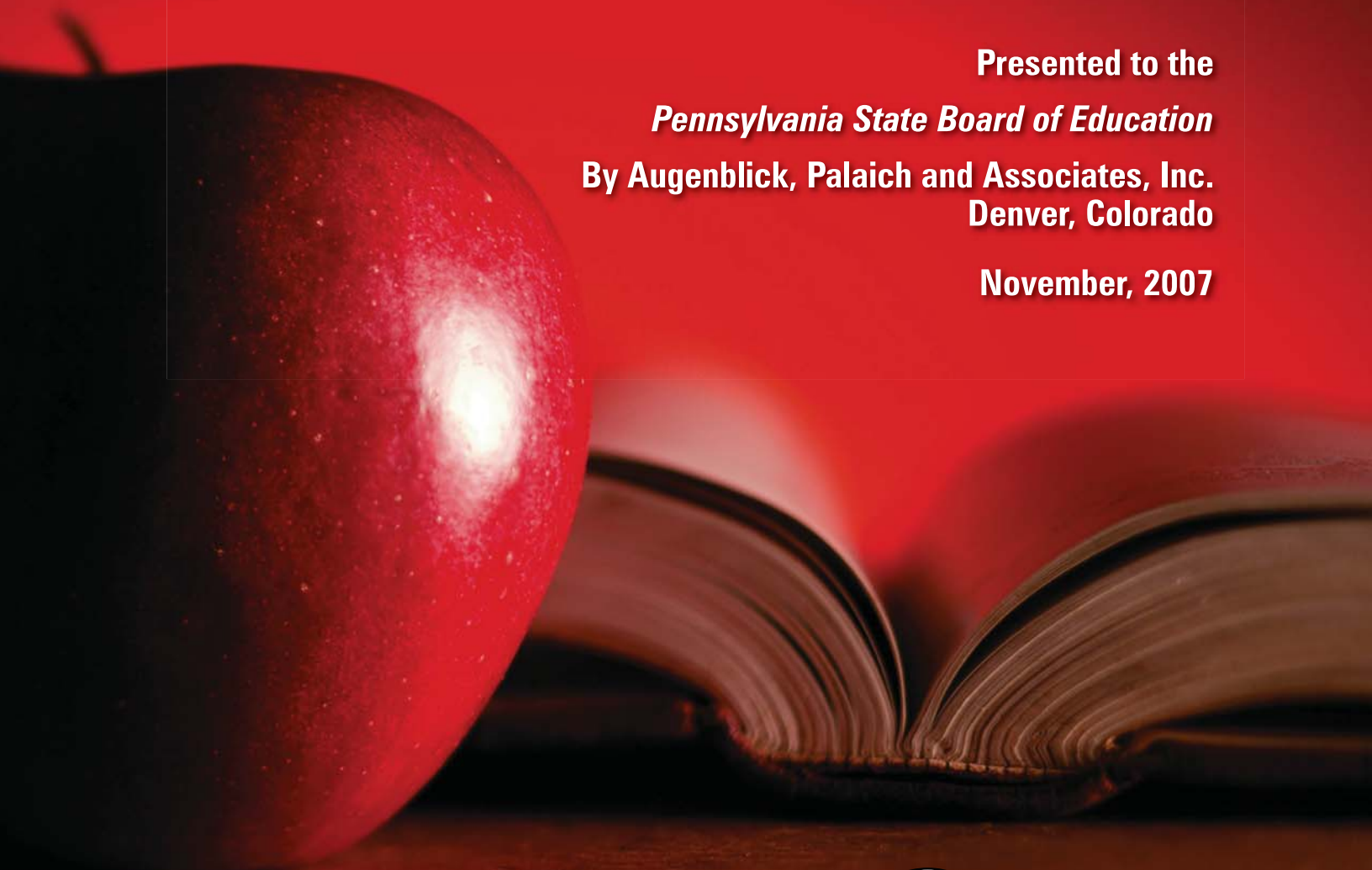
Costing Out the Resources Needed to Meet Pennsylvania's Public Education Goals



Presented to the

Pennsylvania State Board of Education

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

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The findings and conclusions contained in this report are those of Augenblick, Palaich and Associates (APA) alone. APA would like to thank the Pennsylvania State Board of Education and the Pennsylvania Department of Education for their cooperation and assistance in gathering essential data requested by APA to complete this report. APA also wishes to thank the numerous panelists who gave their time and energy to participate in this study and whose expertise was extremely useful to inform APA's work. Finally, APA would like to recognize the many contributions of Robert Feir, who served as liaison between APA and the Board, and who played a crucial role in helping ensure that the study moved forward smoothly, efficiently, and with the benefit of the most timely and accurate data possible.

Augenblick, Palaich and Associates, Inc.

Executive Summary

In today's world of increased accountability for student, school and district performance there is ever-increasing pressure on education systems to ensure that all students leave school with the tools and skills they need to succeed in life. Such increased pressure can have a positive influence on performance, but only if policymakers and education leaders also have the capacity to answer what might appear to be a simple question: Do schools and districts have the resources they need to meet state performance expectations?

Education funding is an actively debated topic in states, school districts and communities across the country. Some believe schools already have plenty of resources to fulfill their missions and point to increases in education funding that have been delivered over the past decade. Others, however, believe that schools are in need of additional funds to address uncontrollable and rapidly growing cost pressures. Still others take the position that while some schools are in need of additional funds to successfully carry out their missions, other schools are already sufficiently funded.

Do schools and districts have the resources they need to meet state performance expectations?

In Pennsylvania's case, this means estimating the resources needed so that 100 percent of students can achieve proficiency in reading and math by the year 2014 as well as master state standards in 12 academic areas.

What is true, regardless of one's view on the current condition of school funding, is that many state education finance systems have not addressed the question of what it really costs to meet student performance expectations. In many states, including Pennsylvania, policymakers have developed academic standards and timetables to achieve performance expectations, and they have created accountability systems with consequences for schools and districts when expectations are not met. Most often, however, these expectations and consequences are created without understanding what it costs for schools and districts to meet desired outcomes.

This costing out study is designed to help address this issue in Pennsylvania and to develop a supportable means for policymakers and other education leaders to understand what it will cost for each district in the state to

achieve the performance that is expected of them. In Pennsylvania's case, this means estimating the resources needed so that 100 percent of students can achieve proficiency in reading and math by the year 2014.

The findings in this report were produced pursuant to a study initiated by the Pennsylvania State Board of Education. Under the provisions of Act 114 of 2006, the Board issued a Request for Proposals (RFP) in October 2006 requesting the services of qualified contractors to conduct "a comprehensive Statewide costing out study to arrive at a determination of the basic cost per pupil to provide an education that will permit a student to meet the State's academic standards and assessments."[1] This study — prepared by Augenblick, Palaich and Associates, Inc. (APA), a Denver-based consulting firm that has worked with state policymakers on school funding issues for more than two decades — focuses on determining several key cost elements:

1. The "base cost" of educating an average student in the Commonwealth to meet state performance expectations. This base cost does not include food service costs, transportation costs, costs associated with community services, adult education, capital costs (such as school building construction), or debt service costs.
2. Cost "weights" for educating students with special needs (including students in poverty, special education students, gifted students, and English language learners) to meet performance standards.
3. Additional "cost factors" associated with differences between school districts based on their size, enrollment trends, and regional cost of living.

In addition to determining the scope of the cost elements listed above, APA conducted an analysis of the level of equity which currently exists in Pennsylvania's school finance system. This analysis examines the variations in spending and tax effort that exist across the Commonwealth's school districts. It is also important to note that in this report the term "enrollment" means 2005-06 Average Daily Membership (ADM).

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[1] *Request for Proposals for Education Costing Out Study,* RFP Number CN00022214, Issuing Office: Pennsylvania Department of Education on behalf of the State Board of Education (October 6, 2006); page 20.

Key Findings from APA's Costing Out Analysis

APA's costing out findings were derived from the entirety of our research and analysis conducted in Pennsylvania over the course of the past year. As discussed in Chapter II of this report, APA used a variety of nationally recognized research approaches to analyze and identify the costs associated with meeting the Commonwealth's goal of having all students reach specific performance targets. These targets, which are shown in Appendix D of this report, include achieving mastery of state standards in 12 academic areas and universal student proficiency in reading and math by 2014.

The research approaches used by APA over the past year included a successful school district (SSD) analysis, a professional judgment (PJ) analysis, and an evidence-based (EB) analysis. APA also conducted a cost-function analysis and other analyses designed to understand a variety of issues associated with student transportation, educator wages, change in enrollment, and regional cost of living differences across the state.

While in some cases one methodology or analysis led APA to a particular answer regarding a specific cost factor, in other cases several different approaches all combined to provide several pieces of information that could be used to reach an answer. When combining the data generated through the approaches, APA considered several criteria, including: 1) how strongly the identified data or costs were associated with achieving Pennsylvania's *student performance* goals including universal proficiency in reading and math; 2) the degree to which the data or costs took into consideration *efficiency* and lowest possible cost of resource delivery; 3) the *transparency and reliability* of the data generated; 4) how well the data could be applied to recognize existing school district and student *cost pressure differences.*

APA used a variety of nationally recognized research approaches to analyze and identify the costs associated with meeting the Commonwealth's goal of having all students reach specific performance targets.

Using these four criteria as a guide, APA developed a series of cost factors and combined them in a way that considers efficiency; and identifies a base cost, added cost weights for students with special needs, and additional cost factors associated with differences between school districts.

What follows describes the costs that would have been necessary in 2005-06 to meet the state's performance standard (universal mastery of standards in

12 academic areas and proficiency on state assessments of reading and math) in that year. These costs would need to be modified annually to account for inflation and changes in student demographics in order to achieve the standard in years following 2005-06. Based on 2005-06 spending:

The statewide costing out estimate to reach 100 percent student proficiency and other performance expectations is $21.86 billion.

- The statewide costing out estimate to reach 100 percent student proficiency and other performance expectations is $21.86 billion. This level of spending, with inflationary increases over time, is required for all students to meet Pennsylvania's performance expectations and academic standards.
- About two thirds of the $21.86 billion total cost is associated with the base cost. About 13.3 percent is associated with the added costs of special education, about 9.4 percent of the total is associated with the added cost of serving students from high poverty homes, about 2.7 percent is associated with the added cost of serving English language learners, about 3.8 percent is associated with district size, and about 3.6 percent of the total cost is associated with regional cost of living differences.

The average total costing out estimate per student is $12,057. By comparison, in 2005-2006 school districts in Pennsylvania actually spent $9,512 per student.

- The average total costing out estimate per student is $12,057. By comparison, in 2005-2006 school districts in Pennsylvania actually spent $9,512 per student.
- The base cost per student identified by the costing out study is $8,003.
- There are 474 districts in the Commonwealth whose current spending is below their costing out estimate.
- Current transportation spending appears to reasonably address the costs faced by most school districts and is excluded from this report's costing out figures.
- In the aggregate, the costing out estimate is $4.61 billion higher than current spending (26.8 percent higher than current spending). This number rises to $4.81 billion if those districts that now spend more than required by the costing out estimates continue to do so.

- The Commonwealth's least wealthy districts (based on property wealth and personal income) are the furthest from the costing out estimate of resource needs. On average, the poorest 20 percent of districts have to raise spending by 34.9 percent, while the wealthiest 20 percent only have to raise spending by 6.6 percent.

Key Findings from APA's Equity Analysis

APA's examination of equity starts by measuring variation across several key areas: (1) the student needs in school districts; (2) the wealth of school districts; (3) per student spending for current operations; (4) per student state support; (5) per student local support; and (6) local tax effort. Based on this analysis, we draw conclusions about the level of equity that exists in the Commonwealth's overall school funding system. In order to better understand state support and local tax effort, we also compare the amount of revenue Pennsylvania derives from state and local taxes to the national average and the amounts six nearby states generate. These analyses yielded the following key findings:

1. When wealth is measured by combining property value and income (which is the Commonwealth's current wealth definition), data show a substantial variation in district wealth.
2. With regard to state aid, Pennsylvania's current funding system has positive aspects:
   a. The variation in state aid that districts receive is not very large *if* all cost pressures are taken into consideration. In other words, after controlling for factors such as numbers of students with special needs, differences in district size, and regional cost differences — which allows data to be examined on a "weighted student" basis — state aid is fairly consistent across the Commonwealth.
   b. When cost pressures are not taken into consideration, districts with higher need levels do receive more state funds per enrolled student. Also,

In the aggregate, the costing out estimate is $4.61 billion higher than current spending.

The Commonwealth's least wealthy districts are the furthest from the costing out estimate of resource needs.

On average, the poorest 20 percent of districts have to raise spending by 34.9 percent, while the wealthiest 20 percent only have to raise spending by 6.6 percent.

wealthier districts tend to receive less state aid per enrolled student than poorer districts.

3. The local revenue picture is much less desirable from a public policy perspective:

   a. Looking at districts in terms of student need, data show that Pennsylvania's highest need districts generate the least amount of local revenues, while the lowest need districts tend to generate the most.

   b. Looking at districts in terms of *wealth*, the poorest districts tend to have the highest tax effort while the wealthiest districts have the lowest effort. The wealthiest districts can, in fact, generate more local funds with less tax effort imposed on their citizens.

   c. Because local revenue is almost *twice as much* as state revenue, disparities in how such revenues are generated overwhelm whatever equity is provided through Pennsylvania's state aid. In fact, data show that school district spending is negatively associated with need and positively associated with wealth.

4. State and local taxes collected in Pennsylvania are comparable to the national average relative to population or personal income, but are 6 to 12 percent lower than those collected in six nearby states. When compared to the simple average tax effort of the six nearby states, Pennsylvania could have collected between $3.17 and $6.02 billion more revenues in 2004, depending on how tax effort is measured.

Pennsylvania's poorest districts tend to have the highest tax effort while the wealthiest districts have the lowest.

Compared to the simple average tax effort of the six nearby states, Pennsylvania could have collected between $3.17 and $6.02 billion more revenues in 2004.

The inequity of Pennsylvania's funding system can be summarized by the conclusion that school districts with higher wealth and lower needs spend more than lower wealth districts — and do so while making lower tax effort. If additional revenues are needed to improve student performance, such funds should be collected at the state level and allocated by the state through a formula that is sensitive to the needs and wealth of school districts. By focusing on state funding in this way, Pennsylvania will be better able to reduce the inequities caused by the current heavy reliance on local revenues.

I. Overview

The findings in this report were produced pursuant to a study initiated by the Pennsylvania State Board of Education. Under the provisions of Act 114 of 2006, the Board issued a Request for Proposals (RFP) in October 2006 requesting the services of qualified contractors to conduct "a comprehensive Statewide costing out study to arrive at a determination of the basic cost per pupil to provide an education that will permit a student to meet the State's academic standards and assessments."[2] This chapter: 1) reviews the RFP's key requirements and how these requirements guided the overall analysis; and 2) outlines the performance standard which formed the basis for the costing out analysis.

Study Requirements Outlined by the State Board of Education

The State Board's RFP called for the costing out study to consider both "equity" and "adequacy" in terms of how the Commonwealth of Pennsylvania provides resources to its public schools. With regard to "equity," the Board requested the study to consider whether the resources spent in Pennsylvania on public schools are distributed in such a way that all children have an equal opportunity to succeed in school.[3]

With regard to "adequacy" the State Board required the study to determine whether the funding and resources currently provided to the Commonwealth's schools are sufficient for them to meet performance expectations and to assure academic success for all students. To make this determination, the RFP required use of three nationally-recognized research approaches:

1. A "successful school district" (SSD) approach which examines the spending of high performing school districts as measured against state performance expectations.
2. A "professional judgment" (PJ) approach which relies on the expertise and experience of educators to specify the resources, staff, and programs that schools need to meet performance expectations.

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[2] *Request for Proposals for Education Costing Out Study,* RFP Number CN00022214, Issuing Office: Pennsylvania Department of Education on behalf of the State Board of Education (October 6, 2006); page 20.

[3] Id.

3. An "evidence based" (EB) approach which uses education research to help provide answers about how resources should be deployed in schools so that students can meet performance expectations.

The RFP specified that these three approaches be used to consider specific student and district-driven factors that might affect the costs and resources needed to meet student performance expectations. The student-driven factors identified by the Board were designed to identify any cost impacts that result from student differences in:

- Poverty.
- Limited English proficiency.
- Special education.
- Gifted and talented ability.

The district-driven factors identified by the Board for inclusion in the study were designed to address cost impacts that result in differences between school districts in terms of their:

- Enrollment (as used in this report, the term "enrollment" means 2005-06 Average Daily Membership (ADM)).
- Enrollment growth or decline.
- Urban or rural location.
- Cost of living.

Following a competitive RFP review process, Augenblick, Palaich and Associates (APA) was selected to conduct the costing out study called for under Act 114 and by the Board's RFP. APA is a Denver-based education policy consulting firm that, for the past 24 years, has worked with state policymakers across the country on school funding and other policy issues. Over this time, the firm has evaluated school finance systems in more than 20 states and has helped to create the school finance systems in Colorado, Kansas, Louisiana, Maryland, Mississippi, Nevada, New Hampshire, Ohio, and South Dakota.

In terms of determining the level of equity in Pennsylvania's school funding system, APA's approach involves analyses from both student and taxpayer perspectives. From the student's perspective, equity is measured by examining the extent of spending variation in school districts throughout the Commonwealth. From the taxpayer perspective, APA analyzes property and other tax data along with district-by-district state aid levels to identify the overall level of variation in taxpayer effort, the relationship of this effort to local tax capacity, and the equity of state aid which districts receive.

In order to cost out the overall level of funding needed to meet performance expectations, APA conducted all three analyses required by the RFP (including the SSD, PJ, and EB analyses). APA also used a series of statistical analyses to strengthen and support the three study

approaches listed above and to provide primary data for other key costing out issues such as geographic cost of living differences, transportation costs, and certain district-driven cost differences including student population growth and decline and population scarcity or density issues.

When combined, all these analyses allowed APA to identify several key cost elements for Pennsylvania's schools to meet performance expectations:

1. The "base cost" of educating an average student in the Commonwealth to meet state performance expectations. This base cost does not include food service costs, transportation costs, costs associated with community services, adult education, capital costs (such as school building construction), or debt service costs.
2. Cost "weights" for educating students with special needs (including economically disadvantaged students, special education students, gifted students, and English language learners) to meet performance standards and to effectively educate the Commonwealth's gifted and talented students.
3. Additional "cost factors" associated with differences between school districts in terms of their size, enrollment change, urban or rural location, and cost of living differences across the state.

Further information on how this work was conducted is provided in the remainder of this report. Subsequent chapters address:

- APA's overall research approach and methodology;
- APA's findings in terms of the cost required for students to meet the Commonwealth's student performance goals;
- The results of APA's equity analysis; and
- A comparison of APA's cost findings with current Pennsylvania spending.

Identifying a Performance Target for Pennsylvania's Schools

Because the purpose of the costing out exercise was to identify the level of resources needed for schools to reach a specific level of performance, an essential element of APA's work was to identify a performance target or "standard" by which all schools would be measured. This target, explained in detail below, represented the single goal by which all of APA's costing out efforts were ultimately measured.

To identify this target, APA turned to the Pennsylvania Accountability System. This system applies to all public schools and districts and is based upon the

The Pennsylvania Accountability System's key goals are that 100 percent of students:

1) Master state standards in 12 academic areas; and

2) Score "proficient" or above on reading and math assessments by the year 2014.

Commonwealth's content and achievement standards, student testing, and other key indicators of school and district performance such as attendance and graduation rates.

The system's key goals are that *100 percent of students*:

1) Master state standards in 12 academic areas; and

2) Score "proficient" or above on reading and math assessments by the year 2014.

With regard to the 12 academic areas, the Commonwealth has adopted academic content standards in 12 disciplines: 1) arts and humanities; 2) career education and work; 3) civics and government; 4) economics; 5) environment and ecology; 6) family and consumer sciences; 7) geography; 8) health, safety and physical education; 9) history; 10) mathematics; 11) reading, writing, speaking and listening; and 12) science and technology.[4] These content standards identify what a student should know and be able to do at varying grade levels in each subject. All students in the Commonwealth must master these 12 standards, as evidenced by locally devised assessments. School districts are given the freedom to design curriculum and instruction to ensure that students meet or exceed the standards' expectations.

With regard to the reading and math assessment goals, student skills are assessed using the annually administered Pennsylvania System of School Assessment (PSSA). Schools are evaluated based on whether they achieved a minimum target level of improvement called Adequate Yearly Progress (AYP) and there are a series of rewards and consequences based on school and district performance. The 2014 reading and math proficiency target is100 percent. The year-by-year performance targets established by the Commonwealth are shown in the table below. It should be noted that, as of 2006, about 68 % of the Commonwealth's students achieved proficiency in reading as measured by the PSSA and about 69 % were proficient in math.

Table I-1

Requirements for Student Performance on Reading and Math PSSA [5]

Year	2002-04	2005-07	2008-10	2011	2012	2013	2014
Percent Proficient in Reading	45	54	63	72	81	91	100
Percent Proficient in Math	35	45	56	67	78	89	100

For a complete summary of the performance standard which APA identified for purposes of this costing out study, please see Appendix D of this report.

[4] Source: Pennsylvania Department of Education. Retrieved January 8, 2007 from the World Wide Web. http://www.pde.state.pa.us/stateboard_ed/cwp/view.asp?a = 3&Q = 76716

[5] Source: Pennsylvania Department of Education. Retrieved January 5, 2007 from the World Wide Web. http://www.pde.state.pa.us/pas/cwp/view.asp?a = 3&Q = 94580&pasNav = |6132|&pasNav = |6325|

II. Costing Out Approaches

As discussed in the previous chapter, APA used three nationally recognized research approaches to achieve a comprehensive look at the costs of meeting Pennsylvania's performance expectations. APA also used a series of statistical analyses to address other key costing out issues, including geographic cost of living differences, transportation costs, and certain district-driven cost differences. The three nationally recognized research approaches included:

1. A "successful school district" (SSD) approach;
2. A "professional judgment" (PJ) approach; and
3. An "evidence based" (EB) approach.

These three approaches were used to analyze resource needs from different perspectives, and to triangulate findings to produce a single cost estimate. This estimate is based on a specific performance target, discussed in the previous chapter and outlined more fully in Appendix D. In addition to other objectives, this target focuses on the goal of having 100 percent of the Commonwealth's students achieve proficiency on reading and math PSSAs, as well as mastering content in 12 academic areas.

In addition to the three primary study approaches, APA also conducted a "cost function" analysis of school district spending in Pennsylvania. This analysis, which was conducted for APA by a team of researchers at New York University, was designed to statistically analyze data to see how spending relates to student performance.

APA utilized three nationally recognized research approaches:

1. A "successful school district" (SSD) approach;
2. A "professional judgment" (PJ) approach; and
3. An "evidence based" (EB) approach.

Detailed descriptions of how APA executed each of the three primary research approaches and the cost function approach are provided below. This is followed by descriptions of additional supporting statistical and cost function analyses that were conducted to examine: 1) geographic cost of living differences; 2) transportation costs, and 3) other district-driven cost differences.

1. The Successful School District (SSD) Approach

The successful school district (SSD) approach examines the spending in those school districts already considered to be high performers in terms of their student results on statewide standardized tests. This approach, therefore, has the inherent advantage of focusing its analysis on those districts that have found ways to successfully educate students to meet performance expectations.

Identifying "Successful" Districts

A school district's "success" or failure can be determined using any number of variables or criteria. In truth, districts deemed "successful" for purposes of this study are those which meet specific criteria selected by APA that are described below. There are, no doubt, other Pennsylvania districts which one might identify as successful or highly effective if different analysis criteria were selected. For instance, researchers could identify successful districts by surveying educators and other experts from around the state, by reviewing performance on standardized tests, or by taking into account other measures such as graduation or attendance rates.

