

**Projected Costs of Implementing
The Federal
“No Child Left Behind Act”
In Ohio**

*A Detailed Financial Analysis
Prepared For The*

Ohio Department of Education

*Pursuant To
House Bill 3
(effective August 2003)
Ohio General Assembly*

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EXECUTIVE SUMMARY

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The Federal “No Child Left Behind” Act (NCLB)

In January 2002, President George W. Bush signed into law the “No Child Left Behind Act,” the latest reauthorization of the Elementary and Secondary Education Act of 1965. Commonly referred to as “NCLB,” the act represents a sweeping overhaul of federal education policy.

Among its provisions, NCLB:

- Requires states to implement achievement tests in reading, math, and science
- Creates standards for defining “highly qualified” teachers and teacher’s aides and requirements to meet those standards
- Requires measurement of progress toward achieving educational goals and a system of consequences for schools or districts showing insufficient progress
- Provides federal funds to states for the purpose of paying costs required by NCLB

Ohio’s House Bill 3

Both before and since the federal government’s enactment of NCLB, the State of Ohio has been revising state law to improve teacher quality standards, strengthen accountability, close achievement gaps, and improve success rates for the 1.8 million students in Ohio’s primary and secondary schools.

H. B. 3, enacted by the Ohio General Assembly in August 2003 to comply with the federal NCLB Act, represents part of that process. Among its many provisions, it revises the system of statewide achievement testing, requires an annual determination of each school district’s progress toward meeting a proficient level of achievement, and requires intervention services to students scoring below the proficient level on achievement tests.

One specific portion of House Bill 3 (Section 10) directed the Superintendent of Public Instruction to submit to the General Assembly within ninety days of its enactment a detailed financial analysis of the projected costs of compliance with the No Child Left Behind Act. This report has been prepared for the Ohio Department of Education in accordance with that requirement.

The Challenge of Assigning Costs

The task of assigning costs to the requirements of NCLB presents a formidable challenge. One major difficulty relates to the Act's timing. Some provisions of the new federal law took immediate effect. Others were delayed until the 2005-2006 school year (math and reading tests) or 2007-2008 (science tests).

A far more fundamental difficulty in assigning costs hinges on the whole concept of moving toward and achieving 100% proficiency in a state's educational system. The method for measuring achievement under NCLB (and imposing consequences for failure) involves a complex system of annual benchmarks. Under this system, each state defines "adequate yearly progress" by which its schools and school districts move toward the NCLB standard of 100% proficiency by the 2013-2014 school year.

The difficulty of achieving that 100% proficiency can hardly be overstated. NCLB requires all schools and all school districts to reach 100% success rates on annual tests in reading and math in grades 3 through 8 and annual tests in science in one elementary school grade, one middle school grade, and one high school grade.

Two other measures of performance also apply. One measure, graduation rate, applies to high schools. This performance measure requires that high schools make annual improvements in graduation rates until all pupils who enter high school graduate. The other applies to attendance rate standards in elementary and middle schools.

The 2013-2014 school year may seem like the far distant future. But the students of the senior class of 2014 are already working their way through Ohio's educational system. They are currently in the second grade. By the time those students graduate from high school, Ohio must have achieved full 100% proficiency under NCLB.

Report Estimates "Marginal" Costs

This study adopts the standard economic concept of "marginal" cost to measure the additional costs imposed upon Ohio that are "on top of" or "in addition to" the costs of the pre-existing system. These additional costs result from the additional requirements imposed by NCLB. Before NCLB, federal law did not impose a complex set of comprehensive academic achievement requirements in connection with federal aid to schools. Now it does.

In addition, the federal requirements increase by a substantial degree the pre-existing State achievement requirements. State requirements imposed a standard of achievement, defined by successful performance on various measures, of 75% of all pupils. The new federal requirement imposes a performance standard equal to 100% success in meeting performance standards. This 100% requirement dovetails with the federal act's explicit recognition of the moral imperative to "leave no child behind."

“Marginal” Costs (cont.)

The marginal cost of NCLB thus equals the sum of the additional costs for compliance with standards or activities that did not pre-exist at the State level plus the additional cost for compliance where NCLB standards impose a higher target than former state standards.

Overview of Cost Measurement

Overall, the process of estimating NCLB costs involves three steps. In the first step, this report identifies the costs associated with an NCLB requirement. The next step includes a deduction, offset, or other adjustment to separate total NCLB costs associated with a requirement from existing expenditures for the same purpose. For example, NCLB costs include the need to fund six grades worth of achievement tests. The prior existence of proficiency tests in two grades cancels out about one-third of the additional cost related to such activities as actually administering the tests.

Finally, NCLB federal aid is applied to remaining costs. Any amount by which costs exceed available federal dollars would suggest a net NCLB cost to the State of Ohio.

Two Different Types of Costs

The costs of implementing NCLB may be considered to fall into two distinct categories. The first includes a series of direct costs capable of reasonably straightforward measurement. In this report, such costs are generally described as administrative, teacher, and paraprofessional costs. These costs represent clear and discrete items such as the costs of administering a battery of subject tests to a given number of pupils in a particular grade.

The second type of costs, referred to in this report as “intervention” costs, pertain to resources directed at helping those pupils who are often failing to succeed in the current education system. Because it is not certain which or how many pupils require intervention and also because many alternative methods may exist to improve pupil performance, preparing cost estimates for intervention requires making a whole series of assumptions with which reasonable persons might reasonably disagree.

Rather than being deterred from presenting estimates for intervention, the authors of this report chose to tackle the assignment directly and have provided all of the methodological details for others to dissect and critique. Although the costs of intervention are more difficult to measure, they are no less real than other NCLB costs.

Administrative, Teacher, and Paraprofessional Costs

Chapter 1 of this report summarizes the administrative cost imposed on the State or school districts as a result of NCLB. In general, this includes the cost of developing new achievement tests and administering those tests. Chapter 2 addresses costs associated with ensuring highly qualified teachers and paraprofessionals to meet NCLB requirements.

One difficulty in estimating these costs is the fact that some are one-time costs and some are on-going expenditures. In Chapter 5, where all NCLB costs are brought together, this issue is addressed by pro-rating one-time costs over the 2004 to 2013 time period. This allows all costs to be shown on an annual basis in current 2004 dollars. The annual total for the combined categories of administrative, teacher, and paraprofessional costs is \$105 million.

Intervention Costs

By far, the most significant impact of NCLB on education costs occurs in the need for extensive additional intervention to enable all children to meet the 100% success rate. Estimates of these costs appear in Chapter 3.

Additional intervention costs come from two major features of the new law:

1. All Ohio pupils, as they progress through their education, must take and pass a total of six math and six reading achievement tests in grades 3 through 8, whereas in the past they needed to pass only two of each.
2. The passage rate mandated for the six years of tests has increased from 75% to 100%. This essentially means that every student must pass.

Placing a dollar figure on intervention costs requires a selection of intervention activities or programs. This report makes no assertion that the specific combination of programs whose costs it estimates provide the only way to achieve successful performance for all pupils. Rather, to the limited extent that anyone knows what methods work, the report estimates a reasonable combination of interventions focused with increasing intensity in pupils with greater margins of failure based on current testing experience in Ohio.

Data show that, as the margin between a pupil's score and the minimum passing score increases, the likelihood also increases that the pupil suffers from a disability and/or economic disadvantage. The estimated cost of intervention programs assumes that only through the delivery of additional intensive and continuous services to these pupils can they raise their achievement to the performance levels required.

Intervention Cost Methodology

The concept utilized in this report to estimate intervention costs is based on the premise that academic intervention in the first four grades of school provides the most efficient method to raise the performance of each pupil over that pupil's entire 13-year span of education.

If the NCLB goals of bringing each and every student up to proficiency in reading, math, and science by the year 2014 are to be met, the most cost-effective way to do so is with heavy intervention at the very earliest stages of a student's educational career. In this manner, an ounce of prevention is worth a pound of cure.

The method applied here has a series of steps. First, current data on student performance in Ohio is analyzed to determine how many students are currently below proficiency, how far away from attaining proficiency these students are, and what the characteristics of these students are.

Next, this data analysis can be applied to the current K-3 population of students in Ohio and used to break these students into different groups requiring different levels of intervention in order to achieve proficiency. Finally, an array of intervention strategies can be mapped out for each group that can reasonably be expected to lead to academic success, and these strategies can be costed out.

Costing Out Intervention

The estimation process begins by analyzing the most recent available performance data of Ohio students. Information on the number of pupils who failed to achieve proficiency on the reading and math portions of the 4th and 6th grade proficiency tests in FY03 was the starting point. These students are divided among quartiles according to how close their scores were to passing.

For example, a total of 136,171 pupils took the 4th grade reading test. Of those, 45,627 students (33.5% of the total) failed. The 45,627 students are then divided into quartiles, based on how close their scores were to passing.

The method basically uses data such as this from actual results from the 4th and 6th grade tests to estimate how many pupils currently in kindergarten through the 3rd grade would likely require additional intervention services beyond what is currently provided in order to achieve proficiency in the new testing program required by NCLB. Consistent with the marginal cost basis of the analysis, the cost of raising the performance of the lowest scoring 25% of the students in both math and reading was then estimated.

To estimate those performance costs, programs must be assumed and costed out. For the purposes of this study, those programs include the following:

- Summer School
- Extended School Day
- Intensive In-school Intervention
- Academic Coordination Services
- Early and On-going Student Assessment

The study makes clear that the selection of specific intervention programs offers a model for estimating costs. It is *not* intended to present a detailed, ready-to-implement program.

Projected Costs of Implementing NCLB in Ohio

The final chapter of the report combines all of the figures to estimate the on-going costs of fully implementing the provisions of NCLB with 100% proficiency. The figures are presented in current 2004 dollars. The table below, based on Table 30 of the report, contains those estimates.

Annualized Costs of NCLB in Millions of Current 2004 Dollars

	Cost
Annualized One-Time Costs	\$ 3.3
Test Administration -State	\$20.3
Test Administration –Special Education	\$ 1.8
Test Administration – Local	\$ 3.5
Annual Test Development-State	?
High Quality Teacher – New MA	\$ 2.0
Retooling Teachers	\$ 2.0
Highly Effective Pro Dev	\$65.0
Administrative Costs for Title II (State & Local)	\$ 5.0
Consequences – Transportation	\$ 2.5
Subtotal: Admin, Teacher, Paraprofessional Costs	\$105.4
Intervention K-3	\$923.7
Intervention Maintenance Grades 4-12	\$462.0
Subtotal: Intervention Costs	\$1385.7
Total Annualized Costs of Full NCLB Implementation	\$1491.1

Projected Costs (cont.)

The federal No Child Left Behind Act provides a significant increase in federal dollars for primary and secondary education to the State of Ohio. As shown in Table 4 of the report, an additional \$44 million is being provided beyond the increase that might have been expected based on recent historical experience.

Comparing that amount with the full cost of compliance with NCLB under 100% implementation, however, is somewhat like comparing apples and oranges. The federal dollars provided are real amounts, provided by existing law. The costs of 100% compliance with NCLB are estimated, projected amounts assuming full implementation, which is not required until the 2013-2014 school year.

Nevertheless, the comparison of \$1.5 billion in additional annual costs for NCLB with the additional \$44 million provided should give some sense of relative magnitudes. The projected additional costs of full implementation of NCLB in Ohio will require expenditures far beyond the additional federal dollars committed thus far.

One final table may provide useful perspective. It illustrates two points: (1) most funds to pay for education are derived from state and local (not federal) sources, and (2) the costs to implement NCLB, while appearing massive in the context of current *federal* education aid, do not appear nearly so large in the context of total education expenditures.

Comparison of Current Operating Revenue for FY04 and Operating Revenue for FY04 with Full Funding For NCLB

Revenue Source	Current Revenue– FY04	NCLB Fully Funded – FY04
Local Operating Revenue	\$7,200 Million	\$7,200 Million
State Aid for Operations	\$5,460 Million	\$5,460 Million
Federal Aid - NCLB	\$ 662 Million	\$ 662 Million
Unfunded NCLB Cost		\$1,447 Million
Total	\$13,322 Million	\$14,769 Million

Another perspective can be gleaned from the table above. If the amounts estimated in this report achieved their purpose of “leaving no child behind,” it would represent an 11% increase in educational expenditures in this state (\$1,447 million increase on a \$13,322 million base) to achieve a 33% increase in results, i.e., moving from a 75% success rate to a 100% success rate.

One final comment is in order. The intervention cost estimates in this report are predicated on the assumption that children will begin kindergarten in the future at roughly the same state of academic readiness as is the case currently. Significant investment in early childhood education that results in better preparation of students entering kindergarten can be expected to reduce the intervention cost estimates calculated in this study. As the report tries to make clear throughout, an ounce of prevention is worth a pound of cure.

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Acknowledgements

H.B. 3 mandated the preparation of this report within a very short timeframe of 90 days. Given the limited time to comprehend and analyze a legislative enactment of the complexity of NCLB, only the combined effort of many people enabled us to gather the information, data, and insights necessary to complete the project.

The staff of the Ohio Department of Education provided much useful data, many insights, and some perceptive criticisms. While we greatly appreciated their many efforts to assist us, and while we relied on their help, we made our own decisions about the marginal costs associated with the different components of NCLB.

Staff at the Columbus City School District also provided invaluable assistance in the form of data and explanations about how intervention programs work and about how they perceive the costs associated with NCLB.

The Ohio Association of School Business Officials was especially helpful in arranging an informal forum to discuss the impact of NCLB on school district costs and expenditures.

In our opinion, government websites receive too little recognition for the massive amounts of data and other useful information provided for free on their websites. The Ohio General Assembly, Ohio Department of Education, the U.S. Department of Education, the Bureau of Labor Statistics in the U.S. Department of Labor, and U. S. Census Bureau all maintain websites from which we obtained data for this report.

Introduction

This report presents an estimate of the costs associated with the implementation of the Elementary and Secondary Education Act of 2001. This federal legislation is popularly known as the “No Child Left Behind Act.” For the sake of brevity, the report abbreviates the act’s popular title to “NCLB.” The report has been prepared pursuant to Section 10 of Am. Sub. H.B. 3, enacted in 2003.

NCLB is a large and complicated piece of legislation. In printed form, it includes 670 pages. Federal regulations eventually may add many hundreds more pages to the information needed to implement the act.

This report does not claim to offer an in-depth summary of all of the requirements of NCLB. Other organizations have provided such summaries. The amount of information about NCLB available from various official and unofficial websites on the Internet is overwhelming. Fortunately, little disagreement appears to exist about the major features of NCLB. These features include:

- 1) A requirement that states implement achievement tests in math and reading for grades 3 through 8 and achievement tests in science in one elementary, one middle school, and one high school year.
- 2) Standards for defining “highly qualified” teachers and teacher’s aides and requirements that all teachers and aides meet these standards and that states provide effective professional development and training for teachers and aides.
- 3) A system for measuring progress toward the achievement of educational goals and a system of consequences for schools or school districts where a failure to meet standards of progress occurs.
- 4) Allocation of funds to the states for the purpose of paying for costs required by NCLB.

While it is possible to identify the main features of NCLB, the task of assigning costs to the act’s major requirements presents a greater challenge. Not the least of the difficulties involved in understanding the costs of NCLB relates to the timing of the changes in the NCLB act. Some provisions of the act took immediate effect. Other provisions were delayed until the 2005-2006 school year (math and reading achievement tests) or the 2007-2008 school year (science tests). In addition, the system for measuring achievement and for imposing consequences for failure adequately to achieve the goals established by NCLB involves a complicated system of annual benchmarks. Under this system, each state must define the “adequate yearly progress” or “AYP” achievement goals by which its schools and school districts will move toward the ultimate NCLB standard of 100% proficiency by the 2013-2014 school year. Ohio already has begun to measure schools against those performance standards of NCLB currently in effect. As a result, the State has begun to determine whether school districts in fiscal year 2002

(FY02) and FY03 have met or not met AYP. (References to fiscal years or “FY” in this report refer to State of Ohio fiscal years.)

Although each state defines AYP standards for the intermediate years between the NCLB enactment and the target year of 2013-2014, the federal law establishes consequences for failure to meet each year’s AYP goal, as defined by the state. These consequences will impose additional costs on school districts and the State. However, since the consequences and their costs depend on whether or not schools or school districts meet complicated AYP goals, the forecast of the costs associated with these consequences requires a projection of the number districts where a failure to make AYP will occur. While it seems certain that some districts will not meet the annual goals established by the Ohio definition of AYP, too little data exists to enable this report to project the specific districts or the number of pupils for whom the consequences of NCLB will apply in any given year and at any given level of consequences between now and 2014.

A. Marginal Cost Study

This report presents a *marginal cost* study of the impact of NCLB. By “marginal cost” the analysis means that NCLB imposed *additional* costs above or on top of the costs of a pre-existing system. These additional costs result from the additional requirements imposed by NCLB. Before NCLB, federal law did not impose a complex set of comprehensive academic achievement requirements in connection with federal aid to schools. Now it does.

