peer mediation.

One principal and 2 assistant principals are needed. One school nurse is necessary. A media specialist and a media instructional assistant are needed for the library.

There will be a School Operations Manager.

4 secretaries are needed. One secretary will work in the guidance office. One will cover attendance. One secretary will have bookkeeping and administrative duties. The final secretary will handle the typing and parent/community phone calls.

There will be 2 curriculum specialists. They will help coach/mentor teachers and provide in-services.

3 Managers will coordinate Targeted Intervention teachers (1 per grade level) They will co-teach in core classrooms for the students who need extra help in order to pass the assessments.

As the students progress through the years, algebra and geometry will be offered to the students who have the desire and ability to succeed in those classes.

With our 5 period day, the children will have 1 period a day where they will get enrichment or remediation. This would allow the children to receive specialized instruction geared toward the goal of passing the MSPAP and MD Functional tests.

One computer technology specialist would teach classroom lessons. The other would maintain the hardware, software, and webpage.

There will be 1 tech Ed teacher, 1 art teacher, 2 physical education teacher, 1 choral music teacher, 1 band teacher, and 1 family and consumer science teacher.

There will be 3 aides (1 per grade level), and a computer lab aide.

High School Program

The school year will be extended to 210 days. The school day will continue during the current hours.

We need to have 4 up-to-date computer labs with 30 computers in each. There will be 2 computer aides to help with classroom management and upkeep of the computers.

All students will need 4 years of math, science, English and social studies/history. There will an extension of core curriculum into the fourth year for all students. This increases the rigors of the curriculum.

We need 1 principal, 3 assistant principals, and 5 counselors with one of them working as the post graduation transition specialist.

There will be 1 librarian/media specialist with 2 media aides.

1 school nurse is required.

1 attendance secretary, 2 guidance secretaries, 1 bookkeeping secretary, 2 administrative secretaries are needed.

1 School Operations Manager is required.

4 curriculum specialists are needed. (1 for each of the core subjects: math, science, English/Reading, social studies)

A Home/School Connection Specialist will help students who are having attendance problems and are considering dropping out of school. The parents are given workshops on talking to their teens, drug use and sex amongst teens and other topics that they feel are necessary for them to deal with their children on a daily basis.

Teaming will occur in the 9th grade.

There will be 22 students per teacher. We will need 62 teachers to cover the core classes and electives on all grade levels.

There will be 4 period days with a 30 minute lunch built in.

We are using the semester model.

During the first semester of the ninth grade students will take 3 core classes and 1 elective. In the second semester, the students will take 2 core classes and 2 electives or vice versa.

Additional Programs

K-12 Approach:

There will be an infrastructure in place which allows teams to have weekly planning, monthly updates on student progress (with the principal as the educational leader), and Quarterly Assessment meetings. The Quarterly Assessment meetings will focus on which strategies have worked & which students need different interventions or need to be added to the intervention/enrichment groups.

There needs to be an infrastructure (School Improvement Plan) which includes data utilization, staff development, school improvement, and benchmarks.

The school and central office need to have a support system in place for the non-tenured and the experienced teachers who are in need.

Monitoring of instruction needs to occur daily by the educational leader (principal). This would include observations and portfolios.

The Home/School Connection will provide parenting workshops and volunteer training. Reinforcing the welcoming nature of the school will be enhanced by having more than 1 parent participate on the School Improvement Team.

Built into the budget is staff development that allows time for curriculum writing and assessment grading.

Assumptions

- Functional Tests are not to be reflective of the High School Assessments. The expectations

are too low on the Functional Tests. The Functional Tests are not a meaningful measure of expected outcomes.
- Each school should have a School Operations Manager. This person would need to have managerial skills and be paid on par with teachers. The purpose of this position would be to relieve the administrators from the day to day operations of the building so they can focus on instruction.
- Assuming 3 custodians would service the school facility.
- Assumption that the county curriculum is in alignment (K-12) with the state outcomes.
- We assume the therapists, school psychologist, and social workers are provided by the county.
- We assume there is adequate staffing in all cafeterias and adequate security in all schools.
- Each middle and high school will have 1 computer per 5 students in each classroom. The computers are networked & internet accessible.
- This ratio does not include the computer labs.
- There is an assumption that the school system has a partnership with a health care facility and Wellness Clinics are available to all students K-12.

Prototypical Student Programs

Program for Student X:

John was in a small class of 15. He started school in 1/2 day Pre-K and whole day Kindergarten. He participated in a phonics program. His parents participated in a parenting program that focuses on helping with homework and how to handle discipline problems. In first and second grade he received intervention in reading and math. By the time he reached third grade, he was able to read at a third grade level and perform mathematical functions at a third grade level. John focused on higher level thinking and problem solving skills in third, fourth and fifth grade. He was provided opportunities to apply his knowledge through use of performance tasks. Since John was exposed to technology skills, he became very interested in computers.

John continued to perform on grade level during his middle school years. He had continued his enthusiasm for computers because of his creative arts, math and science classes in grades 6-8. The extended academic time helped him perform near the passing rate of 70% on the MSPAP.

See schedule for John's courses in high school. John passes all high school requirements.

Program for Student Y:

Sue was identified in Pre-K as an at-risk student. She was provided with intensive Home/School coordination. Her mother was given parenting classes. The Home/School coordinator visited once a week to go over Sue's progress and to help the mother with homework concerns. During the 30 day extension of the school year, she received intervention services. At the end of Pre-K, Sue's mother and the school support team wrote an intervention plan for the next school year.

When she reached Kindergarten, the Targeted Reading Intervention teacher provided services

once a day for 45 minutes. After school, she stayed for a snack and extra help in reading and math. Intervention and after-school programs were continued during the entire time she was in elementary school. During the intervention lessons, it was discovered that she had a love for visual arts.

In middle school, Sue was put into co-taught classrooms where intervention teachers and core teachers worked together to meet her academic needs. The guidance counselor met with her weekly to support Sue's efforts to succeed in school.

See schedule for Sue's courses in high school. Sue completes high school after struggling and receiving help from counselors and teachers in the vocational technology school.

Program for Student Z:

Larry came to school already reading. Larry did not start school until kindergarten. While his parents felt he should immediately start in the first grade, he excelled in the regular classroom with enrichment by his teachers. He made great strides in the ungraded first and second grade program. Larry was very successful in the third through fifth grades because of the focus on higher level thinking skills. He participated in activities with the G/T enrichment teacher. He enjoyed helping other students with computers.

Larry excelled in middle school due to the rigorous curriculum, which had been aligned with the state outcomes. He was able to foster his love of learning through the enrichment and computer classes, as well as, the algebra and geometry classes offered at our middle school.

See schedule for Larry's courses in high school. Larry takes as many AP courses as he can to prepare him for the expectations of the Ivy League schools, which gave him early acceptance. This was a result of him scoring 1595 on the SAT. He demanded a recount for faulty questions he felt were poorly constructed.