For Pennsylvania's costing out study, APA selected a two-pronged approach to identify successful school districts. This includes:

1. *An "absolute" standard*: This identifies districts whose students currently meet a defined performance standard. For this study, the absolute standard was defined as those districts that currently achieve at levels far above current state performance standards. (State performance standards for the 2005-07 school years require 54 percent of students to be proficient in reading and 45 percent to be proficient in math as measured by the Pennsylvania System of School Assessments (PSSAs)). For our purposes, those districts which currently comply with the Commonwealth's reading and math standards for 2012 were deemed to have met the absolute standard. The 2012 standards require 81 percent of students to score proficient or above on reading assessments and 78 percent to score proficient or above on math assessments. Districts already meeting this high goal can be considered on track to meeting the Commonwealth's 2013-14 goal of 100 percent student reading and math proficiency.

2. *A "growth" standard*: This identifies districts whose *year-to-year growth* in PSSA test scores suggests that they will have 100 percent of students scoring proficient or above by 2014 in both reading and math. For this study, the growth standard was measured by tracking the progress of specific cohorts of students. For example, APA tracked the PSSA scores of each district's 5th graders in 2002, and then examined how those students fared as 8th graders on the 2005 PSSAs. This level of analysis was possible because APA had access to the past five years of PSSA reading and math performance data. The cohorts which APA examined included:

    a. Student 5th grade scores in 2002 and 8th grade scores in 2005;

    b. Student 8th grade scores in 2002 and 11th grade scores in 2005;

    c. Student 5th grade scores in 2003 and 8th grade scores in 2006; and

    d. Student 8th grade scores in 2003 and 11th grade scores in 2006.

For each district, progress was measured by taking the average percentage point increase in performance of all four cohorts combined. This process was done separately for reading and math scores. For example, if two district cohorts averaged a 2 percentage point performance increase per year in reading, and the other two averaged a 4 percentage point increase, the district was deemed to have an average reading growth rate of 3 percentage points per year. Based on current PSSA scores, this 3 percent could then be projected out to 2014 to determine if the district would reach 100 percent reading proficiency.

There are several advantages to using both of the above standards in conducting an SSD analysis. First, using the absolute standard alone could exclude districts which are making significant positive strides in educating their students. Such districts, which might not currently meet the absolute standard, could very well be on track to do so over time. These districts may also be confronted with larger numbers of low income, English language learner, or other special need students, and are worth including in the overall SSD analysis because of their verified ability to improve student performance over time. Second, using a growth standard by itself could result in the exclusion of districts which currently have very high performing students but whose overall growth in performance is slower. These districts may already be performing at such high levels that more rapid growth is more difficult to achieve. By combining absolute and growth standards, the resulting SSD analysis becomes more robust and benefits from two different means of defining success.

Finally, by incorporating a cohort analysis into the SSD approach, APA is able to track how actual groups of students are progressing as they move through school. This is a key piece of information to consider because it allows "success" to be defined, at least in part, by whether a district is able to maintain momentum over time in student learning. For example, the cohort approach allows APA to exclude districts where students may start strong in 5th grade but then show performance decline in middle school. This again provides a more robust view of overall district effectiveness.

Tracking how actual groups of students progress as they move through school is a key piece of information. It allows "success" to be defined, at least in part, by whether a district maintains momentum over time in student learning.

Using the analyses described above, APA identified 67 districts in Pennsylvania which met the absolute standard. We identified 21 districts which met the growth standard. Since there was an overlap of 6 districts between the two groups, the combined analysis yielded **82 total districts**, which formed the core of APA's analysis. The districts which met each standard are listed on the following page.

School Districts Identified Using an Absolute Standard

Abington Heights SD
Abington SD
Avonworth SD
Beaver Area SD
Bethel Park SD
Camp Hill SD
Central Bucks SD
Colonial SD
Council Rock SD
Cumberland Valley SD
Dallas SD
Derry Township SD
Downingtown Area SD
Fairview SD
Fox Chapel Area SD
Franklin Regional SD
Freeport Area SD
Garnet Valley SD
Great Valley SD
Greensburg Salem SD
Hatboro-Horsham SD
Haverford Township SD
Hempfield Area SD
Jenkintown SD
Kiski Area SD
Lampeter-Strasburg SD
Lower Merion SD
Lower Moreland Township SD
Manheim Township SD
Marple Newtown SD
Methacton SD
Midland Borough SD
Moon Area SD
Mt Lebanon SD
New Hope-Solebury SD
North Hills SD
Norwin SD
Palisades SD
Parkland SD
Penn-Trafford SD
Perkiomen Valley SD
Peters Township SD
Pine-Richland SD
Quaker Valley SD
Radnor Township SD
Richland SD
Rose Tree Media SD
Salisbury Township SD
Shanksville-Stonycreek SD
Souderton Area SD
South Fayette Twp SD
Southern Lehigh SD
State College Area SD
Tredyffrin-Easttown SD
Upper Dublin SD
Wallingford-Swarthmr SD
West Chester Area SD
West Jefferson Hills SD
Wissahickon SD
Wyoming Area SD
York Suburban SD

School Districts Identified Using an Growth Standard

Avon Grove SD
Bellwood-Antis SD
Cornwall-Lebanon SD
General McLane SD
Homer-Center SD
Jeannette City SD
Old Forge SD
Oswayo Valley SD
Port Allegany SD
Scranton SD
South Williamsport A SD
Southern Fulton SD
Susquehanna Comm SD
Tri-Valley SD
Wayne Highlands SD

School Districts That Meet Both Standards

Greater Latrobe SD
Hampton Township SD
Lewisburg Area SD
North Allegheny SD
Unionville-Chadds Fd SD
Upper Saint Clair SD

Examining Successful District Efficiency

APA examined successful district resource efficiency in three key areas: instruction, administration; and maintenance and operations.

An efficiency analysis can help identify those districts that not only outperform others in the state academically, but also those that do so without spending significantly higher resources than their other successful peers. Because Act 114 required an examination of such efficiency, APA took a more comprehensive approach to reviewing the 82 districts identified above. In particular, APA used data provided by Pennsylvania to examine successful district resource efficiency in three key areas:

1. Instruction: Measured by the numbers of teachers per 1,000 students.
2. Administration: Measured by the number of administrators per 1,000 students.
3. Maintenance and operations (M&O): Measured by overall M&O spending per student.

In each of these three areas, APA conducted a separate analysis designed to compare the 82 districts with each other. Comparisons were not made to the other school districts in the Commonwealth because the focus of our research — and the priority of this portion of the costing out study — is understanding the spending associated only with those districts that are deemed successful in terms of producing a specific level of student achievement.

For both instruction and administration, APA measured district resource efficiency using a "weighted" student enrollment count. This means that district enrollment numbers were adjusted to reflect the fact that they might have higher numbers of students with special needs. Such students can require significant extra resources to educate effectively, and APA did not wish to identify any of the successful districts as being less efficient simply because they had higher numbers of teachers or administrators due to the higher needs of their students. Using enrollment data for each of the 82 districts, APA applied the following special need student weights:

APA took steps to insure that successful districts were not identified as less efficient simply because they had more teachers or administrators due to the higher needs of their students.

- 1.1 for special education students
- .75 for English language learners (ELL)
- .4 for poverty (the proxy used is the number of students enrolled in the federal free and reduced price lunch program).

These weights were estimated by looking at a variety of studies APA has conducted across the country regarding the added costs required to educate students to meet state and federal performance standards. Such costs are in addition to the base cost of educating every child. APA used prior work to identify these weights because Pennsylvania-specific weights were not generated until the end of this study. For each of the 82 districts, the special need student populations were multiplied by the above weights and added to raw enrollment numbers to generate a new, higher, weighted enrollment number. The number of teachers (for instruction) and administrators (for administration) were then divided by this number to generate weighted numbers of teachers and administrators per 1,000 students. APA did not conduct this weighting analysis for maintenance and operations spending because such spending is not typically considered to be directly related to student academic performance. In particular, districts which spend more on M&O would not ordinarily do so in response to the presence of higher numbers of special need students.

Once the weighted enrollment numbers were determined for each of the 82 districts, APA applied a statistical analysis to identify those successful districts that appear to be more efficient resource users than their peers. For each of the three spending categories (instruction, administration, and M&O) APA used a threshold of 1.5 standard deviations above the average to identify and eliminate the highest resourced districts, and a threshold of 2.0 standard deviations below the average to identify and eliminate the lowest resourced districts. (One standard deviation on either side of the average includes about two-thirds of all cases when values are distributed normally.)

The standard used to eliminate low spending districts was more lenient because the main point of the exercise was to identify efficient districts. Including a measure to exclude potentially extreme low spenders, however, is still important in order to eliminate any data outliers whose resources and spending may be extremely low for reasons of which APA is unaware but which are unrelated to efficiency. In each of the three spending categories APA conducted a separate analysis of the 82 districts, identifying only those that remained after the standard deviations were applied.

APA was able to study the resulting pool of successful, low-spending districts and to combine data gathered from these districts with data generated through the PJ and EB research approaches to develop an overall picture of what the costs are for all of Pennsylvania's students to meet state performance standards.

Analyzing Specific High Performing, Low Spending Schools

In addition to the analysis described above, APA undertook separate work to analyze the practices and education programs used in specific high-performing schools in low-spending Pennsylvania districts. By looking at these schools' policies and practices, we aimed to learn their methods for achieving both proficiency in student performance and efficiency with respect to fiscal expenditures.

Using data from the Pennsylvania Department of Education 2005-06 PSSA reports, APA first identified school districts with: 1) high percentages of students scoring either advanced or proficient on PSSA math and reading tests; and 2) relatively low per-pupil expenditures. Other factors taken into consideration included the percentage of students eligible for free and reduced lunch and the district's geographic location.

APA undertook separate work to analyze the practices and education programs used in specific high-performing schools in low-spending Pennsylvania districts.

This analysis identified seven districts, including: 1) General McLane; 2) Greater Latrobe; 3) Wyoming Area; 4) Avon Grove; 5) Penn-Trafford; 6) Cumberland Valley; and 7) Norwin. APA then identified high-performing schools within those districts. Elementary schools studied included: Avon Grove Intermediate (grades 3-6), Baggaley, Edinboro, Middlesex, and Sara J. Dymond. Secondary schools studied included: Greater Latrobe Junior High, Trafford Middle School, Central Bucks High School East and Cumberland Valley High School.

Each district superintendent was notified if one or more schools within their district was selected. In August and early September of 2007, APA interviewed each school's principal using a standard interview protocol. The interviews were 60 to 90 minutes long in most cases, and addressed these topics:

- Educational program
- Reasons for success
- Leadership experience
- Management team

- Curriculum implementation
- Decision making structures
- District support levels
- Staff configuration
- Teacher quality
- Hiring practices
- Professional development
- Work environment
- Programs for special needs students
- Technology use and support
- Assessment tools used and quality of data analysis
- School climate factors.

The professional judgment approach is founded on the precept that panels of experienced educators can identify the programs and resources schools need to meet state performance expectations.

For each interview topic or category, analysts examined the data across schools, looking for commonalities and exceptions. Findings are incorporated into APA's discussion at the end of Chapter V regarding the types of programs and services in which districts across the Commonwealth might consider investing both current resources and any new resources provided by the state.

2. The Professional Judgment (PJ) Approach

The professional judgment approach is founded on the precept that panels of experienced educators can identify the programs and resources schools need to meet state performance expectations. The costs of such resources are then determined based on a set of specific prices.

For Pennsylvania's costing out study, professional judgment panels were asked to identify the resources needed for 100 percent of the Commonwealth's students to master state standards in 12 academic areas and to reach proficiency in both reading and math (see the Overview section of this report for a more detailed description of the standard that served as the panelists' performance target). Panelists first estimated the resources required for students with no special needs and then separately estimated the resources needed for students with special needs to reach proficiency. Students with special needs include:

- Those in special education programs
- Gifted students;
- Those whose primary language is not English (whom we refer to as English language learners [ELL students]);
- Those who are living in poverty (the count for which we estimate based on eligibility for free or reduced-price lunch).

The professional judgment panels also examined differences in resource needs based on school district size.

Creating Hypothetical Schools

Hypothetical schools are ones designed to reflect statewide average characteristics or the average characteristics of sub-groups of school districts. If it were true that all the schools within Pennsylvania could be reasonably well represented by a single set of hypothetical schools, then a single professional judgment panel would be sufficient to estimate funding adequacy. However, due to the existing variations among Pennsylvania school districts, APA needed to use multiple professional judgment panels, each focused on hypothetical schools and/or districts of different configuration and size.

Some 1,813,480 students attended public schools in Pennsylvania in 2005-06. Those students attended schools in 501 districts of varying size. Based on these observed variations, APA divided the districts into the following groups: 1) "very small" (less than 1,000 students); 2) "small" (1,000-2,499); 3) "moderate" (2,500-4,999); 4) "large" (5,000-9,999); and 5) "very large" (10,000 or more). Philadelphia's characteristics were unique enough that the district was considered to be in its own size group (it is more than six times as large as the next largest district in the state).

After establishing these size groupings, APA then determined the average school characteristics of each group, including school size and grade configuration. APA found that school size varied in the very small and small groups, but remained fairly similar in the moderate, large, and very large category. As such, APA created three sets of hypothetical schools: one set of schools for very small districts, one set for small districts, and another set to represent moderate, large and very large districts.

For purposes of APA's work, students with "special needs" include those who are:

- Gifted
- In special education
- English language learners
- Living in poverty

To address the added cost of students with special needs in hypothetical schools, APA similarly looked at the average characteristics in each of the original five district size groups and identified enrollment levels for each of the five groups. APA reviewed special education percentages and decided the same percentages could be used for all hypothetical schools with all districts having 14 percent of students having mild special education needs, and 2 percent having severe special education needs. Later, based on the recommendations of the professional judgment panels, these percentages were shifted to represent three categories of special education instead of two. The new percentages for special education were: 10 percent in mild special education, 4 percent in moderate and 1 percent in severe.

The percentages of children in poverty and of English language learners (ELL) varied among different size districts. APA identified poverty percentages for the

five hypothetical districts that ranged from 23 to 38 percent, and ELL percentages ranging from less than 1 percent to 3 percent. The percentage for each hypothetical school was based on the statewide average ADM for districts of that size.

Although any levels could be used to estimate cost, by approaching the evaluation for special needs students in this way, APA's analysis gains several advantages. First, the numbers more closely resemble those found in actual schools across Pennsylvania. Second, the use of more realistic numbers means that the professional judgment panelists were better able to relate to the hypothetical schools and districts that they were attempting to create.

Multiple levels of professional judgment panels allowed APA to look at schools and districts of various size and provided ample opportunity for each panel's work to be reviewed.

Professional Judgment Panel Design

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

In addition to using a series of panels based on differences in school district size, APA also added two panels to focus on resources required for special need student populations to meet performance expectations. Another round of panels was also added that examined resource differences specific to the Philadelphia school district. By convening these additional panels, APA believes the needs of each of these specific sub-groups were more accurately identified and addressed in the overall costing out study.

The panels and additional meetings were structured as follows:

(1) First round panels. Three panels were convened to address the school-level resource needs of the five hypothetical K-12 school districts. As mentioned previously, APA determined that school size was similar in the moderate, large, and very large districts so the school-level needs of these districts were addressed in a single panel. Each panel was charged with designing schools to accomplish a specific set of performance objectives and standards (which are described in detail in the next section on "Professional Judgment Panel Procedures"). The small panel and moderate, large, and very large panel looked at school-level resources needed for "regular" education students, gifted students, students in

poverty, and ELL students, but not special education students. The very small district panel looked at school-level resources for "regular" education students and all special needs student populations, including special education, as well as district-level resources for all students.

(2) Second round panels. Two panels were held to look at resources needed to serve specific student populations. One panel looked at resources in the small districts while the other looked at resources in moderate, large, and very large districts. Each panel reviewed the resources specified by the previous school-level panel for poverty, gifted, and ELL students, then layered in resources for special education students. Each panel also built in the district-level resources needed for each special need student population and the moderate, large, and very large panel "built" three separate sets of district-level resources.

(3) Third round panels. Four district-level panels were held at this stage, one each for small, moderate, large, and very large districts. Each panel reviewed the work of the previous school-level and special needs panel for their size group, and then added in district-level resources for all students.

(4) Fourth round panels. Two additional panels were held to look at resources needed to serve students in Philadelphia. One panel looked at K-8 schools commonly found in Philadelphia, and the other reviewed the work of the very large panel at the school and district level to decide if the resource allocation would be different because of the district's much larger size and urban setting.

(5) Final statewide review panel. The statewide panel reviewed the work of all earlier panels, discussed resource prices, examined preliminary cost figures, and attempted to resolve some of the inconsistencies that arose across panels.

(6) APA held a meeting with career technology center directors and a meeting with intermediate unit executive directors and business officials. The purpose of these meetings was to ensure that costs associated with these entities were included in the professional judgment analysis.

(7) APA conducted additional meetings to assure that each region of the Commonwealth had an opportunity to assist in identifying the factors that affect a school district's ability to meet Pennsylvania performance standards. These meetings included school board directors; members of the business community, members of the education support community, and parents. Participants discussed a wide range of factors that impact the ability of school districts to

meet Pennsylvania performance standards including, among others, special education and the Individuals with Disabilities Education Act; No Child Left Behind; Pennsylvania education finance policies including taxation issues; health and retirement costs; charter schools; family characteristics; and geographic location issues.

All panels had 5-8 participants, including a combination of classroom teachers, principals, personnel who provide services to students with special needs, superintendents, and school business officials. In total, 66 panelists participated in the five rounds of panels.

In order to assemble the panels APA provided a list of preferred job titles, as well as some suggestions for selection criteria such as: (1) participants should be from districts that fit within the size range of the panels they would be serving on (e.g., for the small district panel participants were asked to be from districts of less than 1,500 students); (2) participants should be experienced, preferably in more than one district, and, if possible, should have received recognition for excellence; and (3) participants should, in the aggregate, represent all regions of the state.

The State Board of Education received a list of nominations for potential panelists from various sources, including education organizations, advocacy groups, colleagues, and self-nominations, and forwarded the list of nominees to APA, which then selected panelists based upon a balance of position types and geographic representation.

The first round of panels met in Harrisburg in late March 2007; the second round of panels met in Harrisburg at the end of April; the third round of panels met in early May with two panels in Pittsburgh and two in King of Prussia; and the final statewide review panel met in Harrisburg for a day in mid-August 2007. Panel participants are identified in Appendix A.

Professional Judgment Panel Procedures

The panels followed a specific procedure in doing their work. Panelists first met jointly with APA staff to review background materials and instructions prepared by APA. In particular, panelists were instructed that their task was to identify what constitutes an "adequate" level of revenues for hypothetical schools and districts. To accomplish this task, it was necessary for panelists to understand the state's academic performance standards (these are described in Appendix D of this report). Panelists were instructed to focus on this standard in order to appropriately estimate the resources that schools and districts need to be successful. Panelists were instructed *not* to build their "dream" school, but to identify only those resources specifically needed to meet Pennsylvania performance standards.

Individual panels examined the following types of resources:

1) Personnel, including classroom teachers, other teachers, psychologists, counselors, librarians, teacher aides, administrators, clerks, etc.

2) Supplies and materials, including textbooks and consumables.

3) Non-traditional programs and services, including before-school, after-school, preschool, and summer-school programs.

4) Technology, including hardware, software, and licensing fees.

5) Other personnel costs, including the use of substitute teachers and time for professional development.

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

In the case of several categories of personnel (teachers, principals, instructional facilitators) APA provided panel members with starting figures that reflect best practice research conducted by the Educational Policy Improvement Center (EPIC). These figures were used to stimulate discussion and could be accepted, modified, or rejected by panel members.

Panelists were instructed *not* to build their "dream" school, but to identify only those resources specifically needed to meet Pennsylvania's performance standards.

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

For each panel, the figures recorded by APA represented a consensus agreement among members. Panelists were instructed to identify the amount of resources (e.g., number of teachers) needed to meet the performance expectations, not to estimate the actual costs of providing those resources. At the time of the meetings, no participant (either panel members or APA staff) had a precise idea of the costs of the resources that were being identified. This is not to say that panel members were unaware that higher levels of resources would produce higher base cost figures or weights. But without specific price information and knowledge of how other panels were proceeding, it would have been impossible for any individual, or panel, to suggest resource levels that would have led to a specific base cost figure or weight, much less a cost that was relatively higher or lower than another.

3. The Evidence-Based (EB) Approach

The evidence-based methodology uses educational research to identify strategies that are the most likely to produce desired student performance outcomes. Strategies may include class size reductions, interventions for special student

populations, summer school, or professional development. Researchers typically undertake a literature review to identify the most effective educational strategies, estimate the cost of implementing each strategy, and adjust the costs based on school or district differences. The model is based on the theory that research-based practices hold the key to educational success and that research findings provide evidence that particular education strategies can be successful in practice. To help conduct this approach, APA worked closely with researchers at the Educational Policy Improvement Center at the University of Oregon.

The evidence-based approach in this study began with a comprehensive review of available literature to identify educational strategies that are likely to be effective in schools. The strategies with the most research support were then presented, via an online simulation, to a panel of teachers, educational administrators, pupil support staff, school board members, and business representatives who were called upon to consider the necessity and relative importance of each strategy. Panelists were encouraged to select only strategies that they believed would be effective in "hypothetical" schools, or schools that represent current (2005-06) enrollments, staffing, and other expenditures in large Pennsylvania school districts at the elementary, middle, and high school levels.

In order to create the simulation, APA needed to focus on one of the hypothetical districts. While any one of the districts could have been selected, APA chose to use the large sized hypothetical district. Large Pennsylvania school districts included those with total enrollments of 5,000 to 10,000 students. Throughout the simulation, panelists were also asked to provide rationales and offer suggestions about the resources necessary to bring student performance to specified levels.

Overall, the evidence-based method used in this study consisted of several key steps:

1. Creating hypothetical schools. Researchers constructed hypothetical schools that represent current service levels and student enrollments in Pennsylvania.
2. Literature review. Researchers conducted a comprehensive literature review to identify educational strategies that are likely to improve the quality of education in Pennsylvania.
3. Identification, recruitment, and training of panelists to participate in an online simulation.
4. Construction of an online simulation. Researchers built an online simulation to present the educational strategies and the current service levels of the hypothetical schools to panelists recruited from across Pennsylvania.
5. Data analysis. The results of the individual simulations were aggregated and analyzed by the researchers.

These steps are described below in greater detail.

The evidence-based methodology uses educational research to identify strategies that are the most likely to produce desired student performance outcomes.

Creating Hypothetical Schools

The purpose of creating hypothetical schools was to provide starting points for considering adequate funding. It is difficult to specify the resources necessary to achieve adequacy without a thorough understanding of the resources that already exist and how they are deployed. The hypothetical schools enabled panelists to examine and consider existing resource allocation levels before determining what resources would be necessary to enable all Pennsylvania students to meet the specified state and federal standards. The hypothetical schools also gave panelists a common frame of reference that was independent of a particular school or district.

To create hypothetical schools, researchers collected data on student enrollment, staffing, and other expenditures from the 64 school districts in Pennsylvania with enrollments between 5,000 and 10,000 students. Researchers relied heavily on the Pennsylvania Chart of Accounts, input from selected school business managers from districts across the state, and data from the Pennsylvania Department of Education in the process of creating hypothetical schools.

Literature Review

To determine the strategies that should be included in the evidence-based study, researchers located, read, and evaluated hundreds of studies, reports, and other sources on effective educational practices.

To determine the strategies that should be included in the evidence-based study, researchers located, read, and evaluated hundreds of studies, reports, and other sources on effective educational practices. The research process first sought to identify educational strategies for which there was direct evidence of improvement in academic performance. Second, researchers reviewed strategies that may have indirect impacts on performance. For example, behavioral support programs may not lead directly to improvements in student achievement because they do not entail instruction in any content area, but there is evidence that these programs increase "time on task" and decrease classroom disruption, both of which are key prerequisites to increasing student learning. Limiting the strategies to only those that directly affect student learning ignores the context within which learning occurs.

When determining which educational strategies to include for review, researchers considered the quantity and quality of studies that supported each strategy. Researchers included only those strategies with strong supportive research. The list of strategies was similar, although not identical, for the elementary, middle, and high school hypothetical schools.

