

PUBLIC SCHOOL
ATTENDANCE AREAS



A Report
of the
JOINT STATE GOVERNMENT COMMISSION
to the
GENERAL ASSEMBLY
of the
COMMONWEALTH OF PENNSYLVANIA
SESSION OF 1951

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.

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LETTER OF TRANSMITTAL

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

Pursuant to House Concurrent Resolution No. 74 of the 1949 Session of the General Assembly, there is submitted herewith a report dealing with public school attendance areas.

In accordance with Act of 1943, March 8, P. L. 13, Section 1, the Commission created a subcommittee to aid in studying public school attendance areas.

On behalf of the Commission, the cooperation of the members of the subcommittee is gratefully acknowledged.

BAKER ROYER, *Chairman.*

Joint State Government Commission

Capitol Building

Harrisburg, Pennsylvania

A	School Districts Maintaining Four Year High Schools
B	School Districts Maintaining Six Year High Schools
C	School Districts Maintaining Eight Year Elementary Schools

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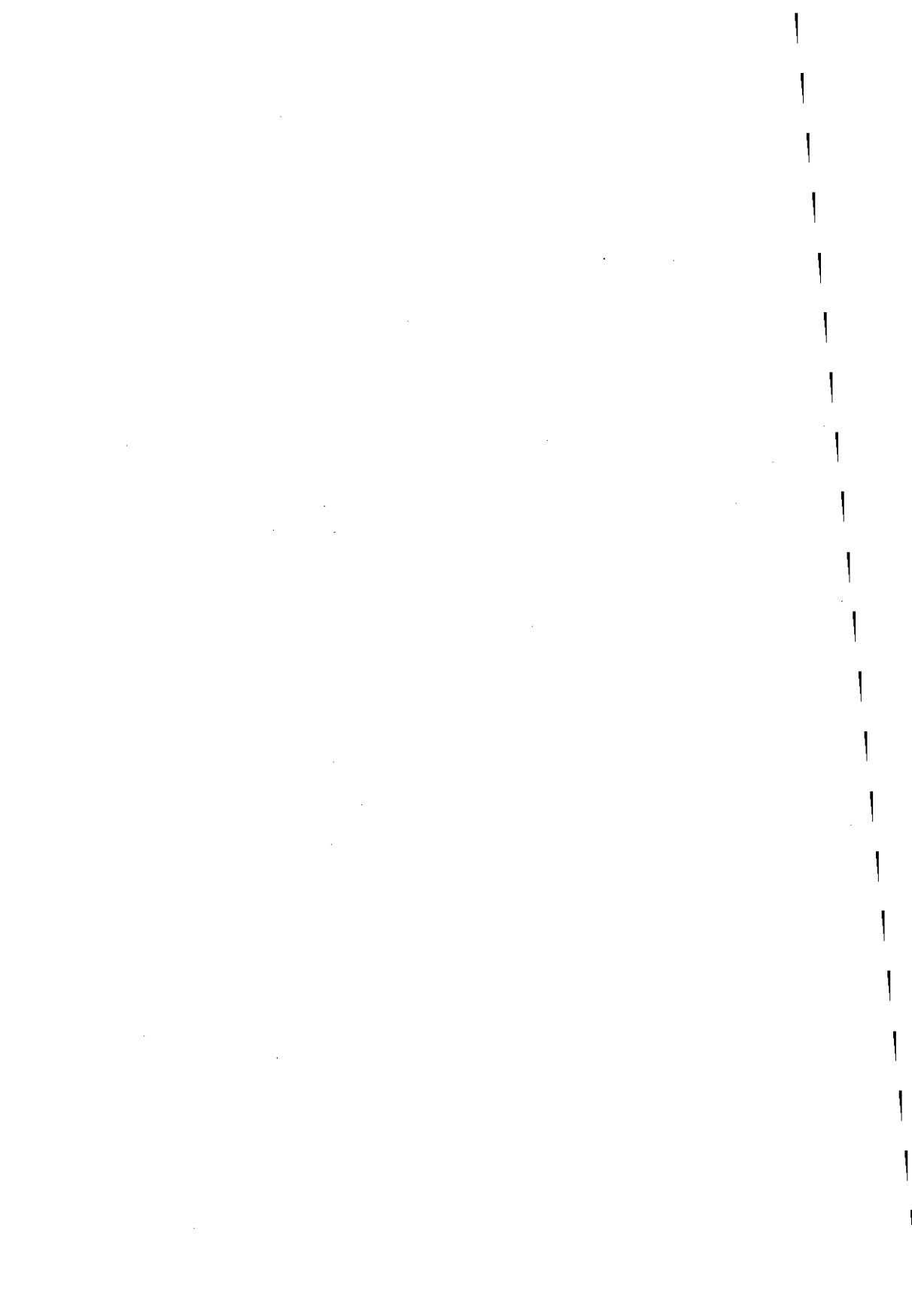
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SUMMARY OF FINDINGS

