

PUBLIC SCHOOL BUILDING SUBSIDIES



A Report

of the

JOINT STATE GOVERNMENT COMMISSION

to the

GENERAL ASSEMBLY

of the

COMMONWEALTH OF PENNSYLVANIA

SESSION OF 1955

The Joint State Government Commission was created by Act of 1937, July 1, P. L. 2460, as amended 1939, June 26, P. L. 1084; 1943, March 8, P. L. 13, as a continuing agency for the development of facts and recommendations on all phases of government for the use of the General Assembly.

JOINT STATE GOVERNMENT COMMISSION

Honorable BAKER ROYER, *Chairman*

Honorable PAUL L. WAGNER, *Vice Chairman*

Honorable W. STUART HELM, *Secretary-Treasurer*

Senate Members

JOSEPH M. BARR
JAMES S. BERGER
LEROY E. CHAPMAN
JOHN H. DENT
G. GRAYBILL DIEHM
ANTHONY J. DISILVESTRO
A. EVANS KEPHART
A. H. LETZLER
JOHN G. SNOWDEN
M. HARVEY TAYLOR
PAUL L. WAGNER
JOHN M. WALKER
T. NEWELL WOOD

House Members

HIRAM G. ANDREWS
ADAM T. BOWER
†WAYNE M. BREISCH
EDWIN C. EWING
ALLEN M. GIBSON
W. STUART HELM
EARL E. HEWITT, SR.
ALBERT W. JOHNSON
ROBERT F. KENT
JAMES E. LOVETT
ALBERT S. READINGER
BAKER ROYER
CHARLES C. SMITH
*IVAN C. WATKINS

GUY W. DAVIS, *Counsel and Director*

PAUL H. WUELLER, *Associate Director in Charge
of Research and Statistics*

ANTOINETTE S. GIDDINGS, *Administrative Assistant*

* Deceased March 19, 1954.

† Appointed April 15, 1954, to fill vacancy created by the death of Ivan C. Watkins.

JOINT STATE GOVERNMENT COMMISSION
EXECUTIVE COMMITTEE

Senate Members

JOHN H. DENT
M. HARVEY TAYLOR
PAUL L. WAGNER
JOHN M. WALKER
T. NEWELL WOOD

House Members

HIRAM G. ANDREWS
W. STUART HELM
ALBERT W. JOHNSON
BAKER ROYER
CHARLES C. SMITH

JOINT STATE GOVERNMENT COMMISSION
SPECIAL SUBCOMMITTEE ON PUBLIC SCHOOL
BUILDING

Honorable JAMES K. DAVIS, *Chairman*

Honorable EDWARD J. KESSLER, *Vice Chairman*

Senate Members

EUSTACE H. BANE
EDWARD J. KESSLER
PAUL L. WAGNER

House Members

A. V. CAPANO
JAMES K. DAVIS
HARRY R. MCINROY

LETTER OF TRANSMITTAL

To the Members of the General Assembly of the Commonwealth of Pennsylvania:

There is presented herewith a report on public school building subsidies in the Commonwealth. This study was undertaken by the Joint State Government Commission as a part of the continuing study of the public schools of the Commonwealth directed by the General Assembly in House Concurrent Resolution No. 79, Session of 1953.

The continuing study of the public schools is being carried on under the general supervision of the Commission's Executive Committee. Under authority of Act of 1943, March 8, P. L. 13, Section 1, the Commission appointed a special subcommittee on public school building. On behalf of the Commission, the cooperation of the members of the special subcommittee is gratefully acknowledged.

BAKER ROYER, *Chairman.*

*Joint State Government Commission
Capitol Building
Harrisburg, Pennsylvania*

CONTENTS

	<i>Page</i>
RECOMMENDATIONS	1
INTRODUCTION	3
SECTION I. STATUTORY BASIS FOR RENTAL SUBSIDIES	5
SECTION II. AGGREGATE PROJECT COSTS	9
SECTION III. INTEREST RATES AND MATURITY PERIODS OF SCHOOL AUTHORITY BOND ISSUES	13
Legal Provisions Relating to Bond Marketing Methods for Authorities and School Districts	13
Net Interest Cost Rates	15
Maturity Periods	18
SECTION IV. REIMBURSEMENT FORMULAS	21
SECTION V. CONSTRUCTION COSTS	27
Elementary Schools	28
Secondary Schools	31
SECTION VI. SUBSIDIES ON ACCOUNT OF CLOSED SCHOOLS .	35

CHART

Relationship Between Standard Reimbursement Fraction and Percent of Approved Rental Reimbursed by Commonwealth	23
---	----

LIST OF TABLES

	<i>Page</i>
Table 1. Average Net Interest Cost Rates, by Method of Financing: 1950 to June, 1954	16
Table 2. Trust Indentures and Bond Sales of the State Public School Building Authority to November 1, 1954	19
Table 3. Rental Reimbursement Percentages Under Existing Formula and Under Revised Formula	25
Table 4. New Elementary Schools Constructed by Authorities: Distribution of 220 Buildings by Adjusted Cost per Pupil and by Market Valuation per Teaching Unit of Participating Districts	29
Table 5. New Secondary Schools Constructed by Authorities: Distribution of 105 Buildings by Adjusted Cost per Pupil and by Market Valuation per Teaching Unit of Participating Districts	33

APPENDICES

Appendix A. Items Included and Excluded in Calculation of Commonwealth Reimbursement on Account of Annual Rentals	37
Appendix B. Approved Reimbursable Project Costs, by County, as of November, 1954	41
Appendix C. Algebraic Summary of Rental Reimbursement Formulas	45

RECOMMENDATIONS

I. It is recommended that, in calculating the amount of reimbursement on account of rentals, reimbursement for building construction cost be based upon a legislatively specified cost standard or upon actual cost, whichever is smaller, and reimbursement for site cost be based upon actual acquisition cost. The standards should be defined in terms of cost per pupil—that is, total construction cost divided by the rated pupil capacity of the building. The following standards are recommended:

A. For new elementary schools—\$1,100 per pupil.

B. For new secondary schools—\$1,700 per pupil.

C. For new combined elementary-secondary schools—a weighted average of the elementary and secondary standards, the weights being the rated elementary capacity and the rated secondary capacity of the combined building.