Panelists and Recruitment

Researchers recruited expert panelists from several sources. Education groups across the state (including school boards, school administrators, school business officials and teachers) were asked to nominate individuals from their ranks who were knowledgeable about education effectiveness. In addition, the Pennsylvania State Board of Education recruited local business leaders to participate. From the

nominated list of individuals, we attempted to contact 100 individuals and ask them to participate in the online simulation. Of that number we had accurate information to contact 65 nominated individuals. Before completing the online simulation, all panelists were required to participate in a web-conference training session. Panelists logged into the web-conference and observed at their computers as researchers guided them by phone through a step-by-step demonstration of the structure and content of the online simulation. Researchers trained panelists in the specifics of each page and provided written directions and explanations specific to each page and its elements. Researchers were also available for technical assistance or to answer questions as participants completed the simulation. After the training, panelists were given several weeks to complete the simulation and were able to log into or out of the online simulation at their convenience.

Of the contacted 65, 54 went through the training to participate in the online simulation and 45 of those completed the simulation in the time frame allotted. Table II-1 presents a summary of the panelists completing the simulation. A complete list of participants is provided in Appendix B.

Table II-1: Panelists Completing the EB Simulation

Panelist Title	Number of Panelists Completing the Entire Simulation
Business Representative	7
School Board Member	12
School Program Director, Coordinator, Supervisor, or Business Manager	10
School Pupil Support (Nurse, Speech Therapist, Peer Intervener)	3
School Principal	3
School Teacher	4
Assistant Superintendent	1
Superintendent	5
TOTAL	**45**

Online Simulation

The purpose of the online simulation was to provide an efficient means to specify the research-based strategies which panelists believe are necessary to ensure an adequate education for Pennsylvania students. Researchers also asked panelists to recommend changes to any and all aspects of the hypothetical schools and their associated educational strategies. Each panelist received an individual link to the online simulation and was able to complete the simulation on their own time and could save their work and come back to it at a later time if needed.

Data Analysis

When all panelists completed their input into the simulation, researchers aggregated and analyzed the results by school level. Researchers calculated the percent of panelists who identified each educational strategy as necessary, and the proportion of these panelists who rated the strategy as "critically important" or "very important." Panelist strategy suggestions and other panelist changes on the adequacy review pages were considered on a case-by-case basis.

Researchers analyzed the data separately for each hypothetical school level because the strategies and their components differed by level. Researchers also aggregated panelist input on the relative importance of each strategy. The importance ratings for each strategy do not impact expenditures, but instead provide additional information for policymakers who are faced with competing priorities and limited budgets. Our findings from this analysis are presented in Chapter III of this report.

4. Supporting Analyses Conducted by APA

APA conducted a series of supporting analyses to strengthen and inform the work conducted using the three primary research approaches discussed above (the SSD, PJ, and EB approaches). This supporting work addressed several key costing out issues, including:

- A cost function analysis of school district spending.
- Cost of living differences based on geography.
- Other district-driven cost differences.
- Transportation costs.

Further detail on this supporting work is provided below.

Cost Function Analysis

A "cost function" analysis of school district spending in Pennsylvania was conducted for APA by a team of researchers at New York University. This work was designed to statistically analyze data to see how spending relates to student performance. Data on school district expenditures and other relevant information needed to conduct this analysis were provided by the Pennsylvania Department of Education (PDE), and by the National Center for Education Statistics' Common Core of Data for 2005-2006.

A "cost function" analysis of school district spending in Pennsylvania was conducted to statistically analyze data to see how spending relates to student performance.

Under a cost function analysis, the definition of "cost" as applied to school districts is the amount of spending per pupil necessary to achieve defined levels of student performance, holding constant input prices and other district characteristics that influence costs.

Economic costs require that resources be used efficiently and that output levels be specified. In this case, output levels were specified in terms of Pennsylvania's student performance expectations.

The approach also assumes that district expenditure per pupil is a function of a variety of factors, including current and past performance, district enrollment size, input prices such as teacher salaries, student characteristics that affect the cost of living, and other district environmental factors. The coefficients estimated from this procedure can therefore help indicate how per-student costs in the average Pennsylvania district change with increased enrollment of students with certain characteristics (such as limited English proficiency or special needs), or with changes in district input prices or other environmental factors, holding performance standards constant.

Geographic Cost of Living Differences

APA analyzed an adjustment factor that can be included in Pennsylvania's education funding formula that takes into account geographic cost of living differences across school districts. The key purpose of this analysis is to identify if there are cost of living differences between districts in different parts of the Commonwealth that impact the cost of delivering education services, and to create a "Location Cost Metric" (LCM), a factor that can be included in Pennsylvania's school funding formula to adjust the amount of state aid districts receive.

APA analyzed an adjustment factor that takes into account geographic cost of living differences across school districts.

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

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

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

APA's approach to studying cost of living differences is to focus jointly on the costs of acquiring and of retaining labor. We choose this focus because, as in most states, labor in Pennsylvania represents approximately 80 percent of all school district operating costs. This makes it by far the most important driver of district cost differences. Because the remaining 20 percent of district costs do not show sizable and consistent regional differences over time, APA holds this 20 percent constant across districts in its LCM formula: .20 + (.80 x Personnel Cost Factor).

Labor in Pennsylvania represents approximately 80 percent of all school district operating costs.

With this focus on labor costs in mind, the main focus of APA's work to develop an LCM was to identify the primary costs employees face. For this work, three sets of data were used:

1. The 2006 Council for Community and Economic Research (ACCRA) cost of living data for metropolitan areas in Pennsylvania;
2. U.S. Department of Housing and Urban Development (HUD) estimates of the market cost of two and three bedroom apartments in each county; and
3. National Center for Education Statistics (NCES) data by William Fowler and Lori Taylor on the Comparable Wage Index (CWI) for each school district for 2004 (the most recent available year).

Using the first two sets of data, APA divided the primary costs that employees face into two categories: housing and non-housing expenses.

- Housing costs: To address employee housing costs, APA used HUD data to calculate the estimated cost of a 2.5 bedroom rental in each Pennsylvania county. School districts were then assigned the housing cost of the county where they were located.
- Non-housing costs: From the ACCRA data, APA calculated an average cost of non-housing expenses for Pennsylvania. An average can be used for these costs, because non-housing expenses (especially in non-metropolitan areas) vary much less from place to place than housing costs do. APA applied this statewide average to all non-metro school districts. For metropolitan areas, however, APA applied the specific non-housing costs which were available for each area.

Once housing and non-housing costs were identified, APA was able to calculate a regional cost of living index. First, APA calculated state averages, weighting for 2000 population, and scaled the scores so that the state averaged 100. APA created a COLI (cost of living index) by weighting the non-housing costs at 72 percent and the housing costs at 28 percent. These percentages are consistent with the national average as shown by ACCRA data.

To include the employer aspect of cost of labor, APA then also scaled the CWI data so that the state averaged 100. The Personnel Cost Factor comprises 50 % CWI and 50 % COLI. To calculate the LCM, each district was assigned 20 percent

of identical costs for non-personnel items. For the estimated 80 percent in personnel costs, the labor cost index is used.

The cost index generated through the LCM analysis is provided in Appendix E of this report.

Other District-Driven Cost Differences

To address other costs that are driven by differences between Pennsylvania's school districts, APA conducted a variety of statistical and data analyses. These were designed to examine differences in such factors as wage and salaries and student enrollment change.

With regard to analyzing wage and salary issues, APA drew upon 2005-06 statewide data provided by the Pennsylvania Department of Education. This data included salaries, full time employees, total years of experience, and education for all teachers across the Commonwealth. Using this data, we examined statistical trends in the data with regard to how teachers are paid based on both their level of education and on their experience.

APA conducted a similar analysis at the district level. We controlled for differences in district cost of living by using the Personnel Cost Factor (which, as described in the geographic cost of living discussion above, represents that portion of the LCM that varies by district). APA also used district salary data, provided by the PDE, to analyze trends in how districts pay teachers based on their education and experience, including how salary schedules provide step increases in pay.

In order to analyze the impact of student enrollment changes on district cost, APA's analyzed district spending in Pennsylvania. We identified three elements of student cost:

1. Fixed cost: Some district cost occurs before a student ever arrives. These costs, which include such items as maintaining a district headquarters and staff and the need to comply with paperwork, record-keeping, and basic legal requirements, are embedded in every district's operations.

2. Current cost: Most of this cost occurs when the student attends school in the district.

3. Post cost: Some costs linger even after a student is gone from the district. Teachers, for instance, are hired and remain in their jobs despite minor fluctuations in enrollment from year to year.

This three-fold view more accurately recognizes that not all costs respond immediately to enrollment changes. Instead, some operating costs immediately appear or disappear when a student enrolls or leaves a district, while other costs may take up to five years to appear or disappear. For instance, a single student can

often be added in October to an existing school with few extra expenses for teacher salaries, heating, or supplies. Similarly, the loss of a student in October might have comparatively little impact on the same factors of salary and other expenses. However, eventually changes in the number of students enrolled, and the teachers required to teach them, will match up and each extra student will produce added expense.

Not all costs respond immediately to enrollment changes. Some may take up to five years to appear or disappear.

To analyze the effects of enrollment change in Pennsylvania, APA used district spending and enrollment patterns to specify how much of the average student expense is borne in the first year, how much in the second, and so on. Viewed from a different perspective, APA sought to identify how much of the current expense is due to this year's enrollment and how much is left over from previous enrollment levels.

Our approach, which we have used in similar fashion to analyze enrollment change costs in other states, was to assume that:

- The total expense for any student is spread over five years (the current year and four prior years); and
- There is a single ratio between the expense for one year and for the next.

To identify the appropriate ratio of expense from one year to the next, APA analyzed data on spending changes in Pennsylvania from 2004-05 to 2005-06 and modeled it as the result of enrollment changes over five years. Specifically, we divided spending in 2004-05 by spending in 2005-06 and modeled it as a function of enrollment in each of the years 2005-06 to 2001-02, divided by the 2005-06 enrollment, which leaves a constant (2005-06 enrollment divided by itself) and four variables.

The results of this analysis were applied to the overall costing out estimate, and are described in Chapter III of this report along with APA's other findings.

Transportation Costs

As part of this costing out study, APA undertook an analysis to better understand the current system by which school districts transport their students to and from school and other activities, and the associated resources required to operate this system. Through this analysis, APA also sought to identify whether changes in the current system were warranted to either improve service delivery or to improve overall efficiency. Our conclusion, based on the work described below, is that Pennsylvania already has in place a rather precise and sophisticated system for measuring transportation costs. This system has evolved over time and now appears to properly account for a variety of cost pressures which different school districts currently face. The system also appears to be working reasonably well in allocating resources to districts to properly account for these different cost pressures. With these considerations in mind, altering the current transportation funding approach is not warranted.

As part of APA's transportation Cost Study, APA conducted a review of Pennsylvania's current student transportation system, including the nature of state subsidies to school districts; the statutes, regulations, and other policies that govern transportation and impact cost; current state spending on transportation services; and other factors that impact district transportation cost. APA's analysis had several components:

1. Specify and obtain data: APA reviewed Pennsylvania's statutory and other legal requirements for operating a student transportation system. In addition, numerous data elements were required to conduct our analysis. The data elements that were needed were identified and submitted to the Pennsylvania Department of Education (PDE). These included: number of pupils in various groupings; bus data; detailed expenditure data; transportation subsidy data; and other district characteristics. All of these elements were requested for each district and in an electronic spreadsheet format.

2. Conduct data analysis: Using the data provided by PDE, a series of analyses were carried out to provide descriptive statistics about the costs of transportation. Many of the analyses yielded total results as well as results for rural and urban districts. The analyses included:

   - Expenditures by total, current, support, and transportation categories.
   - Percentage of transportation expenditures of total, current, and support expenditures.
   - Density comparisons, both by population per square mile and by students per square mile.
   - Pupils transported, by number, type and proportion of public and nonpublic pupils.
   - Cost per student, state subsidy per pupil, and net cost to district per pupil, and district percent share of transportation costs.

3. Convene an independent panel of experts: A panel of Pennsylvania's transportation experts was convened to recommend ways of improving efficiency in school transportation and to recommend indicators of performance and benchmarks in transportation. The Transportation Committee (TC) of the Pennsylvania Association of School Business Officials (PASBO) served as the panel of experts. Eighteen members met to review the preliminary data analyses of transportation and to brainstorm about efficiency and measuring performance in school transportation. The range of members on the panel included school business managers, school district and intermediate unit transportation directors and supervisors, representatives of school transportation services contractors, Pennsylvania State Police, PDE financial officials,

Pennsylvania already has in place a rather precise and sophisticated system for measuring transportation costs. This system has evolved over time and accounts for a variety of cost pressures.

and Pennsylvania Department of Transportation and PASBO administrators. They provided a variety of insights and comments regarding transportation services and the relation with transportation expenditures. The discussion below is drawn from this discussion.

Through these analyses, APA was able to generate an overall view of Pennsylvania's transportation funding system. Transportation is an optional service for school districts in the Commonwealth. School boards are authorized by law to provide transportation, but it is not a mandatory service for school districts. However, if the district does elect to provide transportation services for their students, they must then comply with the state statutes and regulations that govern pupil transportation.

The Commonwealth's subsidy to school districts for student transportation is designed to support a portion of the costs incurred by school districts that provide such services. The amount and state share will vary from district to district, but overall the state provides approximately one-half of the districts' transportation costs. It functions as a reimbursement system in that districts receive subsidy payments in one year based on operating costs the prior year.

The regular transportation subsidy calculation for each district is a complex series of formulas that are based on the operation of each individual bus involved in providing transportation services (either district-operated or contracted service), a cost (inflation) index, deductions for ineligible students transported (those transported that live less than a specified maximum walking distance from school), the wealth of the district, and an excess cost payment to limit the district's cost to one-half mill. Additional adjustments are made for nonpublic school students, hazardous route students, transportation services provided to the district by intermediate units and area vocational/technical schools, depreciation, and additional subsidy amounts for nonpublic and charter school students transported. In addition to the regular transportation subsidy, school districts also receive an additional transportation subsidy for nonpublic school students that they transport and for charter school students that are transported outside the district boundary.

From its review and the input of its expert panel, APA was able to identify and assess a variety of other factors that affect school district costs and to organize these factors into two main groups:

1. Cost factors that are <u>out of the districts' control</u>:

   a. Geographic area of the district

   b. Student density per square mile

   c. Total number of students in the district

d. Type of students, including those requiring special buses or equipment to transport

e. Number of charter school and nonpublic students

f. Total population density

g. Terrain and physical characteristics of the land in the district

h. Variations in weather across the Commonwealth

i. Cost of fuel

2. Cost factors that are in the districts' control:

a. Number and location of schools operated by the district

b. Location of special need student programs

c. Policies on maximum walking distances allowed for students

d. Policies designed to reduce the length of bus routes

e. School day start and end times

f. District calendars

g. Use of bus fleets to support other community purposes

h. Type of bus and other equipment selected for district use (e.g., seating capacity, fuel type, engine type, communications equipment)

i. Decisions to contract out transportation services or provide services internally.

As noted above, many factors come into play that affect transportation expenditures in Pennsylvania's school districts. These result in varied levels of expenditures among districts and there is no single answer to the question "What does transportation cost a district?" Rather, APA's findings, and the input of our expert panelists, indicate that the Commonwealth's current level of transportation spending is sufficient, does as effective a job as is possible in addressing the variety of cost pressures districts face, and balances numerous legal, political, and public policy objectives. Since current transportation spending was deemed sufficient, these costs were not included in APA's costing out estimates or in our comparisons with actual district spending.

Because current transportation spending was deemed sufficient, these costs were not included in APA's costing out estimates or in comparisons with actual district spending.

III. Costing Out Findings

The primary purpose of a costing out study is to estimate the spending that each and every school district in a state will need to make in order to meet the state's education performance expectations. There are three key elements that must be identified through this work:

1) A base cost;

2) Specific student-driven cost factors that vary between districts; and

3) District-driven cost differences that vary across the state.

The "base cost" represents the cost of educating an average student in the Commonwealth — with no special needs — to meet state performance expectations. This base cost does not include food service costs or costs associated with community services, adult education, capital costs (such as school building construction), or debt service costs. The base cost is the largest single number used to develop the total costing out estimate. However, by itself, the base cost is insufficient to cover the costs of serving students with special needs or to account for the district-wide cost pressures that most districts face.

The "base cost" represents the cost of educating an average student in the Commonwealth — with no special needs — to meet state performance expectations.

Because student and district characteristics can vary considerably, it is important to go beyond simply identifying a base cost when conducting a costing out study. Instead, researchers must identify specific sources of cost pressure (each of which we refer to as a cost factor) and develop an estimate of each cost factor's specific impact. In this way, cost factors can be applied individually to each district's unique circumstances and can be used to develop a much more accurate, overall cost estimate.

As has been discussed previously, some cost factors are associated with the characteristics of particular students and some have fiscal impacts for all students or for districts as a whole. The student-driven factors addressed in this study identify any cost impacts that result from *student* differences in:

- Poverty
- Limited English Proficiency
- Disabilities
- Gifted and talented ability.

The *district-driven* factors addressed in this study are designed to identify cost impacts that result in differences between school districts in terms of their:

- Size
- Enrollment growth or decline
- Cost of living.

APA addresses these cost factors in many cases by creating a set of "weights" which are applied to some or to all students. In the simplest sense, a weight is a number, typically expressed as a two digit figure such as ".37," which reflects the cost of a particular fiscal pressure in relation to a standard cost. For example, if we determine that the cost of providing services (including such items as additional staffing, programs, and equipment) to a group of students with a special need is $500 per student above the standard or "base" cost, and the base cost is $2,000 per student, then the weight would be .25 ($500/$2,000). This weight would be added to the cost of each enrolled student that had the special need.

Student weights are typically used when three conditions are met: (1) there is a variation among districts in the proportion of students requiring services beyond those included in the base cost; (2) the cost of the added services is significant in some, if not all, situations; and (3) it is possible to count students directly or use a proxy measure of the number of students who need the added services. Once all student and district factors have been quantified, it is possible to determine the total number of weighted students in each district and to address district differences in terms of size, enrollment change, or cost of living.

The findings discussed below were derived from the entirety of APA's research and analysis conducted in Pennsylvania over the course of the past year. As discussed in Chapter II of this report, APA used a variety of nationally recognized research approaches to analyze and identify the costs associated with meeting the Commonwealth's goal of having all students reach specific performance targets. These targets, which are shown in Appendix D of this report, include achieving universal mastery of state standards in 12 academic areas, and student proficiency in reading and math by 2014. The research approaches used by APA over the past year included a successful school district (SSD) analysis, a professional judgment (PJ) analysis, and an evidence-based (EB) analysis. APA also conducted a cost-function analysis and other analyses designed to understand a variety of issues associated with student transportation, educator wages, change in enrollment, and geographic cost of living differences.

APA's findings were derived from the entirety of research and analysis conducted in Pennsylvania over the course of the past year.

While in some cases, one methodology or analysis led us to a particular answer regarding a specific cost factor, in other cases, several different approaches all combined to provide a wealth of information that could be used to reach an answer. When combining the data generated through each of the approaches, APA considered several criteria, including: 1) how strongly the identified data or costs were associated with achieving *Pennsylvania's student performance expectations* including universal mastery of state standards in 12 academic areas and proficiency in reading and math by 2014; 2) the degree to which the data or costs took into consideration *efficiency* and lowest possible cost of resource delivery; 3) the *transparency and reliability* of the data generated; 4) how well the data could be applied to recognize existing school district and student *cost pressure differences.*

Costs would need to be modified annually to account for inflation and changes in student demographics.

Using these four criteria as a guide, APA developed cost factors and combined them in a way that considers efficiencies, can be explained relatively easily, and answers the questions posed to all responders to the request for proposals issued by the Pennsylvania State Board of Education. What follows describes the costs that would have been necessary in 2005-06 to meet the state's performance standard (universal mastery of standards in 12 academic areas and proficiency on state assessments of reading and math) that year. These costs would need to be modified annually to account for inflation and changes in student demographics in order to achieve the standard in years following 2005-06. A summary of our findings is shown in Table III-1 below.

Table III-1

Values or Formulas Used to Determine Each Factor Used in Costing Out Estimation

Costing Out Factor		Value or Formula for Factor
Base Cost Base Cost per Student	=	$8,003 in 2005-06
Modification to Enrollment Change in Enrollment Over Time	=	Modified enrollment is calculated as follows based on enrollment in the indicated year: (.52 X 2005-06)+(.26 X 2004-05 + (.13 X 2003-04 +(.06 X 2002-03) + (.03 X 2001-02)
Adjustments to Base Cost District Enrollment (Size)	=	(((-0.05) X (LN of 2005-06 enrollment)) + .483), with a minimum of 0.0
Geographic Price Difference (LCM)	=	See Appendix E for county LCM figures (Allengheny County = 1.00)
Special Education	=	1.30 X all students enrolled in special education programs
Poverty	=	.43 X number of students eligible for free/ reduced-price lunch
English-Language Learners (ELL)	=	((-.023) X (LN of 2005-06 enrollment) +3.753) X number of ELL students, with a minimum of 1.48
Gifted	=	((-0.13) X (LN of 2005-06 enrollment) + 1.482) X number of gifted students, with a minimum of .20

Base Cost

As the table shows, after reviewing data generated from all study approaches, APA concluded that Pennsylvania's base cost in 2005-06 needed to be $8,003 per student.

District-Wide Cost Pressures

There are three district wide cost pressures that districts face: (1) the fiscal impact caused by enrollment change over time; (2) the fiscal effect of enrollment level (district size); and (3) the cost implications of geographic price differences.

Three key cost pressures districts face include those associated with size, enrollment change, and geographic price differences.

The fiscal impact of enrollment change is shown in the table above. This factor changes the enrollment in a district based on weighting enrollments in the current year and in four prior years at different levels: (1) .52 for the current year; (2) .26 for last year's enrollment; (3) .13 for enrollment two years ago; (4) .06 for enrollment three years ago; and (5) .03 for enrollment four years ago. Applying these weights to a district that has had constant enrollment in the current year and the prior four years means that this year's enrollment would be used (this is true since the weights add up to 1.00). However, if a district had a declining pattern of enrollment (say, 500 students this year, 550 students the year before, 600 students two years ago, 650 students three years ago, and 700 students four years ago) then the number of students that would be counted this year to determine costs would be higher than the actual count (in the example, 541 students, which is about eight percent higher than the actual count of students in the current year). The higher enrollment count is our attempt to account for the district's inability to fully reduce its resources as rapidly as enrollment decreases.

By the same logic, if a district had the exact opposite situation (growing by 50 students per year to reach 700 students, having started four years ago with 500 students), we would use a count of students this year that would be lower than the actual count (659 students). A more typical situation is one in which enrollment bounces around a bit (say, from current year to four years ago: 600, 625, 620, 635, 650); under this circumstance, APA's formula would count 612.7 students rather than the 600 students enrolled this year.

The formula for calculating the cost impacts due to differences in district enrollment size is also shown in Table III-1. Under the formula shown, every district with an enrollment below 16,000 students would receive a unique size adjustment. No two districts of different enrollment would receive precisely the same adjustment. The examples shown below illustrate the magnitude of the adjustment for selected enrollments.

Enrollment	Adjustment
500	17.2%
1,000	13.8%
2,000	10.3%
4,000	6.8%
8,000	3.4%
16,000	0.0%

This factor indicates that per student costs are higher in smaller districts, declining slowly from over 17 percent at 500 students to zero percent at 16,000 students and higher.

The third district-wide cost factor is the geographic price differential, which measures the extent to which the prices of resources differ from place to place. As discussed in Chapter II, APA used a particular methodology to develop a Location Cost Metric (LCM), which is county-based and indicates the relative costs districts face compared to a standard, which is 1.00. Because the LCM is based on national data, we needed to select a county to serve as the standard in Pennsylvania. APA selected Allegheny County for this purpose because, by doing so, the statewide average LCM is at about the national average (1.00), which is what the data suggest. All other counties are shown in relation to Allegheny County — that is, their costs are shown as being higher or lower than Allegheny County's costs. The LCM ranges from .93 to 1.16, indicating that costs could be as much as 7 percent below Allegheny County's costs or as much as 16 percent above Allegheny County's costs. The LCM for every county is shown in Appendix E.

Four cost pressures related to student characteristics include: special education, poverty, English language learners, and gifted.