- I. In the opinion of educators, it is desirable to enlarge many school attendance areas (the geographic area served by a single school) in order to make available diversified curricula at a reasonable cost to the taxpayer.
- II. Four methods are currently employed with a view to enlarging areas:
 - A. Mandatory consolidation.
 - B. Voluntary consolidation without state financial assistance.
 - C. Voluntary consolidation with state financial assistance.
 - D. Voluntary consolidation of school operations.
- III. The Pennsylvania system of voluntary consolidation of operations provides advantages for pupils without sacrificing local control.

Prior to Act of 1945, May 29, P. L. 1112, Pennsylvania laws tended to discourage the enlarging of attendance areas and the formation of joint schools. However, the 1945 school subsidy system has proved conducive to the establishment of economical school attendance areas and to the equalization of educational opportunities. The characteristics of the system are:

- A. The rate of reimbursement from the state does not vary with size or class of district.
- B. The rate of state reimbursement is independent of the school or district in which the pupil is educated.

- IV. The following demonstrate Pennsylvania's progress:
- A. During the 1949 school year, 191 joint boards composed of 542 districts were operating in Pennsylvania. One hundred of these operated both elementary and secondary schools, 53 operated secondary schools only, and 38 operated elementary schools only.
 - B. During the 1948-49 school year, 40,500 pupils (more than 1/9 of the total of 350,112 secondary school pupils in third and fourth class school districts) were enrolled in joint secondary schools.
 - C. During the 1949-50 school year, approximately 48,400 pupils were in average daily membership in joint secondary schools.
- V. Data from a group of Pennsylvania 3rd and 4th class school districts with average capacity to support public education show that, as the number of pupils (average daily membership) increases, the total current expense costs, the instruction costs, and the total of all current expense costs other than instruction costs (on a per-pupil basis) tend to decrease. The per pupil costs which are typically related to given numbers of high school pupils in school districts maintaining four-year high schools decrease from \$244 for a school whose average daily membership is 50 pupils to \$163 for a school of 300 pupils. Similarly, the per pupil costs in school districts maintaining six-year high schools decrease from \$209 for only 100 pupils to \$156 for 700 pupils. In school districts maintaining eight-year elementary schools, the per pupil costs decrease from \$124 for 50 pupils to \$93 for 350 pupils.

- VI. Data from a group of 3rd and 4th class school districts show that, as the number of pupils transported increases, the per pupil cost of transportation decreases, and that, as the number of miles pupils are transported increases, the per pupil per mile cost of transportation decreases.

Section I

INTRODUCTION

In the opinion of educators,¹ it is desirable to enlarge many school attendance areas (the geographic area served by a single school) in order to make available diversified curricula at a reasonable cost to the taxpayer.

Educators generally agree that the most satisfactory attendance area for a high school is an area coterminous with the natural community and also, if possible, with the fixed boundaries of civil subdivisions. It is sometimes necessary for two or more communities to combine to form a high school attendance area, or for one community to require two or more high schools. Within the community high school attendance areas, smaller elementary school attendance areas and schools should be located in established neighborhood centers.

The consensus of opinion among educators indicates (1) that secondary education should begin with the 7th grade and offer six years of instruction; (2) that there should be 30 pupils enrolled per teacher in a six-year high school, 35 in the three years of junior high school and 25 in the three years of senior high school; (3) that within each high school area there should be located one or more elementary school attendance areas containing not less than 180 pupils each.

¹ *Local School Unit Organization in 10 States*, U. S. Department of the Interior, Office of Education, 1939; *Education for American Life*, The Regents' Inquiry, A New Program for the State of New York, 1938, Luther Gulick, Director; *Your School District*, The Report of the National Commission on School District Reorganization, National Education Association of the United States, 1948; *The Forty-Eight School Systems*, The Council of State Governments, 1949.