Confidence Levels

Provide team answers to the following questions. On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:*

a) How confident are you (team), given the assumptions listed in 1 through 14 above, that the K-5 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to the all of the school's students? _____ 5_____

b) How confident are you (team), given the assumptions listed in 1 through 14 above, that the grade 6-8 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to all of the school's students? _____ 5_____

c) How confident are you (team), given the assumptions listed in 1 through 14 above, that the grade 9-12 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to all of the school's students? _____ 5 _____

Comments:

We have made great efforts to provide social and emotional support for the students. Our plan provides personnel to allow each staff member the time and support to be able to do their job as outlined.

Educational leaders have the time and money to provide the type of staff development and in-services that will reinforce the school vision.

We assume that we have a strong staff who feel an ownership to the plan and strive to make it succeed.

NEW ASSUMPTIONS

Assume that all of the conditions described in the Assumptions 1-14 remain unchanged except Assumption 4 is changed as follows:

The student population in the district:

_ 0.5% of the student population is identified LEP
_ 68% of the student population is eligible for free or reduced price meals
_ 89% of the student population is minority

Do these changes in assumptions affect your confidence levels stated in task 3?

__X__yes [lowers confidence to 3 for ES/MS/HS] ____no

MODIFIED ELEMENTARY PROGRAM:

We would add another nurse to focus on health and nutrition issues. This person would do classroom lessons as well as parent in-services.

An extra Home/School Coordinator and Guidance Counselor are needed.

MODIFIED MIDDLE SCHOOL PROGRAM:

We need 2 Home/School Connection Specialists. An addition of a health aide would also be needed to allow the nurse the opportunity to focus on the nutrition & health concerns of middle school age students. One of the current staff members will be assigned to coordinate comprehensive after-school activities.

MODIFIED HIGH SCHOOL PROGRAM:

- Another Home/School Connection Specialist is needed.
- A therapist is also needed to help with the social/emotional issues that come to the forefront during the high school years.
- A Community Outreach Coordinator is needed. Their hours would be 2-10.
- A Health aide is needed to allow the nurse to meet the health & nutrition needs of the students.
- Another aide will be added to help the Home/School Connection Specialists and the attendance secretary.

MODIFIED PROGRAMS FOR PROTOTYPICAL STUDENTS

Program for Student X under modified assumptions:
More social services were made available which allowed John to succeed in the academic arena.

Program for Student Y under modified assumptions:
More social services were made available which allowed Sue to be more successful in her academic career.

Program for Student Z under modified assumptions:
More social services were made available which gave Larry the self confidence to continue in his areas of interest.

CONFIDENCE LEVELS UNDER MODIFIED ASSUMPTIONS & PROGRAMS
Provide team answers to the following questions. On a scale of 1 to 5, with 5 being very confident and 1 being not at all confident:

a) How confident are you (team), given the assumptions listed in 1 through 14 above, that the K-5 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to the all of the school's students? ___5___

b) How confident are you (team), given the assumptions listed in 1 through 14 above, that the grade 6-8 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to all of the school's students? ___5___

c) How confident are you (team), given the assumptions listed in 1 through 14 above, that the grade 9-12 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to all of the school's students? ___5___

Comments:
Implementation must be completed according to our plan. We assume strong educational leaders in each building, as well as dedicated teachers. There are many intangibles that could alter the outcome of our program.

TEAM B PRODUCTS

Elementary School Program

Our school is designed for a total population of 500 students – 84 students per grade level cohort. In order to meet the performance capability needs required of MSPAP by grade three, we believe the year one experience must begin with Pre-K for each of the 84 students. Thus year one of our children's experience is Pre-K, year two, K; year three, grade one; year four, grade two etc.

Why pre-K: We propose pre-K for all of the children in our attendance area in order to promote essential school readiness. Children disproportionately come to school lacking the readiness skills to learn. If they do not start to acquire these until kindergarten or first grade they will always be in deficit when compared to other students. We believe that is imperative that everyone be involved so that the learning experience of each of the students – advantaged and disadvantaged – can be enhanced by an enriched diversified learning experience. We believe that students with these demographics, must have a pre-K experience to enable them to compete effectively in life and to perform on the MSPAP to the required standard by grade three. With pre-kindergarten for each of the students in our cohort we believe we can effectively level the playing field for these students throughout their academic careers.

YEAR ONE: PRE-KINDERGARTEN -- 84 Students

Culture of the school should be one characterized by joy, playfulness, enriched learning, and positive interpersonal interactions. Our focus will be on the facilitation of language development, self-esteem, and school readiness within each student.

Half day (42 students in each part)
Two teachers, Two aides
Ave class size 21
Program Design
Socialization Skills
- Group dynamics
- Team work
- Conflict resolution
- Peer mediation

Academic Readiness
- Exploratory Learning (Emergent reading and math skills)
- Language Development (Spoken language, pre-writing)
- Critical Thinking
- Computer Skills
- Enrichment Experiences (Science, Music, Art, Field Experiences)

Life Skills (Teaching independence and interdependence)
- Empathy

Parent Involvement/Parenting Skills
- Enhancing parental knowledge and involvement in their children's education

Personnel Needs

YEAR TWO: KINDERGARTEN – 84 students

The kindergarten program is a full-day program with a teacher/student ratio of 21 to 1. This program mirrors our pre-K program in that it is language-rich and also provides opportunities for play, discovery and social skills development. The academic portion emphasizes basic numerical skills and reading/writing literacy skills. We expect all of our students to have completed our pre-K program. However, kindergarten level is a time in which some of our students are identified who need extra help in accomplishing kindergarten learning objectives. Therefore, an intervention program which identifies students' deficiencies in reading, mathematics, and writing must exist on this level. This program will provide individual students additional time and opportunities to support these children. A kindergarten testing and assessment component (such as the SHIP battery for identifying competencies) must be included in this year as well.

Based on the results of individual assessments, students will be placed in flexible grouping patterns to address specific needs. Through ongoing parent information campaigns, the school will support dialogue between the kindergarten staff and the home. Again, school readiness must be aligned to early learning standards identified by MSPAP concepts. A very healthy related arts program will also be included in the curriculum.

A parent volunteer program should be firmly established, which includes a state-developed training program. The parent liaison worker will be in charge of this program.

Students who complete kindergarten will be expected to master the learning standards established by the Maryland Learning Outcomes.

Primary Grades 1-3

In this multilevel model, there will be four teams of three teachers each plus an aide per team. At least one of the three teachers on the team should be reading certified or have an enhanced background in reading instruction. Related arts instruction includes music, art, technology and PE, which allows teachers time for planning and staff development. The primary grades include: reading/ language arts, math, social studies, health, specials, and science. The primary grades should be kept within the ratio of 21 students to one instructor within the team, but this may vary according to the needs of the children and the expertise of the instructors.

A non-graded model will be used at this level with reports given to parents which strictly reflect the indicators according to the Maryland Learning Outcomes. In order to reach indicators at each level, continuous, on-going assessments and continuous intervention will be conducted throughout the three years with quarterly benchmarks established along the three year continuum. The team has the ability to regroup or reorganize to meet the needs of the students, based on standardized assessments, which are district-level indicators. Teachers will be expected to use performance assessment tasks, rubrics, hands-on projects, portfolios and cooperative learning strategies and will be held accountable for the success of every student on their teams. Since this is a collaborative model, it is important for each team to share the results and

intervention strategies with the whole school staff in order to develop a global approach to school improvement.