D. For additions or alterations to existing buildings, the standards listed above should be employed and the actual cost per pupil for comparison with the standard cost per pupil calculated as follows: Sum the insurance or appraisal value of the existing building, exclusive of the value of equipment, and the construction cost of the addition or alteration, and divide such sum by the rated pupil capacity of the altered or expanded school plant.

II. It is recommended that reimbursement for all the annual rentals of a particular project be calculated on the basis of a constant equalization level. Reimbursement on account of those projects for which a rental was paid to an

authority during 1954-55 should be calculated on the basis of an equalization level of \$4,500. For projects for which the initial rental is paid subsequent to the school year 1954-55, the amount of rental reimbursement should be calculated on the basis of the equalization level applicable during the year in which the general construction contract is awarded, or \$4,500, whichever is greater.

III. It is recommended that the existing rental reimbursement formula be revised with a view to:

A. Removing the discontinuity at a standard reimbursement fraction of .6.

B. Reducing the rental reimbursement percentage somewhat for those districts with a standard reimbursement fraction less than .5.

IV. It is recommended that the Commonwealth inspect projects of local school building authorities during construction.

INTRODUCTION

Partial Commonwealth reimbursement of the lease rental paid to an authority or other nonprofit corporation on account of school building construction (exclusive of equipment) constitutes the only direct Commonwealth participation in capital-outlay expenditures of local school districts.¹ School construction financed by the sale of general obligation bonds of a school district is not subsidized by the Commonwealth.

Subsidies were first made available in 1949 on account of rentals paid to the State Public School Building Authority; in 1951, reimbursement was extended to rentals paid by a school district to a municipality authority or other nonprofit corporation. Prior to 1950, almost all public school construction was financed by issuance of general obligation bonds of school districts. From 1950 to date, authority financing has accounted for about 85 percent, and school district financing about 15 percent, of total public school construction.

Commonwealth reimbursement on capital account is designed to enable every school district, regardless of its economic position, to provide adequate school plant for its pupils. The determination of "adequacy" is an administrative function of the Department of Public Instruction; the department may withhold its approval of any school building project which it deems inadequate or substandard as an educational facility.

¹ Closed school subsidies, which may be considered an indirect payment on capital account, are discussed in Section VI.

Variation in the portion of building rentals reimbursed is facilitated by use of the "standard reimbursement fraction," which is a measure of a school district's need-capacity relationship. The standard reimbursement fraction is computed as follows: The district's market value of taxable real estate per teaching unit is multiplied by four mills, and the product is subtracted from the statutorily defined maximum subsidy or "equalization level" (\$4,500 for the school year 1953-54); the difference is then divided by the equalization level.

The rapid growth in school construction since 1950 is largely attributable to the availability of rental subsidies. In 1950-51, about 200 school districts were paying building rentals to authorities or other nonprofit corporations; by 1954-55, the number had increased to about 1,000.

Section I

STATUTORY BASIS FOR RENTAL SUBSIDIES

Under the provisions of Act No. 557, Session of 1949,¹ rentals paid by a school district to the State Public School Building Authority were reimbursed in the amount of the rental multiplied by one-half the district's standard reimbursement fraction, without reference to the minimum value of the fraction used for current expense reimbursement.

The Municipality Authorities Act of 1945 was amended in 1951 to permit school districts to form authorities for the purchase or construction of public school buildings.² Also in 1951, by Act No. 627, rental reimbursement was extended to school districts paying rentals to municipality authorities or other nonprofit corporations.³ By the same act, the calculation of the amount of the rental subsidy was changed as follows:

1. If the standard reimbursement fraction of the school district is equal to, or less than, .5999, the amount of the rental reimbursement is determined by multiplying the annual rental by one-half the standard reimbursement fraction.
2. If the standard reimbursement fraction of the school district is equal to, or greater than, .6000, the amount of the rental reimbursement is determined by multiplying the annual rental by the standard reimbursement fraction multiplied by itself.

¹ 1949, May 26, P. L. 1879.

² 1951 (January 21, 1952), P. L. 2188.

³ 1951 (January 21, 1952), P. L. 2195.

Act No. 431, Session of 1953, provides in part:

The Superintendent of Public Instruction shall not give his approval to any phase of any project or any project to be undertaken by the State Public School Building Authority or by any municipality authority or nonprofit corporation that would cause the approved reimbursable projects for such purposes to exceed four hundred and twenty-five million dollars (\$425,000,000) in the aggregate for all the authorities combined for projects already undertaken and to be undertaken.⁴

Prior to 1953, there was no statutory definition of the cost items upon which rental reimbursement was to be based. The Department of Public Instruction reimbursed on both reasonable construction and reasonable equipment costs. Act No. 431, Session of 1953, defined the cost items upon which rental reimbursement was to be based subsequent to the effective date of the act (August 26, 1953) as that portion of the annual rental charge "sufficient during the period of the lease to pay the cost of acquiring or constructing the school buildings, the cost of acquiring the land upon which the school buildings are situate, and the interest on such cost. . . ."

A statement furnished by the Department of Public Instruction on July 30, 1954, lists the cost items which are to be included and those which are to be excluded in calculating the amount of Commonwealth reimbursement. Among the items to be *included* in calculating the amount of reimbursement are the following:

1. Bond counsel fee
2. Local counsel fee
3. Insurance on building during construction
4. Printing of bonds, lease, and indenture.

⁴ 1953, August 26, P. L. 1471.

Among the cost items to be *excluded* in calculating Commonwealth reimbursement are:

1. Bond discount
2. Trustee's fees
3. First year's rent included in bond issue.

A complete list of the cost items, excluded or included, is given in Appendix A.