In addition, the federal requirements increase by a substantial degree the pre-existing State achievement requirements. State requirements imposed a standard of achievement, defined by successful performance on various measures, of 75% of all pupils. The new federal requirement imposes a performance standard equal to 100% success in meeting performance standards. This 100% requirement dovetails with the federal act’s explicit recognition of the moral imperative to “leave no child behind.”

The marginal cost of NCLB thus equals the sum of the additional costs for compliance with standards or activities that did not pre-exist at the State level plus the additional cost for compliance where NCLB standards impose a higher target than former State standards.

This study assumes that the level of federal funding provided to Ohio in FY02 (the last year before the enactment of NCLB) forms the foundation upon which additional costs must rest. In other words, if the State received one dollar from the federal government for education in FY02, and the State receives \$1.25 in FY04, the State has twenty-five cents in additional federal money to apply to the NCLB *marginal* costs. The original dollar continues to provide funding related to the costs associated with the pre-existing requirements defined at the State level.

Some have argued that the pre-NCLB level of federal funds for education was not efficiently employed and that the redirection of those dollars in a more efficient manner will pay for some of the marginal cost of NCLB requirements. Such arguments are entirely speculative. No reason exists to assume that the NCLB configuration of funding priorities will eliminate pre-existing costs.

Readers who believe that the NCLB priorities will achieve some reduction in overall education costs through an increase in efficiency can discount the net marginal impact of NCLB if they wish. This report found no basis for doing so.

B. Overview of Cost Measurement

Overall, the process of estimating NCLB costs involves three steps. In the first step, this report identifies the costs associated with an NCLB requirement. The next step includes a deduction, offset, or other adjustment to separate total NCLB costs associated with a requirement from existing expenditures for the same purpose. For example, NCLB costs include the need to fund six grades worth of achievement tests. The prior existence of proficiency tests in two grades cancels out about one-third of the additional cost related to such activities as actually administering the tests. Finally, NCLB federal aid is applied to remaining costs. Any amount by which costs exceed available federal dollars would suggest a net NCLB cost.

C. Definition and Measurement of Costs

This report identifies and measures the cost imposed by NCLB on the State and school districts. Both the definition of “costs” and their measurement present many difficult problems. Many kinds of costs will result from the implementation of the NCLB-required changes in Ohio schools. It is possible to discern several different general types of costs that result from the federal requirements. For example, one change required by NCLB will involve the administration of achievement tests in math and reading to grades where the State does not require a proficiency or achievement test. Costs associated with the new test requirement might fall into three different categories:

1) Direct costs – the reproduction and scoring of thousands of test instruments has a direct cost.

2) Implied costs – before a test can be administered, someone must design it. Someone else must make sure that the test relates to the third grade curriculum. The training and assignment of test proctors is also implied by the requirement to administer the test. Test instruments must be secured between the time that the State prints them and the district administers them. Scores must be collected and reported, and so on.

3) Opportunity costs – if pupils spend one day preparing for the test and another day taking the test, those days are not spent on some other learning activity. If additional days are spent on test preparation, this time also carries the cost of other foregone activities.

The identification of costs only accounts for part of the task. The quantification of those costs is the second and more difficult step. In some cases, prior experience may provide a useful guide for estimating NCLB costs. For example, the State's administration of a 4th grade proficiency test should provide some indicator of the additional cost associated with a 3rd grade achievement test. However, in other instances, estimates cannot depend on prior experience. For example, NCLB requirements imply the rejection of professional development programs as implemented in the past. The cost of more effective, scientifically grounded, professional training must look elsewhere than prior experience in the State's education system for an indicator of costs.

As part of the process of estimating costs, this report attempts to separate new costs imposed by NCLB from costs already imposed by policy decisions adopted by the General Assembly or the State Board of Education. In other words, the report tries to distinguish between total costs and the marginal costs associated with NCLB. Proficiency tests provide a simple and obvious example. At the time of the NCLB enactment, Ohio already required proficiency tests in 4th and 6th grade. NCLB requires proficiency testing in all grades between 3rd and 8th grade. Only an estimate of the proficiency test costs for 3rd, 5th, 7th, and 8th grade are attributed to NCLB since those tests represent the source of an *increase* in Ohio costs.

D. Special Considerations about Intervention Costs

By far, the most significant impact of NCLB on education costs occurs in the need for extensive additional *intervention* to enable all children to meet the 100% success rate required for the achievement standards applied in each state for the federally mandated achievement measures. Additional intervention costs come from two major features of the new law. First, Ohio pupils must take and pass six math and six reading achievement tests, but in the past they needed to take and pass only two math and two reading proficiency tests. Second, the passage rate mandated for the six years of tests has increased from 75% to 100%.

The identification of intervention costs requires a selection of intervention activities or programs. This report makes no assertion that the specific combination of programs whose costs it estimates provide the only way to achieve successful performance for all pupils. Rather, to the limited extent that anyone knows what methods work, the report estimates a reasonable combination of interventions focused with increasing intensity on pupils with greater margins of failure based on current testing experience in Ohio. Data show that, as the margin between a pupil's score and the minimum passing score increases, the likelihood also increases that the pupil suffers from a disability and/or suffers from economic disadvantage. The estimated cost of intervention programs assumes that only through the delivery of additional intensive and continuous services to these pupils can they raise their achievement to the performance levels required.

Marginal intervention costs represent the additional effort needed to increase the level of performance from 75% to 100% plus the cost needed to address testing activities in six grades rather than two.

E. Overview of Funds for School Operations in Ohio

NCLB did not only require states to implement certain changes in their education systems. It also provided additional revenue to pay for those changes. An important part of the process of estimating the cost of NCLB also involves a comparison of the new federal revenues available to pay for NCLB with the new costs required by NCLB.

Table 1: Federal Funds by Program Received for Ohio FY02 and Prior to NCLB

Program	State FY02
Technology Literacy Challenge Fund	15,183,430
ESEA Title I--Grants to Local Educational Agencies	312,082,800
ESEA Title I--Capital Expenses for Private School Children	250,061
ESEA Title I--Even Start	7,262,911
ESEA Title I--Migrant	2,394,354
ESEA Title I--Neglected and Delinquent	1,933,737
ESEA Title I--Demonstrations of Comprehensive School Reform	7,493,686
Subtotal, Education for the Disadvantaged	331,417,549
Impact Aid--Basic Support Payments	2,848,893
Impact Aid--Payments for Children with Disabilities	236,796
Impact Aid--Construction	0
Impact Aid--Payments for Federal Property	250,331
Subtotal, Impact Aid	3,336,020
Eisenhower Professional Development State Grants	16,040,882
School Renovation Grants	37,618,743
Innovative Education Program Strategies State Grants	15,041,997
Class Size Reduction	62,485,399
Safe and Drug-Free Schools--State Grants	15,812,603
Indian Education--Grants to Local Educational Agencies	0
Immigrant Education	539,645
Subtotal	150,875,289
Total	497,476,268

This section of the report summarizes the sources and amounts of funds used for school operations in Ohio. The information presented here provides a context for understanding the amounts of federal aid available under NCLB and other federal programs.

Table 1 summarizes the funds available to the “regular” school districts in Ohio in the last year prior to the enactment of NCLB. The table reflects federal FY01 and State FY02 data. (“Regular” school districts are the 612 public school districts created by law for the delivery of education services to 1.8 million pupils in grade K-12. Charter schools, which are called “community schools in Ohio, and joint vocational school districts generally are not included in this report. The addition of community schools to the analysis would have increased the time required to do the report without providing much additional information. Community schools account for about 1% of the pupils in publicly funded schools in Ohio. Vocational school districts generally do not serve pupils in grades where the intensive testing and intervention occurs in NCLB. They have additional administrative and staff costs associated with NCLB, but the addition of these costs would not change the magnitude of the estimates contained in this report.)

The table groups three types of federal aid into programs. While NCLB eliminated some programs and created others, the groups of programs shown above are comparable to the groups of programs included in NCLB. Table 2 shows the NCLB allocations by program for Ohio FY04 (federal FY03).

Table 2 shows the allocations under NCLB for Ohio in State FY04 (federal FY03). The allocations are characterized as “Estimated.” These estimates were prepared by the U.S. Department of Education and not by the authors of this report. The data on Tables 1 and 2 were obtained from the U.S. Department of Education website.

Table 2: Federal Funds by Program Received for Ohio FY04 Pursuant to NCLB

Program	Estimated FY04
ESEA Title I Grants to Local Educational Agencies	399,821,239
Reading First State Grants	31,842,693
Even Start	7,618,205
State Agency Program--Migrant	2,485,708
State Agency Program--Neglected and Delinquent	2,425,658
Comprehensive School Reform (Title I)	7,426,191
Subtotal, Education for the Disadvantaged	451,619,694
Impact Aid Basic Support Payments	4,219,251
Impact Aid Payments for Children with Disabilities	220,032
Impact Aid Construction	0
Impact Aid Payments for Federal Property	725,535
Subtotal, Impact Aid	5,164,818
Improving Teacher Quality State Grants	107,150,776
Mathematics and Science Partnerships	3,099,930
21st Century Community Learning Centers	17,233,223
Educational Technology State Grants	21,866,049
State Grants for Innovative Programs	14,640,671
State Assessments	11,713,330
Rural and Low-Income Schools Program	1,632,051
Small, Rural School Achievement Program	1,469,580
Indian Education--Grants to Local Educational Agencies	0
Fund for the Improvement of Education--Comprehensive School Reform	2,889,496
Safe and Drug-Free Schools and Communities State Grants	15,812,603
State Grants for Community Service for Expelled or Suspended Students	1,637,148
Language Acquisition State Grants	5,643,930
Subtotal	204,788,787
Total	661,573,299

Data on Table 2 show the NCLB allocations for the second year of the program. The total NCLB amount allocated in federal FY02 (State FY03) equaled \$578.5 million.

In order to compute the additional revenue available under NCLB compared to the former allocations under the Elementary and Secondary Education Act (ESEA), it is necessary to project how much those programs would have grown under the former law assuming historically-based growth rates.

Table 3: Total Allocation of Federal Education Funds in Programs Comparable to NCLB for State Fiscal Years 1992 – 2002 and Year-to-Year Percentage Changes

State FY	Fed FY	Total Allocation	Percentage Change
1992	1991	259,390,401	
1993	1992	289,506,411	11.61%
1994	1993	308,930,909	6.71%
1995	1994	340,791,859	10.31%
1996	1995	354,757,830	4.10%
1997	1996	351,849,201	-0.82%
1998	1997	357,683,861	1.66%
1999	1998	365,602,906	2.21%
2000	1999	411,594,407	12.58%
2001	2000	453,113,090	10.09%
2002	2001	496,320,291	9.54%

Table 3 shows Ohio’s federal education aid experience over the period from State FY92 through FY02. The associated federal fiscal year appears in the second column. The total allocation in the third column is the sum of the programs shown in Table 1 for each year or the comparable programs in existence in some of those years. Since funds for the education of homeless children are not included in NCLB, they have been deducted from earlier years as well.

The average annual change in funds over the period shown on Table 3 equaled 6.8% and over the most recent five years the percentage change equaled 7.2%. To project federal funding in the absence of NCLB, this report used the more conservative of those two averages. In other words, if federal aid for Ohio schools had grown at historical average rates for Ohio FY03 and Ohio FY04, the Ohio FY02 amount shown on Table 3 would have increased by 6.8% from FY02 to FY03 and by another 6.8% from FY03 to FY04.

Table 4 summarizes this projection of federal revenues in the absence of NCLB.

Table 4: Comparison of Projected Federal Revenue Based on Historical Experience and NCLB Revenue for Ohio FY02 through Ohio FY04

State FY	Fed FY	Estimated Total Allocation	Percentage Change	NCLB Allocation	NCLB Increase
2002	2001	496,320,291	6.80%	496,320,291	
2003	2002	530,063,187	6.80%	578,517,334	48,454,147
2004	2003	617,848,488		661,573,299	43,724,811

The first two columns on the table again align the data with the proper fiscal year. The “Estimate Total Allocation” column shows the actual revenue for Ohio FY02 and the projected revenue for FY03 and FY04 assuming the historical 6.8% average rate of increase over the preceding 10 years. The next column shows the percentage used. The “NCLB Allocation” column again shows the actual revenue for Ohio FY02 under the former federal programs, the actual NCLB allocation for Ohio FY03, and the officially estimated NCLB allocation for Ohio FY04. The final column shows the net increase provided by NCLB relative to the projected allocations shown in the third column. Therefore, the net increase in revenue for Ohio equaled \$48.5 million in FY03 and \$43.7 million in FY04 over the amount Ohio could reasonably have expected based on historical experience.

The amounts shown for each program in Tables 2 and 3 include both formula driven allocations and grants awarded on a competitive basis. While all federal program dollars are not fungible, NCLB materials are replete with references to the greater flexibility in the use of federal funds permitted under the new law. Also, in those cases where a redirection of federal dollars has occurred from one year to the next either under NCLB or under earlier funding combinations, the removal of funds creates an opportunity cost for the school or district in which the removal of funds from an ongoing program occurs.

For these reasons, this report will not attempt to trace specific program dollars to specific program costs. In some instances, it may be appropriate to mention that specific federal program dollars have been earmarked to address specific costs. However, the summary analysis of the report focuses on matching total costs to total resources.

For comparison purposes, total local revenue for school operations increased from about \$7 billion in FY02 to \$7.2 billion in FY04, a \$200 million increase. Total State aid for school operations increased from \$5.2 billion in FY02 to \$5.5 billion in FY04, a \$300 million increase. The total revenue provided under NCLB equals about 5% of the total of NCLB, local taxes for school operations, and State aid for school operations. (This percentage does not include federal funds provided under the IDEA and ECSE programs or federal aid provided under school nutrition programs.)

Finally, while total federal aid increased from Ohio FY02 to Ohio FY04 as a result of NCLB allocations, the increases did not benefit all school districts. For reasons

associated with school enrollment as well as changes in federal census data, changes in federal funding occurred for reasons other than policy decisions at the federal level.

Table 5 Summarizes Changes in School District's Title I Allocations from Ohio FY03 to Ohio FY04

Change	Number of Districts	Average Change Amount
Zero to Some Title I Dollars	11	\$158,000
More Title I Dollars	348	\$158,000
Less Title I Dollars	231	\$30,000
Remained at Zero	8	0
Some Title I Dollars to Zero	15	\$75,000

Total increases equaled about \$57 million compared to losses of about \$8 million.

Chapter 1: Administrative Costs of NCLB

This chapter summarizes the administrative cost imposed on the State or school districts as a result of NCLB. Generally, no attempt is made to distinguish between State and local costs. The analysis assumes that the process of sorting out who will pay for the cost of NCLB presents a different issue from the estimation of those costs. Therefore, the analysis attempts to find the costs without addressing the proper level at which payment should occur.

As the introductory material in this report stated, the process of estimating NCLB costs involves both the identification of cost requirements and the application of some methodology to quantify the costs identified. The first part of the process is relatively easy, and the second part is quite difficult in many instances. It is possible to perceive many new duties for schools in the NCLB laws. It is less obvious how those new duties interrelate with existing duties to create additional financial burdens.

For example, the federal law imposes new recordkeeping, reporting, and parental notification duties on school districts. However, rather than adding new personnel to fulfill these duties, some school districts may accomplish them by requiring employees to work longer hours, by delaying the accomplishment of other tasks, or by replacing federal compliance duties for other activities. The quantification of such costs is especially difficult.

A. New Achievement Tests

NCLB requires the State to test for math and reading achievement in all grades between 3rd grade and 8th grade. These tests must begin by the 2005-06 school year. In addition, by the 2007-08 school year, the State must test for science achievement in at least one elementary school grade, one middle school grade, and one high school grade. Ohio already meets the second requirement for science tests with its system of testing in 4th and 6th grades and with its plan to move the 9th grade science proficiency test to become part of the 10th grade Ohio graduation test. Ohio does not meet the math and reading test requirement because it offers proficiency tests in those subjects in only two of the six required grades. The State will phase-in the implementation of the new test requirements so that some tests are added each year between 2003-04 and 2005-06. The estimates provided in this section do not attempt to project the costs of these tests for the different stages of implementation. Instead, the estimates provided here show one-time development costs and annualized administration costs based on the requirements of full implementation.

1) Test Development Costs

The State must develop new tests in math for 3rd, 5th, 6th, and 8th grade. It must develop new tests in reading for 4th, 5th, 6th, and 8th grade. Part of the development process will include the alignment of the new tests with the curriculum for the year tested.

Table 6 estimates the cost of test development for the four grades listed in the preceding paragraph.

Table 6: Estimated Proficiency Test Development Cost

Number of Pupils	Per Pupil Cost	Total Cost
700,000	\$13.00	\$9.1 million

The table lists an approximate number of pupils enrolled in grades 3, 5, 7, & 8. Based on data contained in contracts between the Ohio Department of Education and test development experts, the Department can estimate the per pupil development costs associated with the new testing activity required by NCLB. The cost shown on Table 6 amounts to a one-time cost for the initial development of the new tests. Ongoing adjustments to such tests also will occur. The costs associated with such test maintenance have not yet been estimated.