Looping is an educational structure we also suggest from grade one through third grade. There will be four teams for 84 kids; each team will have approximately 21 first graders, 21 second graders, and 21 third graders. The students will be with the same teacher for all three years. Therefore, a team of teachers will follow the same students from grades one through three.

Specialty classes will be organized by subject and level, and will have built-in intervention procedures. These include : one art , one physical Ed, one computer, and one music class. These will be offered every other day per child, allowing teachers to have at least 45 to 50 minutes of preparation time.

A guidance counselor will be responsible for teaching a health class which will free the teachers to have more planning time because planning involves both individual and team. This enhances the philosophy of our pre-K and kindergarten program in terms of addressing the social development and life skills of all the children in the school.

Grades 4-5

In grades four and five we will continue with the non-graded organization by maintaining four teams comprised of one fourth grade teacher, one fifth grade teacher, and one instructional assistant per team. Students will be academically assessed beginning in grade four based on their performance established by the Maryland Learning Outcomes. Students will receive report cards indicating whether they have met standards at various levels. In this way, students can continuously achieve and accelerate, but progress will be individually focused.

Student teacher ratio will continue to be 21 to one.

Interim Summary: What is it about this model that will cause students to perform at 70% and higher levels on the MSPAP

“Students cannot be expected to perform at their peak unless the full spectrum of their educational and social needs is taken into consideration.” (Every Child Achieving” p. 101)

Multi age grouping
Looping
Assessment on standards
Teaming of teachers by school MSPAP school levels
Teacher and student monitoring and accountability system
Parental involvement program
Success for all philosophy and action planning – no low level tracking
Staff empower model with locus of control being placed with the teachers, the school and the parents

Staffing and Schedule
Specials 1.25 hours long
Specials: Art, Music, PE, Technology, Health/Exploratory

15 minute recess/day at team discretion
1.5 FTE for music and PE each
1.0 Art and Tech each

Staffing for whole school
26 classroom teachers
1 reading specialist
1 nurse
2 guidance counselors
1 Library media specialist
1 Assistant Principal
1 Parent/community liaison
1 Principal
2 clerical assistants
14 instructional assistants

Concluding remarks:

Students in this elementary school will progress according to their needs and abilities, regardless of their grade levels (the looping model). All students will reach the satisfactory level on the benchmarks and indicators as measured in the Maryland Learning Outcomes.

Additional remediation services will be provided in the summer (directly after school is released for the year) for students who do not achieve mastery in the various benchmarks and indicators (three hours per day for two weeks).

Staff development - Some of the professional development will focus on data collection and analysis, so that all teachers will be comfortable meeting the needs of their students based on their needs. Focus will also concentrate on creating active strategies to implement the curriculum (e.g. interdisciplinary planning, lesson designing, cooperative team building, multi-intelligence research, learning theories) . Teachers will receive in-service credit when possible.

Personnel includes 15 teachers for summer remediation of 10 percent of the students who did not achieve at level.

Instructional supplies equals $130 dollars X 542 students
Equipment and technology is $200 dollars per student plus $10,000 installation plus 10 percent for maintenance.

Professional development is 20 days times 200 dollars per day times 35 certified staff members

Assessment equals 30 dollars per student.

Middle School Program

Our middle school's essential design will empower the teachers to embrace the ideas of interdisciplinary teams, flexible block scheduling, reading and writing instruction across the curriculum in all grades levels over and above regular classroom instruction, hands-on exploratory creative arts programs, and a state-of-the-arts technology instructional program to support teaching and learning. Practical, exploratory hands on learning will be a focus through field experiences. Teachers will decide how to structure the flexible block scheduling within the school, based on the needs of the students, including integrating curriculum, adapting and modifying instruction, regrouping students for instruction, cooperative literacy, learning expeditions, and meeting with parents.

Continuous alternative evaluative techniques of students will be used including rubrics, performance assessments, portfolio development, research, and self evaluations. These assessments will include many forms of presentation techniques in both group and individual formats, including but not limited to video and power point presentations, group reports, design boards, etc. All portfolio projects will be hooked to standards at all times. Our motto is every student will be successful and every child can learn.

Through continual observation of instructors, we will hold our teachers accountable for effectively implementing the curriculum and cooperatively planning in interdisciplinary teams. What is essential in this design is strong administrative guidance.

In an effort to ensure and enhance instruction to achieve 70 percent mastery on the MSPAP tests, this school will be structured to provide inclusive classrooms characterized by heterogeneous groups of children. Each classroom will contain students who work at a wide range of ability levels extending from special education through the highly able.

Staff must use their planning time appropriately in order to concentrate on methodologies to empower teachers to achieve MSPAPP goals. Therefore, strong administrative guidance will help instructors devise common planning time which is an essential piece of this model and will be guided by team leaders as to what topics should be addressed during that planning. Teachers will have both individual planning time and team planning time. Our grading policy reflects both grades and skills development by highlighting essential skills (based on standards) achieved or not yet mastered. Continuing professional development should focus on reading, writing and mathematics instruction. Certified personnel will be hired who are experts in their disciplines.

Special programs:

- After school and Saturday remediation programs for at-risk students (including tutoring, clubs, functional test reviews, and peer tutoring)
- Community/Business partnerships
- Special education programs
- Creating safety in schools
- Technology emphasis
- Strong guidance program
- Specialty intervention programs for high-risk students

- Strong team leadership
- Continuous school improvement team and facilitative leadership programs
- Career Connection Component
- Service Learning Component will be integrated into the curriculum and field work experiences
- Parenting component: Involving each student and his or her parent(s) in a career guidance and individualized advising system aimed at ensuring the completion of an accelerated program of study with a career or academic major.

Articulation: Strong articulation between elementary and middle and middle and high school is essential to ensure the successful transition of each student.

Fifth grade MSPAP results must be evaluated and shared for the students and the student populations.

All students will have passed the MD functional Mathematics, Reading, and Writing tests by the end of grade eight.

Staffing: 800 students

267 per grade level.

Sixth grade through eighth grade looping

Interdisciplinary teams who will loop grades six through 8. 11 Sections on each grade level for an average class size of 24. Must be daily team planning. Flexible block scheduling.

33 classroom teachers not including the unified arts teachers.

Subjects Taught: LA, Science, Reading, Social Studies and one of the Unified Arts on the team; Mathematics will be off the team.

3 guidance counselors – one per grade level
3 assistant administrators – one per grade level
1 Principal
1 nurse
1 library/media
1 computer tech person
1 FTE for teaching department heads for the core subject areas – reduced teaching load for department heads.
1 Curriculum coordinator
1.5 Tech Ed
1.5 Family Studies
3 Art
3 Music
3 PE

1 Reading specialist

Instructional Assistants:
1 for In school suspension/Alternative learning center
1 Science Aide
1 Tech Aide
1 Library/Media Aide

1 Principal Secretary/Bookkeeper
1 Guidance Secretary
1 Media Secretary
2 Front office secretaries to support assistant principals

Instructional Materials: $138/student/year

Technology and maintenance: $200/year/student

Student Activities: $10,000

Professional Development: 20 days/$200/day for 46 teachers

Summer Programs: Reading primarily for remediation; Expeditionary learning;

10% below standard – 80 students; 5 teachers working half days for two weeks--
$1000/teacher*5= $5,000
Materials and supplies: $1000
Transportation: $1,100

Enrichment Programs: 80 students at same profile as above. Can be configured for up to 160 students at one week each.