Section II

AGGREGATE PROJECT COSTS

Approvals of reimbursable projects by the Department of Public Instruction reached the maximum amount of \$425,000,000 in October, 1953. Of this aggregate amount—whether for projects already constructed, under construction, or planned for construction—approximately \$115,000,000 is attributable to projects of the State Public School Building Authority and \$310,000,000 to school construction by municipality authorities or other nonprofit corporations.

The statutory limitation applies to approved reimbursable project costs, not to the total cost of projects. The department reviews building plans and does not approve for reimbursement the cost of any elements of the building which it deems unnecessary for an adequate school plant. The disapproved element may be all, or part, of a facility (such as a swimming pool or part of a gymnasium) or may consist of building materials which are considered unnecessarily expensive for the educational purpose involved. In some cases, the nonreimbursable costs are financed over time, and the reimbursable rental is reduced accordingly. Other districts, rather than finance nonreimbursable costs over time, make a cash payment to the authority to cover the cost of nonreimbursable elements, and the full rental is the basis for reimbursement.

The estimated total cost of approved authority projects plus the estimated cost of projects for which general obligation bonds were issued by school districts since January, 1950, is about \$541,000,000. The components of this total,

together with the estimated approved reimbursable project costs, are as follows:

	<i>Estimated Total Costs of Approved School Projects</i>	<i>Estimated Approved Reimbursable Project Costs</i>
Municipality authority and other nonprofit corporation projects (as of November, 1954)	\$332,423,000	\$308,192,000
State Public School Building Authority projects (as of November, 1954)	116,308,000	114,068,000
School district projects (dollar volume of general obligation bond issues for school construction—January, 1950, to November, 1954)	92,135,000	.....
Total	\$540,866,000	\$422,260,000

As previously noted, the limit of \$425,000,000 on aggregate reimbursable project costs was reached in October, 1953, but cancellations of projects since that time and completion of some projects at lower costs than originally estimated have resulted in a current aggregate of \$422,260,000, leaving \$2,740,000 for additional reimbursable projects or for differences between actual and estimated costs of projects already approved.¹ Included in the aggregate amount of \$422,260,000 are approved reimbursable costs in the amount of \$65,000,000 for projects not yet under construction.

¹ For approved reimbursable project costs by county, see Appendix B.

As of November, 1954, some 160 projects totalling \$120,000,000 had been submitted to the department for approval since the statutory limitation was reached.

In connection with the statutory restriction of \$425,000,000 on approved reimbursable project costs, it should be remembered that reimbursable project cost is necessarily smaller than the amount on which the Commonwealth subsidy is based, which is the total of approved project costs and interest costs. For example, assuming that money is worth 3 percent and that projects are amortized over a period of 30 years, the total amount on which the Commonwealth would reimburse over time would be 1.53 times the approved reimbursable project costs.

In other words, under these assumptions, although total reimbursable project costs are statutorily limited to \$425,000,000, the total amount paid over a period of 30 years by both the Commonwealth and local school districts would be approximately \$650,000,000. Hence, Commonwealth rental reimbursement is not limited by the maximum aggregate project costs, since the amount of the total obligation over time depends also upon interest rates and maturity periods.

Section III

INTEREST RATES AND MATURITY PERIODS OF SCHOOL AUTHORITY BOND ISSUES

The amounts of the lease rentals upon which Commonwealth subsidies are based depend not only upon building construction and site costs but also upon the interest rates at which authorities borrow and the maturity schedules of authority bond issues. Higher interest rates produce both higher annual charges and a greater total payment over the life of a bond issue. To amortize \$1,000 over 30 years at 3 percent requires annual payments of about \$51, or a total of \$1,530 over the period. At 4 percent, the annual charge rises to \$57.83 and the total to \$2,313. For a given interest rate, however, lengthening the maturity period reduces the annual charge while increasing the total payment over the period. To amortize \$1,000 over 35 years at 3 percent requires an annual payment of \$46.54 and total payments of \$1,629. In addition, longer maturity periods usually result in higher interest rates. While a lender may be willing to provide money for 30 years at 3 percent, he may demand 3.1 or 3.2 percent for a bond issue with a maturity period of 35 or 40 years.

LEGAL PROVISIONS RELATING TO BOND MARKETING METHODS FOR AUTHORITIES AND SCHOOL DISTRICTS

Under statutory provisions, latitude in selection of bond marketing methods varies among school districts, municipality authorities, and the State Public School Building Authority:

General Obligation Bonds of School Districts.—The law provides that the school district “shall sell such bonds to the highest responsible bidder or bidders. . . . Where . . . no legal bid has been received then it shall be lawful for such municipality to sell the same . . . at private sale . . . within six months . . . at a rate of interest not exceeding the maximum rate originally advertised.”¹

Available evidence indicates that the great majority of school district general obligation bond issues are sold at public sale.

Bonds of Municipality Authorities Constructing School Buildings.—These bonds “may be sold at public or private sale for such price or prices as the Authority shall determine. . . .”²

Only a small number of municipality authority school construction bond issues have been sold at public sale. Between 80 and 90 percent of such issues have been sold by negotiation.

State Public School Building Authority Bonds.—The law provides that these bonds “shall be sold to the highest responsible bidder . . .: Provided, that any of said bonds may be sold to the State Employees’ Retirement Board, the State Employees’ Retirement Fund, or to the School Employees’ Retirement Board, or to any other custodial board or fund, without advertisement or competitive bidding.”³

To date, all original bond issues of the State Public School Building Authority have been sold to the State

¹ 1941, June 25, P. L. 159, as amended 1943, May 21, P. L. 500.

² 1945, May 2, P. L. 382.

³ 1947, July 5, P. L. 1217, as amended 1949, April 20, P. L. 636.

Employes' Retirement Board or the School Employes' Retirement Board by negotiation.⁴

NET INTEREST COST RATES

Average net interest cost rates of bond issues for school construction financed by school districts, by municipality authorities, and by the State Public School Building Authority for the period 1950 to June, 1954, appear in Table 1, page 16.

From an inspection of Table 1, it appears that average net interest rates of municipality authority bond issues are generally about one percentage point higher than average net interest rates of school district general obligation bonds. Aside from possible variations in net interest rates due to differences in credit standing of the particular school districts borrowing directly and those districts utilizing an authority, two factors account for the differential between the average net interest rates of school district and municipality authority bond issues.