For comparison purposes, it is useful to note that the National Association of State Boards of Education estimated that test development costs can range from \$25 to \$125 per pupil for statewide tests aligned to the curriculum.

This estimate does not include any cost associated with the development of science achievement tests since the State already complies with the new federal requirements in that area. Also, no test development costs are included with respect to the 3rd grade reading, 4th grade math and 7th grade reading and math tests since the State already required those tests.

2) Test Administration Costs

NCLB will require schools to administer achievement tests in math and reading for four grades in which the State did not require a proficiency test before the enactment of the new federal law. Some school districts may have offered various kinds of assessments or other performance measures in these grades under the prior system. However, it is important to note that the administration of the “official” State test for NCLB purposes differs from the use of former test activity. The nature of the change involves an increase in formality. Because performance on the official State achievement test has consequences under the federal law, the administration of the test must follow procedures for securing the test instruments before, during, and after students take the exam.

The administration of each test will involve the distribution of the test instruments from the State to each school district. At the school district level, personnel must have appropriate training to present the test to students in a standardized manner. The districts also must collect and return the tests within certain constraints designed to guarantee the integrity of the test and the test results. Each of these steps imposes costs.

To further illustrate aspects of the administrative burden imposed on school districts, the following list of duties was extracted from the Ohio Department of Education's Rulebook on Achievement Tests:

To protect the security of the tests, each district must establish written procedures that address the following components specified by the rules adopted by the State Board of Education:

- identification of personnel authorized to have access to the test; procedures for handling and tracking test materials before, during and after testing;*
- procedures for investigating any alleged violation of test security provisions;*
- and*
- procedures for communicating annually test security provisions to all district employees and students.*

Each school district and chartered nonpublic school must adopt policies and procedures that deal with

- participation of students with disabilities,*
- test security,*
- access to individual students' statewide test results,*
- grade promotion and retention issues, and*
- intervention services.*

Each district may elect to assess IDEA pupils with an alternative assessment. The number of such assessments cannot exceed 1% of the district's enrollment. Also, for other pupils with special needs, the district may make arrangements for special modifications to the regular test procedures. For example, a special needs pupil may take the regular test, but the pupil's special situation may justify a longer period of time to complete the test, the administration of the test in oral form, or some other more labor intensive method for presenting the test.

At both the district and the State level, the formality of these NCLB-required proficiency tests necessitates strict recordkeeping, data input, and storage. Results must be transmitted from the State to school districts and from the schools to the parents. NCLB includes requirements for maintaining separate performance records for specified sub-groups of pupils who take each test. These sub-groups include gender, race, economic disadvantage, special education status, and English language learners. Adequate progress for a school district involves a measurement of general performance as well as the performance of each sub-group. As a result, the process of determining whether a district or a school building achieved adequate progress is complicated, and the complication makes the communication of results to parents and the public more difficult.

The Ohio Department of Education has entered into contracts related to the administration of the newly required achievement tests mandated by NCLB. The contractor responsible for test administration will distribute test documents to the

districts. It will provide training materials such as test administration manuals. It will score the tests and report the results back to each school district.

The costs based on the contracted duties described above appear in Table 7.

Table 7: Estimated Annual State Administrative Costs for New Achievement Tests

Grade	Enrollment	Per Pupil Cost	Total Annual Cost
3 rd	145,000	\$20	\$2.90 million
4 th	145,000	\$20	\$2.90 million
5 th	145,000	\$30	\$4.35 million
6 th	145,000	\$30	\$4.35 million
8 th	145,000	\$30	\$4.35 million
Special Education	7,000	\$192	\$1.44 million
Total			\$20.29 million

NCLB provides about \$11.7 million in Ohio FY04 to pay these State costs along with the costs described in Table 5 for test development. These funds are not available to pay for local costs of test administration

The cost estimates in Table 7 do not include additional costs incurred by school districts in connection with the NCLB required tests. School districts will need procedures to distribute the tests to appropriate school buildings while maintaining adequate security. The districts will provide training for teachers or test proctors. State contracts cover the costs of generic training for the test administration, but each district will have specific instructions related to the handling of the tests in each school building. This specific training will occur at district expense.

Since the NCLB required tests must align with curriculum, teachers and administrators in each school district will spend some time adjusting curriculum to bring it in line with the new tests. School district teachers will provide the personnel required to administer the test. The opportunity cost of using teachers for this purpose rather than for instruction will appear later in this chapter. Other district costs will include the necessity to determine which pupils qualify for special arrangements because they have special needs. In other words, in addition to developing procedures for administering tests to pupils with disabilities, schools districts actually will apply those policies.

Similarly, the school districts will supply the personnel needed to provide special needs pupils with appropriate accommodations at the time of test administration. Also, school district personnel will spend time conducting the alternative assessments for the 1% of total enrollment with the most severe special needs. School district will collect the completed tests and transfer them to the test administration contractor who will score or grade the them. The contractor will provide scores to the State. The State will provide them to the school districts. School districts will incur costs related to the communication of the test results to pupils and parents.

No obvious methodology recommends itself for computing the local costs imposed by the NCLB test requirements. Table 8 makes an attempt to quantify these costs by identifying two general components.

Table 8: Estimated Annual School District Administrative Costs for New Achievement Tests

Cost Type	Estimated Amount
Special Education Accommodations	\$1.8 million
All Other Administrative Costs	\$3.5 million
Total School District Costs	\$5.3 million

“Special Education Accommodations” assumes that each special education pupil (including those who receive alternative assessments) requires an extra one-half hour of teacher time at \$23 per 77,000 special education pupils. While some pupils will not require any extra time or effort as a result of their disabilities, others will require more than the one-half hour allowance. This cost estimate does not include the cost of interventions to prepare pupils for the test. It estimates only the extra cost to administer the test for pupils with special needs, including time required to decide what special accommodations each pupil may require.

The “All Other Administrative Costs” category assumes that school districts will need one full-time equivalent employee to organize and implement the administration of the tests for every 10,000 pupils tested. Based on a population of 700,000 pupils, this method suggests 70 full-time equivalent employees with an estimated total payroll cost of \$50,000 per employee.

The NASBE estimated the annual cost of NCLB test administration with a range between \$25 and \$50 per pupil. The cost computed by combining Tables 7 and 8 would equal about \$25.6 million to test about 732,000 pupils, including those who qualify for alternative assessments. The total cost per pupil using this methodology equals about \$35 per pupil. That amount falls within the range estimated by NASBE, and it is closer to the lower end of that range.

3) Test Related Opportunity Costs

An opportunity cost occurs when some force compels the substitution of one activity for another. The loss of the option to continue an earlier activity is a cost imposed when a substitution must occur. For example, a person budgets \$600 per month for living expenses and of that amount allots \$50 for entertainment. In an unlucky month, illness forces this person to spend \$50 on prescription drugs rather than entertainment. The lost option to purchase entertainment represents the opportunity cost of the illness. The price of the prescription drugs enables the quantification of the opportunity cost.

The example presents a simple situation in which the value of the opportunity cost in dollars is easy to see.

NCLB imposes opportunity costs whenever its requirements change the object of expenditure by the State or school districts. Opportunity costs do not imply a value judgment about the relative merits of the earlier or later expenditure. In the example, the expenditure on prescription drugs was “better” than a recreational expenditure, but it still carried an opportunity cost.

a) Time – Each day spent in school has a value. Assuming 180 days of school for 1.8 million pupils, the average cost of school per pupil per day equals about \$40 in State and local operating revenues. This result is derived from total State and local expenditures of about \$12.9 billion. If NCLB requires pupils to spend two full days in grades 3, 5, 7, and 8 preparing for a proficiency test, the opportunity cost associated with those two days would equal about \$40 per day or a total of \$80. This cost represents the dollar value of those activities foregone by the requirement to take the proficiency test rather than to engage in some other educational activity. By this method, the opportunity cost of the NCLB proficiency test requirement equals about \$46 million.

b) Discretion – NCLB requires the State to participate in the National Assessment of Education Progress (NAEP), a national standardized achievement test. Ohio already participates in the NAEP, and, as a result, the requirement to participate has no substitution effect. Therefore, no opportunity cost attaches to the time spent taking the NAEP. However, the requirement to take an action previously taken voluntarily does have a cost in terms of foregone discretion. The State no longer can choose whether to participate in NAEP. Now, it must participate. The loss of discretion or freedom to make education policy at the State level has a cost, but it is not possible to place a dollar value on that cost.

c) Money – An opportunity cost exists where the direct expenditure of new dollars goes for a purpose other than the one for which a school district would have spent the money. For example, if a school district receives \$50,000 in additional funds in a given year, it might hire a new teacher, but NCLB dictates that it must offer proficiency tests, and the tests happen to cost about the same amount. The opportunity cost of the tests is the inability to hire the new teacher. It is difficult to track such substitutions in the complexity of school budgets even in the most favorable circumstances. In the current situation, the expenditures for the new proficiency tests have not occurred yet. Therefore, it is impossible to identify alterations in spending patterns.

d) Offsetting Savings – Many school districts may replace optional achievement or diagnostic tests with the mandatory State achievement test when NCLB requirements take effect. These districts would not have an opportunity cost as described in paragraph (a) above with respect to the time actually spent taking the examination. Opportunity costs still could occur where the district replaces an optional test requiring no preparation with the mandatory test for which the districts must prepare students. Such districts may experience some savings to the extent that they exchange a proprietary test

instrument with a cost for a free State test. The cost in such cases would result from the district’s loss of discretion to choose which test to offer.

B. Summary of Test Related Costs

The requirement to offer more proficiency tests has one-time test development costs, ongoing administration costs, and opportunity costs. Table 9 presents a summary:

Table 9: Summary - Test Related Costs of NCLB

Type of Cost	One-time Cost Amount	Continuing Cost Amount
Initial Test Development	\$9.1 million	0
Updating Test	0	?
Test Administration		\$25.6 million
Total	\$9.1 million	\$25.6 million

C. Other Administrative Costs

NCLB creates new obligations for the State and for school districts. The leverage to obtain compliance with the new obligations results from the money offered by the federal government to the State and its school districts under Titles I through VI of the ESEA. Failure to meet federal conditions means a denial of federal money.

Federal dollars under earlier versions of ESEA always came with conditions. The difference in the latest version of ESEA, i.e., NCLB, is that now receipt of federal dollars depends upon implementation of State and local actions throughout the education system rather than dependence upon the implementation of the federal programs themselves. In the past, Title I aid would require compliance with certain conditions connected with the actual use of that money. Under NCLB, the State and school districts must implement changes related to all students and not just the students who receive Title I benefits. For example, all pupils must take the new proficiency tests. All teachers must meet the “highly qualified” standard. All school districts where a failure to make “adequate yearly progress” occurs become liable for the consequences of that failure.

The broader scope of NCLB also means a broader recordkeeping mandate. The State and school districts must monitor teacher credentials and qualifications of private tutors (known as supplemental service providers). Professional development programs and certain educational programs in the schools must meet a higher standard by qualifying as “scientifically based.” The State must monitor compliance with requirements in NCLB related to parental notification.

NCLB imposes the following mandates on the State or school districts:

- 1) Adopt challenging academic content and achievement standards aligned with curriculum (includes the requirement to adopt science standards).

- 2) Adopt a statewide system for defining “adequate yearly progress.”
- 3) Adequate yearly progress data must be collected and evaluated with respect to achievement goals, including disaggregation of the data to evaluate achievement of economically disadvantaged pupils, pupils by racial groups, pupils with a disability, and pupils learning English.
- 4) Adopt specific achievement goals for pupils learning English.
- 5) Identify and track two achievement objectives in addition to proficiency test performance.
- 6) Implement annual English language proficiency assessments by FY03.
- 7) Adopt a system of annual State report cards and annual district report cards with both reports subject to specific requirements concerning detailed presentation of data by pupil subgroups and detailed reports concerning teacher qualifications, schools in improvement status, and actions taken to fix inadequate achievement.
- 8) Prepare information for parents about the qualifications and certification status of each teacher or paraprofessional who provides services to the parents’ children.
- 9) Monitor the implementation of consequences in school districts where adequate yearly progress fails to occur in two or more consecutive years.
- 10) Develop technical assistance for schools with inadequate performance.
- 11) Oversee providers of supplemental education services, including the development of objective standards for measuring provider performance.
- 12) Adopt a support system for low performance schools and a recognition system for high performance schools.
- 13) Monitor compliance with “highly qualified” teacher and “highly qualified” paraprofessional requirements.

While this list expresses the major administrative requirements imposed on the State and school districts by NCLB, it does not attempt to identify each separate duty implicit in each obligation imposed by federal law. No method exists to identify the separate costs associated with each of these requirements. The State already had implemented or planned to implement all or parts of some of the items listed here. For example, Ohio already has a system of State and district report cards. This system preceded NCLB. The new federal law adds details to the contents of the report cards already in use. No attempt was made in the preparation of this report to identify the marginal or incremental costs associated with such changes.

Chapter 2: Highly Qualified Teachers and Paraprofessionals

NCLB has three components associated with teacher quality and professional development. First, NCLB requires all teachers to become “highly qualified” by the end of the 2005-2006 school year. Second, paraprofessionals must achieve “highly qualified” status by the same year if they provide instructional services in programs funded with federal Title I dollars. Third, the State and its school districts may use Title II funds for professional development of teachers, but such expenditures must pay for “highly effective” professional development activities.

A. Highly Qualified Teacher Requirement

NCLB requires that teachers must:

- 1) Obtain a fully effective license without any licensure requirements waived for “emergencies” or on a “temporary” basis;
- 2) Earn a bachelor’s degree and pass a state test related to teaching skills and subject knowledge appropriate to the elementary curriculum for elementary school teachers;
- 3) Earn a bachelor’s degree and show competency in the subjects taught by them, or complete an academic major in the subject taught, or obtain a master’s degree in that subject or obtain advanced certification, in the case of middle and high school teachers;
- 4) Demonstrate competency in all subjects taught based on a state evaluation.

Generally, teachers who entered the profession in 1991 or later in Ohio rank as “highly qualified” *as long as they are teaching in the subject area for which they trained*. Ohio’s licensure standards exceed NCLB requirements already for these “new” teachers. Older teachers may not have aligned their professional development with current teaching assignments. These teachers can add appropriate coursework or pass the Praxis II examination to meet the highly qualified standard.

At the time NCLB was enacted in 2001, about 20% of Ohio teachers probably did not meet the “highly qualified” standard. This percentage implies about 25,000 teachers whose credentials failed the federal requirement. Generally, these teachers failed the standard because they could not demonstrate competency in one or more specific subjects taught by them. These teachers failed a technical definition for “highly qualified” status. In practical terms, they might or might not have performed with excellence or at least competently.

For example, under the federal definition of “highly qualified” a science teacher with a chemistry degree would not meet the requirement if she taught three sections of chemistry and one section of physics. The lack of demonstrated competency in physics would cause that teacher to fail the NCLB requirement.

By the end of the 2003-2004 school year, about one-half of those 25,000 teachers will have achieved highly qualified status. Therefore, by the end of the current year, about 12,500 teachers still will need to meet some aspect of the highly qualified teacher requirement.

B. Direct Costs

For teachers who do not yet meet the “highly qualified” standard, the State offers a variety of opportunities to achieve compliance with NCLB. The options include:

- 1) Passing the Praxis II examination;
- 2) Obtaining the equivalent of a college major in the appropriate subject area;
- 3) Obtaining a master’s degree in the subject area;
- 4) Completion of 90 hours of professional development as part of a plan designed designed and approved by the local professional development committee;
- 5) Achieving national board certification in a teaching assignment area;
- 6) Accumulating 100 points of experience, professional development, and related professional activities on the highly qualified teacher “rubric.” (The “rubric” is simply a scoresheet upon which a teacher records activities for which the State awards experience points.)

The difficulty of assigning a cost to these various routes to highly qualified status results from the difference in costs potentially associated with each option. For example, one teacher might sit for the Praxis II examination without any additional preparation. The direct cost for that teacher becomes the cost of the test itself. Praxis II assessments range in price from \$55 to \$110 apiece with most subject assessments priced about \$70.

Another teacher might complete 90 hours of professional development. The cost of this option might include the direct cost associated with the purchase of the professional development activity plus any opportunity cost incurred because the teacher misses one or more regular teaching days. The quantification of this opportunity cost could equal the cost to hire a substitute teacher for 90 hours.

The highest cost option for becoming highly qualified would occur in those cases where a teacher earns a master’s degree. Higher costs occur in this situation because two direct costs would result: the cost of education and the cost of the higher salary paid to the teacher who now holds a master’s degree.

Assuming that all 12,500 teachers who need to reach “highly qualified” status can accomplish that goal at minimal cost, the total cost would equal about \$875,000. That amount equals the production of 12,500 teacher times \$70 per teacher to take a Praxis II examination.

Alternatively, assuming that school districts must pay substitute teachers \$125 per day for 15 days (90 hours at 6 hours per day) of professional development for 12,500 teachers, the cost of achieving highly qualified status increases to about \$23 million

without considering direct costs associated with the purchase of the professional development activities themselves.