It should be noted that APA did not discover any other district-wide factors that required inclusion in the costing out findings. In other states, there has been discussion of factors that are related to district density, to the rural or urban qualities of districts, or to something referred to as "municipal overburden." In APA's view, these types of factors have one of three characteristics: 1) They are difficult to define (no study to APA's knowledge has defined municipal overburden, which speaks to the issue of whether certain communities have needs that other districts do not have that interfere with their ability to support education); 2) they are related primarily to transportation costs (which are related to district population density, which is taken into consideration in allocating state aid for transportation); or 3) they are associated with other factors that APA has already measured (for example, in Pennsylvania's case, APA has accounted for urban or rural factors because such factors are related to district size, poverty, and regional price differences, all of which are accounted for in Table III-1).

Student-Based Cost Pressures

There are four cost pressures that are related to specific student characteristics: 1) special education; 2) poverty; 3) English-language learners; and 4) gifted.

In the case of special education, some states use three classifications to differentiate the level of need for a particular student — mild, moderate, and severe. Pennsylvania currently uses two classifications as the basis of allocating state funding support. However, APA meetings with special education providers suggested that professionals in the Commonwealth believe three classifications should be used. While APA considered three classifications in our analysis of

Pennsylvania's costs, the state does not report data to support such a funding mechanism. Therefore, APA uses a single classification approach based on the actual distribution of special education students. The cost of this classification is estimated to be 2.3 times the base cost (for a weight of 1.3, as shown in Table III-1). For example, if a district had 5,000 students, 700 of whom were students with disabilities, then the added cost would be $7,282,730, or $10,404 per student in special education, unadjusted by the LCM. The special education cost weight identified by APA represents an average across all disability and service delivery groups. Therefore, some students will cost much more than this figure, while some students will cost much less.

The cost weight for students in poverty is .43, or 43 percent above the base cost. The proxy for measuring such poverty is eligibility for the federal free or reduced price lunch program. APA found that this .43 weight was consistent across districts of different sizes, but that there was no indication of a concentration factor of any sort (that is, the weight does not rise as the proportion of enrolled students in poverty rises). This weight covers all the costs of low income students but not the cost of dropout recovery. If a district had 5,000 students, 2,000 of whom were eligible for free/reduced-price lunch, then the added cost would be $6,882,580, or $3,441 per poverty student, unadjusted by the LCM.

The formula for English language learners (ELL) is also shown Table III-1. This factor is affected by school district size based on the formula shown. Under the formula, every district would receive a unique adjustment for ELL students. The minimum adjustment is 1.48. No two districts of different enrollment would receive precisely the same ELL adjustment, unless they are at the minimum adjustment level. The examples shown below illustrate the magnitude of the adjustment for selected enrollments.

The cost weight for students in poverty is .43, or 43 percent above the base cost.

Enrollment	Adjustment
500	2.324
1,000	2.164
2,000	2.005
4,000	1.845
8,000	1.686
16,000	1.527

The weight is applied by multiplying the number of ELL students by the base cost and by the weight. For example, if a district had 5,000 students, 40 of which were ELL, then the added cost would be $574,295 (the weight at that enrollment would be 1.794), which is $14,357 per ELL student unadjusted by the LCM.

Finally, we created an adjustment for gifted students. Similar to the ELL weight, the costs vary by district size. Every district will receive a unique adjustment for its gifted students, with a minimum adjustment of .200. No two districts of

different enrollment will receive precisely the same adjustment unless they are at the minimum level. The examples shown below illustrate the magnitude of the adjustment for selected enrollments.

Both ELL and gifted student weights were found to vary by district size.

Enrollment	Adjustment
500	.674
1,000	.584
2,000	.494
4,000	.404
8,000	.314
16,000	.224

The weight is applied by multiplying the number of gifted students by the base cost and by the weight; for example, if a district had 5,000 students, 250 of which were gifted, then the added cost would be $749,881 (the weight at that enrollment would be .3748), which is $3,000 per gifted student unadjusted by the LCM.

Applying the Costing Out Factors to a Hypothetical School District

In order to better understand how all of the factors described above work together to produce a total cost, we can look at a hypothetical school district and what the cost would be given a set of demographic circumstances. Suppose, for example, that the district had 3,200 students, of which 400 were in special education, 85 were English-language learners, 925 were from families in poverty (as measured by their eligibility for free/reduced-price lunch), and 120 students were gifted. In addition, suppose that the district were in a county with a 1.03 LCM and that enrollment was 3,200 in 2005-2006, 3,140 in 2004-2005, 3,160 in 2003-2004, 3,040 in 2002-2003, and 3,040 in 2001-2002.

In this case, the district would be treated as if it had 3,165 students, which would generate $25,327,894 (3,165 X $8,003) in base cost. The size of the district would generate an additional $2,034,804 (using an enrollment of 3,200, an additional amount of 7.95 percent of the base amount is added for every student in this district). Special education students add $4,161,560 (400 X 1.30 X $8,003). Students in poverty add $3,183,193 (925 X .43 X $8,003). ELL students add $1,290,240. Gifted students add $415,644. The total is $36,409,105. When adjusted by the LCM (that is, when multiplied by 1.03), the total is $37,501,378, or $11,719 per student.

Using this example, with all figures adjusted by the LCM: (1) students in special education would add an average of $10,716 each to the total cost; (2) students in poverty would add $3,545 each to the total cost; (3) ELL students would add $15,635 each to the total cost; and (4) gifted students would add $3,568 to the total cost. While the base cost adjusted for change in enrollment and the LCM is $8,153 per student, $655 would also be added due to the size adjustment, adjusted by the LCM, for a total base cost of $8,808 per student.

IV. Equity Analysis

Education policymakers have been interested in the concept of school finance equity for many years. In fact, interest in fiscal equity in education goes back 150 years, when states first began to provide support for public education. At that time, state policymakers began to recognize that there was tremendous variation across school districts in terms of the scope of the education programs offered, the numbers of educators employed, and the quality of materials that were available to students. State aid was therefore initially provided, at least in part, to equalize the services that were available across school districts.

A century ago, despite the provision of state support, school districts relied on local revenue to provide a significant share of all current operating revenue, which produced large variations across districts in spending and in the level of effort school districts made to raise local support. In the last 35 years, many states worked hard to modify the way they provide aid to schools to better consider the varying needs and wealth of school districts. Even today, however, lawsuits continue to challenge state school finance systems, calling for these systems to be designed so that both funding and the provision of education resources are more strongly related to the needs of students.

School finance equity is concerned with the variations in spending and tax effort that exist across a state's school districts. This is not to say that perfect equality is required. In fact, analysts recognize that some variation is acceptable either because the needs of districts vary — with higher need districts requiring more resources — or because some communities are willing to make a higher tax effort than others in order to generate revenues above the level the state assures for all districts.

Pennsylvania's highest need districts generate the least amount of local revenues, while the lowest need districts tend to generate the most.

Key Findings from APA's Equity Analysis

APA's examination of equity starts by measuring variation across several key areas: (1) the student needs in school districts; (2) the wealth of school districts; (3) per student spending for current operations; (4) per student state support; (5) per student local support; and (6) local tax effort. Based on this analysis, we draw conclusions about the level of equity that exists in the Commonwealth's overall school funding system. In order to better understand state support and local tax effort, we also compare the amount of revenue Pennsylvania derives from state and local taxes to the national average and the amounts six nearby states generate. These analyses yielded the following key findings:

1. When wealth is measured by combining property value and income (which is the Commonwealth's current wealth definition) data show a substantial variation in district wealth.

2. With regard to state aid Pennsylvania's current funding system has positive aspects:

   a. The variation in state aid that districts receive is not very large *if* all cost pressures are taken into consideration. In other words, after controlling for factors such as numbers of students with special needs, differences in district size, and regional cost differences — which allows data to be examined on a "weighted student" basis — state aid is fairly consistent across the Commonwealth.

   b. When cost pressures are not taken into consideration, districts with higher need levels do receive more state funds per enrolled student. Also, wealthier districts tend to receive less state aid per enrolled student than poorer districts.

3. The local revenue picture is much less desirable from a public policy perspective:

   a. Looking at districts in terms of student *need*, data show that Pennsylvania's highest need districts generate the least amount of local revenues, while the lowest need districts tend to generate the most.

   b. Looking at districts in terms of *wealth*, the poorest districts tend to have the highest tax efforts while the wealthiest districts have the lowest effort. The wealthiest districts can, in fact, generate more local funds with less tax effort imposed on their citizens.

   c. Because local revenue is almost *twice as much* as state revenue, disparities in how such revenues are generated overwhelm whatever equity is provided through Pennsylvania's state aid. In fact, data show that school district spending is negatively associated with need and positively associated with wealth.

4. State and local taxes collected in Pennsylvania are comparable to the national average relative to population or personal income, but are 6 to 12 percent lower than those collected in six nearby states. When compared to the simple average tax effort of the six nearby states, Pennsylvania could have collected between $3.17 and $6.02 billion more revenues in 2004, depending on how tax effort is measured.

Pennsylvania's poorest districts tend to have the highest tax efforts while the wealthiest districts have the lowest.

The inequity of Pennsylvania's funding system can be summarized by the conclusion that school districts with higher wealth and lower needs spend more than lower wealth districts — and do so while making lower tax effort. If additional revenues are

needed to improve student performance, such funds should be collected at the state level and allocated by the state through a formula that is sensitive to the needs and wealth of school districts. By focusing on state funding in this way, Pennsylvania will be better able to reduce the inequities caused by the current heavy reliance on local revenues.

Below is a discussion of the procedures APA used to analyze the equity of Pennsylvania's school funding system and to compare state and local tax revenues to those of other states.

Compared to the average tax effort of six nearby states, Pennsylvania could have collected between $3.17 and $6.02 billion more revenues in 2004.

Measuring Equity

While there are numerous ways to measure variation, we have found the most useful statistic to be the *coefficient of variation* (the standard deviation of a distribution of values divided by the mean of the distribution of values) because: (1) it includes all values (some measures, such as the federal range ratio, exclude very high or very low values); (2) it is unaffected by inflation (so that if all values increase to the same extent, the coefficient of variation does not change); and (3) it is easier to interpret than other measures.

Once the extent of the variation in a particular variable is known, it is useful to understand how the variation is related to two primary factors: 1) the needs of districts; and 2) their wealth. It is appropriate that the variation in a particular variable, such as state aid, is positively related to need and is negatively related to wealth. Other variables, however, such as tax effort, should be unrelated to either need or wealth.

APA measures relationships between variables using a "correlation coefficient." This assesses the strength of association between two variables and is easy to interpret using the following guidelines:

- A value of zero indicates no relationship.
- A value of 1.00 indicates a perfectly positive relationship (when one variable increases, the other one also increases).
- A value of -1.00 indicates a perfectly negative relationship (when one variable increases, the other one decreases).
- Values between -.30 and 30 are considered to be weak, values between -.70 to -.30 and between .30-.70 are considered to be of moderate strength, and values above .70 or below -.70 are considered to be strong.

One way to take need into consideration is by weighting students to reflect the fiscal impact of a student characteristic, such as coming from a low income family, or the impact of a district characteristic, such as size. In effect, once the fiscal impacts of all cost pressures have been quantified, it is possible to use "per weighted student" (rather than just "per student") indicators of spending to measure variation. If this is done, the assumption is that there should be no variation in spending since needs have already been taken into account.

School Finance Equity in Pennsylvania

Because Pennsylvania has a large number (501) of school districts, there is an inherent basis for variation in the school finance-related variables mentioned above. Therefore, it is appropriate to begin an analysis of equity be examining the extent of the variation that currently exists across all districts. Previously, we have discussed the cost pressures that school districts face based on student characteristics (such as the proportion of students from low income families) and district characteristics (such as their enrollment size). Given that it is possible to "weight" students to reflect these cost pressures, APA created variables in per *weighted* student terms.

This means that the values we discuss below may look different to those who are familiar with Pennsylvania's current school finance statistics. For example, one might look at the per student spending of a district with 3,250 students and find that it spends $8,956 per student. Using a weighted student approach, however, if we found that the district's weighted student count was 1,040 higher than its actual enrollment for a total count of 4,290 weighted students (rather than the 3,250 "raw" students that had been used to calculate per student spending), then the per weighted student spending would be $6,785 (an increase of 32 percent in the divisor leads to a decrease of about 24 percent in the dividend), which appears to be much lower. Similar adjustments can be made in measuring state aid and local support as well as in how we measure the wealth of school districts. Making this adjustment allows APA to be more precise in comparing these variables to the true needs of districts which we have now measured more accurately than ever before.

One of the most interesting things to understand about Pennsylvania's school districts is the extent to which they vary in their relative needs. We define relative "need" as the ratio of weighted students (weighted for all student and district characteristics) to unweighted students. For example, in the case of the districts mentioned above, there were 3,250 raw, or unweighted, students and 4,290 weighted students. This results in a ratio of 1.32, which can be interpreted to mean that the district's relative need is 32 percent above what it would have been if it had no cost pressures (that is, if it had no students with special needs and no district characteristics that placed unusual cost pressures on it).

We calculated the ratio of weighted to unweighted students for all 501 Pennsylvania districts in 2005-06 and found that the lowest ratio was 1.21, the highest ratio was 1.87, and the enrollment-adjusted average ratio was 1.51. When we say "enrollment-adjusted" we mean that the impact of each district's values are adjusted by the number of raw students enrolled in that district. Therefore, Philadelphia's figure has a much larger impact on Pennsylvania's average than any other district because that district is by far the largest.

The coefficient of variation of the relative need of the 501 districts is .113, which can be interpreted to mean that about two-thirds of all students are in districts that have relative need between about 11.3 percent less than the average and 11.3

percent higher than the average. In school finance terms, the variation in need across school districts is not very large and is somewhat smaller than one might think given the variation that exists in all of the components that make up need (for example, in the proportion of students from low income families, the proportion of ELL students, the changing enrollment of districts over time, and regional cost differences).

In Table IV-1, similar statistics as those described above are shown for other school finance-related variables. The average wealth per weighted student in 2005-06 (based on combining 60 percent of property value with 40 percent of personal income, as is used in the state's school finance system) was $155,806 and wealth varied from $33,647 per weighted student to $2,835,521 per weighted student (the wealthiest district had about 84 times the wealth of the least wealthy district). The coefficient of variation for wealth was .528, which indicates that there is a substantial natural variation in the wealth of school districts.

Table IV-1

Indicators of Variation in School Finance-Related Variables for Pennsylvania School Districts in 2005-06

Indicator of Variation	School Finance-Related Variables					
	Relative Need*	Wealth**	Spending per Weighted Student***	State Aid per Weighted Student***	Local Revenue per Weighted Student***	Implicit Tax Effort****
Student Weighted Average	1.51	$155,806	$6,351	$2,395	$4,567	30.15
Minimum	1.21	$33,647	$4,280	$859	$1,061	3.43
Maximum	1.87	$2,835,521	$11,425	$6,043	$12,738	55.36
Range Ratio	1.55	84.27	2.67	7.03	12.01	16.14
Student Weighted Standard Deviation	0.171	$82,268	$1,074	$967	$2,090	6.29
Student Weighted Coefficient of Variation	0.113	0.528	0.169	0.404	0.458	0.209

* Relative need is the ratio of weighted to unweighted students based on APA weights

** Wealth is the sum of .60 times property value and .40 times income divided by weighted students.

*** Weighted students include all student and district weights.

**** Implicit tax effort is local revenue divided by wealth times 1,000.

The per weighted student spending of districts varies more than need but less than wealth. Theoretically, spending should not vary at all when measured in per weighted student terms if the only objective of the state is to assure that spending matches need. It also should not vary as much as local wealth since such a finding would indicate that wealth is the primary determinant of spending, which goes against an important purpose of providing state support. It should be noted that we are using a constrained definition of spending, which excludes capital outlay and debt services as well as transportation, adult education, and food services. The fact is that spending per weighted pupil varied from $4,280 to $11,425, producing a range ratio of 2.67, with an average of $6,351. The coefficient of variation is relatively high at .169, which can be interpreted as meaning that two-thirds of all students are in districts with spending per weighted student between $5,277 and $7,423.

State aid, which is typically designed to be allocated so that it is positively related to district needs and negatively related to district wealth, should vary across districts. When state aid is shown in per weighted student terms, the primary source of variation should be wealth, which suggests that there would need to be as much variation in state aid per weighted student as there is in wealth per weighted student. As shown in Table IV-1, state aid per weighted student varied from $859 to $6,043, with an average of $2,395. The coefficient of variation, at .404, was high but not as high as the coefficient for wealth. Of greater concern is the fact that local revenue per weighted student varies even more widely than state aid, ranging from $1,061 per weighted student to $12,738 per weighted student. This variation is a concern when one considers that, on average, local funding is almost twice as much as state aid and could therefore have a significant negative impact on the overall equity of the system.

In order to look at tax effort, we developed an indicator of implicit tax effort by dividing local revenue by local wealth (and multiplying by 1,000). Using this approach, implicit local tax effort varied from 3.43 to 55.36 "units", with an average of 30.15 units. The coefficient of variation of tax effort was .209.

To illustrate variations in need and wealth, APA divided districts into five quintiles containing approximately equal numbers of students (excluding Philadelphia).

The discussion thus far has focused on the extent of the variation in several school finance-related variables among Pennsylvania's 501 school districts. As mentioned earlier, it is important to understand not only the variation but the relationship of that variation between: 1) school district needs; and 2) school district wealth. In Tables IV-3 and IV-2, we show the correlations between each of the variables and need (Table IV-3) and wealth (Table IV-2). In order to illustrate those correlations, we divided the districts into five groups containing approximately equal numbers of students after excluding Philadelphia; these groups are called quintiles.

Table IV-2

Student Weighted Average 2005-06 District Characteristics Organized into Equal Student Quintiles Based on District Wealth and Excluding Philadelphia

Wealth Quintile	Characteristics of Wealth Quintiles							
	Wealth*	Number of Districts	Number of Unweighted Students	Relative Need**	Spending per Weighted Student***	State Aid per Weighted Student***	Local Revenue per Weighted Student***	Implicit Tax Effort****
1	$79,011	134	313,032	1.56	$5,965	$3,511	$2,558	32.88
2	$120,698	123	329,431	1.46	$6,061	$2,763	$3,746	30.92
3	$153,190	92	320,857	1.45	$6,445	$2,311	$4,809	31.44
4	$194,152	90	321,479	1.40	$6,459	$1,769	$5,697	29.31
5	$283,421	61	320,864	1.43	$7,483	$1,241	$7,620	27.93
Philadelphia	$74,823	1	207,817	1.86	$5,336	$3,009	$2,058	27.50
*Statewide Correlation with Wealth**	1.00	N/A	N/A	-0.43	0.65	-0.70	0.89	-0.25

* Wealth is the sum of .60 times property value and .40 times income divided by weighted students.

** Relative need is the ratio of weighted to unweighted students where weighted students include all student and district weights.

*** Weighted students include all student and district weights.

**** Implicit tax effort is local revenue divided by wealth times 1,000.

In the case of need quintiles, districts were ranked by their relative need (the ratio of weighted students to unweighted students), then placed into the lowest need group until about 20 percent of all students were accounted for, after which the other four groups were created sequentially. A similar procedure, with ranking based on wealth rather than need, was used to create wealth quintiles. Once all districts (except Philadelphia) had been assigned to a quintile, weighted averages of other variables were calculated using all of the districts in the quintile and weighting based on the enrollment of those districts.

Table IV-3

Student Weighted Average 2005-06 District Characteristics Organized into Equal Student Quintiles Based on District Relative Need and Excluding Philadelphia

Wealth Quintile	Characteristics of Need Quintiles							
	Relative Need*	Number of Districts	Number of Unweighted Students	Wealth**	Spending per Weighted Student***	State Aid per Weighted Student***	Local Revenue per Weighted Student***	Implicit Tax Effort****
1	1.32	94	321,849	$186,188	$6,544	$2,152	$5,296	28.53
2	1.39	100	326,592	$169,331	$6,352	$2,320	$4,836	28.58
3	1.44	117	319,385	$173,686	$6,521	$2,390	$4,916	28.33
4	1.50	112	320,883	$166,332	$6,504	$2,261	$5,008	31.88
5	1.65	77	316,954	$135,445	$6,495	$2,455	$4,395	35.21
Philadelphia	1.86	1	207,817	$74,823	$5,336	$3,009	$2,058	27.50
*Statewide Correlation with Wealth**	1.00	N/A	N/A	-0.43	-0.31	0.23	-0.44	0.17

* Relative need is the ratio of weighted to unweighted students where weighted students include all student and district weights.

** Wealth is the sum of .60 times property value and .40 times income divided by weighted students.

*** Weighted students include all student and district weights.

**** Implicit tax effort is local revenue divided by wealth times 1,000.

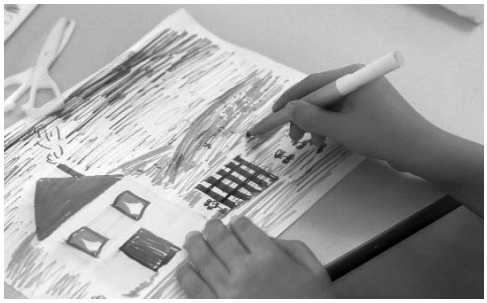
Looking at Table IV-3, where districts have been ranked based on need, it is clear that the average need of the quintiles increases as the number of the quintile (1, 2, 3, 4, and 5) rises. At the bottom of the table is the correlation between need and the variable shown in the column — so the correlation is 1.00 between need (the column) and need (the variable used in all correlations in the table). In the lowest need quintile, there were 94 districts and 321,849 students. There is a moderate, negative correlation between need and wealth (-.43), which is illustrated by the average wealth figures for the quintiles — the highest average wealth is in the lowest need quintile, the lowest average wealth is in the highest need quintile, and the average wealth of the three middle quintiles is similar. Philadelphia exacerbates the pattern because it has relatively high need (1.86) and relatively low wealth (less than half the average of most quintiles). This pattern, which suggests that as wealth rises, need decreases (or vice versa, as wealth decreases, need rises) is not unusual among the states. Of

greater interest is the relationship between spending per weighted student and wealth, which has a modest but negative correlation of -.31. Looking at the quintiles, it is clear that the average spending of districts in each of the need quintiles is very similar, suggesting that spending is consistent with relative need — the negative correlation appears to be caused by Philadelphia, in which the spending is nearly 20 percent lower than the averages of the quintiles.

There is a low, positive correlation between state aid per weighted student and need. In this case, average state aid is similar across the need quintiles, which suggests that state aid is consistent with district needs and Philadelphia, with high need, receives relatively high state aid. Local revenue, however, is moderately, negatively correlated with need; the lowest and highest need quintiles illustrate this pattern because the lowest need quintile has relatively high local revenue in comparison to the highest quintile, which has relatively low local revenue (the pattern is exacerbated by Philadelphia, which has high need and low local revenue).

Finally, implicit tax effort has a mild but positive relationship with need, although Philadelphia runs counter to this relationship (it has high need and low tax effort). This pattern shows up well in the need quintiles, which indicate that as need increases, average tax effort also rises.

Looking at Table IV-2, where districts have been ranked by wealth, it can be seen that wealth per weighted student (that is, ability to pay in relation to the fiscal pressure school districts face) rises considerably, with the highest quintile having average wealth that is 3.5 times the average wealth of the lowest quintile. It is also the case that the majority of districts (257 out of 501), and a large proportion of all students (about 47 percent), fall in the lowest two wealth quintiles (when Philadelphia is included). It can also be seen that there is a negative relationship between need and wealth, as discussed above.



The equity issue that arises in Table IV-2 is that there is a moderate positive relationship between spending per weighted student and wealth — the spending per weighted student in the highest wealth quintile is about 25 percent higher than the spending in the lowest wealth quintile (and 40 percent higher than Philadelphia, which has wealth just below the average of the lowest wealth quintile). This is because even though state aid per weighted student is negatively associated with wealth (state aid in the lowest wealth quintile is 2.8 times as high as it is in the highest wealth quintile and there is a correlation of -.70 between the two variables), local revenue per weighted student is even more strongly, and positively, associated with wealth (local revenue in the highest wealth quintile is 3 times as high as it is in the lowest wealth quintile and the correlation is .89 between the two variables).