1. Part of the differential may be attributed to a difference in the average amount of bond issues. Insofar as a larger bond issue leads to a higher annual charge, relative to the borrowing district's resources, or to a longer maturity period, higher interest rates would obtain. For school districts, the bond issues included in Table 1 averaged \$400,000; for municipality authorities, the average bond issue was about twice as large, or \$800,000.

2. A given district can obtain funds at more favorable interest rates if it borrows directly than if it utilizes the instrumentality of an authority. It is considered in the bond

⁴ On December 2, 1954, the 1989 series was refunded at public sale at a net interest cost of 2.915 percent.

Table 1

AVERAGE NET INTEREST COST RATES, BY METHOD OF FINANCING: 1950 TO JUNE, 1954 *

Year	<i>School District General Obligation Bonds</i>		<i>School Bond Issues of Municipality Authorities</i>		<i>State Public School Building Authority</i>
	<i>Number of Bond Issues Included</i>	<i>Average Net Interest Cost Rate</i>	<i>Number of Bond Issues Included</i>	<i>Average Net Interest Cost Rate</i>	<i>Average Net Interest Cost Rate</i>
(1)	(2)	(3)	(4)	(5)	(6)
1950	79	1.67%	16	2.61%	3.00%
1951	58	1.74	23	2.74	3.00
1952	42	2.13	50	3.06	3.00
1953	32	2.40	78	3.90	3.01
1954 (January to June)	13	2.01	58	3.19	3.08

* Net interest cost rates were not available for all municipality authority and school district projects. The number of observations available, however, is sufficient for the computation of significant averages. Individual interest rates are weighted by amount of bond issue.

market that authority financing entails an inherently greater risk than financing with general obligation bonds. In several studies of the matter, it has been estimated that authority bonds carry a rate of interest ranging from one-half to one percent higher than general obligation bonds of the same political subdivision.⁵ On the basis of data for a limited number of school districts in Pennsylvania which have borrowed by both methods, it is estimated that the net interest rate on authority bonds averages about three-fourths of a percent higher than the net interest rate of general obligation bonds.

Referring again to Table 1, it may be noted that, since 1950, as the number of municipality authority bond issues increased the number of general obligation bond issues decreased. To the extent that existing statutes relating to rental reimbursement encourage the authority method of financing as opposed to school district financing, they generate increased Commonwealth costs.

In general, for both school district-financed and municipality authority-financed school projects, all funds estimated to be required to complete the project are obtained prior to the start of construction. The State Public School Building Authority operates in a different manner. The authority estimates the amount of funds necessary to cover all costs of a number of projects and negotiates a trust indenture for this amount, at a specified rate of interest. As construction proceeds, bonds are issued in an amount sufficient to meet current construction payments. The interest rates shown in Table 1 for the State Public School Building Authority are the

⁵ See, for example, *Public Authorities in the States* (Chicago, Illinois: The Council of State Governments, 1953), p. 72.

average interest rates at which bonds were issued during the specified years.

Table 2 contains a listing of the various trust indentures of the State Public School Building Authority, by date, rate of interest, maximum amount, and amount of bonds issued, to November 1, 1954.

Table 2 shows that bonds issued by the State Public School Building Authority totalled \$68,881,800, as of November 1, 1954.

As noted previously, all original bond issues of the State Public School Building Authority have been sold either to the State Employees' Retirement Board or to the School Employees' Retirement Board at negotiated interest rates. Depending upon the period of construction, the maximum time span between the agreement upon interest rates and the actual borrowing of funds may be several years. Hence, the authority may find itself in a position of borrowing money at a rate of interest either above or below the market rate. However, if market rates fall subsequent to negotiation of the trust indenture, any bonds issued by the authority may be refunded at small cost, since all authority trust indentures specify that bonds may be called at par.

MATURITY PERIODS

Both State Public School Building Authority and municipality authority bond issues are limited by statute to a maturity date not exceeding 40 years from date of issue.

In revenue financing, it is customary for the annual charge to be at least 20 percent greater than the required annual debt service. All school authority issues contain this feature. If there is no default, the 20 percent "margin of safety" re-

Table 2
TRUST INDENTURES AND BOND SALES OF THE STATE PUBLIC SCHOOL BUILDING
AUTHORITY TO NOVEMBER 1, 1954

<i>Trust Indenture</i>		<i>Interest Rate</i>	<i>Maximum Amount of Bond Issue under Indenture</i>	<i>Bond Amount Sold to November 1, 1954</i>
<i>Series</i>	<i>Dated as of</i>			
(1)	(2)	(3)	(4)	(5)
1989	October 1, 1949	3.00%	\$25,000,000	\$24,384,600 ^c
1990	October 1, 1950	3.00	15,000,000	14,610,000 ^d
1992 ^a	September 1, 1952	3.00	30,000,000	22,635,000 ^c
1993 ^a	April 1, 1953	3.50	20,000,000	6,975,000 ^c
1954 ^a	April 1, 1954	4.00	10,000,000	277,200 ^c
1994 ^b	October 1, 1954	4.00	10,000,000	.....
2nd 1954 ^a	October 1, 1954	4.00	7,250,000	.....
Total			\$117,250,000	\$68,881,800

^a Supplements to indenture for the 1989 series.

^b Supplement to indenture for the 1990 series.

^c To School Employees' Retirement Board.

^d To State Employees' Retirement Board.

duces the maturity period by about one-fourth—depending upon the rate of interest and the amortization period.

Maturity periods of bonds issued by municipality authorities for school construction range from 5 to 40 years. Of the total amount of these issues, only about 16 percent is accounted for by bond issues of less than 30 years maturity. Issues with a maturity period of 40 years represent 23 percent of the total amount. The average maturity period for all municipality authority bonds for school purposes is about 33 years.

No bond issue of the State Public School Building Authority matures in less than 35 years. The average maturity period for all issues of this authority is about 37 years.