Finally, the advantage of a master’s degree for salary purposes averages about \$4,700 per year. If all 12,500 teachers obtained a master’s degree to achieve highly qualified status, the cost in additional salaries would equal about \$59 million. This computation also ignores the direct cost of tuition paid to earn the master’s degree.

The first two options impose one-time only costs for raising existing teachers to highly qualified status. The third option imposes a continuing cost because the new degree permanently would raise a teacher’s salary. Therefore, the marginal increase in salary would raise school districts’ costs every year in which that teacher continues to work at a higher compensation rate.

All three of the cost estimates presented here rest on some improbable assumptions. First, it is unlikely that all 12,500 teachers could sit for a Praxis II exam with no preparation. Also, some teachers may sit for more than one exam depending upon the teaching responsibilities assigned to them by their school district. Therefore, the first estimate probably understates the cost of achieving highly qualified status. Second, the 90 hours of professional development option would demand a greater effort from both school districts and teachers. If a teacher could achieve the required credentials with less effort, it would be rational to do so. Therefore, it appears unlikely that all 12,500 teachers would use this option. Third, for similar reasons, it seems even less likely that all 12,500 teachers would expend the extraordinary effort required to obtain a master’s degree when less demanding options are available.

The “rubric” scoresheet offers another potentially low cost option for achieving highly qualified status. However, to score the required points for professional development on the rubric also may result in costs. When the rubric scoresheet and other options are added to the three estimated alternatives above, it appears that the routes to highly qualified status include every cost outcome from minimal one-time costs to high continuing costs.

Table 10: Cost of Highly Qualified Teacher Requirement

Duration	Type of Cost	Number	Cost Estimate
One-time	Pro. Dev.; Sub Teacher	12,000	\$11.5 million/yr
Continuing	MA Degree; Higher Salary	500	\$2.3 million/yr

Table 10 summarizes an estimate of the costs associated with achieving the highly qualified teacher requirement. These estimates attempt to balance the factors associated with each of the options available to reach the required teaching credentials. The table assumes that any option chosen will involve some continuing education or professional development costs for each teacher. These one-time professional development costs would occur in two years – 2004-05 and 2005-06 so that all teachers would meet the highly qualified requirement by the end of the 2005-06 school year. One-time costs also would require the assignment of substitute teachers. The \$11.5 million cost estimate

assumes that 12,000 teachers will require an average of 42 hours of professional development apiece. It further assumes that the cost of professional development hours equals the sum of \$25 per hour in direct charges for the professional development activity plus \$125 per day for seven days to compensate a substitute teacher for the time spent in professional development activities. The total cost computed in this manner equaled about \$23 million. Divided into two years, the cost equaled \$11.5 million.

The continuing costs depend on the assumption that 500 teachers (4%) choose a master's degree as the route to highly qualified status. The product of these 500 teachers multiplied by the \$4,700 average premium for a master's degree yields an ongoing cost in higher salaries of \$2.3 million per year.

C. Other Costs

The preceding section estimated the cost of achieving the minimum requirement in NCLB that each teacher have highly qualified status in that teacher's subject area by 2005-06. This requirement has a direct dollar cost associated with the estimated 12,500 teachers who will not meet that requirement as of September 2004. Over the long run, NCLB's highly qualified teacher requirement will have other costs.

One type of cost is associated with teachers who want to switch from one subject area to another. Another type of cost limits the flexibility of school districts to make staffing decisions. Both types of costs will impose a continuing burden on teachers and districts. Together they exact a price measured by reduced efficiency.

For example, assume that a school district must hire a new science teacher. The district wants a science teacher to teach two sections of physics and three sections of chemistry. Two applicants apply for the position. One applicant has a double major in chemistry and physics. The other applicant has only a chemistry major. However, between the two applicants, the second has by far the stronger academic record and the more convincing recommendations. Nevertheless, NCLB compels the district to hire the inferior applicant if it must have a teacher "highly qualified" to teach both subjects because only the first applicant meets the law's technical definition of "highly qualified." The rigid subject matter requirements in the NCLB teacher qualifications provisions elevate form over substance to the extent that the law defines qualifications in a formal manner rather than according to actual performance. In this way, NCLB reduces the discretion of school districts in the hiring and staffing process. These restrictions have a cost in terms of reduced efficiency.

While higher formal qualifications may have some benefit in terms of raising the quality of teaching, their inflexibility also ossifies the school bureaucracy. It is not easy to quantify the impact of inefficiencies created in this manner. Over time, it seems reasonable to assume that school districts will find it necessary to upgrade the credentials of some teachers to enable those teachers to qualify to teach more than one subject area. Only with such expanded subject area credentials will the school district have the flexibility to address changes in staff assignments. If the cost of such "retooling" were

measured by the same method as used in the previous section by multiplying 7 days (42 hours) of professional development time by \$125 per day for a substitute teacher plus \$25 per hour in direct program costs, the statewide annual cost would equal over \$2 million per year if just one teacher for every 1,500 pupils obtained expanded “highly qualified” credentials each year.

D. Responsibility for Costs

While the NCLB requirement for highly qualified teachers does not directly require school districts to pay for the cost of upgrading teacher credentials, it does impose those costs. School districts will have the choice whether to pay some or all of the costs or to pass those costs to the teachers who must obtain additional professional development or incur other expenses to reach highly qualified status. In the short run, school districts could save money if they required the teachers affected by these provisions of NCLB to take necessary professional development activities on their own time and to pay for such activities “out-of-pocket” without reimbursement.

However, both the Governor’s Commission on Teaching Success and the State Board of Education have determined that school districts have an interest in recruiting and retaining good teachers. Teachers who fail the formal definition of “highly qualified” as set forth in NCLB may possess valuable skills and experience. They may be excellent teachers but not “highly qualified” teachers.

If school districts decide to pass on the costs of NCLB to teachers, they will make a policy decision to obtain short term cost savings at the risk of long term costs. A teacher whose school district passes on the cost of NCLB upgrading may exercise several options, including retirement, movement to another school district with a more generous upgrade policy, or change of career. In all three instances, the teacher would leave the district and create a vacant position. The consequent necessity to hire and mentor a new teacher would impose other costs to offset any initial savings. Moreover, if a school district requires a teacher to upgrade at the teacher’s own expense, the teacher has an incentive to maximize the payoff from that investment by earning a master’s degree. Again, the additional salary paid to the teacher would offset the short term cost savings obtained by refusing to pay for a lesser form of professional development.

The task of this paper is to identify costs associated with NCLB. The cost of raising all teachers to “highly qualified” status and the cost of maintaining that status in future years exists independently from the identity of the person or organization responsible for paying that cost. For this reason it is not essential to determine whether school districts or teachers will pay the “highly qualified” upgrade cost. It is important to note both that school districts could pass on to teachers this cost and that the decision to adopt such a pass-through policy could have important costs of its own.

E. Highly Qualified Paraprofessional Requirement

NCLB also establishes a “highly qualified” requirement for paraprofessionals. Unlike the highly qualified teacher requirement, which effectively applies to all teachers of academic subjects, the paraprofessional requirement applies only to those persons who provide instructional services subsidized with Title I federal funds. Data from the Bureau of Labor Statistics (United States Department of Labor) show that Ohio schools employ over 31,000 “teacher’s aides.” Many of these paraprofessionals do not provide instructional services. Thus, the number of paraprofessionals affected by the NCLB requirement appears to be relatively small compared to the total number of teacher’s aides. However, it was not possible to determine a reliable estimate of how many paraprofessionals actually fall within the scope of the federal requirements.

Paraprofessionals have three routes to achieve the required “highly qualified” credential.

- 1) Complete two or more years of college;
- 2) Earn an associate degree
- 3) Pass a competency test for education paraprofessionals.

The Education Testing Service offers a standardized examination for education paraprofessionals throughout the U.S. The test, called the “ParaPro Examination,” costs \$40. Even if all 31,000 teacher’s aides were reimbursed for the cost of the test, the total cost would equal only about \$1.2 million spread over three years (2003-04, 2004-05, 2005-06) or about \$400,000 per year. This estimate clearly would exaggerate the cost of the requirement since substantially fewer than 31,000 aides will need to take the test. Since some districts may incur training costs to assist paraprofessionals in test preparation, some additional costs may apply.

Considering the number of aides who will need to take the ParaPro Examination, a reasonable estimate for the total cost of the highly qualified paraprofessional requirement would equal a one-time cost of \$400,000 in 2003-04, \$300,000 in 2004-05, and another \$300,000 in 2005-06. This estimate assumes that about one-third of paraprofessionals must obtain the highly qualified credential, that each of these paraprofessionals receives a \$40 reimbursement for the cost of the ParaPro examination, and that each paraprofessional who sits for the test spends five hours in test preparation at a cost of \$11.00 per hour. Five hours of preparation allows two hours of preparation time for every hour of examination time.

F. “Highly Effective” Professional Development Activities

Prior to the enactment of NCLB, federal funds provided to school districts included about \$10 million in Eisenhower grants for professional development under Title II of the ESEA and about \$62 million in class size reduction funds provided under Title VI R. Both of those grants were eliminated in NCLB and replaced by a new Title II program under which Ohio will receive about \$105 million in FY04.

NCLB does not explicitly require the expenditure of any Title II funds for professional development. It clearly intends that these funds in part should assist school districts to pay for the cost of achieving the “highly qualified” credential for all teachers of core academic subjects in the district. Other permissible uses include expenditure for salaries of teachers and paraprofessionals and for “teacher advancement initiatives.”

With reference to the grant of Title II funds to local school districts, the Department of Education’s policy guidelines state:

Title II, Part A provides these agencies with the flexibility to use these funds creatively to address challenges to teacher quality, whether they concern teacher preparation and qualifications of new teachers, recruitment and hiring, induction, professional development, teacher retention, or the need for more capable principals and assistant principals to serve as effective school leaders.

Improving Teacher Quality, Academic Improvement And Teacher Quality Programs, Office Of Elementary And Secondary Education U.S. Department Of Education, Revised Draft, September 12, 2003

This language defines a broad and apparently flexible scope for the use of Title II funds. However, the grant of funds for “professional development” purposes has a catch. The use of Title II funds by school districts for professional development can occur only if the expenditures meet the federal requirement that the professional development meets the “highly effective” standards expressed in the following lengthy definition of “professional development.”

[Section 9101(34)] The term “professional development”:

1. Includes activities that:
 - a. Improve and increase teachers' knowledge of the academic subjects the teachers teach, and enable teachers to become highly qualified;
 - b. Are an integral part of broad schoolwide and districtwide educational improvement plans;
 - a. Give teachers, principals, and administrators the knowledge and skills to provide students with the opportunity to meet challenging State academic content standards and student academic achievement standards;
 - b. Improve classroom management skills;

- c. Are high quality, sustained, intensive, and classroom-focused in order to have a positive and lasting impact on classroom instruction and the teacher's performance in the classroom and are not 1-day or short-term workshops or conferences;
- d. Support the recruiting, hiring, and training of highly qualified teachers, including teachers who became highly qualified through State and local alternative routes to certification;
- e. Advance teacher understanding of effective instructional strategies that are:
 - i) Based on scientifically based research (except that this subclause shall not apply to activities carried out under Part D of Title II); and
 - ii) Strategies for improving student academic achievement or substantially increasing the knowledge and teaching skills of teachers; and
- f. Are aligned with and directly related to:
 - i) State academic content standards, student academic achievement standards, and assessments; and
 - ii) The curricula and programs tied to the standards described in subclause (a) [except that this subclause shall not apply to activities described in clauses (ii) and (iii) of Section 2123(3)(B)];
- g. Are developed with extensive participation of teachers, principals, parents, and administrators of schools to be served under this Act;
- h. Are designed to give teachers of limited English proficient children, and other teachers and instructional staff, the knowledge and skills to provide instruction and appropriate language and academic support services to those children, including the appropriate use of curricula and assessments;
- i. To the extent appropriate, provide training for teachers and principals in the use of technology so that technology and technology applications are effectively used in the classroom to improve teaching and learning in the curricula and core academic subjects in which the teachers teach;
- j. As a whole, are regularly evaluated for their impact on increased teacher effectiveness and improved student academic achievement, with the findings of the evaluations used to improve the quality of professional development;

- k. Provide instruction in methods of teaching children with special needs;
 - l. Include instruction in the use of data and assessments to inform and instruct classroom practice; and
 - m. Include instruction in ways that teachers, principals, pupil services personnel, and school administrators may work more effectively with parents; and
2. May include activities that:
- a. Involve the forming of partnerships with institutions of higher education to establish school-based teacher training programs that provide prospective teachers and beginning teachers with an opportunity to work under the guidance of experienced teachers and college faculty;
 - b. Create programs to enable paraprofessionals (assisting teachers employed by a local educational agency receiving assistance under Part A of Title I) to obtain the education necessary for those paraprofessionals to become certified and licensed teachers; and
 - c. Provide follow-up training to teachers who have participated in activities described in subparagraph (A) or another clause of this subparagraph that is designed to ensure that the knowledge and skills learned by the teachers are implemented in the classroom [Section 9101(34)].

Improving Teacher Quality, Academic Improvement And Teacher Quality Programs, Office Of Elementary And Secondary Education U.S. Department Of Education, Revised Draft, September 12, 2003

Several items in the definition have been underlined for special emphasis in this analysis of NCLB costs. These components of the definition of professional development require that professional development be:

- part of schoolwide and districtwide education improvement plans
- aligned with curriculum
- scientifically based
- “high quality, sustained, intensive, and classroom-focused in order to have a positive and lasting impact on classroom instruction and the teacher's performance in the classroom and are not 1-day or short-term workshops or conferences.”

The last requirement is especially provocative. What does it mean to require that professional development programs be “sustained?” This requirement suggests a commitment well beyond the current minimum two days of professional development.

Likewise “intensive” suggests a high level of commitment of effort if not time. Finally, the explicit rejection of “1-day or short-term workshops or conferences” clearly contemplates a greater commitment of time than current practice offers.

The non-binding policy guidelines do not quantify what these elements of the “professional development” definition mean. It seems reasonable to conclude that the references to “sustained” and “intensive” activities, as well as the insistence on classroom centered activities which “are not 1-day or short-term,” suggests activities recurring with frequency throughout the school year. A minimum of one day per month seems like one approach possibly consistent with the definition.

If one day per month were devoted to “highly effective” professional development, teachers would spend 54 hours per year in professional development activities. Current certification requirements mandate 180 hours of continuing education contact over a five year period or about 36 hours per year. The increase implied by monthly continuing education efforts suggests an increase of 18 hours or three days per year. If those three days are multiplied by 125,000 teachers, and the product of that multiplication is multiplied by \$125 per day as the price of substitute teachers, the cost equals about \$47 million.

The estimate understates the cost to the extent that it does not account for the direct cost of the professional development programs. NCLB explicitly requires that “highly effective” professional development programs must be “scientifically based.”

According to the United States Department of Education, “scientifically based research”

Means research that involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs; and

2. Includes research that--
 - a. Employs systematic, empirical methods that draw on observation or experiment;
 - b. Involves rigorous data analyses that are adequate to test the stated hypotheses and justify the general conclusions drawn;
 - c. Relies on measurements or observational methods that provide reliable and valid data across evaluators and observers, across multiple measurements and observations, and across studies by the same or different investigators;
 - d. Is evaluated using experimental or quasi-experimental designs in which individuals, entities, programs, or activities are assigned to different conditions and with appropriate controls to evaluate the

effects of the condition of interest, with a preference for random-assignment experiments, or other designs to the extent that those designs contain within-condition or across-condition controls;

- e. Ensures that experimental studies are presented in sufficient detail and clarity to allow for replication or, at a minimum, offer the opportunity to build systematically on their findings; and
- f. Has been accepted by a peer-reviewed journal or approved by a panel of independent experts through a comparably rigorous, objective, and scientific review [Section 9101(37)].

Improving Teacher Quality, Academic Improvement And Teacher Quality Programs, Office Of Elementary And Secondary Education U.S. Department Of Education, Revised Draft, September 12, 2003

The demanding requirements embedded in the definition of “scientifically based research” imply that the delivery of professional development grounded in such research will have significant costs. School districts’ “home grown” workshops, seminars, and training sessions will not meet such a high standard unless a school district itself actually invests in research activities or unless a school district invests in its own training staff and purchases appropriate scientifically based products for delivery to its teachers.

Based on the cost of satisfying existing State mandates for continuing education through the alternative route of graduate education credits, the program cost for an additional 18 hours of continuing education would equal about \$146 per teacher per year or about \$18 million. This cost is based on the determination that six graduate credit hours cost about \$1,459, and that the distribution of these six hours over the five year recertification period means an annual cost of about \$292. Since the additional continuing education dictated by a 1-day per month regimen implies half again as much continuing education as mandated by current State procedures, the incremental cost would equal one-half of \$292 or about \$146 per teacher per year.