As was noted earlier, local revenue is twice the magnitude of state aid on average, with the result that it overwhelms whatever equity state aid provides. The figures in Table IV-2 also demonstrate the negative relationship between district wealth and tax effort — as the average wealth of quintiles rises, the average tax effort

decreases (with a weak but negative correlation of -.25 between the two variables). The inequity of the system can be summarized by the conclusion that school districts with higher wealth, and lower needs, spend more than lower wealth districts — and do so while making lower tax effort.

The Comparative Burden of State and Local Taxes in Pennsylvania

Pennsylvania's state and local tax structure is complex. Nonetheless, the state tax structure is broadly comparable to what exists in other states: 1) the state relies on personal income taxes and sales taxes to each provide a bit more than a third of state general fund revenue; 2) other business and corporate net income taxes, together, provide a little more than a sixth of state general fund revenue; and 3) a variety of commodity, inheritance, and other taxes provide the remaining revenues.

The complexity of Pennsylvania's tax system lies primarily in the variety of local taxes imposed by counties, municipalities, and school districts. These local taxes go beyond the property and sales taxes relied on in most states for local revenue. For instance, Pennsylvania local governments (including school districts) obtain significant revenue from earned income, occupation, per capita, realty transfer, mechanical devices, and personal property taxes, which are authorized under the Local Tax Enabling Act. In the 501 school districts, real estate taxes account for about 80 percent of local taxes. Act 1 of the Special Session of 2006 requires school districts to obtain voter approval for tax increases greater than an annually determined inflation factor.

Now that we have discussed the local tax burden Pennsylvania school districts choose to impose on themselves to support current operations, it is useful to take a broader look at the Commonwealth and how its state and local tax burden compares to both: 1) the national average of all states; and 2) six nearby states (Delaware, Maryland, New Jersey, New York, Ohio, and West Virginia).

APA examined how state and local tax burden compares to the national average and six nearby states: Delaware, Maryland, New Jersey, New York, Ohio, and West Virginia.

In order to set the stage for such an examination, it is important to review two basic characteristics of Pennsylvania: 1) state population; and 2) per capita personal income. Figures for both of these characteristics are shown in Table IV-4. The most recent data is for 2004 and the table shows information for that year and for 1990 in order to understand changes that have taken place in the recent past.

In 2004, Pennsylvania's population was 12,394,000, a figure that had grown 4.3 percent since 1990. In 2004, Pennsylvania had 4.22 percent of the nation's population and was larger than all but one (New York) of its six nearby states. Pennsylvania's population growth has been low compared to both the national average and all but one of the six nearby states (the national average growth between 1990 and 2004 was more than four times higher than in Pennsylvania and only West Virginia had a lower rate of growth during that period).

Table IV-4

Comparison of Pennsylvania to the National Average and to Six Nearby States in Terms of Population and Personal Income Per Capita in 1990, 2004, and Change from 1990 to 2004

States	Population			Personal Income Per Capita		
	By Year (in 1,000's)		Change Between Years	By Year		Change Between Years
	1990	2004	1990-2004	1990	2004	1990-2004
National Average	248,791	293,657	18.0%	$19,542	$34,586	58.8%
Pennsylvania	11,883	12,394	4.3%	$19,717	$34,899	58.2%
Delaware	666	830	24.6%	$21,471	$37,085	53.8%
Maryland	4,781	5,561	16.3%	$22,945	$41,768	59.4%
New Jersey	7,748	8,685	12.1%	$24,626	$43,772	59.5%
New York	17,991	19,281	7.2%	$23,562	$40,504	51.2%
Ohio	10,847	11,450	5.6%	$18,770	$32,476	56.9%
West Virginia	1,793	1,813	1.1%	$14,501	$27,188	64.1%
Simple Average of Six Nearby States				*$20,979*	*$37,132*	*57.5%*

Pennsylvania's per capita personal income has been slightly higher (less than one percent) than the national average for the past 14 years and has risen at a rate comparable to the national average. Compared to the six nearby states, Pennsylvania's per capita income has consistently been about six percent lower than the simple average and lower than the actual levels of Delaware, Maryland, New York, and New Jersey. Between 1990 and 2004, Pennsylvania's per capita income grew slightly faster than the average of the six nearby states although slightly slower than growth in Maryland, New Jersey, and West Virginia. It is interesting to note that Pennsylvania's per capita income is much closer to the national average than any of the nearby states.

The figures in Table IV-5 show how Pennsylvania compares to the national average and six nearby states in terms of the total amount of state and local revenue that is available. In 2004, total revenues in Pennsylvania were $6,344 per capita. This amount was 1.4 percent less than the national average, and was less than all but one of the nearby states (Ohio was $33 per capita lower). Overall, it was 12.3 percent below the simple average of the six nearby states. One source of this revenue is the federal government — Pennsylvania obtained $11 more per capita from the federal government than the national average and received more than four of the six nearby states from this source.

Table IV-5

Comparison of Pennsylvania to the National Average and to Six Nearby States in Terms of State/Local Revenue and Tax Burden in 2004

States	Total Revenue					
				From State/Local Taxes		
	Total Per Capita	From Federal Government per Capita	From Own Sources per Capita	per Capita	per $1,000 of Personal Income	Percentage of Own Sources from State/Local Taxes
National Average	$6,435	$1,450	$4,986	$3,440	$104.09	69.0%
Pennsylvania	$6,344	$1,461	$4,883	$3,447	$103.46	70.6%
Delaware	$7,529	$1,316	$6,214	$3,608	$100.82	58.1%
Maryland	$6,613	$1,306	$5,307	$4,016	$101.32	75.7%
New Jersey	$7,092	$1,144	$5,948	$4,555	$109.43	76.6%
New York	$9,303	$2,370	$6,934	$5,260	$137.47	75.9%
Ohio	$6,311	$1,425	$4,887	$3,419	$109.73	70.0%
West Virginia	$6,578	$1,898	$4,680	$2,740	$105.92	58.5%
Simple Average of Six Nearby States	$7,238	$1,576	$5,662	$3,933	$110.78	69.1%

Of the remaining amount, Pennsylvania received 70.6 percent from state and local taxes, which is about the same proportion as the national average and the average of the six nearby states (69.0 and 69.1 percent respectively). Both Delaware and West Virginia relied less on state and local taxes (as a proportion of all state and local revenue). Ultimately, Pennsylvania obtained $3,447 per capita from state and local taxes. This figure was only $7 per capita above the national average, was below four of the six nearby states, and was 12.3 percent below the simple average of the nearby states.

Pennsylvania's per capita personal income has been slightly higher than the national average for the past 14 years

Looking at state and local taxes relative to the income available to pay for them, the table shows that Pennsylvania's burden was $103.46 per $1,000 of personal income. This figure was about .6 percent below the national average, and was lower than four of the six nearby states. It was also 6.6 percent below the simple average of the six nearby states. Increasing state and local taxes to the average of the six nearby states would have produced between $3.17 and $6.02 billion in additional revenue for the Commonwealth in 2004.

This range in additional revenues depends on whether the calculation is based on revenue per $1,000 of personal income, or on revenue per capita. For instance, if

additional revenues are estimated per $1,000 of personal income, the following steps would be taken to calculate the additional revenue (using the data shown in the table above): First, take the six-state average state and local taxes per $1,000 of personal income and subtract Pennsylvania's figure from it. Next, multiply the difference by Pennsylvania's personal income per capita and then divide by 1,000. Then multiply by Pennsylvania's population. This yields the following: $110.78 — $103.46, multiplied by $34,899, divided by 1,000, multiplied by 12,394,000. This yields a figure of $3.17 billion.

If additional revenues are estimated on a revenue per capita basis, one would take the six-state average per capita state and local tax figure, subtract Pennsylvania's figure from it, and multiply the difference by Pennsylvania's population. This yields the following: $3,933 — $3,447 multiplied by 12,394,000 = $6.02 billion.

Looking at state and local taxes relative to the income available to pay for them, Pennsylvania's burden was lower than the national average and four of six nearby states.

V. Comparison of Costing Out Estimate with Current District Spending

Chapter III of this report discussed the base, per-student cost and other cost weights that APA calculated as being necessary for Pennsylvania schools to meet performance expectations. APA also showed how those factors can be applied to each district's specific circumstances. The purpose of this chapter is to show the results of applying the cost factors to all districts in Pennsylvania, to compare the results to actual, comparable spending, and to make those comparisons for groups of districts based on their relative needs and wealth. (Appendix F contains such a comparison for each district).

"Relative need" is based on the ratio of APA-generated weighted students divided by enrollment. "Relative wealth" is wealth per pupil based on personal income and market value of property.

There are several items that should be noted before looking at the four tables that show the comparative information:

- The data are for the year 2005-06.
- The demographic data to which the cost factors were applied are the same as were used in the discussion of equity, all of which came from the Pennsylvania Department of Education.
- Several types of expenditures are excluded: (1) capital outlay and debt service; (2) food services: (3) adult education; and (4) transportation.
- The cost factors used are shown in Table III-1 in Chapter III.
- When districts are organized into groups, the groups are defined using the same quintiles that were used in the discussion of equity in Chapter IV, which shows Philadelphia as its own group in addition to the five quintiles.

Comparing the Costing Out Estimates to Actual Spending

Table V-1 shows the aggregate costing out, organized by need quintiles, and indicates total amounts associated with all cost factors other than change in enrollment over time, which is included in the base cost figure. The table shows the cost for all districts, and it also separates costs for districts in which actual spending levels exceeded those estimated in the costing out from those in which actual spending levels were below those estimated in the costing out. The table is divided into sections as follows: (1) section I indicates the demographic characteristics of the quintiles; (2) section II

shows the statewide total costs of the cost factors; (3) section III shows the total cost per student; (4) section IV shows comparable spending in total and per student terms; (5) section V shows some of the characteristics of districts with spending that exceeds the costing out estimate; and (6) section VI shows some of the characteristics of districts with spending that is less than the costing out estimate.

Table V-1

Comparison of Costing Out Estimates to Actual, Comparable Spending of Pennsylvania School Districts in 2005-06

Districts, Excluding Philadelphia, Categorized by Relative Need

	Need Quintile						
	Quintile 1 Low	Quintile 2	Quintile 3	Quintile 4	Quintile 5 High	Philadelphia	Statewide Total
I. School District Characteristics							
Range in Relative Need of Districts	Less than 1.37	1.37 - 1.41	1.41 - 1.46	1.46 - 1.54	More than 1.54		
Average Relative Need of Districts	1.33	1.39	1.44	1.5	1.63	1.86	
Number of Districts	94	100	117	112	77	1	501
Number of Students	321,849	326,592	319,385	320,883	316,954	207,817	1,813,480
II. Aggregate Costing-Out Estimate (in millions)							
Base Cost	$2,561.5	$2,599.4	$2,560.7	$2,560.4	$2,543.8	$1,678.6	$14,504.4
Regional Cost (LCM)	-$39.4	$25.2	$68.9	$130.9	$233.2	$364.9	$784.6
Enrollment (Size)	$174.5	$171.6	$187.5	$186.3	$117.2	$0.0	$837.2
Special Education	$438.7	$514.4	$516.7	$529.1	$522.7	$388.7	$2,910.4
Poverty	$193.2	$254.2	$264.1	$322.3	$515.4	$502.4	$2,042.5
ELL	$37.8	$41.1	$43.0	$84.9	$218.7	$154.8	$580.2
Gifted	$42.8	$37.2	$40.8	$42.4	$30.4	$12.2	$205.2
Grand Total	$3,409.1	$3,634.1	$3,681.7	$3,856.8	$4,181.5	$3,101.6	$21,864.8
III. Per Student Costing-Out Estimate							
Grand Total	$10,592	$11,127	$11,528	$12,019	$13,193	$14,925	$12,057
IV. Actual, Comparable Spending*							
Aggregate Total (in millions)	$2,785.5	$2,884.5	$3,000.7	$3,135.8	$3,375.5	$2,068.0	$17,250.0
Per Student Total	$8,655	$8,832	$9,395	$9,772	$10,650	$9,951	$9,512

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

Table V-1 (continued)

Comparison of Costing Out Estimates to Actual, Comparable Spending of Pennsylvania School Districts in 2005-06

Districts, Excluding Philadelphia, Categorized by Relative Need

	Need Quintile					Philadelphia	Statewide Total
	Quintile 1 (Low)	Quintile 2	Quintile 3	Quintile 4	Quintile 5 (High)		
V. Districts with *Higher* Actual, Comparable Spending than the Costing-Out Estimate							
Number of Districts	3	3	2	7	12	-	27
Number of Students	20,268	15,483	14,456	22,601	60,547	-	133,355
Weighted Average Tax Effort	29.3	26.5	30.8	26.1	33.0	-	30.3
Costing-Out Estimate (Aggregate in millions)	$211.5	$172.2	$168.1	$272.7	$763.3	-	$1,587.7
Actual, Comparable Spending (Aggregate in millions)*	$221.4	$176.8	$192.0	$323.6	$870.2	-	$1,783.9
Actual Spending Over Costing-Out Estimate (Aggregate in millions)*	$9.9	$4.7	$23.9	$50.9	$106.9	-	$196.2
Per Student Spending Over Costing-Out Costing-Out Estimate	$489	$302	$1,653	$2,250	$1,765	-	$1,471
VI. Districts with *Lower* Actual, Comparable Spending than the Costing-Out Estimate							
Number of Districts	91	97	115	105	65	1	474
Number of Students	301,581	311,109	304,929	298,282	256,407	207,817	1,680,125
Weighted Average Tax Effort	28.5	28.7	28.2	32.4	35.7	27.5	30.1
Costing-Out Estimate (Aggregate in millions)	$3,197.6	$3,462.0	$3,513.7	$3,584.0	$3,418.2	$3,101.6	$20,277.8
Actual, Comparable Spending (Aggregate in millions)*	$2,564.1	$2,707.6	$2,808.8	$2,812.2	$2,505.3	$2,068.0	$15,466.1
Actual Spending Under Costing-Out Estimate (Aggregate in millions)*	$633.5	$754.3	$704.9	$771.8	$912.9	$1,033.6	$4,811.0
Per Student Spending Under Costing-Out Costing-Out Estimate	$2,101	$2,425	$2,312	$2,588	$3,560	$4,974	$2,864

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

Section I of the table indicates the range of need of the quintiles and the distribution of districts and students into quintiles. Section II indicates that the statewide costing out estimate is $21.86 billion, with about two thirds of the total cost associated with the base cost,13.3 percent associated with the added costs of special education, 9.4 percent of associated with the added cost of serving poverty students, 3.8 percent associated with district size, and about 3.6 percent associated with regional cost of living differences.

The costing out estimate per student is $12,057, which rises from $10,592 to $13,193 as district needs rise. In the aggregate, the costing out estimate is $4.61 billion higher than current spending (26.8 percent). Interestingly, the percentage increase needed to move from actual spending to the costing out estimate is similar across all need quintiles. Philadelphia's increase of 50.0 percent is about double the increases needed, on average, in the need quintiles.

The average total costing-out estimate per student is $12,057.

As shown in section V of Table V-1, there are 27 districts, with 133,355 students (7.4 percent of all students) with spending higher than the costing out estimate, nearly half of which are in the highest need quintile (which may be explained by an average tax effort that is 10 percent above the average for all districts). In total the 27 districts spend $.2 billion over what the costing out estimate suggests, or $1,471 per student more.

Looking at section VI of Table 1, there are 474 districts with spending that was $4.81 billion below the costing out estimate for them. In one sense, this is the real difference in cost between what is being spent now and the costing out estimate since it does not deduct the extent to which some districts are currently exceeding the costing out estimate.

Table V-2 shows the same information that had been shown in section II of Table V-1 only in per student terms. This is useful in better understanding the impact of the cost factors on the total spending of different need quintiles of districts. For example, it is clear that the base cost figure is not the same, on average, in every quintile, which it would be if the same constant, $8,003, was applied to every student; as mentioned earlier, the base figures have been adjusted to reflect the impact of the enrollment change over time factor (figures below $8,003 indicate that, on average, districts had increasing enrollment over time while figures above $8,003 indicate that, on average, districts had decreasing enrollment over time).

It is also clear that district need is related to geographic cost differences. In fact, only the lowest need quintile, on average, has an LCM value below 1.00, which results in a reduction in the costing out estimate. It is also true that districts with higher needs receive much higher contributions to their overall costing out estimates from the factors for special education, poverty, and ELL students. In the case of gifted students, the cost factor works in the opposite direction, which suggests that there are higher proportions of gifted students in districts with relatively low overall needs.

In the aggregate, the costing-out estimate is $4.61 billion higher than current spending (26.8 percent).

Table V-2

Comparison of Costing Out Estimates to Actual, Comparable Spending of Pennsylvania School Districts in 2005-06

Districts, Excluding Philadelphia, Categorized by Relative Need

	Need Quintile					Philadelphia	Statewide Total
	Quintile 1 Low	Quintile 2	Quintile 3	Quintile 4	Quintile 5 High		
I. School District Characteristics							
Range in Relative Need of Districts	Less than 1.37	1.37 - 1.41	1.41 - 1.46	1.46 - 1.54	More than 1.54		
Average Relative Need of Districts	1.32	1.39	1.44	1.5	1.63	1.86	
Number of Districts	94	100	117	112	77	1	501
Number of Students	321,849	326,592	319,385	320,883	316,954	207,817	1,813,480
II. Per Student Costing-Out Estimate							
Base Cost	$7,959	$7,959	$8,018	$7,979	$8,026	$8,077	$7,998
Regional Cost (LCM)	-$122	$77	$216	$408	$736	$1,756	$433
Enrollment (Size)	$542	$525	$587	$581	$370	$0	$462
Special Education	$1,363	$1,575	$1,618	$1,649	$1,649	$1,871	$1,605
Poverty	$600	$751	$827	$1,004	$1,626	$2,417	$1,126
ELL	$117	$41	$43	$264	$690	$155	$320
Gifted	$133	$37	$41	$132	$96	$12	$113
III. Per Student Costing-Out Estimate							
Grand Total	$10,592	$11,127	$11,528	$12,019	$13,193	$14,925	$12,057

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

Table V-3 shows the aggregate costing out, organized by wealth quintiles, and indicates total amounts associated with all cost factors other than change in enrollment over time, which is included in the base cost figure. As shown in section II of this table, some cost factors are positively associated with wealth, such as the LCM and the gifted factor, while others are inversely associated with wealth, such as the district size factor and poverty factor. A comparison of the figures in section III to those in section IV indicates that the least wealthy districts are the furthest from the costing out estimate of resource needs. On average, districts in the lowest wealth quintile have to raise spending by 34.9 percent ($12,472/$9,244 per pupil) while districts in the highest wealth quintile only have to raise spending by 6.6 percent ($11,407/$10,697 per pupil).

Table V-3

Comparison of Costing Out Estimates to Actual, Comparable Spending of Pennsylvania School Districts in 2005-06

Districts, Excluding Philadelphia, Categorized by Relative Wealth

	Wealth Quintile						
	Quintile 1 Low	Quintile 2	Quintile 3	Quintile 4	Quintile 5 High	Philadelphia	Statewide Total
I. School District Characteristics							
Range in Relative Wealth of Districts	Less than $105,866	$105-866 - $137,533	$137,533- $170,775	$170,775- $215,974	More than $215,974		
Average Wealth of Districts	$79,011	$120,698	$153,190	$194,152	$283,027	$74,823	
Number of Districts	134	123	92	90	61	1	501
Number of Students	313,032	329,431	320,857	321,479	320,864	207,817	1,813,480
II. Aggregate Costing-Out Estimate (in millions)							
Base Cost	$2,511.7	$2,641.8	$2,569.9	$2,556.1	$2,546.3	$1,678.6	$14,504.4
Regional Cost (LCM)	-$25.9	-$3.1	$70.3	$76.5	$302.0	$364.9	$784.6
Enrollment (Size)	$189.6	$198.4	$162.4	$170.6	$116.1	$0.0	$837.2
Special Education	$480.9	$541.1	$513.4	$508.9	$477.4	$388.7	$2,910.4
Poverty	$575.2	$382.2	$301.1	$189.0	$92.7	$502.4	$2,042.5
ELL	$145.6	$63.7	$79.1	$64.7	$72.3	$154.8	$580.2
Gifted	$27.0	$31.9	$36.3	$44.6	$53.8	$12.2	$205.2
Grand Total	$3,904.2	$3,856.0	$3,732.5	$3,610.3	$3,660.2	$3,101.6	$21,864.8
III. Per Student Costing-Out Estimate							
Grand Total	$12,472	$11,705	$11,633	$11,230	$11,407	$14,925	$12,057
IV. Actual, Comparable Spending*							
Aggregate Total (in millions)	$2,893.7	$2,918.1	$3,021.0	$2,916.7	$3,432.4	$2,068.0	$17,250.0
Per Student Total	$9,244	$8,858	$9,416	$9,073	$10,697	$9,951	$9,512

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

Table V-3 (continued)

Comparison of Costing Out Estimates to Actual, Comparable Spending of Pennsylvania School Districts in 2005-06

Districts, Excluding Philadelphia, Categorized by Relative Wealth

	Wealth Quintile						
	Quintile 1 Low	Quintile 2	Quintile 3	Quintile 4	Quintile 5 High	Philadelphia	Statewide Total
V. Districts with *Higher* Actual, Comparable Spending than the Costing-Out Estimate							
Number of Districts	2	-	2	3	20	-	27
Number of Students	2,666	-	33,540	6,620	90,529	-	133,355
Weighted Average Tax Effort	52.3	-	38.1	37.9	26.2	-	30.3
Costing-Out Estimate (Aggregate in millions)	$35.2	-	$422.9	$80.6	$1,048.9	-	$1,587.7
Actual, Comparable Spending (Aggregate in millions)*	$36.4	-	$505.5	$87.4	$1,154.6	-	$1,783.9
Actual Spending Over Costing-Out Estimate (Aggregate in millions)*	$1.2	-	$82.6	$6.8	$105.7	-	$196.2
Per Student Spending *Over* Costing-Out Costing-Out Estimate	$451	-	$2,462	$1,024	$1,167	-	$1,471
VI. Districts with *Lower* Actual, Comparable Spending than the Costing-Out Estimate							
Number of Districts	132	123	90	87	41	1	474
Number of Students	310,366	329,431	287,317	314,859	230,335	207,817	1,680,125
Weighted Average Tax Effort	32.7	30.9	30.7	29.1	28.6	27.5	30.1
Costing-Out Estimate (Aggregate in millions)	$3,869.0	$3,856.0	$3,309.6	$3,529.7	$2,611.3	$3,101.6	$20,277.8
Actual, Comparable Spending (Aggregate in millions)*	$2,857.3	$2,918.1	$2,515.5	$2,829.4	$2,277.8	$2,068.0	$15,466.1
Actual Spending Under Costing-Out Estimate (Aggregate in millions)*	$1,011.7	$937.9	$794.1	$700.3	$333.4	$1,033.6	$4,811.0
Per Student Spending Under Costing-Out Costing-Out Estimate	$3,260	$2,847	$2,764	$2,224	$1,448	$4,974	$2,864

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

Section V shows that, of the 27 districts that are already spending above the costing out estimate, 20 districts are in the highest wealth quintile. Not only are these districts spending $1,167 per student over the costing out estimate, their tax

effort is about 10 percent below the average. Interestingly, while there are two districts in the lowest wealth quintile that spend over their costing out estimate, their tax effort is 70 percent over the state average. Section VI reiterates that the lowest wealth districts have the furthest to go in order to make up the difference between actual spending and the costing out estimate; the 132 districts in the lowest wealth quintile need to increase spending by $1.01 billion, or $3,260 per student, while the 41 districts in the highest wealth quintile need to raise spending by $.34 billion, or $1,448 per student.

The per student figures in Table 4 confirm what we discussed above: the LCM, and the gifted factors increase with district wealth while the size factor and poverty factor decrease with wealth. In addition, on average, wealthy districts are growing (as shown by the fact that their base cost figures are below $8,003) while less wealthy districts are declining in terms of enrollment (their base cost figures are higher than $8,003).