Section IV

REIMBURSEMENT FORMULAS

The amount of the annual rental to be paid by a school district or group of school districts to an authority on account of a leased school building is determined at the time of financing. For almost all projects, the rental is a constant amount over the life of the bond issue.

For a given district, however, Commonwealth rental subsidies vary with the value of the standard reimbursement fraction. Possible future changes of the local effort rate aside, variations in a district's standard reimbursement fraction may be generated by changes in three factors:

1. The pupil load of the school district, measured by average daily membership
2. The taxable capacity of the district, measured by market value of taxable real property as determined and certified annually by the State Tax Equalization Board
3. The maximum subsidy or equalization level, statutorily defined as \$4,500 for the school year 1953-54 and increasing by \$200 annually to \$5,500 for the school year 1958-59 and thereafter.

Changes in the relationship between pupil load and market value of real property reflect changes in a school district's ability to meet its expenses. Increases in the equalization level are intended to compensate school districts for mandatory annual salary increments due certain classes of professional employes. There appears to be no reason why subsidies on *capital account* should increase due to higher

equalization levels. Such increases shift part of a constant cost from a school district to the Commonwealth, although the district's need-capacity relationship may be unchanged.

It is estimated that Commonwealth obligations on account of rental subsidies for the biennium 1955-57 for projects now under lease could be reduced by approximately \$900,000 if the equalization level were to remain constant at \$4,500. For future biennia, the reduction would be greater—an estimated \$3,000,000, for example, for the biennium 1959-61.

The existing rental reimbursement formula provides that the amount of reimbursement shall be determined by multiplying the rental by one-half the standard reimbursement fraction if the fraction is equal to, or less than, .5999, and by multiplying the rental by the standard reimbursement fraction squared if the fraction is equal to, or greater than, .6000.

It is recommended that the existing rental reimbursement formula be replaced by a revised formula. The revised formula modifies the existing formula as follows: ¹

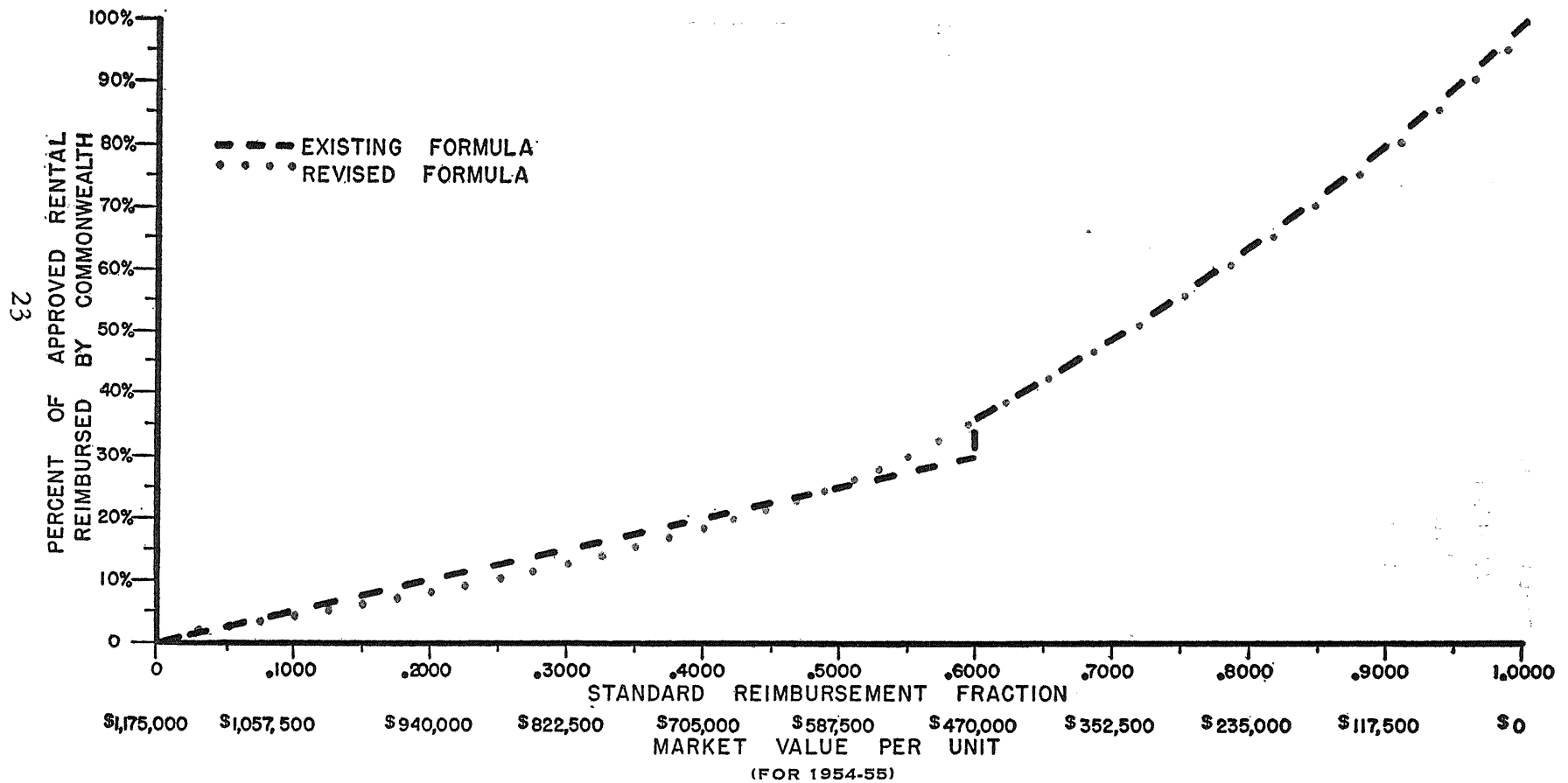
1. The discontinuity at a standard reimbursement fraction of .6 is removed.
2. The rental reimbursement percentage is reduced somewhat for those districts with a standard reimbursement fraction less than .5.

The rental reimbursement percentage for those districts with a standard reimbursement fraction of .6 or greater would be unchanged.