Assessment Costs: $30/student = $24,000

High School Program

Our high school is developed according to the mission, standards and practices of the nationally recognized comprehensive school reform model developed by the Southern Regional Education Board (SREB) beginning in 1987 called High Schools That Work (See www.sreb.org)

HIGH SCHOOLS THAT WORK- KEY CONDITIONS FOR ACCELERATING STUDENT ACHIEVEMENT INCLUDES:

7. An organizational structure and process ensuring continuous involvement of faculty and school administrators in planning strategies to achieve the key practices (see below).
8. A school principal with strong and effective leadership who supports, encourages, and actively participates with the faculty in implementing the key practices.

9. A system superintendent and school board who supports the faculty and school administration in carrying out the key practices. This commitment includes financial support for instructional materials, time for teachers to meet and plan, and professional development in using the key practices to improve student learning.
10. Leadership from the school superintendent to involve employers and post-secondary institutions in the design and implementation of a school-based and work-based program to prepare students for post-secondary education and employment.
11. A commitment for the school board to support the school in eliminating the general track and replacing it with an upgraded academic core and a major.

HIGH SCHOOLS THAT WORK KEY PRACTICES FOR ACCELERATING STUDENT ACHEIVEMENT

1. Setting higher expectations and getting career-bound students to meet them.
2. Increasing access to challenging vocational and technical studies, with a major emphasis on using high-level mathematics, science, language arts, and problem-solving skills in the context of modern workplace practices and in preparation for continued learning in the 21st century.
3. Increasing access to academic studies that teach the essential concepts from the college preparatory curriculum through functional and applied strategies that enable students to see the relationship between course content and future roles they envision for themselves.
4. Having students complete a challenging program of study with an upgraded academic core and a major. An upgraded academic core includes at least four years of college preparatory English and three years each of mathematics and science, with at least two years in each area equivalent in content to courses offered in the college preparatory program. The major includes at least four Carnegie units in a career or academic major and two Carnegie units in related technical core courses.
5. Providing students access to a structured system of work-based and high status school-based learning—high school and postsecondary—collaboratively planned by educators, employers, and workers and resulting in an industry-recognized credential and employment in a career pathway.
6. Having an organizational structure and schedule enabling academic and vocational teachers to have the time to plan and provide integrated instruction aimed at teaching high-status academic and technical content.
7. Having each student actively engaged in the learning process.
8. Involving each student and his or her parent(s) in a career guidance and individualized advising system aimed at ensuring the completion of an accelerated program of study with a career or academic major.
9. Providing a structured system of extra help to enable career-bound students to successfully complete an accelerated program of study that includes high-level academic content and a major.
10. Using student assessment and program evaluation data to continuously improve curriculum, instruction, school climate, organization, and management to advance student learning.

Assumptions

- We are assuming a four period block scheduled model, either semesterized, A/B day, or a hybrid model. Every student has a possibility of earning 32 credits, 8 classes per year. This allows each student to have ample opportunities to pursue either enriched academic (gifted and talented), career, or related arts emphasis.

- Our graduating seniors will achieve or exceed the University of Maryland Course requirements, the Career and Tech Ed Program requirements, or the rigorous High School Program Indicators.

- A counselor specialist will be in charge of advising students for career and college bound assistance in conjunction with grade level administrators. This is in aligned with the teaming concept established K-12.

- There will be a robust and structured participation in the year-round staff development that is offered in the High Schools that Work network.

- There will be a robust and structured program of veteran/new teacher mentoring as well as peer coaching which will provide a cadre of supportive collaboration throughout the school.

- The school will be organized in interdisciplinary teams, not disciplines. Clusters of teachers will team and plan together. Therefore, clusters will reflect the blended instruction philosophy, the development of career and academic pathways consistent with the two major goals of the school:
- To increase the mathematics, science, communication, problem-solving and technical achievement of all students
- To blend the essential content of traditional college preparatory studies- mathematics, science, language arts and social studies- with quality career and technical studies by creating conditions that support school leaders, teachers and counselors in carrying out the key practices.

- These clusters may be: 9th grade cluster, humanities cluster, math/science technology cluster, related arts cluster, et al.

- Traditionally, 9th grade students have the lowest GPAs in a high school, and to address that need, and to address the need for students to better acclimate to high school life, a 9th grade cluster (school within a school) will focus on the specific needs of these students. This model assumes that in order to support high performance in 9th graders (where customarily performance drops) this model assumes that 9th graders will be placed in a full year English/language arts study skills program that will provide enriched counseling, instruction and coaching.

- Individual career and college portfolio development is a keystone of the individualized program for academic and career success. This involves students being able to demonstrate a variety of learning products, including performance assessment activities, presentation skills, collaborative abilities, technology competencies, and communication skills. Every student will develop a multi-media senior portfolio presentation which will involve demonstrated expertise in their career/college plan.

- This model encourages students to learn how to adequately research at every level and grade to become self-directed, life-long learners.

- An advisory program will include each of the 69 certified professionals to serve as advisory to 15 students.

- The technology budget implies that students and teachers will be supplied with state of the art technology to help them achieve the above goals. This includes, but are limited to personal hand held computing devices, calculators and interactive devices in science and technology, and new software. These break down the walls of the classroom and help bridge the gap between home and school to better involve parents in the learning process and help students have easy access to the adult career and academic world.

- The staff development budget assumes that the staff will receive appropriate and adequate professional development to use the technology available.

- Additional enrichment and remedial courses will be provided to our students as a result of the use of interactive internet and fiber-optic technology to support distance learning and teaching.

- The provision of student access to a structured system of work-based and high status school-based learning implies a robust and structured partnership with a full spectrum of community agencies and business entities (partnerships) as well as community colleges and four-year colleges and universities.

Prototypical Student Programs

Program for Student X:

1. Will attend the Pre-K experience to promote essential school readiness
2. Has a full day K program
3. Primary grades 1-3 demonstrated proficiency at each grade level
4. Grades 4-5, met standards and participated in before and after school enrichment programs
5. Grades 6,7,8: Meets grade level standards; exposed to career connection opportunities, service learning experiences and job shadowing experiences in his area of interest. In grade 8 receives Algebra with assistance course to enable him to receive high school credit for algebra prior to high school so that he could enter the HVAC program in grade nine. Receive counseling from counselors on high school career pathway choice related to HVAC opportunities.