Table V-4

Comparison of Costing Out Estimates to Actual, Comparable Spending of Pennsylvania School Districts in 2005-06

Districts, Excluding Philadelphia, Categorized by Relative Wealth

	Wealth Quintile						
	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Philadelphia	Statewide Total
	Low				High		
I. School District Characteristics							
Range in Relative Wealth of Districts	Less than $105,866	$105,866 - $137,533	$137,533- $170,775	$170,775- $170,775	More Than $215,974		
Average Wealth of Districts	$79,011	$120,698	$153,190	$194,152	$283,027	$74,823	
Number of Districts	134	123	92	90	61	1	501
Number of Students	313,032	329,431	320,857	321,479	320,864	207,817	1,813,480
II. Per Student Costing-Out Estimate							
Base Cost	$8,024	$8,019	$8,009	$7,951	$7,936	$8,007	$7,998
Regional Cost (LCM)	-$83	-$10	$219	$238	$939	$1,756	$433
Enrollment (Size)	$606	$602	$506	$531	$362	$0	$462
Special Education	$1,536	$1,642	$1,600	$1,583	$1,487	$1,871	$1,605
Poverty	$1,838	$1,160	$938	$588	$289	$2,417	$1,126
ELL	$465	$193	$247	$201	$225	$745	$320
Gifted	$86	$97	$113	$139	$168	$58	$113
III. Per Student Costing-Out Estimate							
Grand Total	$12,472	$11,705	$11,633	$11,203	$11,429	$14,925	$12,057

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

Using the Cost Factors in a State School Finance System

This report has made very few references to Pennsylvania's current school finance system or to the specific structure of the procedures the state uses to allocate state aid to school districts. APA was not asked to examine those procedures and they had little impact on our costing out estimates. However, APA believes it is important to note that the very same cost factors used in making our costing out estimates could be used in a state aid formula.

Any state aid formula has two primary components: 1) a component that determines how much revenue school districts are eligible to receive; and 2) a component that determines what portion of that amount the state will pay. The cost factors developed here by APA could be used as the basis for determining how much revenue each school district should receive. However, several issues would need to be resolved before the cost factors could be used in this way. First, since federal funds, not just state and local funds, could be used to pay for estimated costs, it is necessary to take their availability into consideration.

While several issues must first be addressed, the cost factors developed by APA can be used as the basis for determining how much revenue each school district should receive.

Second, it makes sense to decide whether the student cost factors should be considered to be cumulative. In other words, a policy decision would need to be made to address circumstances where students qualify for more than one cost weight (for instance, students who are English language learners and also living in poverty). Students might be allowed to either accumulate the weights or may be limited to eligibility for only a single weight when more than one is applicable.

Third, the cost factors would need to be updated periodically (the base cost should be updated annually). Some approach would need to be developed so that the base cost could keep up with inflation as well as the impacts of extraordinary rises in cost components, such as personnel benefits. Other factors might not need to be reviewed more frequently than every five years.

Finally, if the costing out factors were used to determine eligibility for state aid, we assume that districts currently spending at levels above those estimated using the costing out factors would be able to continue spending at those higher levels, as long as they use their own tax effort to do so. This raises a question about whether all districts should have the opportunity to spend above the costing out estimate and, if so, whether the state equalizes such opportunity. APA's findings show a few districts already choose to spend at very high levels and that local tax effort or wealth seem to facilitate this spending. If more and more districts surpass the costing out estimate of revenue, it might make sense for the state to provide an equal opportunity for all districts to increase their spending above the costing out estimate.

How Might Districts Utilize an Influx of New Funds?

As outlined in this chapter, APA's costing out study finds that substantial added funding is required for schools and districts to meet Pennsylvania's specific performance target. This target, which demands universal student mastery of state standards in 12 academic areas and proficiency in reading and math by 2014, is significant in scope. By seeking to require such universal student proficiency, the Commonwealth has made a policy statement to the effect that, regardless of a student's poverty, physical or mental disability, or English language challenges, all children can and must be educated to reach proficiency in a wide range of academic subjects.

The idea of achieving near universal academic proficiency is one which rightfully resonates well with most citizens. However, no state or country in the developed world has ever achieved this goal and it should come as no surprise that the costs involved can be significant. Now that APA's analyses have identified the extent of these costs for Pennsylvania, a key question for policymakers to consider is: *"How might the Commonwealth's school districts use new funding?"*

How might the Commonwealth's school districts use new funds?

APA does not believe that a "one-size-fits all" approach is the answer to this question.

APA does not believe that a "one-size-fits all" approach is the answer to this question. The relationship between the state of Pennsylvania and its school districts is one that focuses on meeting an overarching education standard, rather than one that requires resources to be deployed in a particular manner, and APA does not believe that this relationship should be fundamentally changed or that uniformity in programs and services should be required. In fact, such uniformity could serve to stifle the types of innovation which individual districts can develop and implement to spur student performance. Such uniformity also ignores the fact that Pennsylvania has 501 school districts, each with unique characteristics and student needs, and that almost all of these districts have locally elected school boards that are fiscally independent.

Instead of a mandated, top-down approach to using any new funds provided as a result of this costing out study, Pennsylvania's policymakers, education leaders, and the public at large might benefit from a better understanding of the range of strategies that can improve student performance. These strategies might be viewed as first options for where schools and districts invest any new resources provided. To identify such strategies, APA draws from:

1) Cumulative research conducted in the Commonwealth over the past year.

2) Input on required resources and personnel provided by numerous panels of experienced Pennsylvania teachers, superintendents, principals, and business officers through APA's professional judgment panel (PJ) work.

3) APA's evidence-based (EB) approach, which reviewed effective education practice research findings from across the country, and the reactions of Pennsylvania experts to those research findings.

4) Direct interviews with leaders from currently successful schools and districts in the Commonwealth.

5) APA's experience working on education policy issues and costing out studies over the past 24 years.

In reviewing all the materials and feedback provided through the five sources listed above, APA identifies an overall list of high priority strategies for Pennsylvania to consider pursuing. These include:

- Targeted funding and programs for students with special needs (including poverty, special education, gifted, and English language learners). Such funding could be used to specifically reduce teacher-student ratios for special need students, to implement behavioral support programs, and to offer more challenging coursework for gifted students.
- Class size reduction, especially in the early grades. Supported in education research literature as a strategy to improve student achievement, smaller class sizes can allow teachers to provide more focused, personalized, and rigorous instruction.
- Full day kindergarten access to ensure that all students enter first grade with the academic skills they need to succeed.
- Expanded preschool quality and program opportunities.
- An extended school day for students that need extra help and to allow appropriate time for targeted tutoring opportunities.
- Expanded summer school programs for students failing to reach academic proficiency.
- Targeted professional development and training opportunities to expand the capacity and expertise of teachers.
- Efforts to keep students on track to high school graduation and reduce dropout rates.
- Expanding the capacity for school principals to become instructional leaders in their buildings by providing full time principals in each school as well as improved training and professional development opportunities. As instructional leaders, principals conduct class observations, make sure that curriculum maps and pacing guides are followed, and ensure that common assessments are used in each grade level.

APA identified a number of high priority strategies in which Pennsylvania should consider investing new resources.

- Increasing access to technology and training to support instruction, including technology designed to help provide teachers with more rapid access to assessment data and other student performance information.
- Targeted staffing increases, including:
  - Counselors, to improve the ability of schools to quickly diagnose and address student emotional or behavioral problems, to coordinate services to address student needs, to help students prepare for success in postsecondary education and careers after graduation, and to serve as a consistent liaison to reach out to parents and families.
  - School nurses, to provide greater access to health care for many students who currently lack access, and to reduce potential liability of schools and districts to handle the increasing numbers of students requiring medication or other medical services.
  - Instructional facilitators, to provide consistent support to teachers in a variety of capacities, such as mentoring newer teachers, helping all teachers understand and integrate data on student performance into their instruction, and ensuring that professional development training is implemented consistently throughout the year in each school.
  - Tutors, to provide more individual, one-on-one instruction for students struggling to reach academic proficiency.
  - Security, to provide added personnel and equipment to ensure the safety of students and staff in middle and high schools.

Considering all the items listed above, several priorities emerged during the course of this costing out study. In particular, targeted funding for special need students, increased school counselor staffing, smaller class sizes, full day kindergarten, professional development tailored to meet teacher needs, and strengthening the capacity of school leaders were consistently identified as crucial areas of need for Pennsylvania's schools.

Funding for special need students, targeted staff increases, smaller class sizes, full day kindergarten, and professional development emerged as priorities.

APA would like to emphasize that the strategies discussed above are not meant to be exhaustive of the types of programs or services for which new resources might be used to reach the Commonwealth's performance expectations. Rather, the list above is intended to allow Pennsylvania educators to benefit from the expertise and insight generated through APA's research, and to provide policymakers and the public a better understanding of how their future tax dollars might be invested.

APPENDIX A

Professional Judgment Panel Participants

PANELIST NAME	PANELIST TITLE
Dr. Charles Amuso	*Superintendent*
Dr. Karen Angello	*Superintendent*
John Barcow	*Teacher*
Cheryl Barnes	*Teacher*
Dr. Dana Bedden	*Superintendent*
Christopher Berdnik	*Director of Finances*
Dr. Patricia Best	*Superintendent*
Sarah Bohnert	*Special Education Teacher*
Brenda Brinker	*Sup of Curriculum*
Tammie Burnaford	*Principal*
Wynton Butler	*Principal*
John Clark	*Title I Coordinator*
Connie Cochran	*ELL Advisor*
Dr. John Cornish	*Superintendent*
Dr. Patrick Crawford	*Superintendent*
Heather D'Angelo	*Special Education Teacher*
Thomas E. Delaney	*Director of Business*
Richard Fantauzzi	*Business Manager*
Stacy M. Gober	*Business Administrator*
Jesus Gomez-Nieves	*ELL Teacher*
Suellen Gourley	*Assistant to Superintendent*
John Gula	*Chair of Music and Performing Arts*
Dawn Hayes	*Teacher*
Dr. Rick Huffman	*Superintendent*
William Kaufman	*Executive Director*
Joseph K. Kimmel	*Principal*
Patricia Kriley	*Director of State & Federal Funds*
Eric Kuminka	*Teacher*
Sharon Rae LaBorde	*Special Education Teacher*
Shavaun Leavy	*Instructional Support Teacher*
Rick Mancini	*Business Manager*
Shelly Mieczkowski	*Special Education Superintendent.*
Mike Ognosky	*Superintendent*
Dr. David Pastrick	*Superintendent*
Dr. Dwight Pfennig	*Superintendent*
Deborah J. Popson	*Principal*
Gretchen Ragazzo	*Teacher*
Dick Rose	*Board Member*
Beth Rubin	*ELL Teacher*
Barbara A. Rudiak	*Principal*
Dr. Roberta Schrall	*Title I Coordinator*
Ralph Scoda	*Business Manager*
Ryan Sherry	*Teacher*
Timothy J. Shrom	*Business Manager*
Anita Siegfried	*Fed Programs Coordinator*
Robert Snyder	*Curriculum Director*
Frank D. Szallay	*Business Manger*
Amy L Todd	*Bus Manager*
Barry Tomasetti	*Superintendent*
Philip J. Waber	*Superintendent*
Thomasina White	*Lead Academic Coach*

APPENDIX B

Evidence Based Analysis Participant List

PARTICIPANT NAME	PARTICIPANT TITLE
Lisa Andrejko	*Educator — Superintendent*
Patricia Bitar	*Educator — Nurse*
Rita Cohen	*Educator — Special Education Director*
Mary Colf	*Educator — Director of Curriculum*
Courtney Collins-Shapiro	*Educator — Director of Multiple Pathways to Graduation*
Laura Cowburn	*Educator — Assistant to the Superintendent*
Marcus Delgado	*Educator — Principal*
Ed Denner	*Educator — Business Manager*
Jean Dexheimer	*School Board Member*
Elizabeth Dutton	*School Board Member*
Linda Fedor	*Educator — Reading Supervisor*
Michael Frist	*Educator — Director of Business*
Stacy Gerlach	*School Board Member*
Kimberly Geyer	*School Board Member*
Diana Gubitosa	*Educator — Teacher*
Linda Hammers	*Business Person*
Judith Higgins	*School Board Member*
Phil Hopkins	*School Board Member*
Lisa A. Jackson	*Educator — Peer Intervenor*
Rudolph Karkosak	*Educator — Superintendent*
Marcia Kile	*Educator — ESL Coordinator*
Deborah Kolonay	*Educator — Superintendent*
Michele Kuma	*Business Person*
Jean Leiboff	*Educator — Retired Speech Therapist*
Reed Lindley	*Educator — Assistant Superintendent*
Robert Lumley-Sapanski	*School Board Member*
Lorraine Mack	*Educator — Director of Educational Programming*
Tom Maher	*School Board Member*
David W. Matyas	*Business Person*
Charlene Miller	*Educator — Teacher*
Alan Ottinger	*Business Person*
David Robbins	*Educator — Superintendent*
Nikki Salvatico	*Educator — Teacher*
Bob Schoch	*Educator — Director of Administration*
Elaine C. Settelmaier	*Educator — Principal*
Sharon Sielski	*Educator — Principal*
Vicki Smith	*School Board Member*
Donald Snyder	*Educator — Teacher*
Shirley Sofranko	*Business Person*
Tina Viletto	*School Board Member*
Beth Wehner	*Business Person*
Kevin Whalen	*Business Person*
Gordon Whitlock	*School Board Member*
Brenda Winkler	*Educator — Superintendent*
Tom Zimmerman	*School Board Member*

APPENDIX C

Preschool Analysis

APA was not asked to include preschool in its costing out estimation (other than preschool for students with special education needs, which are required by law and were included in the cost estimates for special education) .

Preschool was, however, raised by participants in all of APA's professional judgment panels as being essential for four-year-old children to meet the state education standard. Preschool was also one of the education interventions that emerged from APA's review of the education literature that examined the relationship between education programs and student performance.

Based on APA's analysis, it was determined that the cost of preschool (on a half-time basis) is related to school district size in the following way:

Cost of preschool per half-time four year old student = -495 X LN(district enrollment) + $8,851. The minimum result is set at $4,437.

Under the formula, every district would receive a unique cost for preschool students. No two districts of different enrollment will receive precisely the same cost, unless they are at the minimum level. The examples shown below illustrate the magnitude of the adjustment for selected enrollments.

This equation produces the following table of costs for districts of different size:

District Enrollment	Cost per 4-year-old Half-time Preschool Student
500	$5,775
1,000	$5,432
2,000	$5,089
4,000	$4,745
8,000	$4,437

It should be noted that these figures have not been included in the other costing out estimates discussed elsewhere in APA's report.

Appendix D

Summary of Pennsylvania Performance Standards

The Pennsylvania Accountability System applies to all public schools and districts. It is based upon the Commonwealth's content and achievement standards, student testing, and other key indicators of school and district performance such as attendance and graduation rates. The system's key goals are that 100 percent of students: *1) master state standards in 12 academic areas; and 2) score "proficient" or above on reading and math assessments by the year 2014.*

Reading and math skills are assessed using the annually administered Pennsylvania System of School Assessment (PSSA) which is a criterion-referenced test used to assess a student's mastery of specific skills.[i] Schools are evaluated on a minimum target level of improvement called Adequate Yearly Progress (AYP) and there are a series of rewards and consequences based on school and district performance.[ii] The 2014 reading and math 100 percent proficiency target is the same end goal contained in the federal No Child Left Behind Act.

Assessment Grades and Subjects[iii]

Pennsylvania has adopted academic content standards in 12 main areas: 1) arts and humanities; 2) career education and work; 3) civics and government; 4) economics; 5) environment and ecology; 6) family and consumer sciences; 7) geography; 8) health, safety and physical education; 9) history; 10) mathematics; 11) reading, writing, speaking and listening; and 12) science and technology.[iv] These standards identify what a student should know and be able to do at varying grade levels. All students in the Commonwealth must master these 12 standards as evidenced by locally devised assessments. School districts are given the freedom to design curriculum and instruction to ensure that students meet or exceed the standards' expectations.

The Commonwealth currently uses the PSSA to test student performance in three areas (reading, writing, and mathematics) to measure attainment of the academic standards. Every Pennsylvania student in grades 3-8 and grade 11 is assessed in reading and math. Every Pennsylvania student in grades 5, 8, and 11 is assessed in writing. As required by NCLB, the Commonwealth is also now developing grade-span assessments in science. Science field tests will be conducted April-May 2007 in grades 4, 8, and 11 and full implementation for these three grades is expected by the 2007-2008 school year. Pennsylvania plans to engage in a standards-setting process to determine specific science performance expectations and to adjust intermediate performance goals as additional grades are added.

Performance against the standards is measured using the level descriptors shown in the following table. Student achievement is classified as either advanced, proficient, basic, or below basic. For schools and districts to meet Adequate Yearly Progress requirements as discussed below, students must perform at the "proficient" level or above.

Table 1: Pennsylvania's General Performance Level Descriptors
Advanced The Advanced Level reflects superior academic performance. Advanced work indicates an in-depth understanding and exemplary display of the skills included in the Pennsylvania Academic Content Standards.
Proficient ***(students must perform at this level or above to be considered as having reached the Commonwealth's performance expectations)*** The Proficient Level reflects satisfactory academic performance. Proficient work indicates a solid understanding and adequate display of the skills included in the Pennsylvania Academic Content Standards.
Basic The Basic Level reflects marginal academic performance. Basic work indicates a partial understanding and limited display of the skills included in the Pennsylvania Academic Content Standards. This work is approaching satisfactory performance, but has not been reached. There is a need for additional instructional opportunities and/or increased student academic commitment to achieve the Proficient Level.
Below Basic The Below Basic Level reflects inadequate academic performance. Below Basic work indicates little understanding and minimal display of the skills included in the Pennsylvania Academic Content Standards. There is a major need for additional instructional opportunities and/or increased student academic commitment to achieve the Proficient Level.

Adequate Yearly Progress (AYP)

The Commonwealth has developed a system to measure whether districts and schools are on track to meet the state's performance expectations. Each year, school and district performance is analyzed and a determination is made by the state as to whether "Adequate Yearly Progress," or AYP, is being made. Three main criteria are used to determine AYP status:

1. PSSA test results (year-by-year performance goals are shown in Table 2). AYP is judged based either on a subgroup's, school's or LEA's current test score, or its two-year average, whichever is higher;
2. Participation rates on the PSSA (schools must show at least a 95 % student participation rate). Schools must test at least 95 % of the various individual student groups, including students with disabilities and those with Limited English Proficiency. Accommodations may include reading tests to students or allowing extra time to interpret tests. In the future, the Department will offer native language versions of the assessments for limited English proficient groups numbering 5000 or more; and

3. One additional performance measure depending on grade span:

   a. Elementary/middle schools must have 90% average student attendance or show an attendance rate improvement over the prior year.

   b. High schools must have an 80% graduation rate or show improvement in the graduation rate from the prior year. To graduate, students must demonstrate proficiency in reading, writing and math. To measure such proficiency, a school entity may use either: 1) proficient or better performance on the PSSA administered in grade 11 or 12; or 2) proficient or better performance on a local assessment aligned with the academic standards and the PSSA. Local assessments may be a single exam or a combination of assessment strategies, but proficiency is expected to be comparable with proficiency on the PSSA.[vi]

   c. Districts must meet, or show growth in, both the attendance and graduation rate targets across all schools in their jurisdictions.

The three criteria listed above apply not only to the school or district as a whole, but also to the performance of subgroups, including racial/ethnic categories, low-income students, students with disabilities, and English Language Learners.

Table 2: AYP Requirements for Student Performance on Reading and Math PSSA [vii]

Year	2002-04	2005-07	2008-10	2011	2012	2013	2014
Percent Proficient in Reading	45	54	63	72	81	91	100
Percent Proficient in Math	35	45	56	67	78	89	100

As Table 2 shows, the Commonwealth requires that, by 2014, all its students must reach the proficient level or above in reading and math. Between now and 2014, the state has established an escalating series of intermediate performance goals designed to prompt schools and districts to move toward the ultimate goal of 100% proficiency. Schools must meet or exceed these intermediate yearly goals to make AYP each year.

Pennsylvania has also established a series of consequences for failing to reach the AYP goals shown in Table 2. These consequences apply to both schools and districts. In the first year of not meeting AYP, a school or district is placed in "warning" status. Warning means that the school fell short of the AYP targets but has another year to achieve them. These schools are not subject to consequences. Instead, they are required to examine, and where necessary modify, their improvement strategies so they will meet targets next year. If a school does not meet its AYP for two consecutive years, it is designated as needing improvement and is placed in one of the categories described in Table 3.[viii] A school or district can exit School Improvement or Corrective Action status by meeting AYP targets for two consecutive years.

Table 3: Consequences for Failing to Make AYP

School Improvement I — AYP failure for 2 consecutive years. If a school does not meet its AYP for two years in a row, students will be eligible for school choice, school officials will develop an improvement plan to turn around the school, and the school will receive technical assistance to help it get back on the right track. The school choice provision means that the school/district is required to offer parents the option of sending their child to another public school (including charter schools) within the school district. If no other school within the district is available, a district must, to the extent practical, enter into a cooperative agreement with another district that will allow students to transfer.

School Improvement II — AYP failure for 3 consecutive years. If a school or district does not meet its AYP for three years in a row, it must continue to offer public school choice and plan improvements. Additionally, the school or district will need to offer supplemental education services such as tutoring, afterschool, or summer school support. The district will be responsible for paying for these additional services.

Corrective Action I — AYP failure for 4 consecutive years. A school or district is categorized in Corrective Action I when it does not meet its AYP for four consecutive years. At this level, schools are eligible for various levels of technical assistance and are subject to escalating consequences (e.g., changes in curriculum, leadership, professional development).

Corrective Action II — AYP failure for 5 consecutive years. If a school or district does not meet its AYP for five years in a row, it is subject to governance changes such as reconstitution, chartering, and privatization. In the meantime, improvement plans, school choice, and supplemental education services are still required.

[i] Source: Pennsylvania Department of Education. Retrieved January 5, 2007 from the World Wide Web. http://www.pde.state.pa.us/a_and_t/site/default.asp

[ii] Source: Pennsylvania Department of Education. Retrieved January 5, 2007 from the World Wide Web. http://www.pde.state.pa.us/pas/cwp/view.asp?a=3&Q=94580&pasNav=|6132|&pasNav=|6325|

[iii] Source: Pennsylvania Department of Education. Retrieved January 5, 2007 from the World Wide Web. http://www.pde.state.pa.us/a_and_t/site/default.asp

[iv] Source: Pennsylvania Department of Education. Retrieved January 8, 2007 from the World Wide Web. http://www.pde.state.pa.us/stateboard_ed/cwp/view.asp?a=3&Q=76716

[v] Pennsylvania Consolidated State Application Accountability Workbook, (Revised May 30, 2006), page 55. http://www.pde.state.pa.us/nclb/lib/nclb/Accountability_Workbook_revised_2006.pdf|

[vi] Source: Pennsylvania Department of Education. Retrieved January 8, 2007 from the World Wide Web. http://www.pde.state.pa.us/k12/cwp/view.asp?A=11&Q=85767; http://www.pde.state.pa.us/k12/cwp/view.asp?a=85&Q=74007

[vii] Source: Pennsylvania Department of Education. Retrieved January 5, 2007 from the World Wide Web. http://www.pde.state.pa.us/pas/cwp/view.asp?a=3&Q=94580&pasNav=|6132|&pasNav=|6325|

[viii] Id.