The chart on the following page illustrates the existing formula and the revised formula. The black line represents

¹ An algebraic summary of the existing and revised formulas is given in Appendix C.

RELATIONSHIP BETWEEN STANDARD REIMBURSEMENT FRACTION AND PERCENT OF APPROVED RENTAL REIMBURSED BY COMMONWEALTH



the existing rental reimbursement formula. The red dotted line represents the revised formula in the range below a standard reimbursement fraction of .6. Above a fraction of .6 the lines coincide.

Table 3 shows a comparison of the existing rental reimbursement formula and the revised formula in tabular form.

The total amount of Commonwealth rental subsidies would be but slightly affected by application of the revised formula, since the modifications tend to offset each other. The increase in subsidies occasioned by a higher percentage reimbursement for districts with a standard reimbursement fraction between .5 and .6 would be approximately equal to the decrease in Commonwealth subsidies on account of districts with a fraction below .5.

Table 3

RENTAL REIMBURSEMENT PERCENTAGES UNDER
EXISTING FORMULA AND UNDER REVISED FORMULA

<i>Standard Reimbursement Fraction</i>	<i>Corresponding Market Valuation per Teaching Unit (for 1954-55)</i>	<i>Rental Reimbursement Percentage</i>	
		<i>Existing Formula</i>	<i>Revised Formula</i>
(1)	(2)	(3)	(4)
.10	\$1,057,500	5.00%	3.00%
.15	998,750	7.50	4.88
.20	940,000	10.00	7.00
.25	881,250	12.50	9.38
.30	822,500	15.00	12.00
.35	763,750	17.50	14.88
.40	705,000	20.00	18.00
.45	646,250	22.50	21.38
.50	587,500	25.00	25.00
.525	558,125	26.25	27.56
.55	528,750	27.50	30.25
.575	499,375	28.75	33.06
.60	470,000	36.00	36.00
.65	411,250	42.25	42.25
.70	352,500	49.00	49.00
.75	293,750	56.25	56.25
.80	235,000	64.00	64.00
.85	176,250	72.25	72.25
.90	117,500	81.00	81.00
.95	58,750	90.25	90.25

Section V

CONSTRUCTION COSTS

Since 1949, more than 360 new school buildings have been constructed by municipality authorities and the State Public School Building Authority. In addition, authority-financed alterations to school buildings number in the hundreds.

Construction costs of these projects range widely; for buildings of like capacity, the cost varies as much as 300 per cent.

Differences in the prices of items which enter into school construction account for only a small portion of the cost differentials. Since 1949, according to indices for the major urban areas in Pennsylvania, building prices have risen between 20 and 30 percent. While geographic price differentials can be estimated with but little precision (for many areas in the state, building price indices do not exist), available evidence indicates that the maximum geographic building price differential is in the neighborhood of 25 percent. Hence, a combination of the maximum building price change over time and the maximum geographic price differential would amount to about 60 percent.¹ In other words, a school building erected in 1954 in the section of the state with highest building prices would cost roughly 60 percent more than an identical structure built in 1949 in a low price area.

¹ On the basis of a 30 percent increase in building prices since 1949 and a geographic price differential of 25 percent, building prices in the high price area in 1954 would be 162.5 percent (130 percent of 125 percent) of the building prices in the low price area in 1949.

To a large extent, the wide variation in the cost of authority-financed school buildings is explained by differences in design, in the choice of building materials, and in the type and amount of nonclassroom facilities provided.

In order to attain comparability, construction costs per school have been related to the pupil capacity for which the structure was planned, as reported to the Department of Public Instruction. For purposes of the analysis which follows, construction costs include architects' fees but exclude equipment and site costs and costs of exterior improvements not included in the general construction contract. Per-pupil costs have been adjusted to a 1954 price basis,² but an adjustment for geographic price differences is not feasible.

ELEMENTARY SCHOOLS

A distribution of 220 authority-financed new elementary schools by cost per pupil and by market value per teaching unit of the participating district or districts is presented in Table 4.

Table 4 shows that cost per pupil for these 220 elementary schools ranges from about \$450 to about \$2,150. The most frequently occurring value is between \$900 and \$1,000, or about \$950. Inspection of the table suggests that there is a tendency for the wealthier school districts to construct schools of a higher cost per pupil. Statistical analysis shows that this relationship is significant but not of great magnitude: On the average, an increase in market value per unit

² Prices were adjusted on the basis of *Engineering News-Record* Building Cost Indices for Pittsburgh and Philadelphia.

Table 4

NEW ELEMENTARY SCHOOLS CONSTRUCTED BY AUTHORITIES:
 DISTRIBUTION OF 220 BUILDINGS BY ADJUSTED COST PER PUPIL AND BY
 MARKET VALUATION PER TEACHING UNIT OF PARTICIPATING DISTRICTS †

Cost per Pupil Adjusted to a 1954 Price Basis	Total Number of Buildings	Distribution by Market Valuation per Teaching Unit (Each mark, /, designates one building)						
		0- \$99,999	\$100,000- \$199,999	\$200,000- \$299,999	\$300,000- \$399,999	\$400,000- \$499,999	\$500,000- \$599,999	\$600,000- and Over
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
\$ 400- \$ 499	2		/	/				
500- 599	4		/	///				
600- 699	9		//////	//		/		
700- 799	15		//////	//////	/	///		
800- 899	29	/	////////////////	////////////////	//	//		
900- 999	40		////////////////	////////////////	////////////////		//	/
1,000- 1,099	36	//	//////////	//////////	//////////		//	///
1,100- 1,199	22	/	///	////////	//////	///	//	
1,200- 1,299	24	//	////	////	////	////	//	///
1,300- 1,399	16		///	////////	//	/		/
1,400- 1,499	9		/	///		//	//	/
1,500- 1,599	7		/	/	/		//	//
1,600- 1,699	2		/			/		
1,700- 1,799	1			/				
1,800- 1,899	0							
1,900- 1,999	2				/	/		
2,000- 2,099	1				/			
2,100- 2,199	1					/		
Total	220	6	62	72	37	19	12	12

† Where a building is leased by several districts, as in the case of a jointure, market value per unit is computed for the group of districts.
 SOURCE: Compiled from cost data furnished by the Department of Public Instruction and the State Public School Building Authority.

of \$100,000 is associated with an increase in cost per pupil of about \$60.³

SECONDARY SCHOOLS

A distribution of 105 authority-financed new secondary schools by cost per pupil and market value per teaching unit of the participating districts is shown in Table 5.