G. Administrative Costs

NCLB requires that school districts receiving Title I funds must send a notification to parents about teacher qualifications. The notice must tell parents that they may request information about the qualifications of classroom teachers. Information available about qualifications would include the degree or degrees earned by the teacher, indications of whether the teacher has a provisional or emergency certificate, an indication of whether the teacher meets subject matter qualifications, and information about whether a paraprofessional provides instruction in the classroom.

The requirement to provide this information to parents implies a necessity to collect and maintain data about each teacher. Data collection, data management, and communications with parents all involve costs for school districts.

Federal law permits the State to reserve 2.5% of Title II funds for various state activities associated with reform of the certification system, teacher recruitment and retention, professional development opportunities, and numerous other specified activities related to improvement in skills of teachers and principals. The permissible uses of these funds are listed in section 2113 of NCLB, subparts (c)(1) through (c)(18) and subpart (d). It seems reasonable to assume that expenditures at the State level for implementation of such programs will require a comparable expenditure at the school district level. This assumption suggests an administrative expenditure related to Title II programs equal to about \$2.5 million at the State level and another \$2.5 million at the local level for a total administrative cost of about \$5 million out of \$105 million total Title II funds.

H. Summary of Costs Related to High Quality Teachers and Professional Development

Table 11 summarizes the costs estimated in connection with Title II programs in this chapter.

Table 11: NCLB Costs Associated with Highly Qualified Teachers and Highly Effective Professional Development

Cost Cause	Type	Annual Cost
High Quality Teachers and Paraprofessionals		
High quality teacher	One-time (2 yrs)	\$10.3 million
High quality paraprofessional	One-time (3 yrs)	\$0.3 million
High quality teacher new MA degree	Continuing	\$2.0 million
Retooling existing teachers	Continuing	\$2.0 million
Highly Effective professional development		
Pro Dev substitute teachers	Continuing	\$47.0 million
Program Costs	Continuing	\$18.0 million
Administrative Costs (State & Local)	Continuing	\$ 5.0 million
Adjustment for double counting	One-time (2 yrs)	(\$10.3 million)
Total cost FY04		\$72.3 million

The adjustment for “double-counting” on the table recognizes that the continuing investment in highly effective professional development will contribute to the acquisition of the credentials needed for “highly qualified” status in the case of those teachers who fall short of the NCLB mandate. In other words, the \$65 million for highly effective professional development includes the \$10.3 million per year needed to bring all teachers up to highly qualified status. This assumption is specifically tailored to make the cost estimates included in this report as conservative as possible. In fact, overlap may not exist between the professional development required to meet the “highly qualified” standard of NCLB and the requirement for continuing highly effective classroom related professional development.

The next table relates the costs estimated in Table 11 with the federal funds provided under Title II and with programs formerly funded under Title II.

Table 12: Relationship of Costs and Revenues under NCLB Compared to Earlier Federal Programs

Program	Cost	Revenue	Net
Pre-NCLB			
Title II – Eisenhower grants – Pro. Dev.	\$10.7		
Title VI R Pro Dev & Class Size Reduction	\$61.3		
NCLB			
Title II A and D	\$72.3	\$105.1	
Overlap Title II A and Eisenhower	(\$10.7)	0	
Total	\$133.6	\$105.1	\$28.5

Former federal law provided \$10.7 million in Title II Eisenhower grants for professional development for teachers in math and science. Former Title VI provided \$61.3 million in class size reduction funds although the funds provided under this program could be used for various professional development related purposes as well. NCLB eliminated both the programs and the funding for those programs.

The new federal law replaced old Titles II and VI-R with a new Title II. Title II-A provides funds in FY04 (\$97.3 million) for professional development related to teacher quality and the enhancement of the teaching profession and Title II-D includes in federal funds (\$7.8 million) to train teachers in the use of classroom technology. For purposes of the estimates in Table 12, Titles II-A and II-D funds can be combined as the \$105.1 million shown on the table.

New professional development related costs equal \$72.3 million as estimated earlier in this chapter. The total of \$105.1 million more than pays for these costs. However, the abandonment of pre-existing federal programs also has a cost. That cost equals \$72 million (Title VI-R plus former Title II) less the value of the Eisenhower grants. The assumption is that the \$10.7 million cost associated with the Eisenhower program has been incorporated into the \$72.3 million cost associated with new Title II-A and II-D programs. This leaves a net amount of \$61.3 million in pre-NCLB programs with no replacement funds. The excess of new Title II funds over new Title II costs (\$32.8 million) can replace part of the funding for these programs. However, the balance of \$61.3 million in old Title VI-R programs minus \$32.8 million leaves \$28.5 million in costs for which no replacement revenue exists under NCLB.

NCLB enacted a change in priorities by which Title II focuses on professional development rather than class size reduction. While school districts still can use Title II funds for class size reduction, the new professional development emphasis tends to pull

money away from the earlier priority. This shift in priorities may offer a better policy or a worse one. In either case, the decision to focus on professional quality has an opportunity cost. Money spent on highly effective professional development cannot fund small class size initiatives at the same time. The \$28.5 million cost shown on Table 12 quantifies that opportunity cost.

Chapter 3: Intervention

NCLB requires all schools and all school districts to reach 100% success rates on annual tests in reading and math in grades 3 through 8 and annual tests in science in one elementary school grade, one middle school grade, and one high school grade. Two other measures of performance also apply. Reading and math tests in all grades from 3 to 8 must begin by the 2005-06 school year. The science tests must begin by the 2007-08 school year. One measure, graduation rate, applies to high schools. This performance measure requires that high schools make annual improvements in graduation rates until all pupils who enter high school graduate. The other additional performance measure applies to elementary and middle schools and requires that these schools reach attendance rate standards.

To achieve the performance rates mandated for annual tests, the states have a phase-in period between 2002 through 2014. NCLB requires that each state set AYP goals for each year during the phase-in period. Accordingly, Ohio has established intermediate goals beginning with 40% passage rates in 2003 and increasing to 50% in 2005, 60% in 2008, 70% in 2011, 80% in 2012, 90% in 2013, and 100% in 2014. As used in this report, the terms “passage rate” or “success rate” mean the percentage of pupils who achieve the required passing score on an achievement test. The passage rate is not the percentage of correct answers. It is the percentage of pupils who answered enough answers correctly to “pass” the test.

Intervention costs equal the additional costs needed to improve performance on the designated measures from the baseline passage of rate (40%) through each of the intermediate targets with the ultimate goal of achieving 100% performance by 2014. There are two basic approaches to take when estimating the costs involved with complying with the requirements set forth in NCLB. The first would be to attempt year-by-year estimates of what it would cost for Ohio to achieve the AYP goals established for each year between 2002 and 2014. This approach suffers from two drawbacks, however. First, in order to make year-by-year cost estimates it is necessary to make assumptions regarding the pace at which intervention programs take effect, which adds an additional level of uncertainty to the analysis.

The second drawback of this approach is that it makes it more difficult to discern between the marginal impact of the NCLB requirements and the costs of Ohio’s own accountability system that was already in place at the time that NCLB was enacted. The objective of this study is to estimate the cost of intervention strategies to bridge the gap between Ohio’s current accountability standards which specify a 75% passage rate on proficiency tests in order for a school or district to be deemed “Excellent”, and the NCLB standards which specify a 100% percent passage rate on the mandatory achievement tests. For example, if a school had 100 fourth graders take a reading test, Ohio standards would rate the school’s performance as meeting the required standard if 75 pupils achieved a passing grade. Under NCLB requirements, all 100 pupils must achieve the passing grade. It is not the passing grade that has changed. It is the percentage pupils who must pass that has changed. This report estimates the *marginal cost* of moving

from Ohio's Accountability standards (75%) to the NCLB standards (100%). This implies that the cost of achieving Ohio's own standards is not part of the calculations of this study. This study does not imply that Ohio is or is not currently providing funding adequate to meet its prescribed outcomes, only that these costs are outside the scope of this study of the *marginal cost of NCLB*.

Consequently, the simplest approach to estimating the marginal cost of the NCLB legislation is to rely on a method which estimates the cost of bringing all students up to proficiency by the year 2014 without worrying about whether the AYP goals in any particular year along the way have been achieved.

A. Intervention Concept and Initial Assumptions

The methodology utilized in this report to estimate intervention costs is based on two fundamental assumptions. The first assumption is the premise that Academic Intervention in the first four grades provides the most efficient method to raise the performance of each pupil over that pupil's entire 13 year span of education. If the NCLB goals of bringing each and every student up to proficiency in reading, math and science by the year 2014 are to be met, the most cost-effective way to do so is with heavy intervention at the very earliest stages of a student's educational career. In this manner, an ounce of prevention is worth a pound of cure, and more intensive earlier intervention will pay off with decreased levels of intervention required in later years.

The second fundamental assumption is based on the economic concept of increasing marginal cost. As is explained in any introductory economics textbook, the law of diminishing returns implies that all production processes are characterized by the phenomenon by which, ultimately, it costs increasingly more to translate inputs into equal increments of output. In the context of academic intervention, this simply means it will cost more to raise students who are further away from a fixed criterion of "success" to a given level than it will to raise students who are closer to the cutoff point.

The estimation methodology has a series of steps. First, current data on student performance in Ohio is analyzed to determine how many students are currently below proficiency, how far away from attaining proficiency these students are, and what the characteristics of these students are. Next, this data analysis can be applied to the current K-3 population of students in Ohio and used to break these students into different groups requiring different levels of intervention in order to achieve proficiency. Finally, an array of intervention strategies can be mapped out for each group that can reasonably be expected to lead to academic success, and these strategies can be costed out. *At this point it is important to emphasize that this report describes a model for estimating costs. It does not attempt to include a comprehensive design of service delivery details.*

B. Estimate of the Number of K-3 Pupils who will Require Intervention

The first step needed to estimate the costs of intervention necessary to meet the goals of the No Child Left Behind Act is to analyze the most recent available performance data of Ohio's students. Table 13 below presents data showing the number of pupils who failed to achieve proficiency on the reading and math portions of Ohio's 4th and 6th grade proficiency test in FY03. These students are broken down into quartiles according to how close their scaled score was to the passing level on each test. The scaled score quartile ranges are defined in Table 14 below.

Table 13: Number of Pupils in each Proficiency Test Scaled Score Quartile, FY03

Scaled Score Quartile	Grade 4 Reading	Grade 4 Math	Grade 6 Reading	Grade 6 Math
Alternate Assessment	N=2300	N=2228	N=2193	N=2135
Quartile 1 (Q1)	N=9708	N=11,567	N=12,313	N=17,602
Quartile 2 (Q2)	N=11,184	N=14,678	N=11,544	N=15,918
Quartile 3 (Q3)	N=11,688	N=13,278	N=12,090	N=15,714
Quartile 4 (Q4)	N=13,047	N=16,214	N=12,801	N=16,813
Total Failing Test	45,627	55,737	48,748	66,047
Students Passing Test	90,544	81,793	85,603	73,517
Total Students*	136,171	137,530	134,351	139,564
Percent Failing	33.5%	40.5%	36.3%	47.3%

*The total number of students does not include those who took alternate assessments nor those who were exempted from the tests for a variety of reasons.

Table 14: Scaled Score Quartile Range Definitions

Scaled Score Quartile	Grade 4 Reading	Grade 4 Math	Grade 6 Reading	Grade 6 Math
Quartile 1	<195	<184	<185	<166
Quartile 2	195-204	184-196	185-198	166-179
Quartile 3	205-210	197-206	200-209	180-189
Quartile 4	211-216	208-217	211-219	190-199
Passing Score	217	218	222	200

The data in Table 13 can be used to estimate the number of students currently in grades K-3 who would likely require additional intervention services beyond what is currently provided in order to achieve proficiency in the new testing program required by NCLB.

The average number of students failing to achieve proficient scores on the 4th and 6th grade reading test is roughly 35%. Similarly, the average number of students failing to achieve passing scores on the 4th and 6th grade math proficiency test was roughly 44%. In order to be conservative in the estimation process, slightly lower percentages of 34.3% for reading and 43% for math were applied to the total number of students in grades K-3

during the FY03 school year to arrive at an estimate of the number of students who could benefit from additional intervention services beyond those currently provided.

Table 15: Number of FY03 Pupils in Grades K-3 Estimated to Require Reading Intervention, by Performance Quartile

Grade	Total # of Students	Quartile 1 (lowest)	Quartile 2	Quartile 3	Quartile 4 (highest)
Kindergarten	126,039	10,808	10,808	10,808	10,808
First	130,735	11,210	11,210	11,210	11,210
Second	131,101	11,242	11,242	11,242	11,242
Third	133,180	11,420	11,420	11,420	11,420
K-3 Total	521,055	44,680	44,680	44,680	44,680

Table 16: Number of FY03 Pupils in Grades K-3 Estimated to Require Math Intervention, by Performance Quartile

Grade	Total # of Students	Quartile 1 (lowest)	Quartile 2	Quartile 3	Quartile 4 (closest to passing)
Kindergarten	126,039	13,549	13,549	13,549	13,549
First	130,735	14,054	14,054	14,054	14,054
Second	131,101	14,093	14,093	14,093	14,093
Third	133,180	14,317	14,317	14,317	14,317
K-3 Total	521,055	56,013	56,013	56,013	56,013

While Tables 15 and 16 depict the estimated number of students expected to require intervention, not all of these students will be included in the cost estimates in this study. This is because the marginal cost nature of this analysis requires that only the lowest performing 25% of the students (in both math and reading) are to receive intervention services as a result of NCLB.

The total number of students in grades K-3 is 521,055. 25% of this figure is 130,264. Therefore, the appropriate methodology is to start with the students in quartile 1, continue through quartile 2, and then include exactly enough students from quartile 3 so that 130,264 students are to receive intervention in both math and reading.

For reading: $130,264 - (44,680 + 44,680) = 40,904$ students from quartile 3.

For math: $130,264 - (56,013 + 56,013) = 18,238$ students from quartile 3.

In each case, the number of students is spread proportionately across each grade.

Tables 17 and 18 provide the new estimates of the number of students needing reading and math intervention as a result of NCLB in each grade and in each quartile.

Table 17: Number of FY03 Pupils in Grades K-3 Estimated to Require Reading Intervention, Adjusted to Total 25%, by Performance Quartile

Grade	Quartile 1 (lowest)	Quartile 2	Quartile 3	Quartile 4
Kindergarten	10,808	10,808	9894	0
First	11,210	11,210	10,203	0
Second	11,242	11,242	10,292	0
Third	11,420	11,420	10,455	0
K-3 Total	44,680	44,680	40,904	0

Table 18: Number of FY03 Pupils in Grades K-3 Estimated to Require Math Intervention, Adjusted to Total 25%, by Performance Quartile

Grade	Quartile 1 (lowest)	Quartile 2	Quartile 3	Quartile 4
Kindergarten	13,549	13,549	4,412	0
First	14,054	14,054	4,576	0
Second	14,093	14,093	4,589	0
Third	14,317	14,317	4,662	0
K-3 Total	56,013	56,013	18,238	0

The rigid limit on the number of pupils served in the three lowest quartiles of failing pupils is a device needed in this report to enable a computation of the marginal cost of NCLB. In practice, the delivery of services to pupils in need of assistance would not necessarily use such inflexible criteria. *Once again, it is important to emphasize that this report describes a model for estimating costs. It does not attempt to include a comprehensive design of service delivery details.*

C. Characteristics of the Performance Quartiles

Tables 19-22 summarize the characteristics of the students in each performance group on each of the 4 proficiency tests studied here.

Table 19: 2003 Grade 4 Reading Characteristics of Students by Performance Level

Scaled Score Range	Number of Students	% Econ. Disadvantaged	% Students with Disabilities	% LEP	% Students not in Subgroup*	% Tested without Accommodations
Alternate Assessment	N=2300	55.8%	All	1.3%	--	--
Zero-194 (Q1)	N=9,708	67.9%	56.3%	2.5%	11.8%	60.1%
195-204 (Q2)	N=11,184	57.2%	28.8%	1.7%	28.4%	80.9%
205-210 (Q3)	N=11,688	50.5%	18.6%	1.4%	38.6%	88.7%
211-216 (Q4)	N=13,047	43.4%	14.3%	1.0%	47.6%	91.8%
Proficient	N=77,670	27.2%	6.1%	0.8%	68.1%	97.2%
Advanced	N=12,874	16.9%	3.5%	0.6%	80.1%	98.7%

* For the purposes of this table, subgroup does not refer to student race or ethnicity.

Table 20: 2003 Grade 4 Math Characteristics of Students by Performance Level

Scaled Score Range	Number of Students	% Econ. Disadvantaged	% Students with Disabilities	% LEP	% Students not in Subgroup*	% Tested without Accommodations
Alternate Assessment	N=2228	56.7%	All	1.3%	--	--
Zero-183 (Q1)	N=11,567	68.2%	45.6%	2.0%	15.3%	67.3%
184-196 (Q2)	N=14,678	55.4%	23.7%	1.3%	32.5%	84.6%
197-206 (Q3)	N=13,278	47.0%	16.1%	1.1%	43.6%	90.2%
208-217 (Q4)	N=16,214	39.0%	12.3%	0.9%	53.3%	93.1%
Proficient	N=59,063	26.1%	7.1%	0.8%	68.7%	96.6%
Advanced	N=22,700	15.9%	3.8%	0.9%	80.5%	98.4%

* For the purposes of Tables 19-22, “Subgroup” refers only to students with disabilities, economically disadvantaged students, and limited English proficient students. It does not refer to student race or ethnicity.