6. Completes high school with at least the following (meeting University of Maryland Entrance Requirements and the Technical Completer Program):
    - Core credits: 4 English, 3 mathematics, 3 science, 3 social studies
    - Four credits in his blended major – HVAC
    - 2 credits in academic and technical fields related to HVAC
    - .5 credits in computer applications
    - Career development internship experience in grades 11 and 12 – 6 credits
    - Can take two credits of Spanish – 2
    - Physical Education/health – 1
    - Art – 1 credit

Program for Student Y:

1. Attends the Pre-K experience to promote essential school readiness
2. Has a full day K program
3. Primary grades 1-3 performed between the 10th and 30th percentile at first and second grade level. By end of 3rd grade reaches 45th percentile. Received remediation during the regular school program through flexible scheduling within the team. Also receives Saturday and after school remediation experiences. During summers (1-2 and 2-3) received additional remediation services.
4. Grades 4-5: continues with instructional interventions as above based on instructional needs. By the end of grade 5 achieves at the 60th percentile.

5. Grades 6,7,8: Continues to receive appropriate instructional interventions as above but at lesser intensity. By the end of grade 8 he is meeting grade level standards. Exposed to career connection opportunities, service learning experiences and job shadowing experiences in his area of interest. In grade 8 receives Algebra with assistance course to enable him to receive high school credit for algebra prior to high school.

6. Completes high school with at least the following (meeting University of Maryland Entrance Requirements and the Technical Completer Program):
    1. Core credits: 4 English, 3 mathematics, 3 science, 3 social studies
    2. Four credits in his blended major –
    3. 2 credits in academic and technical fields related to his career choice
    4. .5 credits in computer applications
    5. Career development internship experience in grades 11 and 12 – 6 credits
    6. Can take two credits of Spanish – 2
    7. Physical Education/health – 1
    8. Art – 1 credit

Program for Student Z:

1. Attend the Pre-K experience to promote essential school readiness
2. Has a full day K program
3. Primary grades 1-3 demonstrated proficiency at each grade level
4. Grades 4-5: Meets and exceeds standards and participates in before and after school enrichment programs.

5. Grades 6,7,8: Meets and exceeds grade level standards; exposed to career connection opportunities, service learning experiences and job shadowing experiences in his area of interest. In grades 7 and 8, receives high school credit in Algebra I & II, Foreign Language. Develops intention to attend a four-year university upon completion of high school. Expresses an intention to take a rigorous college preparatory course in high school.
6. Completes high school with at least the following:
   _Core credits: 4 English(1 AP Courses), 4 mathematics (geometry, pre-calculus, and one other class) 4 science,(1 AP Courses) 4 social studies
   _ Four credits in his blended major – Computer Science
   _ 2 credits in academic and technical fields related to Computer Science
   _ Three credits of Spanish – 3 – received B average
   _ Physical Education/health – 1
   _ Career Development Internship grade 12 – 2 credits
   _ Four years of symphonic band –4
   _ 1150 on SAT
   _ Cumulative GPA of 3.5

CONFIDENCE LEVELS

Provide team answers to the following questions.

a) On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:* How confident are you (team), given the assumptions listed in 1 through 14 above, that the K-5 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to the all of the school's students? _5_____

b) On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:* How confident are you (team), given the assumptions listed in 1 through 14 above, that the grade 6-8 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to all of the school's students? __5____

c) On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:* How confident are you (team), given the assumptions listed in 1 through 14 above, that the grade 9-12 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to all of the school's students? ___5___

Comments:

Principalship: The principal of each of these programs must be an assertive leader with strong interpersonal skills. He/she must possess a keen knowledge of instructional and organizational development methodology; and a practical understanding of the dynamics of student, adult, and organizational change psychology. Our sense of confidence in what we have proposed is based on the assumption that a capable principal is placed in charge of leading the implementation and development of these programs.

NEW ASSUMPTIONS

Assume that all of the conditions described in the Assumptions 1-14 remain unchanged except Assumption 4 is changed as follows:

The student population in the district:

_ 0.5% of the student population is identified LEP
_ 68% of the student population is eligible for free or reduced price meals
_ 89% of the student population is minority

Do these changes in assumptions affect your confidence levels stated in task 3?

___X_yes ____no

If no, please proceed to Task #6. Otherwise, please continue with tasks 4 and 5.

Products for Task #4 (Use Exhibits 5-7 as appropriate)

What changes, if any, would you make to the programs you have just designed as a result of this changed assumption? Specifically:

MODIFIED ELEMENTARY PROGRAM:

1. Increase the two-week remediation program to four weeks and increase the number of students taking part in the program. Double the summer program cost.
2. Add a fulltime psychologist, full time social worker, and an additional nursing assistant to provide supplementary health care.

MODIFIED MIDDLE SCHOOL PROGRAM:

1. Increase the two week remediation program to four weeks and increase the number of students taking part in the program. Double the summer program cost.
2. Add a fulltime psychologist, full time social worker, and an additional nursing assistant to provide supplementary health care.

MODIFIED HIGH SCHOOL PROGRAM:

1. Increase the two-week remediation program to four weeks and increase the number of students taking part in the program. Double the summer program cost.
2. Add a fulltime psychologist, full time social worker, and an additional nursing assistant to provide supplementary health care.

MODIFIED PROGRAMS FOR PROTOTYPICAL STUDENTS

Program for Student X under modified assumptions: NA

Program for Student Y under modified assumptions: NA

Program for Student Z under modified assumptions: NA

CONFIDENCE LEVELS UNDER MODIFIED ASSUMPTIONS & PROGRAMS

Provide team answers to the following questions:

a) On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:* How confident are you (team), given the assumptions listed in 1 through 14 above, that the K-5 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to the all of the school's students? ___5___

b) On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:* How confident are you (team), given the assumptions listed in 1 through 14 above, that the grade 6-8 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to all of the school's students? ____5__

c) On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:* How confident are you (team), given the assumptions listed in 1 through 14 above, that the grade 9-12 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to all of the school's students? _____5_

Comments:

Program has not been fundamentally altered.

TEAM C PRODUCTS

Elementary School Program

Our program must be a high performing school program due to the outcome of 70% on all MSPAP tests. What are the main skills we want our students to have at the end of third grade? The program will produce the outcome of 70% on the first assessment of MSPAP. There is consensus that we want to develop a Pre-K program

Pre K – full day
Kindergarten – Full Day

Do we want to start earlier than Pre-K? (Pre-School; Age 3?)
Do we address other interventions for the needs of special populations of students earlier than Pre-K?(Infant-Toddler?; Home-School Liaison?;

There must be intervention programs that will address those students in the population of the disabled, free/reduced meals, poverty, etc…

ASSUMPTION: Children needing services prior to age three will receive these services through a special education program.

Identify MINORITY STUDENTS (46%):
_ likely to be further behind with respect to test scores (MSPAP)
_ 40% are African Americans
_ 4% latinos
_ 2 % other (Asian, Quat., etc.)

ASSUMPTIONS: There will be a high mobility (migrate in/migrate out) of students

3 Yr. Old Program (40 students/ 50%); identified as high poverty; full-day program (6 hours/day)

_ readiness, social skills, low teacher-student ratio (1-10 ratio); 1-Instructional aid per class. *4-teachers (Early childhood certified); 4-instructional aids*
_ Skills: What does the average student come with?
_ Field trips to zoos, gardens, museums, different play grounds (offer these student a variety of different experiences so that students have an experience which they can help them visualize when they are engaged in reading)
_ Language arts
_ Motor skill development (bikes, blocks,)
_ Arts (Visual/Auditory)
_ Accredited? The program we design will be accredited once they see what we have.
_ Parenting program? To assist the students with the things they are doing and experiencing. Program to educate the parents on parenting skills.