APPENDIX E

Geographic Cost of Living Index

COUNTY	LCM
Adams	0.96
Allegheny	1.00
Beaver	1.00
Bedford	0.94
Berks	1.03
Blair	0.96
Bucks	1.13
Butler	1.00
Cambria	0.93
Cameron	0.93
Carbon	1.06
Centre	1.00
Chester	1.13
Clarion	0.93
Clearfield	0.93
Clinton	0.97
Columbia	0.97
Crawford	0.94
Cumberland	1.04
Dauphin	1.04
Delaware	1.13
Elk	0.93
Erie	0.97
Fayette	1.00
Forest	0.93
Franklin	0.96
Fulton	0.93
Greene	0.95
Huntingdon	0.94
Indiana	0.94
Jefferson	0.93
Juniata	0.96
Lackawanna	0.98
Lancaster	1.01
Lawrence	0.97
Lebanon	0.99
Lehigh	1.06
Luzerne	0.98
Lycoming	0.97
Mckean	0.93
Mercer	0.98
Mifflin	0.96
Monroe	1.00
Montgomery	1.13
Montour	0.98
Northampton	1.06
Northumberland	0.97
Perry	1.04
Philadelphia	1.13
Pike	1.16
Potter	0.93
Schuylkill	0.94
Snyder	0.97
Somerset	0.93
Sullivan	0.93
Susquehanna	0.93
Tioga	0.93
Union	0.97
Venango	0.93
Warren	0.94
Washington	1.00
Wayne	0.95
Westmoreland	1.00
Wyoming	0.98
York	1.00

Appendix F

Comparing Actual Spending With Costing Out Estimates

AUN	School District	County	2005-06 ADM	Comparison Spending per Pupil	Costing Out Estimate per Pupil	Total Difference per Pupil
112011103	Bermudian Springs SD	Adams	2,214	$7,076	$11,042	-$3,966
112011603	Conewago Valley SD	Adams	3,810	$7,447	$10,763	-$3,316
112013054	Fairfield Area SD	Adams	1,302	$8,216	$10,352	-$2,135
112013753	Gettysburg Area SD	Adams	3,383	$9,850	$11,772	-$1,921
112015203	Littlestown Area SD	Adams	2,391	$7,963	$11,525	-$3,562
112018523	Upper Adams SD	Adams	1,868	$8,372	$12,747	-$4,375
103020603	Allegheny Valley SD	Allegheny	1,206	$11,898	$11,799	$99
103020753	Avonworth SD	Allegheny	1,338	$10,501	$11,768	-$1,267
103021102	Baldwin-Whitehall SD	Allegheny	4,446	$9,682	$12,278	-$2,596
103021252	Bethel Park SD	Allegheny	5,082	$9,957	$10,480	-$523
103021453	Brentwood Borough SD	Allegheny	1,365	$9,864	$12,018	-$2,154
103021603	Carlynton SD	Allegheny	1,582	$11,011	$11,918	-$907
103021752	Chartiers Valley SD	Allegheny	3,504	$9,244	$11,684	-$2,440
103021903	Clairton City SD	Allegheny	989	$12,155	$13,834	-$1,679
103022103	Cornell SD	Allegheny	738	$10,935	$13,044	-$2,109
103022253	Deer Lakes SD	Allegheny	2,095	$10,438	$11,658	-$1,220
103022503	Duquesne City SD	Allegheny	903	$13,654	$13,235	$419
103022803	East Allegheny SD	Allegheny	2,003	$9,963	$11,862	-$1,899
103023153	Elizabeth Forward SD	Allegheny	2,916	$9,071	$12,460	-$3,389
103023912	Fox Chapel Area SD	Allegheny	4,650	$11,996	$10,844	$1,151
103024102	Gateway SD	Allegheny	4,361	$11,209	$11,542	-$333
103024603	Hampton Twp SD	Allegheny	3,141	$9,294	$11,258	-$1,964
103024753	Highlands SD	Allegheny	2,865	$9,811	$12,085	-$2,274
103025002	Keystone Oaks SD	Allegheny	2,438	$11,018	$11,642	-$624
103026002	Mckeesport Area SD	Allegheny	4,599	$9,621	$11,945	-$2,324
103026303	Montour SD	Allegheny	3,239	$11,030	$11,318	-$287
103026343	Moon Area SD	Allegheny	3,843	$9,915	$10,881	-$966
103026402	Mt Lebanon SD	Allegheny	5,447	$10,648	$10,848	-$200
103026852	North Allegheny SD	Allegheny	8,093	$10,754	$10,307	$446
103026902	North Hills SD	Allegheny	4,801	$10,442	$11,022	-$579
103026873	Northgate SD	Allegheny	1,468	$10,046	$12,308	-$2,263
103027352	Penn Hills SD	Allegheny	5,719	$10,341	$11,929	-$1,588
103021003	Pine-Richland SD	Allegheny	4,236	$8,785	$10,398	-$1,613
102027451	Pittsburgh SD	Allegheny	32,556	$15,078	$12,560	$2,518
103027503	Plum Borough SD	Allegheny	4,443	$8,677	$12,281	-$3,604
103027753	Quaker Valley SD	Allegheny	1,910	$12,488	$11,126	$1,362
103028203	Riverview SD	Allegheny	1,224	$10,773	$13,158	-$2,384
103028302	Shaler Area SD	Allegheny	5,525	$9,492	$10,407	-$915
103028653	South Allegheny SD	Allegheny	1,776	$8,046	$12,508	-$4,462
103028703	South Fayette Twp SD	Allegheny	2,018	$9,814	$10,700	-$886
103028753	South Park SD	Allegheny	2,257	$9,098	$11,325	-$2,227
103028833	Steel Valley SD	Allegheny	2,297	$10,454	$12,187	-$1,733
103028853	Sto-Rox SD	Allegheny	1,551	$11,164	$12,665	-$1,501
103029203	Upper Saint Clair SD	Allegheny	4,143	$10,620	$10,815	-$195
103029403	West Allegheny SD	Allegheny	3,308	$9,646	$10,782	-$1,136
103029553	West Jefferson Hills SD	Allegheny	2,905	$9,492	$11,360	-$1,868
103029603	West Mifflin Area SD	Allegheny	3,303	$9,546	$11,315	-$1,769
103029803	Wilkinsburg Borough SD	Allegheny	1,771	$13,612	$13,148	$465
103029902	Woodland Hills SD	Allegheny	5,690	$11,404	$12,107	-$704

AUN	School District	County	2005-06 ADM	Comparison Spending per Pupil	Costing Out Estimate per Pupil	Total Difference per Pupil
128030603	Apollo-Ridge SD	Armstrong	1,620	$9,426	$11,643	-$2,217
128030852	Armstrong SD	Armstrong	6,509	$10,094	$11,308	-$1,215
128033053	Freeport Area SD	Armstrong	2,043	$8,356	$10,625	-$2,269
128034503	Leechburg Area SD	Armstrong	898	$10,806	$11,882	-$1,076
127040503	Aliquippa SD	Beaver	1,380	$12,213	$14,464	-$2,250
127040703	Ambridge Area SD	Beaver	3,070	$8,910	$11,515	-$2,605
127041203	Beaver Area SD	Beaver	2,128	$8,127	$11,484	-$3,357
127041503	Big Beaver Falls Area SD	Beaver	1,928	$9,904	$12,191	-$2,287
127041603	Blackhawk SD	Beaver	2,817	$8,511	$10,941	-$2,430
127041903	Center Area SD	Beaver	1,959	$8,262	$10,756	-$2,494
127042853	Freedom Area SD	Beaver	1,729	$8,186	$11,800	-$3,614
127044103	Hopewell Area SD	Beaver	2,795	$8,505	$11,183	-$2,677
127045303	Midland Borough SD	Beaver	433	$9,450	$12,792	-$3,343
127045453	Monaca SD	Beaver	794	$9,187	$11,811	-$2,624
127045653	New Brighton Area SD	Beaver	1,906	$8,133	$12,449	-$4,316
127045853	Riverside Beaver County SD	Beaver	1,831	$8,621	$11,983	-$3,363
127046903	Rochester Area SD	Beaver	1,095	$10,017	$12,583	-$2,566
127047404	South Side Area SD	Beaver	1,342	$10,935	$12,287	-$1,352
127049303	Western Beaver County SD	Beaver	913	$9,603	$12,722	-$3,119
108051003	Bedford Area SD	Bedford	2,378	$7,888	$10,859	-$2,971
108051503	Chestnut Ridge SD	Bedford	1,787	$7,585	$11,706	-$4,120
108053003	Everett Area SD	Bedford	1,557	$8,355	$11,138	-$2,783
108056004	Northern Bedford County SD	Bedford	1,149	$7,955	$11,525	-$3,570
108058003	Tussey Mountain SD	Bedford	1,228	$9,136	$11,562	-$2,425
114060503	Antietam SD	Berks	1,112	$8,906	$12,299	-$3,393
114060753	Boyertown Area SD	Berks	7,082	$8,586	$10,985	-$2,399
114060853	Brandywine Heights Area SD	Berks	1,986	$9,356	$11,175	-$1,819
114061103	Conrad Weiser Area SD	Berks	2,976	$8,801	$11,982	-$3,181
114061503	Daniel Boone Area SD	Berks	3,810	$8,220	$11,691	-$3,472
114062003	Exeter Twp SD	Berks	4,332	$8,775	$10,986	-$2,210
114062503	Fleetwood Area SD	Berks	2,710	$8,316	$11,321	-$3,005
114063003	Governor Mifflin SD	Berks	4,297	$8,538	$10,910	-$2,372
114063503	Hamburg Area SD	Berks	2,715	$8,299	$11,454	-$3,154
114064003	Kutztown Area SD	Berks	1,760	$10,819	$11,974	-$1,155
114065503	Muhlenberg SD	Berks	3,309	$9,080	$12,144	-$3,064
114066503	Oley Valley SD	Berks	2,098	$9,034	$11,236	-$2,202
114067002	Reading SD	Berks	17,841	$7,458	$13,945	-$6,487
114067503	Schuylkill Valley SD	Berks	2,033	$10,254	$11,198	-$944
114068003	Tulpehocken Area SD	Berks	1,738	$10,306	$12,027	-$1,722
114068103	Twin Valley SD	Berks	3,384	$9,313	$11,111	-$1,798
114069103	Wilson SD	Berks	5,610	$8,552	$10,549	-$1,997
114069353	Wyomissing Area SD	Berks	1,919	$10,070	$11,566	-$1,496
108070502	Altoona Area SD	Blair	8,359	$8,185	$11,434	-$3,249
108071003	Bellwood-Antis SD	Blair	1,358	$8,553	$11,272	-$2,718
108071504	Claysburg-Kimmel SD	Blair	930	$8,134	$11,685	-$3,551
108073503	Hollidaysburg Area SD	Blair	3,713	$8,765	$11,312	-$2,547
108077503	Spring Cove SD	Blair	1,992	$8,214	$11,642	-$3,428
108078003	Tyrone Area SD	Blair	1,925	$8,079	$12,006	-$3,927
108079004	Williamsburg Comm SD	Blair	573	$9,498	$12,527	-$3,029

Appendix F continued

AUN	School District	County	2005-06 ADM	Comparison Spending per Pupil	Costing Out Estimate per Pupil	Total Difference per Pupil
117080503	Athens Area SD	Bradford	2,456	$8,858	$10,536	-$1,678
117081003	Canton Area SD	Bradford	1,139	$9,506	$11,246	-$1,740
117083004	Northeast Bradford SD	Bradford	924	$9,674	$10,715	-$1,041
117086003	Sayre Area SD	Bradford	1,212	$9,720	$11,038	-$1,318
117086503	Towanda Area SD	Bradford	1,765	$8,903	$11,035	-$2,132
117086653	Troy Area SD	Bradford	1,746	$8,311	$11,409	-$3,098
117089003	Wyalusing Area SD	Bradford	1,474	$8,881	$11,248	-$2,367
122091002	Bensalem Twp SD	Bucks	6,803	$12,331	$13,028	-$697
122091303	Bristol Borough SD	Bucks	1,303	$11,328	$14,239	-$2,911
122091352	Bristol Twp SD	Bucks	7,351	$11,949	$13,947	-$1,998
122092002	Centennial SD	Bucks	6,305	$10,400	$12,098	-$1,699
122092102	Central Bucks SD	Bucks	20,164	$8,915	$11,000	-$2,085
122092353	Council Rock SD	Bucks	12,771	$11,259	$11,118	$141
122097203	Morrisville Borough SD	Bucks	968	$15,141	$14,503	$638
122097502	Neshaminy SD	Bucks	9,773	$13,270	$11,710	$1,560
122097604	New Hope-Solebury SD	Bucks	1,494	$14,040	$11,892	$2,148
122098003	Palisades SD	Bucks	2,157	$11,590	$12,283	-$693
122098103	Pennridge SD	Bucks	7,338	$9,772	$11,683	-$1,911
122098202	Pennsbury SD	Bucks	11,938	$10,892	$11,319	-$427
122098403	Quakertown Comm SD	Bucks	5,558	$11,355	$12,322	-$967
104101252	Butler Area SD	Butler	8,438	$7,678	$11,198	-$3,521
104103603	Karns City Area SD	Butler	1,858	$8,652	$12,078	-$3,425
104105003	Mars Area SD	Butler	2,986	$7,476	$11,085	-$3,610
104105353	Moniteau SD	Butler	1,859	$6,883	$11,106	-$4,223
104107903	Seneca Valley SD	Butler	7,761	$8,107	$10,304	-$2,196
104107503	Slippery Rock Area SD	Butler	2,503	$7,636	$11,858	-$4,222
104107803	South Butler County SD	Butler	2,908	$7,360	$11,357	-$3,997
108110603	Blacklick Valley SD	Cambria	701	$10,102	$11,917	-$1,815
108111203	Cambria Heights SD	Cambria	1,516	$9,430	$10,936	-$1,505
108111303	Central Cambria SD	Cambria	1,894	$8,350	$10,855	-$2,505
108111403	Conemaugh Valley SD	Cambria	955	$8,728	$11,299	-$2,571
108112003	Ferndale Area SD	Cambria	840	$8,841	$11,936	-$3,094
108112203	Forest Hills SD	Cambria	2,290	$8,049	$11,064	-$3,015
108112502	Greater Johnstown SD	Cambria	3,268	$9,253	$11,768	-$2,514
108114503	Northern Cambria SD	Cambria	1,267	$10,008	$11,502	-$1,495
108116003	Penn Cambria SD	Cambria	1,799	$8,789	$10,853	-$2,063
108116303	Portage Area SD	Cambria	1,014	$9,139	$11,432	-$2,293
108116503	Richland SD	Cambria	1,621	$8,871	$9,966	-$1,095
108118503	Westmont Hilltop SD	Cambria	1,777	$8,153	$9,851	-$1,697
109122703	Cameron County SD	Cameron	905	$9,178	$11,367	-$2,189
121135003	Jim Thorpe Area SD	Carbon	2,119	$9,252	$11,942	-$2,689
121135503	Lehighton Area SD	Carbon	2,590	$9,360	$11,297	-$1,937
121136503	Palmerton Area SD	Carbon	2,072	$8,812	$12,107	-$3,295
121136603	Panther Valley SD	Carbon	1,735	$8,937	$13,343	-$4,406
121139004	Weatherly Area SD	Carbon	794	$10,072	$12,424	-$2,352
110141003	Bald Eagle Area SD	Centre	2,055	$8,992	$11,638	-$2,647
110141103	Bellefonte Area SD	Centre	3,030	$9,110	$11,088	-$1,978
110147003	Penns Valley Area SD	Centre	1,670	$9,281	$11,119	-$1,838
110148002	State College Area SD	Centre	7,525	$10,442	$10,317	$125
124150503	Avon Grove SD	Chester	5,824	$7,744	$11,825	-$4,081
124151902	Coatesville Area SD	Chester	8,475	$11,204	$13,338	-$2,134
124152003	Downingtown Area SD	Chester	11,778	$9,338	$11,232	-$1,895
124153503	Great Valley SD	Chester	4,033	$11,742	$12,154	-$412
124154003	Kennett Consolidated SD	Chester	4,301	$10,080	$14,016	-$3,935
124156503	Octorara Area SD	Chester	2,779	$10,470	$12,605	-$2,135
124156603	Owen J Roberts SD	Chester	4,716	$10,240	$11,883	-$1,642
124156703	Oxford Area SD	Chester	3,902	$8,632	$13,484	-$4,853
124157203	Phoenixville Area SD	Chester	3,819	$12,985	$12,483	$501
124157802	Tredyffrin-Easttown SD	Chester	5,969	$12,658	$12,360	$298
124158503	Unionville-Chadds Ford SD	Chester	4,059	$11,094	$11,710	-$616
124159002	West Chester Area SD	Chester	12,244	$10,761	$11,711	-$950
106160303	Allegheny-Clarion Valley SD	Clarion	973	$9,333	$11,088	-$1,755
106161203	Clarion Area SD	Clarion	937	$9,265	$11,141	-$1,876
106161703	Clarion-Limestone Area SD	Clarion	1,099	$8,740	$11,013	-$2,273
106166503	Keystone SD	Clarion	1,205	$9,184	$11,391	-$2,207
106167504	North Clarion County SD	Clarion	684	$8,916	$11,608	-$2,692
106168003	Redbank Valley SD	Clarion	1,366	$8,573	$11,640	-$3,067
106169003	Union SD	Clarion	779	$9,542	$11,623	-$2,081
110171003	Clearfield Area SD	Clearfield	2,868	$8,691	$11,232	-$2,541
110171803	Curwensville Area SD	Clearfield	1,238	$8,707	$11,877	-$3,170
106172003	Dubois Area SD	Clearfield	4,523	$7,973	$10,941	-$2,968
110173003	Glendale SD	Clearfield	888	$10,381	$11,728	-$1,348
110173504	Harmony Area SD	Clearfield	365	$12,029	$12,139	-$110
110175003	Moshannon Valley SD	Clearfield	1,106	$8,662	$11,512	-$2,850
110177003	Philipsburg-Osceola Area SD	Clearfield	2,118	$10,592	$11,389	-$797
110179003	West Branch Area SD	Clearfield	1,322	$8,533	$11,703	-$3,170
110183602	Keystone Central SD	Clinton	4,714	$10,116	$11,483	-$1,367
116191004	Benton Area SD	Columbia	822	$8,781	$12,179	-$3,399
116191103	Berwick Area SD	Columbia	3,507	$8,707	$11,674	-$2,966
116191203	Bloomsburg Area SD	Columbia	1,888	$8,381	$11,262	-$2,881
116191503	Central Columbia SD	Columbia	2,250	$7,738	$10,762	-$3,024
116195004	Millville Area SD	Columbia	806	$10,028	$10,572	-$544
116197503	Southern Columbia Area SD	Columbia	1,517	$7,777	$11,045	-$3,268
105201033	Conneaut SD	Crawford	2,779	$8,526	$11,264	-$2,737
105201352	Crawford Central SD	Crawford	4,153	$9,854	$11,392	-$1,538
105204703	Penncrest SD	Crawford	3,991	$8,682	$11,044	-$2,361
115210503	Big Spring SD	Cumberland	3,125	$8,555	$11,587	-$3,033
115211003	Camp Hill SD	Cumberland	1,159	$9,582	$11,588	-$2,006
115211103	Carlisle Area SD	Cumberland	4,846	$8,805	$11,396	-$2,591
115211603	Cumberland Valley SD	Cumberland	7,781	$7,639	$10,563	-$2,923
115212503	East Pennsboro Area SD	Cumberland	2,882	$8,249	$11,518	-$3,269
115216503	Mechanicsburg Area SD	Cumberland	3,634	$8,903	$11,860	-$2,957
115218003	Shippensburg Area SD	Cumberland	3,425	$7,596	$11,461	-$3,865
115218303	South Middleton SD	Cumberland	2,267	$8,257	$11,087	-$2,830
115221402	Central Dauphin SD	Dauphin	11,746	$8,509	$11,629	-$3,120
115221753	Derry Twp SD	Dauphin	3,556	$9,469	$11,498	-$2,029
115222504	Halifax Area SD	Dauphin	1,259	$10,121	$12,195	-$2,074
115222752	Harrisburg City SD	Dauphin	8,298	$13,118	$13,969	-$851
115224003	Lower Dauphin SD	Dauphin	4,104	$8,614	$10,938	-$2,324
115226003	Middletown Area SD	Dauphin	2,588	$9,886	$11,979	-$2,093
115226103	Millersburg Area SD	Dauphin	957	$9,590	$11,450	-$1,860
115228003	Steelton-Highspire SD	Dauphin	1,401	$10,252	$12,221	-$1,968