Table 21: 2003 Grade 6 Reading Characteristics of Students by Performance Level

Scaled Score Range	Number of Students	% Econ. Disadvantaged	% Students with Disabilities	% LEP	% Students not in Subgroup*	% Tested without Accommodations
Alternate Assessment	N=2193	57.8%	All	1.6%	--	--
Zero-183 (Q1)	N=12,313	63.0%	55.5%	2.5%	15.0%	57.5%
185-198 (Q2)	N=11,544	54.2%	28.7%	1.4%	30.3%	79.3%
200-209 (Q3)	N=12,090	45.8%	18.5%	1.1%	42.4%	87.5%
211-219 (Q4)	N=12,801	39.5%	12.4%	0.9%	52.1%	91.8%
Proficient	N=48,931	26.6%	5.8%	0.5%	69.0%	96.7%
Advanced	N=37,212	15.5%	2.2%	0.3%	82.6%	99.1%

Table 22: 2003 Grade 6 Math Characteristics of Students by Performance Level

Scaled Score Range	Number of Students	% Econ. Disadvantaged	% Students with Disabilities	% LEP	% Students not in Subgroup*	% Tested without Accommodations
Alternate Assessment	N=2135	57.4%	All	1.6%	--	--
Zero-165 (Q1)	N=17,602	62.1%	44.0%	1.5%	19.8%	66.4%
166-179 (Q2)	N=15,918	50.0%	22.1%	1.1%	37.8%	84.7%
180-189 (Q3)	N=15,714	40.5%	13.5%	0.7%	50.9%	90.8%
190-199 (Q4)	N=16,813	34.4%	9.5%	0.8%	59.3%	93.9%
Proficient	N=64,642	20.6%	4.6%	0.6%	75.6%	97.4%
Advanced	N=8,875	9.0%	1.5%	0.7%	89.3%	99.4%

In each of the four tests, the percentage of students who are economically disadvantaged, Limited English Proficient (LEP), and/or are students with disabilities increases as the test score range falls further and further from the passing level. The pattern is most pronounced for the bottom performance quartile, and is particularly true for the category of students with disabilities where the percentage in quartile 1 is roughly twice that of the next highest performing quartile on each of the four tests. This same pattern can also be seen with respect to the summary measure of the percentage of students who are neither economically disadvantaged, disabled, or limited English proficient. This percentage is roughly 3-4 times higher for the performance quartile closest to passing, as it is in the lowest performance quartile. This exact same pattern is also seen for the percentage of students who are tested without any accommodations consistent with an IEP or for other educational reasons.

The implication of the findings in Tables 19-22 is that the lowest performing students are also predominantly those who require the most assistance to overcome the adversities in their lives. From a cost standpoint, it will be increasingly expensive to bring students up to proficiency as we move further away from the passing score. Furthermore, the cost will be particularly high for the students in the lowest performing quartile, who will require the greatest array of interventions.

D. Definition of the Intervention Program

Once the number of students who will need intervention has been estimated, it is necessary to define the intervention strategies that districts can adopt in order to achieve the performance targets mandated by NCLB. These programs may include the following steps:

1. Curriculum realignment in response to new achievement tests
2. Increased utilization of diagnostic assessments of at-risk students to identify academic problems at an early stage and continually monitor academic progress
3. In-school intensive academic intervention programs
4. Summer school academic intervention programs (including transportation)
5. After school academic intervention programs (including transportation)
6. Weekend or after school proficiency test clinics (including transportation)
7. Coordination of available resources to make students “ready to learn” and to keep them in that condition
8. Parent engagement initiatives to foster support of school-based academic initiatives
9. Professional Development targeted toward more effective intervention

With the exception of curriculum realignment, these intervention initiatives are all on-going in nature. It is fully expected that districts will make differing local decisions regarding the extent to which they adopt the various intervention strategies listed above. It is also understood that many, if not all, districts already have programs in place that incorporate elements from each of the components listed above. There is no data,

however, which details the extent to which districts currently address intervention. Consequently, for the purpose of this study it is necessary to describe a basic intervention plan focused on the grades K-3 population and compute its average cost across the state. *Once again, this report describes a model for estimating costs. It does not attempt to include a comprehensive design of service delivery details.*

The following assumptions were utilized in order to develop the basic intervention plan:

- 1) Curriculum realignment and weekend or after school proficiency test clinics are already in place to a sufficient degree across the state that their inclusion as a response to NCLB is not warranted.
- 2) The professional development activities required by the state apart from NCLB, along with the NCLB requirements are sufficient to encompass professional development targeted toward more effective academic intervention for low-achieving students.
- 3) The degree of intervention required will increase for each quartile of students as the student performance level moves further away from the passing level. This is due both to the fact that the students require more improvement in order to reach proficiency, and because these students are increasingly characterized as economically disadvantaged, Limited English Proficient, and/or are students with disabilities. Increasing intensity of service required will be primarily reflected through reductions in the pupil/teacher ratio of intervention programs provided to the students in the lowest performing quartiles.
- 4) The intervention cost estimates in this report are predicated on the assumption that children will begin kindergarten in the future at roughly the same state of academic readiness as is the case currently. Significant investment in early childhood education that results in better preparation of students entering kindergarten can be expected to reduce the intervention cost estimates calculated in this study.
- 5) While students with disabilities are included in the NCLB standards and are specifically identified as a subgroup, no explicit estimate is made of the costs of bringing special education students up to the performance standards. These students are included in the estimates of intervention cost, but on an equal basis with other students at similar performance levels. Both state and Federal law mandates that students with disabilities be provided with needed services. The extent to which current federal, state and local funding fails to achieve this is outside the scope of this study.
- 6) The most basic intervention program is considered to be summer school. This is consistent with research which suggests that lengthening the school year is an effective strategy for helping students who are below grade level. By providing a summertime learning environment, at-risk students are expected to continue gains made during the regular academic year, rather than falling back as is frequently the case. For the purposes of this study, 120 hours of summer school (4 hours a day, 5 days a week, for 6 weeks) is considered to be the standard duration for summer study in a single subject area. Note that students who are deemed at-risk in both the math and reading areas will receive 120

hours of summer school *in each subject area* (the exact structure of how to provide these hours will be left to the discretion of individual school districts).

7) After school intervention programs are considered to be the next most basic form of intervention. This is consistent with the idea of both an extended school day for students who need extra assistance, and with the idea of supplemental services that are mandated as one of the “consequences” in schools and districts that are deemed “In Improvement”. For the purposes of this study, an additional 1 hour per day for 32 weeks per year is considered to be the appropriate length of time to extend the school day. Choosing 32 weeks instead of 36, allows time for initial assessment of student needs at the beginning of the year. The pupil/teacher ratios used for summer school will also be used for after school intervention services.

8) Intensive in-school academic intervention is considered to be the third basic form of academic intervention. This may strike some as curious because it would seem logical to attempt to help students during the course of the normal school day before providing assistance over the summer or after normal school hours. This idea is in fact so logical that many students are currently receiving additional academic help during the normal school day, paid for through state, local and federal funds. The in-school interventions included here are intended to supplement rather than replace the services currently provided. Daily instruction is to be provided on a basis of one teacher to one or two students, depending on the performance quartile that the student belongs to. This paradigm is consistent with that of many programs currently in use.

9) Since the effectiveness of summer school and after-school programs is critically dependent upon the attendance of targeted students, funding for transportation (based on average cost and ridership during the school year) should also be included in the cost estimates. In the case of after-school programs it is assumed that existing transportation schedules can be adjusted to transport these students home at a later hour without significant additional cost.

10) Many of the lowest performing students suffer problems that are more than academic in nature. For this reason, coordination of available academic and non-academic services (again as a supplement to any services provided currently) is prescribed as increasingly necessary for the lowest performing students.

11) Finally, research has demonstrated that intervention programs are most effective if the particular needs of students are assessed at an early stage and the progress of participants is continually monitored throughout the duration of the program. A program of frequent assessment throughout the school year allows schools to both continually monitor the progress of individual students and also to identify new learning issues in a more timely manner than would occur with an assessment program that was implemented only at the opening and closing of a particular school year. Consequently, the assessment program described here goes beyond the early assessment program that state is currently implementing and accordingly merits inclusion in the intervention cost estimates here.

The various intervention strategies for serving students in each quartile are summarized in Table 23 below.

Table 23: Reading and Math Intervention Services by Quartile, Kindergarten through 3rd Grade

Intervention Service Provided	Quartile 1 (lowest performing)	Quartile 2	Quartile 3	Quartile 4
Summer School Duration	6 weeks, 5 days, 4 hours/day (120 hrs.)	120 hours	120 hours	None
Summer School Student/Teacher Ratio	4:1 in K and 1 st 5:1 in 2 nd and 3 rd	8:1 in K and 1 st 10:1 in 2 nd and 3 rd	10:1 in K and 1 st 12:1 in 2 nd and 3 rd	None
Extended School Day Duration	32 weeks per year 5 hours per week	32 weeks per year 5 hours per week	None	None
Extended School Day Student/Teacher Ratio	4:1 in K and 1 st 5:1 in 2 nd and 3 rd	8:1 in K and 1 st 10:1 in 2 nd and 3 rd	None	None
Intensive In-School Intervention	2.5 hours per week, 1:1 ratio	2.5 hours per week, 2:1 ratio	2.5 hours per week, 4:1 ratio	None
Academic Coordination	1 hour per week	Half hour per week	None	None
On-going Assessment	All Students	All Students	All Students	None

Table 23 shows that students in Quartile 3 are expected to become proficient as a result of a combination of summer school and intensive in-school academic intervention. The ratio of students to teachers in the provision of each of these programs is largest for this quartile.

Students in Performance Quartiles 1 and 2 are expected to benefit from an extended school day in addition to attending summer school and receiving intensive intervention through the course of the school day. The student/teacher ratio for each of the three intervention programs is lowest for the Quartile 1 students. This is consistent with the critical assumption that the marginal cost of successful intervention with these students will be highest. Student/teacher ratios are also lower for students in kindergarten and 1st grade than they are for students in 2nd and 3rd grades. This is consistent with the cost assumption that more intensive intervention at an earlier age will result in less intensive intervention needed at later ages.

Students in these two quartiles will also be eligible to receive weekly academic coordination services. “Academic coordination services” mean intensive one-to-one supervision of a pupil’s progress by a teacher or other professionals designed to shepherd the pupil through the education environment, to work with the student and his or her family to maximize the pupil’s utilization of available academic and other opportunities, and to identify and address performance and learning problems at an early stage. It must be emphasized that the cost of these intensive services relates only to the pupils whose performance places them in the lowest two quartiles of failing pupils. The pupils who receive academic coordination services are the pupils in the two groups furthest from achieving a passing score.

Finally, students in all three quartiles will receive the benefits of early and continued assessment of their academic progress.

E. Estimating the Costs of Intervention

Cost estimates for the intervention programs described above were developed in the following manner:

1) Teacher and Instructional Assistant Salaries

Teachers are assumed to make an average of \$30 per hour including benefits. This is based upon an estimated wage of \$24/hour plus 25% additional for benefits. The \$24 per hour wage equates to an annual salary of \$30,240 based on 180 school days of 7 hours in length. A teacher salary of \$30,000 is significantly lower than the average teacher's salary, but the lower salary allowance is used here for two reasons. First, it seems likely that summer school teachers, teachers working in after school tutoring programs and new teachers needed for in-school intervention will have less than average experience. Second, the lower allowance leads to a more conservative estimate of each intervention program's cost.

The average wage for an instructional assistant in each classroom is assumed to be \$13.50/hour including benefits (based on a wage of \$11/hour plus 23% in benefit costs).

2) Transportation Costs

Transportation costs were computed from FY02 data in the following manner:

- A) Compute the total number of bus riders in the state (1,157,242).
- B) Compute the total Transportation Cost as determined for school funding purposes (Type 1 plus Type 2) (\$510,798,190)
- C) Divide the total cost from step B by the total of bus riders from step A (\$441.39). This equals the average annual cost per bus rider.
- D) Divide the result in step 4 by 180 days. (\$2.45) This result equals the cost per bus rider per day in FY02. In other words, if a pupil rides the bus, it costs his/her school district an average of \$2.45 per day to transport that pupil. This \$2.45 includes both the State's contribution in the form of Transportation Aid and the district's formula contribution to the extent not covered by State transportation aid.
- E) The statewide average bus rider percentage equals 60%, however analysis of the FY03 4th and 6th grade proficiency results showed that roughly one third of the students in Quartiles 1-3 were from large urban districts where the percentage of students who ride the bus is only about 35%. Therefore, it seems reasonable to assume that about 50% of pupils requiring intervention statewide will require bus transportation.

Therefore the per pupil per day transportation cost = $\$2.45/2 = \1.225

3) Summer School Cost

The per pupil cost of summer school can be calculated in accordance with the following assumptions (along with the transportation cost and teacher and instructional assistant salary levels discussed above):

- 1) Summer school is 4 hours per day, 5 days a week, for 6 weeks =120 hours
- 2) Students attend either for reading, math, or both
- 3) Average building capacity is set at 200 students.
- 4) Teachers require two 7 hour days of training for summer school at \$10/hour
- 5) A principal, administrative assistant and custodian/security person is needed in each building.
- 6) The principal is assumed to receive an average of \$4000 per summer session
- 7) The secretary makes \$10 per hour which is \$1200 over 6 weeks
- 8) The custodial/security costs are \$15 per hour which is \$1800 over 6 weeks

Summer School Administrative Costs

Principal + Secretary + Custodial/Security costs
 $\$4000 + \$1200 + \$1800 = \7000
 $\$7000/200$ students per building = **\$35 per student**

Summer School Transportation Costs

$\$1.225$ per student/per day * 30 days = **\$37 per pupil**

The only factor that varies across performance quartile is the prescribed student/teacher ratio. From Table 23, the ratios for computing classroom costs for each quartile and grade level are as follows:

Intervention Service Provided	Quartile 1 (lowest performing)	Quartile 2	Quartile 3
Summer School Student/Teacher Ratio	4:1 in K and 1 st 5:1 in 2 nd and 3 rd	8:1 in K and 1 st 10:1 in 2 nd and 3 rd	10:1 in K and 1 st 12:1 in 2 nd and 3 rd

The rationale for these ratios was arrived at by working backwards from a pupil/teacher ratio of 15:1. While the research on the efficacy of reducing class-size is by no means clear cut, there has been evidence to support the notion that class sizes of 15 or less are correlated with increases in student achievement. Because many of these studies are based on heterogeneous groups of students, rather than cases where all of the students are in need of intervention, it is assumed here that a starting point of 12:1 (quartile 3, 2nd and 3rd grade) with reductions for lower ability quartiles and lower grades is reasonable for the purpose of estimate intervention costs here.

Summer School Classroom Costs:

Total Teachers Hours = 4 hours * 5 days * 6 weeks = 120 hours

120 hours * \$30 per hour = \$3600 per teacher

Instructional Assistant Cost = 120 hours * \$13.50 per hour = \$1620 per aide

Teacher Training Costs = 14 hours * \$10/hour = \$140 per teacher

Total Classroom cost = \$3600 + \$1620 + \$140 = **\$5360/classroom**

Per pupil classroom costs are computed by simply dividing the \$5360 cost by the number of pupils in each grade for each quartile. For example:

Quartile 1 K-1 Per Pupil Classroom Cost = \$5360/4 = **\$1340/pupil**

Total Costs of Summer School

The classroom cost for the other quartiles can be found in the same manner. Table 24 provides a summary of the per pupil costs of summer school for each quartile and grade level.

Table 24: Per Pupil Cost of Summer School, by Quartile

Summer School Component	Quartile 1 (lowest performing)	Quartile 2	Quartile 3
Administration	\$35	\$35	\$35
Transportation	\$37	\$37	\$37
K-1 st Classrooms	\$1340	\$670	\$536
2 nd -3 rd Classrooms	\$1072	\$536	\$447
K-1st Total Cost	\$1412	\$742	\$608
2nd-3rd Total Cost	\$1144	\$608	\$519

To compute the total cost of summer school for each quartile it is only necessary to multiply the per pupil costs in the bottom two rows of Table 24 times the number of students in each grade in each quartile for both math and reading (found in Tables 17 and 18).