_ Screenings/Services/Prescriptions to address health-well issues (Health-Well Program to also offer services to the parents as well as the students)

NOTE: Student population will actually be larger than 500 because we are now serving 3 year olds, and 4-5, as well as K-5. Health professionals will serve all needs.

Equipment/Supplies?

Pre-K (4 year olds) ; full-day program(6 hours/day)
83 students; teacher-student ratio is 1-15, One teacher/15 students and one instructional aid. *5 Early childhood certified teachers/ 5 instructional aides)*

By the end of Pre-K:
Emphasis on language arts : vocabulary, prepare students to read,
Field Trips: to assist with the experiential factors so that students when reading can relate content to a past experience. One field trip per unit of study (possibly one trip every one to two weeks). Everything this program does is to improve literacy.

Kindergarten (full day) (6.5 hours/day)

Staffing: Teacher-to–student ratio: 1 Teacher to 18 students with one instructional aid. Teachers are elementary certified. (83 students) *4 Teachers & 4 Instructional Aids*

Program: literacy based ; students will be able to read and write by the end of the program.

Q: What about those students who do not meet this outcome?
A: There will be an intervention program which will be on going through the school year to determine who is not reading well so that we can assure that all students are reading and writing at a satisfactory level by the end of the Kindergarten

This would require *2 Language Development Specialist* that would work with 3,4, and 5 year olds. The front support of the early grades will help prevent any problems that develop in the later years, therefore the Reading Specialist-Student ratio in the later years may be larger because of the support these students received in the earlier years.

Technology? (6 per classroom [3 students/computer] OR 9 per classroom [2 students/computer]). Technology will be available that is necessary to successfully meet the outcomes that are identified.

Field Trips: All related to units of study to extend the students' view of the world and provide them with an experiential base.

Music/Art/PE/Media Programs available to provide a regular exposure for the Kindergarten students.

Exposure to these elements will be at a minimum of once/week with the specific (Music/Art/PE/Media) professional staff member in addition to what the classroom teacher is doing in these areas.

Planning Time for Teachers? Do Resource Teachers (Math/Science) play into this? 45 minutes for each teacher each day AND 45 minutes Team planning per day *Note: This will increase the amount of staff that we will need. Some of the group planning time would involve professional development

As we continue on through the Elementary Program, do we want to look and multi-grade leveling such as grades 1-3, 4-5, and 6-8 when thinking about the MSPAP? What about looking at K-2? At this point you would determine if there were students that needed intervention before they moved on.

Primary Grades (Grades 1 & 2)

Grade 1: 4 class sections of 21 students (Instructional Assistant in each class/ Each assistant is trained in assisting the teacher in reading instruction. These assistants are also paid a higher salary and have a different responsibility than the instructional aids at the lower levels)

Grade 2: 4 classes of 21 students (Same instructional assistants as in Grade 1)

*By the end of 2nd grade, the students would be reading on or above grade level.

Literacy Aspect of the Primary Grades: (2.5 hours)
*Phonics based
*Writing
Reading comprehension and writing skills with the content as the vehicle where these skills are reinforced. Emphasis is on reading and writing and less on content. Any content addressed should be in the non-fiction form.

"Looping" will be practiced for grades 1 and 2 (teacher will follow students from grades one through the completion of grade two).

Reading Intervention Program for Grades 1 & 2

Each student have an Individual Education Plan and that the student progress is periodically checked in order to assure that no student slips through the cracks.
Once a student is identified as "slipping" then they would become involved in the intervention program. The Academic Support Personnel (1 per grade level: total of 2; Both of these would be certified "master" teachers) would assist the teacher within the classroom with these students in order to provide assistance without pulling the student out of the class. These Academic Support Personnel would assist with instruction in not only reading, but also the content of Social Studies, math, Science, etc. These Academic Support Personnel would loop.

Afternoon: Devoted to content area work (Social Studies, Math, etc.

Morning: Devoted to guided reading and reading instruction
Student needing more help in reading would receive reading instruction with subject area texts during the afternoon.

Both grades will experience the "specials" like art, music, PE in a similar manner as the Kindergarten students experience these subjects.

Examine Intermediate Grades (3, 4, & 5)

1 Teacher per 21 students (12 teachers)
Special Teachers: Media, PE, Art , Music, Computer , Special Educator
3 Instructional Aides: similar in responsibility as the aides in the Kindergarten level.

Morning (3 hours) block will be devoted to guided reading, self-selected reading, writing, and working with words.
The afternoon would be devoted to three 90 minute blocks of Science, Social Studies and Mathematics with the Language Arts integrated across each of the content areas. Each of these content areas are taught by specific content area staff members. "Special subjects (music, art, PE, media) will be scheduled in during the afternoon blocks. Each day will have one Special subject for the students to attend during the afternoon.

Intervention Program for the Intermediate Grades

Grades 3 and 4 would have a program similar to the program in grades 1 and 2 as well as have a summer program. The grade 5 intervention program will be the same as well; however, the summer program for this grade will be attached to the middle school program. This intervention will call for 3 Academic Support Personnel (Same criteria and responsibility as the Academic Support Personnel in grade 1 & 2.

Elementary Program Resource Staffing:

- _ Computer Technician
- _ Media Specialist
- _ Media Assistant
- _ Technology Educator

(NOTE: 1 Computer Lab and each classroom have 5 computers)
All wired for internet

- _ 1/2 –time Psychologist
- _ Guidance Counselor (2)
- _ Social Worker
- _ Parent Liaison (Parenting Program)
- _ 6 half-time Duty Attendants

Administration:

- _ 1 Principal
- _ 1 Assistant Principal

- Nurse
- Health Aid
- 2 Full Time Secretary
- Staff Development Coordinator

Instructional Supplies & Materials

The Program is supported by $375.00 per student annually
This amount provides textbooks, textbook replacement, classroom libraries, take-home lending libraries, trade-book, manipulatives, consumables, paper, supplies, and software. A total cost of $225,000.00

Annual Media Replacement and Site License Renewal Costs

This will be maintained at a cost of approximately $25.00 per student which would be $15,000.00

Computer replacement Cycle (every three years)

33 Classrooms
5 computers per classroom
1 laboratory
25 computer in media center
10 Administrative
Overhead Projectors
Photocopy machines and contracts

Therefore you are expecting to replace and upgrade at a cost of $100,000
Which comes out to @$150.00 per student

Student Activities (Educational)

Field Trip Transportation Cost: $9,900.00
Field Trip Costs: $5,000.00
Performance Costs: $2,000.00
After School Enrichment: $8,000.00

Total Cost of Student Activities: $24,900.00

Professional Development

10 days of professional development will occur at the conclusion of the school year. Teachers will receive a stipend equal to per diem cost of teacher's salary. This total cost of staff development was calculated to be $135,000.00 or $225.00 per student.