Standards for efficient and economical school districts must be adapted to the particular community in relation to its topographic, economic and population factors. Although the preceding requirements may have to be modified because of local conditions, it is generally agreed that pupils should not be transported over roads that present extreme hazards; elementary pupils should not have to walk more than two miles to or from school or ride in a bus more than one hour each morning or evening; high school students should not have to walk more than two and one-half miles to or from school or ride in a bus more than one and one-half hours each morning or evening.

The enlarging of school attendance areas is often facilitated by the enlarging of school districts since, in many cases, school districts contain an insufficient number of pupils for the maintenance of a satisfactory school or schools. A school district, often termed an "administrative unit," should not be smaller than the attendance area for a high school, although on occasion local conditions may justify exceptions to this. An administrative unit or school district should be large enough to provide all essential and desirable administrative and supervisory services except those provided by the state. Such a unit need not necessarily be coterminous with the boundaries of civil jurisdictions, and should not be smaller than the area included within the boundaries of a natural community.

According to the National Education Association, a good school district provides the services of educational and business administration; supervision of attendance, instruction and transportation; school library service and community library service (if the community has no public library); adult education leadership; physical and health examinations of children; specialists for the identification of atypical chil-

dren; the services of school psychologists and nurse-teachers; and a research staff. In localities where the schools must of necessity be small, the central staff of the school district should include special teachers in instrumental and vocal music, art and specialized types of vocational education.

In order to perform these services in an optimum manner, with reasonable per pupil costs, a supervisory staff of approximately 30 is required. To support such a staff at reasonable cost, it is generally considered that a school district should have a pupil population of between 10,000 and 12,000. However, the supervisory staff may be decreased and still be efficient and economical, if more than one of these functions is performed by each staff member. In certain cases, these services may be provided by a school district with a pupil population of from 5,000 to 6,000. It is generally believed that a modification which would involve the employment only of a superintendent, a nurse-attendance officer, and a bookkeeper-clerk in addition to teachers, would require about 1,750 pupils to establish reasonable per-pupil costs.

In terms of the number of teachers needed for a well functioning school district, the consensus of opinion indicates that at least 40 teachers are required, and that no further economies are gained through size after the unit reaches 250 teachers.

The Regents' Inquiry into the character and cost of public education in the State of New York sets forth the following essentials in discussing the proper size of a school district for New York:

"Every school district should

1. Contain enough children so that a well-balanced elementary and high school program can be maintained economically.

2. Be so planned geographically that schools can be conveniently located, and transportation, where necessary, easily arranged without requiring long routes.
3. Contain sufficient assessed valuation and taxpaying capacity to carry the greater part of the school program.
4. Coincide as far as possible with the natural community boundaries and, where possible, with local government units, so that cooperative services may be arranged, particularly in connection with health, traffic control, planning, recreation, the joint use of plant, and proper management of the public debt.
5. Keep the schools and the government of the schools close to the people so that the citizens generally, including the parents and the taxpayers, may know what their schools are doing, may have an effective voice in the school program, and may participate in the community use of the school building.

“These last two factors, relation of the school to the natural community and closeness of the school to the people, are of primary educational significance and are not to be sacrificed to the interest of ‘efficiency.’”²

² Regents' Inquiry, Op. Cit., pp. 89-90.

Section II

METHODS OF INCREASING THE SIZE OF PUBLIC SCHOOL ATTENDANCE AREAS AND SCHOOL DISTRICTS

The enlarging of public school attendance areas is often facilitated by the enlarging of school districts since, in many cases, school districts contain an insufficient number of pupils for the maintenance of a satisfactory school or schools.

Historically, school attendance areas have been enlarged through the closing of one-room schools. In recent years the advantages of diversified curricula and services at low cost have led to increased emphasis upon the consolidation of units whose size, although greater than that of the one-room school, had been too small to permit such expansion at reasonable cost. The consolidation of school districts, or of the operations of school districts, may provide more efficient attendance areas without the actual closing of schools within the area. At the same time, the increase in size of the school district provides operating economies in special curricula and services.

Varying methods of increasing the size of public school attendance areas and school districts are currently employed, both in states in which school districts are coterminous with civil subdivisions and in states in which each rural school district is composed of but one local school attendance area and is not necessarily coterminous with any other local governmental unit.