The total number of kindergartners and 1st graders in Quartiles 1 and 2 requiring reading and math intervention as found in Tables 17 and 18 =
 10808 + 11,210 + 13,549 + 14,054 = 49,621

The total number of 2nd and 3rd graders in Quartiles 1 and 2 requiring reading and math intervention as found in Tables 17 and 18 = 11,242+ 11,420 + 14,093 + 14,317 = 51,072

The total number of kindergartners and 1st graders in Quartiles 3 requiring reading and math intervention as found in Tables 17 and 18 =
 9894 + 10,263 + 4412 + 4576 = 29,145

The total number of 2nd and 3rd graders in Quartile 3 requiring reading and math intervention as found in Tables 17 and 18 = 10,292+ 10,455 + 4589 + 4662 = 29,998

Table 25 Total Cost of Summer School, by Quartile

Summer School Component	Quartile 1 (lowest performing)	Quartile 2	Quartile 3
K-1 st Total Cost	\$70,064,852	\$36,818,782	\$17,720,160
2 nd -3 rd Total Cost	\$58,426,368	\$31,051,776	\$15,568,962
Total Cost	\$128,491,220	\$67,870,558	\$33,289,122

4) Extended School Day Cost

The following assumptions describe the after-school tutoring intervention program:

- 1) An extended school day is only prescribed for students in Quartiles 1 and 2
- 2) Students attend either for reading, math, or both
- 3) 32 weeks per year
- 4) 5 hours per week (the configuration to be left to the discretion of the school or district)
- 5) Transportation should be provided, however no additional marginal cost is computed since these students are already at school. In some districts the need to transport these pupils home at a later hour may result in additional costs but these are likely to be fairly small.
- 6) Average teacher compensation of \$30 per hour including benefits
- 7) As described in Table 23, student/teacher ratios are as follows:

Intervention Service Provided	Quartile 1 (lowest performing)	Quartile 2	Quartile 3
Extended School Day Student/Teacher Ratio	4:1 in K and 1 st 5:1 in 2 nd and 3 rd	8:1 in K and 1 st 10:1 in 2 nd and 3 rd	None

Cost for Quartile 1

Teacher Hours = 32 weeks * 5 hours/week = 160 hours
 Teacher Cost = 160 hours per year * \$30/hour = \$4800

Kindergarten and Grade 1 Per Pupil Teacher Cost = \$4800/4 = **\$1200/pupil**
 Grade 2 and 3 Per Pupil Teacher Cost = \$4800/5 = **\$960/pupil**

The total number of kindergartners and 1st graders requiring reading and math intervention as found in Tables 17 and 18 = 10808 + 11,210 + 13,549 + 14,054 = 49,621

The total number of 2nd and 3rd graders requiring reading and math intervention as found in Tables 17 and 18 = 11,242+ 11,420 + 14,093 + 14,317 = 51,072

K-1 Total Cost = 49,621 pupils * \$1200/pupil = **\$59,545,200**

Grade 2-3 Total Cost = 51,072 pupils * \$960/pupil = **\$49,029,120**

Total Quartile 1 Cost = \$59,545,200 + \$53,279,040 = \$108,574,320

Cost for Quartile 2

Teacher Cost = 160 hours per year * \$30/hour = \$4800

Because the student/teacher ratios are twice as large as for Quartile 1, the cost for Quartile 2 will be half as much.

Kindergarten and Grade 1 Per Pupil Teacher Cost = \$4800/8 = **\$600/pupil**

Grade 2 and 3 Per Pupil Teacher Cost = \$4800/10 = **\$480/pupil**

K-1 Total Cost = 49,621 pupils * \$600/pupil = **\$29,772,600**

Grade 2-3 Total Cost = 51,072 pupils * \$480/pupil = **\$24,514,560**

Total Quartile 2 Cost = \$29,772,600 + \$24,514,560 = \$54,287,160

5) Intensive In-School Academic Intervention

The following assumptions characterize the in-school intervention program:

- 1) Quartile 1: 2.5 hours per week, 1 student per teacher
Quartile 2: 2.5 hours per week, 2 students per teacher
Quartile 3: 2.5 hours per week, 4 students per teacher
- 2) 1 teacher has 30 hours available per week for this service, so in
Quartile 1: one teacher can serve 12 students
Quartile 2: one teacher can serve 24 students
Quartile 3: one teacher can serve 48 students
- 3) Teacher cost = \$30,000 per year
- 4) Students eligible to receive intervention in reading, math, or both
- 5) There are 100,693 students in quartiles 1 and 2 (4 grade levels, both math and reading intervention)
- 6) There are 59,142 students eligible in quartile 3 (because we are only costing out the lowest 25% of the students)

Costs are calculated by computing the number of teachers needed to serve the students in each quartile. Because the pupil/teacher ratio doubles from Quartile 1 to Quartile 2, the cost in Quartile 2 will be half that of Quartile 1. The cost drops by more in quartile 3 because the pupil/teacher ratio doubles and also because the number of students receiving the intervention is roughly 40% lower).

Quartile 1

100,693 pupils/12 pupils per teacher = 8391 teachers needed

8391 teachers * \$30,000/teacher = **\$251,730,000**

Quartile 2

100,693 pupils/24 pupils per teacher = 4196 teachers needed

4196 teachers * \$30,000/teacher = **\$125,880,000**

Quartile 3

59,142 pupils/48 pupils per teacher = 1232 teachers needed
1232 teachers * \$30,000/teacher = **\$36,960,000**

6) Academic Coordination Services

Costs for providing intensive academic coordination to students can be computed according to the following assumptions:

- 1) Assume that students in Quartile 1 require 1 hour of services per week, and Students in Quartile 2 require half an hour of services per week
- 2) Assume the average hourly cost of a teacher or other professional to be \$36/hour This cost is presumed to be higher than the teacher cost assumed for summer school and after school services because a more experienced teacher will be required. However, in order to be conservative, the cost still was estimated at somewhat less than the average teacher salary and without adding the employer's cost of health insurance and other benefits.
- 3) Assume that there are 36 weeks in the school year. 36 weeks times 5 days = 180 days which is at typical school year.

The preceding estimates have all treated students who have required both reading and math intervention as if they are two individual students. However, to properly compute the cost of academic coordination services, it is necessary to estimate the unduplicated number of pupils in Quartiles 1 and 2 for each grade from K-3.

If a simple average is taken of the number of students requiring reading and math intervention from grade Kindergarten through 3rd grade in a single quartile, the result is $100,693/2 = 50,346$ pupils.

Quartile 1 Cost

50,346 students * 1 hour/week * 36 weeks = 1,812,456 hours
Total Quartile 1 Cost = 1,812,456 hours * \$36/hour = **\$65,248,416**

Quartile 2 Cost

50,346 students * .5 hours/week * 36 weeks = 906,228 hours
Total Quartile 1 Cost = 906,228 hours * \$36/hour = **\$32,624,208**

7) Early and On-going Assessment and Intervention Monitoring

The Columbus City School District employed the “Target Teach” system in FY03. All students in grades 1-8 were pre- and post-tested 3 times per year in both reading and math. The Annual cost of Instructional Assistants to administer and evaluate the results throughout the year was approximately \$6 million.

\$6,000,000 divided by the 41,765 students in grade 1-8 = **\$144/pupil cost**

While Columbus uses this assessment system for all pupils, for the purpose of this analysis it is recommended that a system of this sort be employed for the pupils in Quartiles 1-3 in both reading and math.

As Table 15 estimated that 34.3% of the K-3 population would need reading intervention and Table 16 estimated that 43% of the K-3 population would need math intervention, it would be reasonable to use the average rate of about 38% to estimate the cost of Target Teach-type assessment and evaluation program. However, considering the marginal cost basis of this project it is most appropriate to assume that only the lowest performing 25% of the K-3 population will require this type of intervention.

Total number of pupils = 521,055 * 25% = 130,264 pupils

130,264 * \$144/pupil = **\$18,758,016**

A simple way to pro-rate this total cost of \$18.6 million across the quartiles is to use the relative percentage of the students requiring intervention in quartiles 1, 2 and 3, as used in the in-school intervention calculation above (100,693 in quartiles 1 and 2 and 59,142 in quartile 3).

Quartile 1 and 2 percentage = 100,693/260,528 = 38.65%

Quartile 3 percentage = 59,142/260,528 = 22.7%

Quartile 1 and 2 assessment cost = \$18,758,016 * 38.65% = **\$7,249,973**

Quartile 3 assessment cost \$18,758,016 * 22.7% = **\$4,258,070**

F. Total K-3 Intervention Cost

Table 26 summarizes the cost estimates derived from the preceding analysis.

Table 26: Cost of Reading and Math Intervention Services by Quartile, Kindergarten through 3rd Grade

Intervention Service Provided	Quartile 1 (lowest performing)	Quartile 2	Quartile 3
Summer School	\$128.5 million	\$67.9 million	\$33.3 million
Extended School Day	\$108.6 million	\$54.3 million	None
In-School Intervention	\$251.7 million	\$125.9 million	\$37.0 million
Academic Coordination	\$65.2 million	\$32.6 million	None
On-going Assessment	\$7.2 million	\$7.2 million	\$4.3 million
Total Cost	\$561.2 million	\$287.9 million	\$74.6 million

Grand Total Cost of K-3 Intervention= \$923.7 million

G. Intervention Costs for Grades 4 through 12

The preceding section of this report has estimated the cost of providing intervention from kindergarten to third grade. This intervention is targeted at those pupils with the greatest need to improve performance in order to pass reading and math achievement tests. Conceptually, this intervention addresses the difference between the State's 75% performance standard and NCLB's 100% performance standard.

Assuming that the massive intervention in the early grades produces the desired results, the ability of these better prepared pupils to achieve passing rates on tests in grades 4 through 8 and to graduate should be improved. However, NCLB's high standards will continue to demand expenditures needed to maintain the level of achievement attained by the early intervention in the first four grades. At an estimated cost of one-half of the amount spent on kindergarten through third grade, the following list shows the objects to which these "maintenance" expenditures will apply:

1) Maintain passing rates of 100% through interventions associated with math and reading tests between grades 4 through 8. As with the initial intervention expenditures, these expenditures focus on the population whose success will raise the success rate from 75% to 100%.

2) Address the need to raise the success rate on three science tests mandated by NCLB from the state's 75% standard to the NCLB standard of 100%.

3) Provide interventions needed to obtain required improvements in attendance rates and graduation rates among the same population of pupils.

4) Coordinate the interventions needed to preserve improvements in academic achievement in the early grades from deterioration caused by social and other pressures associated with the transition to adolescence.

5) Provide interventions in grades three through eight for those pupils missed by the initial intervention program because of its inability to predict unerringly which pupils will need the most help. Initial interventions will miss some pupils because the programs begin in kindergarten but an actual testing record for each pupil will not begin until third grade. (See also the discussion below about the use of pre-NCLB federal funds.)

Generally, these expenditures will focus on the approximately 32,000 pupils in each grade from kindergarten through third grade for reading intervention and approximately 32,000 pupils in each of those same grades for math interventions.

These interventions with an estimated cost of about \$462 million target the group of pupils at the bottom of the achievement ladder. Economic disadvantages and/or disabilities affect roughly one-half to two-thirds of the pupils in this group. This is the

group of pupils in each grade with the furthest distance to climb in order to meet performance standards on achievement tests and to graduate.

This report does not set forth a structure or set of criteria for identifying the pupils who qualify for these services either for the initial interventions in the first four grades or for the maintenance required in the final nine grades. The purpose of this report is not to define a specific program for delivering all of the services described in it. Rather, its purpose involves the identification of costs conceptually related to the additional burdens imposed on the State by the higher standards imposed by NCLB. Therefore, the cost estimates here used programmatic examples as a basis for illustrating how an intervention system might reach the lowest performing pupils. The analysis then applied reasonable cost estimates to these examples to obtain a total cost for leaving no child behind. The actual implementation of real programs would require much more work to enable the proper identification of pupils and proper design of intervention services. Such essential details go far beyond the scope of this report.

H. Phase-in of Intervention Costs

NCLB allows the states to determine a schedule for reaching 100% success rates on the required performance measures. Ohio begins with a baseline of 40% effective for last year and for the current year (2003-04 school year). For 2004-05, 2005-06, and 2006-07, the new standard for performance will equal 50%. For 2007-08, 2008-09, and 2009-10, the performance standard equals 60%. Then, for the last four years of the phase-in period, the performance standard increases by 10% percentage points per year to reach 100% in 2013-14. Thus, the standard equals 70% in 2010-11, 80% in 2011-12, 90% in 2012-13, and 100% in 2013-14.

The standards increase slowly at first and dramatically in the last four years. This arrangement provides time for the State to address performance problems. For this reason, the investment of all \$1.4 billion in intervention costs need not occur immediately. For example, an initial investment of \$450 million could occur in FY05 (2004-05 school year) when the standard increases to 50%. The same annual rate of investment of \$450 million could remain in place for FY06 (2005-06 school year). The intervention investment could increase to \$900 million in FY07 (2006-07 school year) just before the standard increases to 60%. The \$900 million per year intervention expenditure could remain for FY08 and FY09 (2007-08 and 2008-09 school years). Finally, the annual rate of investment could reach \$1.4 billion in FY10 (2009-10 school year) immediately before the standard begins its four year climb through 70%, 80%, 90%, and 100%. The \$1.4 billion per year investment would continue indefinitely. All of these amounts are expressed in 2004 dollars. Thus, the unfunded intervention costs are not necessarily \$1.4 billion per year for every year of the phase-in of NCLB requirements. Generally, the longer that the intervention efforts remain unfunded, the more difficult it will become to meet the 2014 NCLB target. The phase-in of intervention expenditures described here provides an example of how the NCLB costs might be addressed over time. Other implementation schedules are possible. An ineffective implementation schedule will cause some districts to incur unfunded costs related to

consequences. For this reason, the short term avoidance of some intervention costs with a less aggressive implementation schedule may not save any money in the long run.

Some time lag may exist between the year of investment and the year in which a payoff occurs in better performance. By concentrating interventions in the early years of kindergarten through third grade, the intervention model projected in this report would need at least four years before it could have the maximum impact on third grade test-takers.

In general, some tradeoff exists between investments in intervention and the realization of consequence costs. More intervention should mean less cost from consequences. Less or later intervention investments will save money up front, but any resulting costs of consequences will cost money when performance standards are not met. Since the intervention model used in this report is only a model for estimating costs, it is possible that all of the intervention costs projected here will not prevent some consequences from occurring. No one knows what program will achieve 100% success rates.

I. Community Schools

The report did not develop a separate cost for community school interventions. Assuming a cost for community schools proportional to their enrollment relative to statewide public school enrollment, the additional cost for community schools would equal approximately \$17.5 million for interventions identical to those estimated for regular K-12 school districts. That amount equals about 1.25% of the \$1.4 billion intervention cost. Since this estimate for community schools has not been computed in detail, the report does not include it in the summary of total costs. It is possible that community schools do not have the same proportions of pupils in the target grades and target populations within those grades as the general public school enrollment. In any case, additional dollars for community schools would change the specific marginal cost of NCLB, but they would not change the magnitude of the impact from NCLB.

J. Use of Existing Federal Funds

The report assumes that the intervention costs estimated in this section target the pupils furthest from a passing score on achievement tests. Current federal funds will be concentrated on pupils in the fourth quartile of failing pupils, i.e., those pupils who are closest to satisfying performance standards. In addition, current federal funds contribute to the successful achievement of those pupils who receive their benefit and do perform at the required performance level. Thus, current federal funds will continue to assist pupils to pass achievement tests as they did prior to the enactment of NCLB. The intervention costs modeled in this report will focus on the pupils for whom current federal funds have not made a measurable impact. Finally, the focus on the pupils furthest from achieving a passing score on the tests in the third through eighth grades begins three years before those pupils take one of the tests because the interventions begin in kindergarten. It will not be possible in every instance to predict the pupils who will need the most help at the time the massive interventions modeled here begin for each pupil. Pre-NCLB federal aid

will be needed to catch those pupils whom the new intervention programs miss because they cannot foretell the future with perfect accuracy.

Chapter 4: Consequences

NCLB has created a sequence of accountability measures applicable to schools where progress toward achievement goals does not occur. Specifically, the new federal law requires each state to establish a system for measuring “adequate yearly progress” (AYP). Intermediate AYP goals can differ from state to state over the period from 2003-04 to 2013-14, but the ultimate goal for all schools requires 100% success in meeting achievement standards by that latter school year.

If a school fails to make AYP goals, as established by the state, for two consecutive years, it is identified as “in need of improvement.” Once a school rates the “need for improvement,” increasingly severe consequences apply to the school with each additional year in which the school fails to meet AYP goals. Also, once a school receives the “need for improvement” rating, it retains that status until it makes AYP goals for two consecutive years.

The accountability measures apply separately both to school districts and to school buildings. In addition, the evaluation of achievement with respect to AYP goals applies both to the performance of the student body as a whole and to certain subgroups within each district and school building identified by NCLB in terms of racial or ethnic groups, economically disadvantaged pupils, and English language learners.

Table 27 summarizes the consequences applicable at each stage of inadequate performance. All consequences apply in a cumulative manner. For example, in the third consecutive year of failure to meet AYP, the requirement to offer pupils an option to choose a successful school, a second year consequence, continues to be available.

The costs associated with each level of school improvement status are difficult to estimate. The difficulty results from several factors:

- schools can move in and out of improvement status over the next 10 years
- insufficient data exists to predict the status of any particular school building in any given year
- the range of possible options at levels 4 and 5 make any prediction for those years impossible.