From an inspection of Table 5, it may be observed that per-pupil costs of secondary schools range from about \$750 to about \$4,350. The most frequently occurring value is about \$1,550. On the average, an increase of \$105 in cost per pupil is associated with an increase of \$100,000 in school district wealth as measured by market valuation per teaching unit.³

³ Two other possible determinants of cost per pupil were included in the statistical analysis: size of the building in square feet and method of financing—either State Public School Building Authority or municipality authority. In neither case were the regression coefficients of these variables significant.

Table 5

NEW SECONDARY SCHOOLS CONSTRUCTED BY AUTHORITIES:
DISTRIBUTION OF 105 BUILDINGS BY ADJUSTED COST PER PUPIL AND BY
MARKET VALUATION PER TEACHING UNIT OF PARTICIPATING DISTRICTS †

Cost per Pupil Adjusted to a 1954 Price Basis	Total Number of Buildings	Distribution by Market Valuation per Teaching Unit (Each mark, /, designates one building)						
		0- \$99,999	\$100,000- \$199,999	\$200,000- \$299,999	\$300,000- \$399,999	\$400,000- \$499,999	\$500,000- \$599,999	\$600,000- and Over
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
\$ 700-\$ 799	1			/				
800- 899	1		/					
900- 999	1		/					
1,000- 1,099	1		/					
1,100- 1,199	4		///			/		
1,200- 1,299	2	/		/				
1,300- 1,399	6		////	/		/		
1,400- 1,499	4	/	///					
1,500- 1,599	13		//////	///	/	//	/	
1,600- 1,699	9		////////	/			/	
1,700- 1,799	10		////////	//	/	/		
1,800- 1,899	11		////	//	/	/	//	/
1,900- 1,999	7		//	//	///			
2,000- 2,099	5		///			//		
2,100- 2,199	8		//	//	/	/		//
2,200- 2,299	2			//				
2,300- 2,399	5		/	//	/		/	
2,400- 2,499	4				//	/		/
2,500- 2,599	4			//		/	/	
2,600- 2,699	0							
2,700- 2,799	1				/			
2,800- 2,899	1				/			
2,900- 2,999	1				/			
3,000- 3,199	1			/				
3,200- 3,399	1					/		
3,400- 3,599	1							/
4,300- 4,399	1							/
Total	105	2	44	22	13	12	6	6

† Where a building is leased by several districts, as in the case of a jointure, market value per unit is computed for the group of districts.

SOURCE: Compiled from cost data furnished by the Department of Public Instruction and the State Public School Building Authority.

Section VI

SUBSIDIES ON ACCOUNT OF CLOSED SCHOOLS

The closed-school subsidy is an annual payment of \$200, in perpetuity, to districts of the fourth class or districts of the third class located within townships "for each school permanently closed or discontinued." Fourth class school districts have been eligible for the closed-school subsidy since 1921¹ and third class districts since 1943.²

Contrary to a widely prevailing impression, the closed-school subsidy is *not* limited to one-room schools but is paid on account of *all* closed schools. Furthermore, for subsidy purposes, a school is considered "closed" if the type of program offered in a building is changed from secondary to elementary, or the reverse. Unlike other subsidies on both current and capital account, the closed-school subsidy is not made available on an equalization basis. Regardless of relative wealth, each district of the specified classes receives \$200 per year for each closed school.

For a school closed prior to 1921 in a fourth class district, the Commonwealth has paid subsidies totalling almost \$7,000. Inasmuch as the subsidies are perpetuities, the present value of one closed-school subsidy, at an interest rate of 2 percent, is \$10,000.

Currently, subsidies are paid for about 10,000 closed schools, representing a Commonwealth obligation of \$4,000,000 a biennium. Under existing legislation, this obligation will increase each biennium.

¹ 1921, April 28, P. L. 328.

² 1943, May 27, P. L. 740.

Appendix A

ITEMS INCLUDED AND EXCLUDED IN CALCULATION OF COMMONWEALTH REIMBURSEMENT ON ACCOUNT OF ANNUAL RENTALS

The following statement was furnished the Joint State Government Commission by the Department of Public Instruction on July 30, 1954.

You are hereby advised that effective immediately the following items may be included in calculating the amount of reimbursement payable by the Commonwealth on account of annual rentals paid by a school district for amortizing the cost of school buildings constructed through an authority.

<i>No.</i>	<i>Item</i>
1.	Bond counsel
2.	Local counsel
3.	Insurance on building during construction
4.	Printing of bonds, lease, and indenture
5.	Engineering survey
6.	Core tests
7.	Construction of sewer plant
8.	Twenty percent overlay included in rent
9.	Construction of water line to source, or providing water by well drilling or other means
10.	Built-in wardrobes or lockers
11.	Clock and bell systems
12.	Permanent chalk boards
13.	Emergency lighting and fire alarm systems required by law
14.	Wiring for public address, radio, or television systems
15.	Built-in vault in secondary school buildings
16.	Folding gymnasium partitions
17.	Limited lighting systems for auditorium and stage
18.	Lighting fixtures

19. Incinerators
20. Range hood
21. Dust removing system
22. Exhaust-gas removing system
23. Limited exterior lighting of secondary school building approaches
24. Bus loading platform and bicycle storage
25. Structural design providing for built-in equipment although the equipment itself is not to be included
26. Exterior Flag pole

The following items are excluded absolutely from the calculation of the amount of reimbursement payable by the Commonwealth on account of annual rentals paid by a school district for amortizing the cost of school buildings constructed through an authority.