The four methods employed with a view of bringing together sufficient numbers of pupils are:

- A. Mandatory consolidation.
- B. Voluntary consolidation without state financial assistance.
- C. Voluntary consolidation with state financial assistance.
- D. Voluntary consolidation of school operations.

The mandatory method effects consolidations, either through direct legislative action concerning districts to be consolidated or through statutes which allow the administrative determination of districts to be consolidated. Under these methods, consolidations are generally rapidly effected.

The voluntary methods of consolidation are defined by legislative action but permit, rather than direct, the consolidation of school attendance areas or school districts. Under these voluntary methods, the citizens of the local areas determine, among other factors, the expansion of school programs, the area to be served, and the financial provisions to be made. In certain cases the formulation of local consolidation plans is furthered through action of state agencies.

A. Mandatory Consolidation

Mandatory consolidation of school districts has been used in West Virginia, Florida, Arkansas, and New Mexico, among others. In West Virginia, Florida, and Arkansas, the consolidation of districts is determined by statute. In New Mexico, statutory provision is made for the administrative determination of districts to be consolidated.

1. West Virginia

The West Virginia legislature, in 1933, provided that a school district shall include all the territory in one county, thereby abolishing all magisterial school districts, subdistricts, and independent districts. This statute gave the county boards of education powers to consolidate schools and to close small elementary schools in certain cases and provided for the joint operation of high schools serving more than one county.³

2. Florida

In 1947, the Florida School Law was amended to establish school districts whose boundaries were coterminous with those of the county. In each such county district, the county school board is charged with dividing the county into "School Community Areas" to constitute attendance areas and, if possible, to coincide with the boundaries of existing precincts.⁴

3. Arkansas

In Arkansas, the county system provides that the school districts within the county be grouped in zones (never less than four, or more than five zones per county). Statutory provision was made in 1948 for the creation in each county of a new school district (which may constitute the "fifth zone") composed of the territory of all school districts in the county which had less than 350 pupils.⁵

³ West Virginia Code of 1949 Annotated, chapter 18, sections 1724, 1774, 1797.

⁴ Florida Statutes Annotated, chapters 227-242, section 230.34.

⁵ Arkansas Statutes, 1947, Title 80; Initiated Act No. 1, 1948.

4. New Mexico

In New Mexico, legal provision has been made for the consolidation of school attendance areas at the order of the State Board of Education.⁶

B. Voluntary Consolidation Without State Financial Assistance

Among other states, Illinois and California provide for voluntary consolidation without special state financial assistance.

1. Illinois

The statutes in Illinois permit each county to establish a school survey committee for the purpose of studying school reorganization and further provide for the voluntary reorganization of school districts into "community consolidated school districts" upon petition and election.⁷

2. California

California, in 1945, adopted legislation which provided for school district reorganization throughout the state under lay, state commission, regional commissions, and local survey committees. The state commission is designated as a policy-interpreting and reviewing agency, while the local committees are designated as study and recommending agencies. The adoption or rejection of the individual plans are determined at local elections.⁸

⁶ New Mexico Statutes, 1941, Annotated, 55—1903.

⁷ Illinois Annotated Statutes, chapter 122.

⁸ Deering's Calif. Codes, Education, chapter 16, Articles 1-5.

C. Voluntary Consolidation With State Financial Assistance

The state of New York provides an example of a program of voluntary consolidation with state financial assistance. School districts that consolidate are provided with special assistance, such as, funds for transportation and for the construction of new buildings.⁹

To assist in reorganization, a general plan for school district reorganization has been formulated by the Joint Legislative Committee on the State Education System. In the preparation of this plan, local school boards, superintendents of schools, principals, and interested persons were consulted.

In completing the plan, the issue was submitted for discussion to each local area at public hearings. This method provided for the formulation of reorganization programs which could be acted upon locally by the electorates of the areas contemplating consolidations.

D. Voluntary Consolidation of School Operations

Pennsylvania differs from other states in that emphasis is placed on the consolidation of school operations rather than on the consolidation of school districts. Although statutory provision exists for the consolidation of the school districts into "union" districts, the number of districts which have elected to consolidate through joint operation is vastly greater than the number which have elected to consolidate their individual districts into "union" districts.