Assessment

The assessment costs will be calculated at approximately $7.00 or a total cost of approximately $5,000.00.

MIDDLE SCHOOL PROGRAM

NOTES: Front-load middle school with support and resources for intervention programs so that it is not perceived as remediation.

Parents begin to back out of the involvement with their students at the middle school level. A program must be designed to assist students with the support they would receive at home, but they don't for a variety of reasons

Need a "transition program" between the elementary and the middle school for the 5th graders over the summer.

Focus a summer program on those students in the 5th grade who are not reading or doing math at grade level. Then at the end of this program, you bring all of the 5th grades to cover some the transitional facets of going from elementary to middle. Rope Course/Challenge/ etc.

266 students per grade

ASSUMPTION: 5% of 5th graders are retained; 20% of 5th graders (52 students) will be on the "bubble" and need to attend the summer transition program This program will be focusing on Reading and Math

Suggestion: 3 week transition program for the 20% of students who need assistance with reading, math, organization, AND an Enrichment Program for the top 20% of the incoming 5th grade class.
Outdoor Education Program open for all incoming 5th grade students.

SUMMER OPPORTUNITY PROGRAM FOR INCOMING 6TH GRADE

20% low achievers must attend
Enrichment Program open to all incoming 6th grade
Outdoor Education Program
Total possible enrollment: 85%
Need 10 Teachers
Need 10 College Student Assistants
Need a Nurse
8 am – 12:00 pm

Summer School Grades 7 and Grade 8

Summer Opportunity Program for grades 7 and 8 will be identical for those incoming 6th graders
Total Cost will be $77,500.00
This cost will cover Teachers, Assistants, Administrative Support for 5 week summer program

MIDDLE SCHOOL (7.0 HOUR DAY + 2 hour Optional Enrichment Program)

After school **Optional Enrichment Program**:

12. Intramural Sports, Drama, Computer/Technology, SGA, Cheerleading, Dance, Academic Assistance, Group Counseling, Foreign Language or other electives, G/T , Band, Chorus
13. Program runs Mon-Fri
14. Need Assistant Principal Supervision (Could have scheduled day begin at mid-morning and stay throughout the Enrichment Program
15. Hourly stipend: $25.00/hour
16. 65% of student population attend

Middle School Academic Day

Inter-disciplinary Teams (Reading, Writing, Math, Science Social Studies, Foreign Language, One Special Subject) One Team Per Grade Level

Team 6 (Reading, Math, Science, Social Studies, Language Arts, Special)
Team 7 (Foreign Lang., Math, Science, Social Studies, Lang. Arts, Special)
Team 8 (Foreign Language, Math, Science, Social Studies, Lang. Arts, Special)

Block the Day into the following:
TEAM 6
First 3 hour block: Reading/Language Arts/Social Studies
Second 2 hour block: Math/ Science
Last 1 hour block: Special

Grade 6 Staffing: Teacher-Student is 1:20

14 Teachers divided into 3 teams;
3 math Teachers
2 Reading Teachers (Shared between teams)
3 Science Teachers
3 Social Studies Teachers
3 language art Teachers
2 Instructional Aides (Shared between teams

Technology Program for Grades 7 and Grades 8

Rotation through variety of stations: engineering, multi-media, radio, computer tech., building a bridge, consumer science, sex education, career development

45 minute periods for 9 week period

Students experience each of these on a rotational basis through, Art, Music, PE, Technology Ed.

Grade 7 Staff (1:20)	Grade 8 Staff (1:20)
15 Teachers	15 Teachers
3 English	3 English
2 Foreign Language	2 Foreign Language
1 Reading	1 Reading
3 Math	3 Math
3 Social Studies	3 Social Studies
3 Science	3 Science
2 Instructional Aids	2 Instructional Aids

Overall Middle School Staffing for Specials:
Grade 6: All students experience art and music on an A/B rotation by day, PE everyday
Grade 7: All students experience Tech Ed. and PE on an A/B rotation by day. Personal Development and Art/Music on another A/B rotation by day.
Grade 8: Same program as Grade 7.

Staffing:
PE, Tech. Ed, Art, Music, Personal Development, School Wide Resource, Guidance Counselor (3), Principal (1), Assistant Principal (3) [2 work regular schedule; 1 works from 11:00-7:00 to supervise Enrichment Program], Nurse, Nurses Aid, Guidance Secretary, Assessment Clerk (clerical), 3 secretaries, Media Specialists (2), Media Aid (1-books/supplies, 1-technology distribution), Computer Technician, 3- Duty Aids (lunch), Social Worker, Full-time Psychologist, Uniformed Resource Officer (security), Staff Development Coordinator

Instructional Materials & Supplies

$500.00/student
Total Cost: $400,000.00
This includes: Textbooks, Tech. Ed., Consumables, Software, After school program supplies, Summer Enrichment/Opportunity Program

Computer & Technology

200 computers
39 academic classes
90 computers divided into 3 labs
15 computers for administration
50 computers for teachers

$170.00 per student for computer repairs and replacement
Total Cost: $136,000.00

Student Activities (Educational & After School Programs/Summer Opportunity Program)

Field Trip Transportation Cost: $8,000.00
Field Trip Costs: $35,200.00 ($44.00 per student)
Performances: $8,000.00 (Artists, Authors in residence, Musicians)
After School Enrichment:
20 Teachers
$50.00/day
$200,000.00 per year plus 10% fixed costs (workman's comp,; etc.)
Total Cost: $220,000.00

Summer Opportunity Program

Supervising/Coordinator Administrator: $5,000.00
Teachers: $34,700.00
College Student Aids: $7,5000

Professional Development

$225.00 per student
Total Cost: $180,000.00

Assessment

MSPAP (2 grades)
Functional Tests (2 grades)
CTBS (1 grade)
$10.00 per student
Total Cost: $8,000.00

HIGH SCHOOL PROGRAM

250 students per grade

Summer Enrichment Program

Students not passing an 8th Grade Exit Exam (could be State functional Tests or a State 8th Grade Assessment) must be in Summer Enrichment Program. Other students in this program will be the bottom 20% of the incoming 8th grade class. 3 week program from 8:00 am – 12:00 pm.