<i>No.</i>	<i>Item</i>
1.	Bond discount
2.	Reserves
3.	Trustee's fees
4.	Clerk of works or any person or persons employed to supervise building construction
5.	First year's rent included in bond issue
6.	Reproduction of architect's drawings
7.	Financial adviser services
8.	Authority expenses
9.	Auditorium seats
10.	Banking boards in secondary school gymnasiums
11.	Folding gymnasium bleachers
12.	Shower room lockers
13.	Storage for ground maintenance equipment

Excluded items that are qualified in such a manner that the same may be included under certain circumstances, to wit, are:

- Item No. 1. Contingencies. This item cannot be considered at the present time, but at a later time the contingency item can be put in its proper category for determination.

- Item No. 2. Relocating High Pressure Gas Lines. This item is excluded except in those cases where the Department of Public Instruction has no alternative but to approve the site location.
- Item No. 3. Contribution to Sewer Authority. This item is excluded as to payment of any rental charge for use of the sewer. Included in those cases where the only way to extend the sewer line or utility is by paying for it.
- Item No. 4. Demolition of Building Site. This item excluded in all cases except where the circumstances are approved by the Department of Public Instruction to include demolition costs.
- Item No. 5. Tack Boards. This item is included only where the same is a permanent Tack Board.
- Item No. 6. Equipment Cases. This item is included only where the Equipment cases are permanently built in.
- Item No. 7. Cafeteria Tray Rail and Serving Counter. This item included built-in counter cost only. The cost of the Tray Rail is excluded absolutely.

Appendix B

APPROVED REIMBURSABLE PROJECT COSTS, BY COUNTY, AS OF NOVEMBER, 1954

<i>Approved Reimbursable Project Costs</i>		
<i>County</i>	<i>Municipality Authority and Nonprofit Corporation Financing</i>	<i>State Public School Building Authority Financing</i>
(1)	(2)	(3)
Adams	\$ 3,798,748	.....
Allegheny	27,187,330	\$2,487,440
Armstrong	4,915,327	2,825,448
Beaver	2,784,680	4,750,154
Bedford	6,525,218	512,359
Berks	9,005,949	1,353,297
Blair	2,988,189	3,190,582
Bradford	2,492,811	2,114,748
Bucks	31,937,688	8,690,352
Butler	1,686,990	796,516
Cambria	1,390,443	2,725,517
Cameron	1,305,768	.....
Carbon	1,152,546	.....
Centre	10,410,102	.....
Chester	14,285,652	.....
Clarion	3,396,502	1,014,048
Clearfield	2,320,926	3,339,645
Clinton	434,434	2,404,343
Columbia	1,217,343	915,405
Crawford	3,789,173	3,048,765
Cumberland	14,551,904	.....
Dauphin	6,944,189	.....
Delaware	11,408,817	6,079,546
Elk .....	.....	888,572
Erie	5,841,789	6,369,503
Fayette	1,949,800	4,930,932
Forest .....	.....	756,705

Approved Reimbursable Project Costs

<i>County</i>	<i>Municipality Authority and Nonprofit Corporation Financing</i>	<i>State Public School Building Authority Financing</i>
(1)	(2)	(3)
Franklin	\$ 7,129,525	\$ 61,649
Fulton	509,725	518,281
Greene .....	.....	2,300,021
Huntingdon	1,727,364	666,604
Indiana	7,974,775	.....
Jefferson .....	.....	2,272,319
Juniata	847,313	1,115,508
Lackawanna	2,117,400	256,672
Lancaster	15,454,170	861,112
Lawrence	2,078,750	865,621
Lebanon	3,222,828	.....
Lehigh	10,785,711	.....
Luzerne	4,294,349	998,482
Lycoming	2,581,531	.....
McKean	1,043,890	.....
Mercer	380,698	9,941,387
Mifflin	2,550,900	2,087,898
Monroe .....	.....	518,706
Montgomery	18,343,139	3,621,280
Montour .....	.....	.....
Northampton	5,028,988	.....
Northumberland	3,147,062	.....
Perry .....	.....	6,190,639
Philadelphia .....	.....	.....
Pike .....	.....	.....
Potter .....	.....	2,195,678
Schuylkill .....	.....	2,055,627
Snyder	4,914,132	.....
Somerset	2,886,127	2,683,115
Sullivan .....	.....	463,540
Susquehanna	1,195,000	1,476,313
Tioga	2,875,208	.....
Union	3,040,418	.....
Venango	835,572	2,332,487

<i>Approved Reimbursable Project Costs</i>		
<i>County</i>	<i>Municipality Authority and Nonprofit Corporation Financing</i>	<i>State Public School Building Authority Financing</i>
(1)	(2)	(3)
Warren	\$ 1,545,892	\$1,968,843
Washington	995,005	2,637,609
Wayne .....	.....	.....
Westmoreland	12,511,649	5,991,436
Wyoming .....	.....	793,230
York	14,452,217	.....
Total	\$308,191,656	\$114,067,934

Appendix C

ALGEBRAIC SUMMARY OF RENTAL REIMBURSEMENT FORMULAS

Computation of standard reimbursement fraction = F:

E = Equalization level or maximum subsidy

r = Local effort rate = .004

M = Market value of taxable real property, per district (as certified by State Tax Equalization Board)

U = Number of district teaching units, per district, where one unit equals 30 elementary or 22 secondary pupils in average daily membership in a public school

Restrictions:

(1) $U > 1$

(2) Each one-room school operated with approval of State Council of Education credited with at least one teaching unit

(3) When ratio of pupils to teachers exceeds 33, U is multiplied by 33 and divided by the pupil-teacher ratio

$$F = \frac{E - r \frac{M}{U}}{E}$$

Rental Reimbursement Formulas:

R = Approved reimbursable rental

A = Amount of Commonwealth subsidy

(1) Existing Formula:

If $F \geq .6$; $A = F^2R$

If $F < .6$; $A = \frac{F}{2} R$

(2) Revised Formula:

If $F \geq .5$; $A = F^2R$

If $F < .5$; $A = \left(\frac{F^2}{2} + \frac{F}{4} \right) R$