This Pennsylvania system of voluntary "joint" operation¹⁰ provides advantages for groups of pupils without sacrificing local control. Under this plan the local school districts retain their autonomy but agree to operate schools jointly.

⁹ Laws of 1925, c. 675.

¹⁰ 1949, March 10, P. L. 30, as amended.

Section III

PUBLIC SCHOOL ATTENDANCE AREAS IN PENNSYLVANIA

In Pennsylvania, school districts originally were co-terminous with other local governmental units. The school code of 1911 defined procedures for the voluntary establishment and maintenance of "joint" schools,¹¹ and, in 1921, statutory provision was made for the voluntary consolidation of school districts into single "union" districts.¹² Further cognizance was taken of the need for enlarging public school attendance areas in the year 1921, when legislative provision was made for annual payments of \$200 for the closing of each one-room school,¹³ and in the year, 1925, when the closing of schools educating fewer than 10 pupils was directed by statute.¹⁴

Legislation providing for the closing of one-room schools has been generally effective. By 1946, approximately 6,881 one-room schools had been permanently closed, and about 3,373 were still in operation. As of the school year 1948-49, there were over 2,400 one-room schools in operation in the Commonwealth. During the school year 1949-50, Commonwealth payments for closed schools amounted to \$1,803,100. It has been estimated that at the time of permanent closing of all one-room schools, the Commonwealth will be obli-

¹¹ 1911, May 18, P. L. 309, Art. XVIII.

¹² 1921, May 20, P. L. 1023.

¹³ 1921, April 28, P. L. 328.

¹⁴ 1925, May 13, P. L. 628.

gated to pay \$2,050,800 per year on account of closed schools.¹⁵ Assuming that money is worth 3 per cent, this annual obligation would have a present value of \$68,360,000.

Prior to Act 403, Session of 1945,¹⁶ the formation of joint districts and "union" districts was not encouraged by the system employed in making state reimbursement payments to local school districts. The school subsidy system of 1945, as amended, has encouraged consolidations, the establishment of economical school attendance areas, and the equalization of educational opportunities in the Commonwealth.

The state school subsidy system in effect immediately preceding the establishment of the reimbursement method of 1945 provided for state reimbursement on account of instructional salaries, vocational education, pupil transportation, high school tuition, and temporary salary increases, as well as on account of permanently closed one-room schools. Reimbursement on account of instructional salaries was based on the so-called "true" valuation¹⁷ of real property per teacher and on the population of the school district and on the minimum mandated salaries of teachers in the districts. Payments on account of vocational education likewise varied according to "true" valuation and class of district. Reimbursements on account of pupil transportation and on account of high school tuition were dependent on this so-called "true" valuation per teacher. Reimbursement for temporary salary increases provided mandated cost of living increases paid by the Commonwealth according to the salaries of teachers.

¹⁵ Report V of the School Commission to the General Assembly of the Commonwealth of Pennsylvania, "School Subsidies," March, 1947, p. 44.

¹⁶ 1945, May 29, P. L. 1112.

¹⁷ "True" valuation was defined as the assessed valuation multiplied by the ratio "market value of property to assessed value of property." This ratio was certified by the local school boards.

This reimbursement system, which was established in 1921, and 1923, and was amended from time to time until 1945, discouraged the enlarging of public school attendance areas and school districts since increases in size of district might well result in decreases in reimbursement from the state. In addition, reductions in state reimbursement to school districts often occurred when the districts sent pupils to schools in other districts because of the resultant increases in the so-called "true" valuation per teacher of the sending district. These factors discouraged the formation of "union" districts, the consolidation of operations in joint schools, and the sending of tuition pupils to schools outside of their district of residence.

From 1921 to 1943, amendments were made from time to time in the reimbursement system, generally with a view toward the enlarging of public school attendance areas and school districts. However, the basic defects of the system continued to retard the expansion of many areas.

The school code, as it existed in 1921,¹⁸ provided for mandated minimum salaries which increased as districts changed from one class of district to another through increases in size, consequently increasing the costs of the school districts. At that time, state reimbursement was dependent upon the number of teachers employed by the district and the population of the district. In 1923, the reimbursement statute was amended to include "true" valuation of real property per teacher as well as number of teachers and the population of the district.¹⁹

In 1923 and 1925, state reimbursement to districts for transportation (which heretofore applied only on account of joint schools, joint consolidated schools and closed schools),

¹⁸ 1921, April 28, P. L. 328.