Ninth Grade through Grade 12 Staffing
Teacher – student Ratio : 1-25 (general ratio which understandably will vary according to the course)

11 English
9 Math
9 Math
9 Social Studies
7 Business
1 Family/consumer Science
3 Technology Ed.
2 Art
2 Band
4 Foreign Language
4 P. E/Health
4 Resource Teachers
1 yearbook/Journalism
1 Computer Instructor
1 School/Business Partnership Coordinator
1 Jr. ROTC
1 Early Childhood Development
2 Media Specialist
2 Media Aids (Book Inventory/Supply Distribution)
Instructional Aids (Early Childhood Dev.; Science; Computer Ed.; Physical Ed.;) 4

Alternative Learning School within the School

7 Teachers (all core, behavior modification, reading specialist)
Instructional Aids (2)
Guidance Counselor
Secretary
Assigned Administrator
Work to School coordinator
Security Officer
Principal 1
Assistant Principal 3
Guidance 4
Advisement/Student Activities Coordinator
Athletic Director
Business Operations Manager
In-School Suspension Coordinator
Nurse
Health Aid
School Psychologist (1.5)
Social Worker
School Resource Officers (security) (2)
Attendance Officer
Principal secretary
Guidance secretary

Records Clerk
Front Office Secretaries (2)
Computer Technician (2)

Each student will complete:

English 4 credits
Math 3 credits
Science 3 credits
Social Studies 3 credits
Tech. Ed. 1 credit
Fine Art 1 credit
Health 0.5 credit
P. E. 0.5 credit
Completer 2 credits
Electives 3 credits

Instructional Supplies and Materials

Per pupil cost: $625.00
Total Cost: $625,000.00

Computer Technology Equipment

66 Teacher Computers
20 Administrative Computers
4 Computer labs (30 computers/lab) (120 computers)
30 computers in Media
Business computer labs (25 computers/lab) 3 labs (75 computers)
42 classrooms with 5 computers in each class (210 computers)

Total Cost of replacement and upkeep of computer technology: $175,000.00

Copy Machines : Placed in office, guidance office, business, media
Total cost $28,000.00

Student Activities

4. Athletic Teams
20 Co-curricular Teams
10 Performance Organizations
20 Special Interest Clubs

Total cost for security, coaching stipend, event staffing, and transportation: $200,000.
Note: Although we realize that some revenues will be generated by a few sports, this remains the total cost.

Summer School Programs

Only for review credit.
Designed for 15% of students (150 students)
10 teachers for 6 weeks (30 days) @ $220.00/day Total Cost: $6,600.00
Administrator: $10,000.00
Instructional Aids: $3,000.00

Night School Program

Designed for 5% of student (50 student) (Run for 10 weeks/semester 4 nights/week, 3 hours/night)
4 Teachers (English, Math, Science, Social Studies)
Total Cost:$12,000.00 x 2 = $24,000.00
Administrator: $6,000.00 x 2 = $12,000.00

Professional Development

$225,00/student
Total Cost: $225,000.00

Assessment Costs

$10.00 per student
Total Cost: $10,000.00

Prototypical Student Programs

Overall:
8 cred. Per year
Each child

- 4 yrs. Eng
- 3 yr. Sci
- 3 SS
- 1 yr. Fine arts
- 3 yr. Math
- 1/2 yr P.E.
- 5 Electives
- 2 Foreign Lang.

Program for Student X:

No 3-yr old services
Attended 4 yr old program
5 – received services from Lang. Dev. Spec. as needed

1st – 2nd – reading on grade level, but has been in an intervention program to enrich her reading acquisition as indicated by her IEP.
3rd-5th – intermediate continues w/ intervention to keep up rdg comprehension – stays right on grade level w/ at least 1 period per wk. Where someone is monitoring her progress and constantly updating IEP.
She will attend the summer enrichment program in middle school.
Goal: looks at colleges and options before end of mid. sch.
MS – foreign lang. (reg. schedule)
HS – Besides reg. courses. 1 Bus. Course, 1 computer course. Completing courses in tech. Ed. Electives – her choice.

Program for Student Y:

3 yr. Old program

- 1/2 day w/ lunch
- Assessment – health, development
- Interventions – medical and poverty related issues
- Family/parenting programs

Pre-school – 4 yr. Old program

- Full day
- Language development
- Assessments
- Cultural Activities and Trips
- Experiential programs
- Family/Parenting programs
- Literature for home use
- Intro to technology

Grades 1 & 2

- Assessments/Evaluations
- Looping
- Same supports as above
- Individualized Ed. Plan
- Academic interventions
- Content/skill development
- Specialists – reading & math
- Inter-agency review

Grades 3-5

- Same supports as above
- Summer program
- Parent Liaison
- Psychologist evaluation

Prior to 6th
- Required to attend summer school
- Transition Program

Grades 6-8
- Continued reading & math supports
- After school assistance
- Summer school programs
- Functional test remediation
- Counseling – 5 yr plan
- Inter-agency case management
- Discipline Plan
- Personal Development Plan

Prior to 9th
- Summer school
- Transition program

Grades 9-10
- Required curriculum
- Remedial assistance
- Extended academic supports
- Counseling/Discipline Plan/Alternate Placement (?)
- ROTC admission
- Career and Tech. Survey courses

Grades 11 & 12
- Work Study – 11th & 12th
- Transition Counseling
- Job Search – personal Develop. Program, Study skills
- Explore Technology options
- Internship – Work Based Learning
- Alternative Program placement with Individual Behavior Plan

Program for Student Z:

3 yr. Old – attended program provided by school
4 yr. Old – full-day of Pre-K
5 yr. old – full-day kindergarten
Student was a full participant in all aspects of the program. Student Z exited program (K) with the ability to read and write.
1-5 participated in after school program throughout elementary experience. Student was either on or above grade level in all subjects.

3-5 This highly able student participated in enrichment programs thus increasing his/her academic potential. (After-school Science/technology, etc.)
During the summer of the post 5th grade year, Student Z participated in the enriched "Opportunity Camp", which was held for three weeks.
During middle-school, Student Z academic courseload included 4th grade Algebra I, Foreign Language, grade 8 Algebra II and foreign language II and included band, art, student govt. and intramural sports throughout middle-school in the extended program.
Student Z was involved in the "Great Books" program.
Student Z entered high school fully prepared to engage in higher level academic study.

9th	**10th**	**11th**	**12th**
GT Engl 1	GT Engl. 2	GT Engl. 3	A.P. Engl. 4
GT US. Govt.	GT World History	GT US Hist	
GT Geom.	GT Trig/Analy	Pre-Calc/Calc 1	Calc II & III
GT Bio	GT Chem.	GT Physics	A.P. Marine Bio
PE/Hlth	Tech Ed	Fine Art	Comm. Coll. Engl. 101
FL III	FL IV	FL V	Calc IV
Journalism	Journalism	Journalism	Journalism

This highly able student (Z) will leave H.S. and will successfully enter a university.

CONFIDENCE LEVELS

Provide team answers to the following questions.

a) On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:* How confident are you (team), given the assumptions listed in 1 through 14 above, that the K-5 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to the all of the school's students? __5____

b) On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:* How confident are you (team), given the assumptions listed in 1 through 14 above, that the grade 6-8 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to all of the school's students? ___5___

c) On a scale of 1 to 5, with 5 being *very confident* and 1 being *not at all confident:* How confident are you (team), given the assumptions listed in 1 through 14 above, that the grade 9-12 educational program you designed would be adequate to deliver the capacities specified in Exhibit 1 to all of the school's students? ___5___

NEW ASSUMPTIONS

Assume that all of the conditions described in the Assumptions 1-14 remain unchanged except Assumption 4 is changed as follows:

The student population in the district:
17. 0.5% of the student population is identified LEP
18. 68% of the student population is eligible for free or reduced price meals
19. 89% of the student population is minority

Assume that the student population in each school reflects these district averages.

Do these changes in assumptions affect your confidence levels stated in task 3?

____yes __X__no