Table 27: Consequences for Failure to Meet AYP Goals for *Consecutive* Years

Fail to Meet AYP for:	Cumulative Consequences (Consequences from a previous year continue to apply)
2 Years	<p>a) Choice – Pupils in schools identified for improvement can transfer to a school not in need of improvement.</p> <p>b) Transportation Costs – Districts set aside up to 20% of the Title I funds for each school in need of improvement to pay transportation costs for pupils who elect the Choice option.</p> <p>c) Professional Development – Schools identified for improvement must set aside 10% of Title I Part A funds for professional development targeted at the teachers and principal associated with the areas where the identification of need for improvement occurred.</p>
3 Years	<p>a) Supplemental Education Services – Schools must set aside Title I funds with which low income pupils can obtain services from public or private providers designed to enable them to achieve performance goals.</p> <p>b) Quality Control – States must monitor service providers to insure services provided can provide assistance needed.</p> <p>c) Continue activities from 2 years of not meeting AYP</p>
4 Years	<p>a) Corrective Action at SCHOOL level – School districts must implement at least one of the following changes at the affected schools:</p> <ol style="list-style-type: none"> 1) replace school staff 2) implement a new curriculum 3) decrease management authority at the school building 4) appoint an outside expert 5) extend the school year or day 6) reorganize the school internally <p>b) Corrective Action at DISTRICT level – The State must take action where a <i>school district</i> fails to meet AYP including at least one of:</p> <ol style="list-style-type: none"> 1) defer programmatic funds 2) reduce administrative funds 3) implement a new curriculum 4) replace personnel 5) establish alternative governance 6) appoint a trustee or receiver in place of the superintendent & board 7) abolish or restructure the district 8) permit pupils to transfer to other school districts including transportation <p>c) Continue activities from 3 years of not meeting AYP</p>
5 Years	<p>Fundamental Restructuring – relates to <i>schools</i> and includes</p> <ol style="list-style-type: none"> a) replacing staff b) reopen as a charter school c) retain private management. d) Continue activities from 4 years of not meeting AYP

Certain consequences impose set aside requirements on school districts. A “set aside” forces a district (or in some cases a school building) to reserve a certain percentage of a federal allocation for a specific purpose. Table 28 summarizes the set aside provisions of NCLB.

Table 28: NCLB Set Aside Requirements

Consequence	Building Misses AYP	District Misses AYP
Improvement Plan	Building Improvement Plan	District Improvement Plan
Public school choice	5% - 15% “district” allocation (Title I)	No consequence
Supplemental services	5% - 15% “district” allocation (Title I)	No consequence
Professional development	10% building allocation* (Title I)	10% district allocation* (Title I)
High Quality Teacher Support	No consequence	Not related to AYP District reserves 5% minimum

*Building set aside can count as part of district set aside.

Some quantification is possible for four consequences.

A. Transportation set aside

School districts at level two (second year in improvement status) must set aside at least 5% and up to 20% of the district’s Title I federal funds to transport pupils who choose to attend a successful school rather than a failing school. Twenty per cent of the funds of all *school districts* in need of improvement would equal about \$62.8 million. However, this amount greatly exaggerates the actual choice-based transportation requirement. Limited experience from school districts suggests that relatively few pupils take advantage of the choice option when it is offered.

In the school buildings in need of improvement in FY04 for the second consecutive year or more, enrollment equals about 57,000. If all of these pupils exercised the choice option and needed transportation at school district expense, the cost would equal about \$25 million. This cost is derived from transportation formula computations by which it appears that the per pupil per day cost of transportation equals about \$2.45. (This estimate probably understates the cost of transportation in urban areas where compensation for drivers tends to be higher and greater traffic density tends to increase driving times.)

If 10% of those for whom choice is available as an NCLB consequence exercise the choice option, the cost in Title I funds would equal about \$2.5 million. The number of schools in the second year of improvement status probably will increase with the full

implementation of NCLB at least initially. Therefore, the \$2.5 cost also will increase depending upon the percentage of pupils who choose the alternative school option.

B. Professional Development Set Aside

NCLB requires each school district to set aside 10% of the Title I funds for each school in need of improvement. These funds are to be targeted for the use of the principal and teachers responsible for that part of the school responsible for the failure to meet AYP. Ten percent of all Title I funds would equal about \$37 million.

C. Supplemental Services

NCLB requires that a school district must set aside Title I funds for supplemental education services when a school fails to make its AYP target for three consecutive years. The amount of funds set aside for this purpose must equal a minimum of 5% of Title I funds. Schools may spend an additional 10% on supplemental services provided that the total percentage spent for transportation of school choice pupils combined with the supplemental education services expenditures cannot exceed 20% of Title I funds. Five per cent of all Title I allocations would equal about \$18.5 million.

D. Extension of the School Day or Year

H.B. 3 specifically requested estimates for the cost of extending the school day or school year as consequences for failure to make AYP. The cost of these two measures would differ from district to district. It is possible to estimate an average cost for both measures. Statewide, it costs about \$40 per pupil per day in State and local revenues to operate the public schools. This estimate results from dividing \$12.9 billion by 180 days and then dividing the result of that step by 1.8 million pupils. On this basis, each additional day of school would cost about \$72 million. In some districts, the cost per pupil per day would be less. In other districts, it would be more. For example, in Cleveland City Schools the cost per pupil per day equals about \$46.25. A one day extension of the school year for Cleveland would cost about \$3.6 million.

Similarly, the extension of the school day would cost different amounts in different districts. Statewide, a one hour extension of each school day would cost about \$2.1 billion per year. This estimate results from dividing the \$40 per pupil per day cost by six hours to obtain an hourly cost of about \$6.67. The product of the hourly cost times the number of days (180) times the number of pupils (1.8 million) yields the \$2.1 billion amount. Again, as an example of a large urban district, Cleveland City Schools have an hourly per pupil per day cost of about \$7.71. The addition of an hour to each school day in Cleveland would cost around \$108 million.

The estimates presented here are rough ones and not suitable for actually preparing a budget. For example, the extension of the school day probably would not involve an increase in transportation costs. The students only go to school and come home once per day regardless of the length of the day. Utility costs probably would not

change much whether the school is open for instruction 6 hours per day or 7 hours per day since after school activities already require heat and light on many days, and so on.

However, the estimates provided here offer a reasonably accurate indication of the *magnitude* of the costs involved in either an extension of the school year or the extension of the school day. Generally, both strategies suffer from the inefficiency of adding costs related to *all* pupils when only some pupils require more assistance to achieve the mandated performance levels.

E. Summary of Consequences

Since the number of schools that fall short of AYP, the amount of Title I funds allocated to those schools, and the number of pupils who take advantage of either school choice or supplemental education services will vary from year to year, no attempt has been made to estimate the additional cost imposed by the set aside requirements. However, it is important to emphasize that the combination of set aside requirement in NCLB can have the effect of tying up 30% of a district's Title I allocation for a substantial time during each school year.

While NCLB legislation increase flexibility in the use of federal funds by making possible the use of funds from other programs on Title I projects, money transferred from other programs into Title I becomes subject to set aside requirements just as though it were originally Title I funds.

Similarly, the administrative costs associated with the higher levels of consequences in years three through five are likewise impossible to estimate. Rather than estimate these speculative costs, this report assumes that the commitment of necessary intervention funds as described in the preceding chapter would account for the cost of consequences by rendering the implementation of such consequences unnecessary. In other words, intervention costs and costs of consequences present a kind of "pay-me-now-or pay-me-later" alternative. If intervention investments enable pupils to achieve consistent with AYP goals, schools will avoid consequences and the costs associated with them by their performance. If intervention investments do not occur, consequences become a more likely outcome. The estimation of intervention costs provided a less speculative problem of projection.

Chapter 5: Summary of Estimated Costs

This final section of the report summarizes the costs associated with various requirements of NCLB and matches available federal funds against those costs. Table 29 shows the one-time costs.

Table 29: One-time Costs Imposed by NCLB

	Cost
New Test Development	\$ 9 million
Highly Qualified Teacher	\$23 million
HQ Paraprofessional	\$ 1 million
Total	\$33 million

Rather than attempt to sort out the expenditures for these one-time costs from a fungible pot of federal dollars, the next table prorates the one-time costs over the period from 2004 through 2013. This results in an annualized cost of \$3.3 million per year over the period during which the phase-in of NCLB will occur. This procedure reflects the fact that the diversion of some federal resources to pay one-time costs reduces the funds available for other uses. This proration of one-time costs appears as the first cost on Table 30.

Table 30 shows the ongoing costs of NCLB on an annual basis in current dollars.

Table 30: Annualized Costs of NCLB in Millions of Current 2004 Dollars

	Cost
Annualized One-Time Costs	\$ 3.3
Test Administration -State	\$20.3
Test Administration –Special Education	\$ 1.8
Test Administration – Local	\$ 3.5
Annual Test Development-State	?
High Quality Teacher – New MA	\$ 2.0
Retooling Teachers	\$ 2.0
Highly Effective Pro Dev	\$65.0
Administrative Costs for Title II (State & Local)	\$ 5.0
Consequences – Transportation	\$ 2.5
Subtotal	\$105.4
Intervention K-3	\$923.7
Intervention Maintenance Grades 4-12	\$462.0
Intervention Subtotal	\$1385.7
Grand Total	\$1491.1

As noted above, “Annualized One-Time Costs” reflects the fact that federal dollars in 2004 are treated as paying for one-time costs entirely with the consequent reduction in federal dollars available for all annual costs.

“Retooling teachers” refers to the cost of expanding the subject area competency of already highly qualified teachers to increase the flexibility of school districts to use teachers in more than one subject area.

Table 31 shows the cost of NCLB plus the sum of federal funds received in FY02 adjusted as described in the Introduction for increases in FY03 and FY04 consistent with recent historical experience. It also shows the estimated federal funds available for FY04 from NCLB allocations.

Table 31: Comparison of NCLB Costs with NCLB Resources in Millions of Dollars.

Item	Millions of Dollars
NCLB Costs from Table 30	\$1,491
Minus Net New NCLB Funds from Table 4	-\$44
Net Estimated Cost of NCLB	\$1,447

The table shows Pre-NCLB federal funds as a negative amount consistent with the marginal cost approach taken by this report. Pre-NCLB federal dollars define the cost of federal programs in existence before the enactment of NCLB. The itemization of these dollars programmatically appears in Table 1, and the computation of an adjustment to bring pre-NCLB federal funds up to an Ohio FY04 level appears in Table 4. “NCLB costs” are those costs defined in the report as flowing from the new requirements imposed by the law. These costs are itemized on Table 28. NCLB revenues equal the total federal dollars allocated to Ohio as identified on Table 2. Amounts drawn from Tables 2 and 4 are rounded to the nearest million.

The final row of the table shows the net NCLB cost after prior levels of federal funding and newly imposed costs are deducted from NCLB revenues. The bottom line of this table is the “bottom line.” NCLB requirements will cost Ohio about \$1.45 billion. In any given year, the net amount may differ from the annualized amount computed on Table 29, but the net cost shown on the table should approximate the average annual cost of NCLB in 2004 dollars.

Table 32 summarizes the unfunded portion of NCLB costs in the context of other sources of revenue for school operations in Ohio. The first column of data shows the current revenue for operations from local, state, and federal sources. The local revenue includes property taxes for operations and school district income taxes. State aid includes all revenues as reported on the most recent statewide data for total SF-3 spending. Federal revenue is drawn from Table 2. The second column of data shows the same information as the first column, except that it adds the amount of unfunded NCLB costs as computed in Table 31.

Table 32: Comparison of Current Operating Revenue for FY04 and Operating Revenue for FY04 with Full Funding For NCLB

Revenue Source	Current Revenue– FY04	NCLB Fully Funded – FY04
Local Operating Revenue	\$7,200 Million	\$7,200 Million
State Aid for Operations	\$5,460 Million	\$5,460 Million
Federal Aid - NCLB	\$ 662 Million	\$ 662 Million
Unfunded NCLB Cost		\$1,447 Million
Total	\$13,322 Million	\$14,769 Million

Federal aid, as shown in Table 32, does not include IDEA funds (\$242 million), ECSE funds (\$8 million), or federal funds for nutrition programs. The federal government does not consider NCLB to include these funds.

Conclusion

NCLB imposes many costs. These costs differ in kind and in amount. There are direct costs and indirect costs. There are administrative, professional development, intervention, and consequence costs.

With respect administrative costs, some of them result in a fairly predictable way from the new testing mandates imposed by NCLB. The analysis in Chapter 1 found some methods for predicting specific costs associated with the new tests. Other administrative costs are harder to identify and estimate. Generally, the many new requirements of NCLB, including interactions between the schools and the State, the federal government, the pupils, the teachers, and the parents, all require some kind of monitoring. The process of monitoring compliance with the federal requirements includes the development of rules and procedures, the communication of those rules and procedures, and the implementation of those rules and procedures. The costs associated with such activities tend to be woven into the existing administrative apparatus at State and local levels. For this reason, identification of specific costs is difficult, but it is clear that the administrative burden on the State and its school districts imposed by NCLB has a cost even if that cost is not predictable.

NCLB also mandates a change in the use of professional development. While one part of this mandate affects the quantity of professional development necessary for teachers and other education professionals, the other part requires a qualitative improvement in professional development. This report found some methods for projecting costs implied by the need for more professional development, but it could not reach the level of detail needed to estimate the extent to which the *quality* of pre-NCLB professional development must improve or the cost of such improvement.

Intervention costs clearly involve the greatest marginal impact on education spending. NCLB requires that Ohio improve from its goal of a 75% success rate among the state's pupils on achievement tests to a 100% success rate. This increase in the population of pupils from whom the system demands successful performance represents the greatest source of NCLB costs. What does it take to raise performance from 75% of all pupils passing a test to success for 76% of the same population? What does it cost to raise the performance of those pupils from success for 99% of the students to 100%?

Perhaps the following analogy will provide some insight. Imagine that a randomly selected group of 100 young adults agree to participate in a fitness program. The program has two goals. One goal involves the completion of a 400 meter distance in 65 seconds, and the other goal involves a 200 pound lift to full extension above the head. For some of the participants, an hour per day of training will provide enough preparation to pass the standards. Others may need two hours per day. Still others must add some life-style changes such as a reduction in alcohol and tobacco consumption or a change in diet. Even with these changes, some participants are working several hours a day to pass. After ninety have passed, the ninety-first participant spends the equivalent of a full-time

job in training. When ninety-nine have passed, the hundredth participant must work every waking hour, and still this last person may not get over the bar.

Presumably, the participants in such a program would need some strong incentive to continue as the costs in terms of their training time mounted. Perhaps, they might be paid. How much would the 99th or 100th participant demand in payment to compensate for round-the-clock training? However, if the program were operated like NCLB, not only would the trainers who run the exercise program have no additional rewards to offer the participants, but they also would be penalized themselves if the participants failed to achieve the goals.

If it seems hard to imagine how much it would cost to get that one-hundredth volunteer across a finish line in 65 seconds, so also does it seem hard to project how much it would cost to get the last student over the achievement test bar as required by NCLB. This report has attempted to attach dollar amounts to the interventions necessary for schools to enable all pupils to meet the academic standards imposed by NCLB.

Pupils who came close to passing an achievement test in the past may need only a small boost to get over the bar the next time. Other pupils with multiple handicaps in the form of economic disadvantages and physical or emotional disabilities may need almost totally individualized care to reach the same goals. As the percentage of success increases, so does the additional cost for each pupil who remains unsuccessful. Finally, it is worth remembering that the achievement of goals with one cohort of pupils does not necessarily make achievement any easier for the next cohort.

In many ways, the projection of the cost of consequences for failure to meet NCLB targets imposes the most difficult task. To estimate the cost of consequences would not only require the quantification of a whole variety of options, including both complementary and mutually exclusive ones, but it also would require a forecast of which schools will make or not make NCLB goals. In the short run, many districts meet the intermediate requirements under the AYP system. Over a longer term, every school district is at risk because no school district currently meets a 100% achievement level. Between 2004 and 2013, only a crystal ball could foretell how many districts will be subject to which consequences in any given year. For this reason, only a tiny fraction of the costs likely to result from NCLB consequences actually appears in the summary of costs in Table 28. This omission is justified in part by the strategic decision to emphasize intervention costs in this report rather than to focus on the costs of consequences.

This report was prepared without the time to work exhaustively with school districts to identify additional NCLB compliance costs. Additional time probably would have enabled the identification of specific additional costs.

Way back in Table 4, this report shows that additional federal funds for NCLB purposes amount to about \$44 million more than Ohio could have expected to receive if federal dollars had increased at a rate consistent with average historical experience. The marginal costs imposed by NCLB as estimated here amount to many times that increase.

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This study was prepared by William Driscoll and Dr. Howard Fleeter, partners in the policy research firm Levin, Driscoll & Fleeter. Customized services of the firm include research and fiscal studies, revenue estimates, legislative drafting, and public policy options and advice.

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