Appendix F continued

AUN	School District	County	2005-06 ADM	Comparison Spending per Pupil	Costing Out Estimate per Pupil	Total Difference per Pupil
115228303	Susquehanna Twp SD	Dauphin	3,243	$8,744	$11,844	-$3,099
115229003	Upper Dauphin Area SD	Dauphin	1,327	$9,495	$11,568	-$2,073
125231232	Chester-Upland SD	Delaware	7,281	$10,563	$14,262	-$3,699
125231303	Chichester SD	Delaware	3,650	$11,045	$13,090	-$2,045
125234103	Garnet Valley SD	Delaware	4,431	$10,718	$11,683	-$966
125234502	Haverford Twp SD	Delaware	5,661	$10,248	$12,350	-$2,102
125235103	Interboro SD	Delaware	3,959	$10,186	$12,690	-$2,504
125235502	Marple Newtown SD	Delaware	3,562	$12,536	$11,749	$787
125236903	Penn-Delco SD	Delaware	3,380	$9,930	$11,999	-$2,069
125237603	Radnor Twp SD	Delaware	3,579	$14,475	$12,716	$1,759
125237702	Ridley SD	Delaware	5,919	$10,051	$11,935	-$1,883
125237903	Rose Tree Media SD	Delaware	4,000	$12,884	$12,280	$603
125238402	Southeast Delco SD	Delaware	4,153	$9,729	$13,773	-$4,044
125238502	Springfield SD	Delaware	3,444	$11,295	$11,809	-$514
125239452	Upper Darby SD	Delaware	12,289	$8,671	$12,961	-$4,290
125239603	Wallingford-Swarthmore SD	Delaware	3,574	$12,359	$12,402	-$43
125239652	William Penn SD	Delaware	5,705	$10,697	$13,602	-$2,905
109243503	Johnsonburg Area SD	Elk	724	$10,341	$12,035	-$1,694
109246003	Ridgway Area SD	Elk	1,033	$9,889	$11,439	-$1,549
109248003	Saint Marys Area SD	Elk	2,528	$7,434	$10,103	-$2,670
105251453	Corry Area SD	Erie	2,467	$8,804	$11,639	-$2,836
105252602	Erie City SD	Erie	13,587	$9,373	$12,518	-$3,144
105253303	Fairview SD	Erie	1,646	$8,815	$11,338	-$2,523
105253553	Fort Leboeuf SD	Erie	2,280	$7,371	$11,937	-$4,566
105253903	General Mclane SD	Erie	2,397	$7,573	$11,288	-$3,715
105254053	Girard SD	Erie	2,076	$7,419	$11,444	-$4,025
105254353	Harbor Creek SD	Erie	2,163	$8,698	$10,758	-$2,060
105256553	Iroquois SD	Erie	1,257	$8,266	$11,277	-$3,011
105257602	Millcreek Twp SD	Erie	7,487	$8,010	$9,990	-$1,980
105258303	North East SD	Erie	1,929	$8,125	$11,531	-$3,406
105258503	Northwestern SD	Erie	1,858	$6,805	$11,423	-$4,618
105259103	Union City Area SD	Erie	1,364	$9,056	$12,440	-$3,384
105259703	Wattsburg Area SD	Erie	1,676	$7,935	$10,852	-$2,917
101260303	Albert Gallatin Area SD	Fayette	3,976	$8,904	$12,325	-$3,421
101260803	Brownsville Area SD	Fayette	2,035	$9,884	$12,845	-$2,961
101261302	Connellsville Area SD	Fayette	5,753	$8,219	$11,957	-$3,737
101262903	Frazier SD	Fayette	1,177	$8,842	$11,734	-$2,891
101264003	Laurel Highlands SD	Fayette	3,625	$8,099	$11,940	-$3,841
101268003	Uniontown Area SD	Fayette	3,582	$8,315	$12,106	-$3,791
106272003	Forest Area SD	Forest	702	$12,332	$11,761	$570
112281302	Chambersburg Area SD	Franklin	8,611	$8,042	$10,995	-$2,953
112282004	Fannett-Metal SD	Franklin	598	$9,284	$11,606	-$2,322
112283003	Greencastle-Antrim SD	Franklin	2,882	$7,391	$9,851	-$2,461
112286003	Tuscarora SD	Franklin	2,804	$8,086	$10,999	-$2,913
112289003	Waynesboro Area SD	Franklin	4,200	$8,377	$11,163	-$2,785
111291304	Central Fulton SD	Fulton	1,060	$8,610	$11,672	-$3,061
111292304	Forbes Road SD	Fulton	496	$9,664	$10,515	-$851
111297504	Southern Fulton SD	Fulton	914	$7,705	$10,711	-$3,006
101301303	Carmichaels Area SD	Greene	1,127	$9,610	$11,047	-$1,437
101301403	Central Greene SD	Greene	2,253	$9,166	$11,788	-$2,622
101303503	Jefferson-Morgan SD	Greene	914	$10,883	$10,955	-$72
101306503	Southeastern Greene SD	Greene	732	$10,193	$11,798	-$1,604
101308503	West Greene SD	Greene	925	$11,500	$12,415	-$915
111312503	Huntingdon Area SD	Huntingdon	2,366	$7,446	$11,022	-$3,576
111312804	Juniata Valley SD	Huntingdon	846	$8,998	$10,769	-$1,771
111316003	Mount Union Area SD	Huntingdon	1,570	$8,585	$11,182	-$2,596
111317503	Southern Huntingdon Co SD	Huntingdon	1,370	$7,919	$10,550	-$2,631
128321103	Blairsville-Saltsburg SD	Indiana	2,109	$9,652	$11,390	-$1,738
128323303	Homer-Center SD	Indiana	950	$10,619	$11,338	-$719
128323703	Indiana Area SD	Indiana	3,064	$11,136	$11,348	-$212
128325203	Marion Center Area SD	Indiana	1,573	$10,099	$12,369	-$2,271
128326303	Penns Manor Area SD	Indiana	1,057	$9,267	$11,460	-$2,192
128327303	Purchase Line SD	Indiana	1,212	$10,078	$11,782	-$1,704
128328003	United SD	Indiana	1,256	$10,932	$11,146	-$214
106330703	Brockway Area SD	Jefferson	1,217	$8,336	$10,915	-$2,579
106330803	Brookville Area SD	Jefferson	1,894	$8,418	$11,532	-$3,114
106338003	Punxsutawney Area SD	Jefferson	2,802	$9,330	$11,282	-$1,952
111343603	Juniata County SD	Juniata	3,153	$7,769	$11,188	-$3,419
119350303	Abington Heights SD	Lackawanna	3,673	$8,512	$10,945	-$2,433
119351303	Carbondale Area SD	Lackawanna	1,663	$8,188	$11,822	-$3,634
119352203	Dunmore SD	Lackawanna	1,703	$7,286	$11,247	-$3,961
119354603	Lakeland SD	Lackawanna	1,669	$7,949	$10,698	-$2,749
119355503	Mid Valley SD	Lackawanna	1,663	$8,265	$11,573	-$3,307
119356503	North Pocono SD	Lackawanna	3,282	$8,315	$10,549	-$2,234
119356603	Old Forge SD	Lackawanna	949	$8,521	$11,854	-$3,333
119357003	Riverside SD	Lackawanna	1,582	$9,835	$11,258	-$1,422
119357402	Scranton SD	Lackawanna	9,440	$9,622	$12,053	-$2,431
119358403	Valley View SD	Lackawanna	2,614	$6,872	$10,799	-$3,927
113361303	Cocalico SD	Lancaster	3,670	$7,548	$11,067	-$3,519
113361503	Columbia Borough SD	Lancaster	1,532	$8,782	$12,434	-$3,652
113361703	Conestoga Valley SD	Lancaster	4,055	$8,283	$11,847	-$3,564
113362203	Donegal SD	Lancaster	2,826	$7,844	$10,938	-$3,094
113362303	Eastern Lancaster County SD	Lancaster	3,507	$8,294	$11,793	-$3,500
113362403	Elizabethtown Area SD	Lancaster	4,021	$7,473	$11,190	-$3,718
113362603	Ephrata Area SD	Lancaster	4,124	$8,731	$11,355	-$2,624
113363103	Hempfield SD	Lancaster	7,337	$8,401	$10,853	-$2,452
113363603	Lampeter-Strasburg SD	Lancaster	3,344	$7,972	$11,130	-$3,158
113364002	Lancaster SD	Lancaster	11,547	$9,878	$14,904	-$5,027
113364403	Manheim Central SD	Lancaster	3,119	$8,781	$11,591	-$2,810
113364503	Manheim Twp SD	Lancaster	5,621	$8,607	$10,845	-$2,238
113365203	Penn Manor SD	Lancaster	5,451	$7,776	$11,104	-$3,329
113365303	Pequea Valley SD	Lancaster	1,950	$8,699	$11,553	-$2,854
113367003	Solanco SD	Lancaster	4,050	$7,201	$11,994	-$4,794
113369003	Warwick SD	Lancaster	4,746	$7,973	$11,004	-$3,031
104372003	Ellwood City Area SD	Lawrence	2,251	$8,217	$10,935	-$2,718
104374003	Laurel SD	Lawrence	1,428	$8,390	$11,360	-$2,970
104375003	Mohawk Area SD	Lawrence	1,944	$7,696	$11,534	-$3,838
104375203	Neshannock Twp SD	Lawrence	1,366	$8,304	$10,625	-$2,321
104375302	New Castle Area SD	Lawrence	3,961	$8,914	$11,403	-$2,489
104376203	Shenango Area SD	Lawrence	1,424	$8,278	$11,301	-$3,023
104377003	Union Area SD	Lawrence	903	$8,835	$12,328	-$3,492
104378003	Wilmington Area SD	Lawrence	1,573	$7,566	$11,164	-$3,598

Appendix F continued

AUN	School District	County	2005-06 ADM	Comparison Spending per Pupil	Costing Out Estimate per Pupil	Total Difference per Pupil
113380303	Annville-Cleona SD	Lebanon	1,691	$8,072	$11,562	-$3,491
113381303	Cornwall-Lebanon SD	Lebanon	4,896	$8,049	$11,142	-$3,094
113382303	Eastern Lebanon County SD	Lebanon	2,452	$8,185	$10,720	-$2,535
113384603	Lebanon SD	Lebanon	4,452	$8,713	$13,392	-$4,678
113385003	Northern Lebanon SD	Lebanon	2,587	$7,971	$10,974	-$3,003
113385303	Palmyra Area SD	Lebanon	3,066	$7,215	$10,534	-$3,319
121390302	Allentown City SD	Lehigh	18,129	$8,291	$13,741	-$5,449
121391303	Catasauqua Area SD	Lehigh	1,705	$10,864	$12,187	-$1,322
121392303	East Penn SD	Lehigh	7,921	$8,431	$10,722	-$2,291
121394503	Northern Lehigh SD	Lehigh	2,045	$9,619	$13,060	-$3,441
121394603	Northwestern Lehigh SD	Lehigh	2,376	$9,995	$10,871	-$876
121395103	Parkland SD	Lehigh	9,087	$9,312	$10,807	-$1,495
121395603	Salisbury Twp SD	Lehigh	1,891	$12,346	$12,786	-$439
121395703	Southern Lehigh SD	Lehigh	3,108	$9,464	$11,018	-$1,554
121397803	Whitehall-Coplay SD	Lehigh	4,262	$7,808	$12,325	-$4,517
118401403	Crestwood SD	Luzerne	3,112	$7,345	$10,926	-$3,581
118401603	Dallas SD	Luzerne	2,763	$7,876	$10,839	-$2,963
118402603	Greater Nanticoke Area SD	Luzerne	2,251	$7,554	$11,506	-$3,953
118403003	Hanover Area SD	Luzerne	2,073	$9,327	$11,850	-$2,524
118403302	Hazleton Area SD	Luzerne	9,783	$7,499	$11,928	-$4,429
118403903	Lake-Lehman SD	Luzerne	2,210	$8,639	$11,153	-$2,514
118406003	Northwest Area SD	Luzerne	1,479	$9,024	$11,897	-$2,873
118406602	Pittston Area SD	Luzerne	3,258	$8,924	$10,938	-$2,014
118408852	Wilkes-Barre Area SD	Luzerne	7,444	$9,590	$12,147	-$2,557
118409203	Wyoming Area SD	Luzerne	2,659	$7,769	$11,388	-$3,619
118409302	Wyoming Valley West SD	Luzerne	5,518	$8,482	$11,338	-$2,856
117412003	East Lycoming SD	Lycoming	1,725	$8,192	$11,256	-$3,063
117414003	Jersey Shore Area SD	Lycoming	2,937	$8,569	$11,036	-$2,467
117414203	Loyalsock Twp SD	Lycoming	1,437	$9,416	$11,059	-$1,644
117415004	Montgomery Area SD	Lycoming	951	$9,737	$11,486	-$1,749
117415103	Montoursville Area SD	Lycoming	2,147	$8,189	$10,976	-$2,787
117415303	Muncy SD	Lycoming	1,064	$9,706	$11,283	-$1,576
117416103	South Williamsport Area SD	Lycoming	1,445	$8,138	$11,406	-$3,268
117417202	Williamsport Area SD	Lycoming	5,953	$9,851	$11,314	-$1,462
109420803	Bradford Area SD	Mckean	2,910	$9,456	$10,577	-$1,121
109422303	Kane Area SD	Mckean	1,318	$9,200	$11,174	-$1,974
109426003	Otto-Eldred SD	Mckean	807	$8,927	$11,711	-$2,784
109426303	Port Allegany SD	Mckean	1,111	$8,281	$11,514	-$3,233
109427503	Smethport Area SD	Mckean	1,000	$9,565	$11,373	-$1,808
104431304	Commodore Perry SD	Mercer	673	$9,000	$11,648	-$2,647
104432503	Farrell Area SD	Mercer	1,027	$13,466	$13,631	-$165
104432803	Greenville Area SD	Mercer	1,689	$7,732	$11,714	-$3,982
104432903	Grove City Area SD	Mercer	2,408	$9,505	$11,034	-$1,529
104433303	Hermitage SD	Mercer	2,237	$8,481	$11,639	-$3,158
104433604	Jamestown Area SD	Mercer	664	$8,888	$13,195	-$4,307
104433903	Lakeview SD	Mercer	1,344	$7,999	$11,468	-$3,469
104435003	Mercer Area SD	Mercer	1,495	$7,708	$11,415	-$3,708
104435303	Reynolds SD	Mercer	1,514	$8,906	$11,941	-$3,034
104435603	Sharon City SD	Mercer	2,349	$9,199	$12,627	-$3,429
104435703	Sharpsville Area SD	Mercer	1,411	$7,494	$11,126	-$3,631
104437503	West Middlesex Area SD	Mercer	1,234	$8,099	$11,618	-$3,518

AUN	School District	County	2005-06 ADM	Comparison Spending per Pupil	Costing Out Estimate per Pupil	Total Difference per Pupil
111444602	Mifflin County SD	Mifflin	5,961	$7,461	$11,064	-$3,604
120452003	East Stroudsburg Area SD	Monroe	8,220	$9,869	$11,258	-$1,390
120455203	Pleasant Valley SD	Monroe	7,227	$8,004	$10,608	-$2,604
120455403	Pocono Mountain SD	Monroe	12,216	$9,476	$12,170	-$2,694
120456003	Stroudsburg Area SD	Monroe	6,050	$10,071	$11,043	-$972
123460302	Abington SD	Montgomery	7,572	$11,857	$12,138	-$280
123460504	Bryn Athyn SD	Montgomery	16	$18,793	$13,351	$5,443
123461302	Cheltenham Twp SD	Montgomery	4,712	$13,662	$12,333	$1,329
123461602	Colonial SD	Montgomery	4,684	$13,294	$11,448	$1,846
123463603	Hatboro-Horsham SD	Montgomery	5,493	$11,314	$11,694	-$380
123463803	Jenkintown SD	Montgomery	597	$16,203	$13,292	$2,911
123464502	Lower Merion SD	Montgomery	6,927	$17,184	$12,037	$5,146
123464603	Lower Moreland Twp SD	Montgomery	1,966	$11,872	$12,050	-$178
123465303	Methacton SD	Montgomery	5,614	$10,227	$11,547	-$1,320
123465602	Norristown Area SD	Montgomery	7,212	$12,817	$14,399	-$1,581
123465702	North Penn SD	Montgomery	13,012	$10,713	$11,724	-$1,012
123466103	Perkiomen Valley SD	Montgomery	5,388	$10,631	$11,199	-$568
123466303	Pottsgrove SD	Montgomery	3,322	$10,318	$11,917	-$1,599
123466403	Pottstown SD	Montgomery	3,343	$10,866	$13,614	-$2,748
123467103	Souderton Area SD	Montgomery	6,923	$9,785	$12,164	-$2,379
123467203	Springfield Twp SD	Montgomery	2,128	$13,970	$12,659	$1,311
123467303	Spring-Ford Area SD	Montgomery	7,245	$9,846	$11,029	-$1,183
123468303	Upper Dublin SD	Montgomery	4,471	$10,885	$12,559	-$1,674
123468402	Upper Merion Area SD	Montgomery	3,553	$14,423	$12,709	$1,714
123468503	Upper Moreland Twp SD	Montgomery	3,193	$10,700	$12,314	-$1,614
123468603	Upper Perkiomen SD	Montgomery	3,376	$9,673	$12,972	-$3,299
123469303	Wissahickon SD	Montgomery	4,680	$12,882	$12,368	$515
116471803	Danville Area SD	Montour	2,622	$9,348	$11,226	-$1,878
120480803	Bangor Area SD	Northampton	3,625	$8,503	$12,066	-$3,563
120481002	Bethlehem Area SD	Northampton	15,832	$8,702	$12,958	-$4,256
120483302	Easton Area SD	Northampton	8,976	$8,386	$11,902	-$3,516
120484803	Nazareth Area SD	Northampton	4,691	$8,114	$11,038	-$2,924
120484903	Northampton Area SD	Northampton	5,976	$8,652	$11,672	-$3,020
120485603	Pen Argyl Area SD	Northampton	1,977	$8,513	$11,901	-$3,388
120486003	Saucon Valley SD	Northampton	2,447	$11,454	$11,839	-$385
120488603	Wilson Area SD	Northampton	2,269	$9,462	$11,979	-$2,517
116493503	Line Mountain SD	Northumberland	1,292	$9,322	$11,580	-$2,258
116495003	Milton Area SD	Northumberland	2,319	$8,823	$11,903	-$3,079
116495103	Mount Carmel Area SD	Northumberland	1,772	$7,230	$11,458	-$4,228
116496503	Shamokin Area SD	Northumberland	2,592	$8,671	$12,391	-$3,720
116496603	Shikellamy SD	Northumberland	3,227	$8,329	$11,240	-$2,910
116498003	Warrior Run SD	Northumberland	1,781	$8,129	$11,381	-$3,252
115503004	Greenwood SD	Perry	863	$8,119	$11,869	-$3,750
115504003	Newport SD	Perry	1,234	$9,371	$12,343	-$2,972
115506003	Susquenita SD	Perry	2,242	$9,172	$11,831	-$2,659
115508003	West Perry SD	Perry	2,927	$8,087	$11,114	-$3,027
126515001	Philadelphia City SD	Philadelphia	207,893	$9,947	$14,919	-$4,972
120522003	Delaware Valley SD	Pike	5,725	$8,270	$11,865	-$3,595
109530304	Austin Area SD	Potter	233	$12,180	$12,400	-$220
109531304	Coudersport Area SD	Potter	951	$9,131	$11,515	-$2,384
109532804	Galeton Area SD	Potter	413	$12,215	$12,227	-$11

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AUN	School District	County	2005-06 ADM	Comparison Spending per Pupil	Costing Out Estimate per Pupil	Total Difference per Pupil
109535504	Northern Potter SD	Potter	667	$10,617	$12,087	-$1,469
109537504	Oswayo Valley SD	Potter	558	$9,518	$11,560	-$2,042
129540803	Blue Mountain SD	Schuylkill	2,996	$8,132	$9,989	-$1,857
129544503	Mahanoy Area SD	Schuylkill	1,143	$9,773	$12,021	-$2,248
129544703	Minersville Area SD	Schuylkill	1,207	$7,903	$11,104	-$3,201
129545003	North Schuylkill SD	Schuylkill	1,985	$8,456	$11,041	-$2,584
129546003	Pine Grove Area SD	Schuylkill	1,761	$8,509	$10,634	-$2,125
129546103	Pottsville Area SD	Schuylkill	2,815	$9,213	$11,631	-$2,418
129546803	Saint Clair Area SD	Schuylkill	895	$7,824	$10,825	-$3,001
129547303	Schuylkill Haven Area SD	Schuylkill	1,456	$7,785	$10,889	-$3,104
129547203	Shenandoah Valley SD	Schuylkill	1,150	$8,176	$12,014	-$3,838
129547603	Tamaqua Area SD	Schuylkill	2,234	$8,856	$10,169	-$1,312
129547803	Tri-Valley SD	Schuylkill	920	$9,573	$11,427	-$1,854
129548803	Williams Valley SD	Schuylkill	1,188	$9,080	$10,858	-$1,778
116555003	Midd-West SD	Snyder	2,430	$7,570	$10,806	-$3,236
116557103	Selinsgrove Area SD	Snyder	2,806	$8,409	$11,018	-$2,610
108561003	Berlin Brothersvalley SD	Somerset	963	$8,427	$12,001	-$3,574
108561803	Conemaugh Twp Area SD	Somerset	1,113	$9,091	$10,717	-$1,626
108565203	Meyersdale Area SD	Somerset	1,025	$9,769	$11,469	-$1,699
108565503	North Star SD	Somerset	1,332	$8,872	$11,540	-$2,668
108566303	Rockwood Area SD	Somerset	909	$8,420	$11,075	-$2,654
108567004	Salisbury-Elk Lick SD	Somerset	378	$9,265	$11,662	-$2,398
108567204	Shade-Central City SD	Somerset	625	$9,155	$11,211	-$2,055
108567404	Shanksville-Stonycreek SD	Somerset	459	$9,187	$11,182	-$1,995
108567703	Somerset Area SD	Somerset	2,704	$9,441	$10,824	-$1,384
108568404	Turkeyfoot Valley Area SD	Somerset	406	$9,592	$11,560	-$1,968
108569103	Windber Area SD	Somerset	1,406	$8,565	$11,630	-$3,065
117576303	Sullivan County SD	Sullivan	803	$11,429	$11,081	$348
119581003	Blue Ridge SD	Susquehanna	1,235	$9,590	$11,050	-$1,460
119582503	Elk Lake SD	Susquehanna	1,470	$8,940	$10,886	-$1,947
119583003	Forest City Regional SD	Susquehanna	964	$8,934	$10,949	-$2,015
119584503	Montrose Area SD	Susquehanna	1,964	$9,255	$10,391	-$1,135
119584603	Mountain View SD	Susquehanna	1,412	$8,436	$11,461	-$3,025
119586503	Susquehanna Comm SD	Susquehanna	1,005	$10,295	$11,224	-$929
117596003	Northern Tioga SD	Tioga	2,452	$8,284	$11,445	-$3,161
117597003	Southern Tioga SD	Tioga	2,229	$8,659	$11,124	-$2,465
117598503	Wellsboro Area SD	Tioga	1,585	$10,043	$11,148	-$1,105
116604003	Lewisburg Area SD	Union	1,858	$9,242	$11,538	-$2,297
116605003	Mifflinburg Area SD	Union	2,400	$7,961	$11,095	-$3,134
106611303	Cranberry Area SD	Venango	1,415	$9,292	$11,677	-$2,385
106612203	Franklin Area SD	Venango	2,354	$10,700	$10,985	-$285
106616203	Oil City Area SD	Venango	2,494	$8,964	$11,815	-$2,851
106617203	Titusville Area SD	Venango	2,320	$8,750	$11,271	-$2,521
106618603	Valley Grove SD	Venango	1,007	$8,700	$12,192	-$3,492
105628302	Warren County SD	Warren	5,869	$9,094	$10,054	-$961
101630504	Avella Area SD	Washington	769	$9,108	$11,955	-$2,847
101630903	Bentworth SD	Washington	1,212	$9,323	$12,117	-$2,794
101631003	Bethlehem-Center SD	Washington	1,422	$9,112	$12,580	-$3,468
101631203	Burgettstown Area SD	Washington	1,576	$7,783	$11,574	-$3,791
101631503	California Area SD	Washington	1,047	$9,307	$12,473	-$3,165
101631703	Canon-Mcmillan SD	Washington	4,593	$8,501	$11,114	-$2,613
101631803	Charleroi SD	Washington	1,700	$8,775	$11,839	-$3,064
101631903	Chartiers-Houston SD	Washington	1,207	$8,770	$12,205	-$3,434
101632403	Fort Cherry SD	Washington	1,253	$9,034	$12,345	-$3,311
101633903	Mcguffey SD	Washington	2,269	$9,562	$12,310	-$2,747
101636503	Peters Township SD	Washington	4,198	$7,638	$10,633	-$2,995
101637002	Ringgold SD	Washington	3,590	$7,303	$12,561	-$5,258
101638003	Trinity Area SD	Washington	3,759	$8,399	$11,494	-$3,095
101638803	Washington SD	Washington	1,954	$10,178	$12,821	-$2,643
119648303	Wallenpaupack Area SD	Wayne	4,048	$9,477	$10,483	-$1,005
119648703	Wayne Highlands SD	Wayne	3,352	$8,751	$10,935	-$2,184
119648903	Western Wayne SD	Wayne	2,583	$9,628	$11,014	-$1,386
107650603	Belle Vernon Area SD	Westmoreland	2,934	$8,094	$11,348	-$3,254
107650703	Burrell SD	Westmoreland	2,155	$8,349	$10,959	-$2,610
107651603	Derry Area SD	Westmoreland	2,665	$8,379	$11,854	-$3,474
107652603	Franklin Regional SD	Westmoreland	3,794	$8,176	$10,411	-$2,234
107653102	Greater Latrobe SD	Westmoreland	4,367	$7,537	$10,479	-$2,942
107653203	Greensburg Salem SD	Westmoreland	3,360	$8,201	$11,611	-$3,409
107653802	Hempfield Area SD	Westmoreland	6,748	$8,922	$10,609	-$1,687
107654103	Jeannette City SD	Westmoreland	1,362	$9,143	$13,496	-$4,352
107654403	Kiski Area SD	Westmoreland	4,474	$8,155	$11,200	-$3,045
107654903	Ligonier Valley SD	Westmoreland	2,134	$8,838	$11,661	-$2,823
107655803	Monessen City SD	Westmoreland	1,050	$9,802	$13,320	-$3,517
107655903	Mount Pleasant Area SD	Westmoreland	2,515	$8,385	$11,581	-$3,196
107656303	New Kensington-Arnold SD	Westmoreland	2,500	$8,376	$12,346	-$3,970
107656502	Norwin SD	Westmoreland	5,314	$7,406	$10,763	-$3,357
107657103	Penn-Trafford SD	Westmoreland	4,723	$7,034	$10,700	-$3,665
107657503	Southmoreland SD	Westmoreland	2,307	$8,477	$12,001	-$3,524
107658903	Yough SD	Westmoreland	2,562	$7,742	$12,520	-$4,777
119665003	Lackawanna Trail SD	Wyoming	1,346	$9,822	$11,518	-$1,696
118667503	Tunkhannock Area SD	Wyoming	3,093	$9,603	$10,826	-$1,224
112671303	Central York SD	York	5,366	$7,766	$10,304	-$2,538
112671603	Dallastown Area SD	York	6,054	$9,290	$9,655	-$364
112671803	Dover Area SD	York	3,759	$8,457	$10,197	-$1,741
112672203	Eastern York SD	York	2,858	$8,874	$10,790	-$1,916
112672803	Hanover Public SD	York	1,770	$10,001	$12,721	-$2,720
112674403	Northeastern York SD	York	3,547	$7,965	$11,019	-$3,054
115674603	Northern York County SD	York	3,234	$7,933	$10,912	-$2,979
112675503	Red Lion Area SD	York	6,117	$7,609	$10,255	-$2,646
112676203	South Eastern SD	York	3,431	$8,014	$10,658	-$2,644
112676403	South Western SD	York	4,210	$7,922	$10,556	-$2,634
112676503	Southern York County SD	York	3,387	$8,542	$10,563	-$2,021
112676703	Spring Grove Area SD	York	4,041	$8,059	$11,258	-$3,199
115219002	West Shore SD	York	8,365	$7,722	$11,306	-$3,584
112678503	West York Area SD	York	3,402	$7,833	$11,246	-$3,413
112679002	York City SD	York	7,574	$9,273	$14,307	-$5,034
112679403	York Suburban SD	York	2,821	$10,543	$12,021	-$1,479

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