¹⁹ 1923, May 23, P. L. 328.

was provided for all fourth class districts and all third class districts coterminous with townships in the Commonwealth.²⁰

In 1925, statutes, commonly referred to as the "ghost teacher" statutes, provided for the inclusion in the reimbursement formula of the equivalent of one teacher for each closed one-room school within the district.²¹ This factor tended to decrease the "true" valuation per teacher and increase the state reimbursement.

High school tuition payments were first made available in 1931.²² Although these payments were designed to promote education in efficient attendance areas, the decreases in "true" valuation per teacher resulting from the sending of district pupils to schools outside the district made it financially unattractive for many districts to discontinue small high schools.

In 1941 and 1943, payments on account of closed schools were extended to include districts which had changed classification by reason of increases in population and to include third class districts coterminous with townships.²³

Although the programs of action contained in the statutes up to this time were generally directed at increasing the size of public school attendance areas and equalizing educational opportunities within the Commonwealth, the method of computing state school subsidies on the basis of "true" valuation, population of district, and numbers of teachers employed by the district, as well as the differences in mandated minimum salaries for teachers among the districts, prevented the full achievement of these objectives.

Act of 1945, May 29, P. L. 1112, and subsequent amendments to the school code have provided a school subsidy

²⁰ 1923, May 28, P. L. 463; 1925, May 13, P. L. 628.

²¹ 1925, April 30, P. L. 374; 1925, May 13, P. L. 681.

²² 1931, May 29, P. L. 243.

²³ 1941, August 5, P. L. 785; 1943, May 27, P. L. 740.

system which facilitates the establishment of economical school attendance areas and the equalization of educational opportunities within the Commonwealth. This 1945 act provided that the rate of reimbursement from the state would not vary with the population of a school district but would be dependent upon the assessed value of real property within the district and upon the number of pupils residing within the district. The formation of joint districts was facilitated through this method of counting pupils in the area of their residence, rather than the areas of school attendance and through the liberalization of payments on account of tuition to the member districts of the joint school boards.

In 1947, the mandated salaries of teachers and other professional school employes in the Commonwealth were increased, and one schedule was provided for second, third, and fourth class districts.²⁴ This uniform schedule for second, third, and fourth class districts results in no change in mandated salary in the event that a district changes class through increases in population which often result from consolidation. In 1949, further increases in minimum mandated salaries were made, and the uniformity of schedules was continued.²⁵

The State Public School Building Authority, established in 1947, provided assistance to local school districts needing new school buildings.²⁶ In the same year, county school boards were authorized by statute to submit plans for mergers within each county to the State Council of Education for approval and for future action by the localities.²⁷

²⁴ 1947, July 5, P. L. 1266.

²⁵ 1949, May 9, P. L. 962; 1949, May 26, P. L. 1820.

²⁶ 1947, July 5, P. L. 1217.

²⁷ 1947, June 21, P. L. 867.

The use of the market value of a school district, rather than the assessed value in the computation of state reimbursements was established by the General Assembly in 1947.²⁸ Also, in 1949, state reimbursements to local school districts for Public School Building Authority rentals were provided.²⁹

The effectiveness of the state school subsidy system in Pennsylvania since 1945 is reflected in recent increases in the size of public school attendance areas within the state. In 1929, there were 484 high schools in Pennsylvania enrolling 100 or less pupils. In the school year 1949-50, 122 high schools enrolled 100 or less pupils.

During the 1949 school year, 191 joint boards, composed of 542 districts, were operating in Pennsylvania. It is estimated that during the 1950-1951 school year, 50 more joint school boards will start operations. During the 1948-49 school year, 40,500 pupils (more than 1/9 of the total of 350,112 secondary school pupils in third and fourth class school districts) were enrolled in joint secondary schools, and during the 1949-50 school year, approximately 48,400 pupils were in average daily membership in joint secondary schools. On the other hand, under legislation providing for the establishment of "union" districts, only 15 such districts, composed of 44 separate districts, have been formed from 1921 to 1950.

The trend has been toward the joint operation of both high schools and elementary schools. Of the 191 joint boards operating during the 1949 school year, 100 operated both elementary and secondary schools jointly, 53 operated only secondary schools, and 38 elementary schools.

²⁸ 1947, June 27, P. L. 1046.

²⁹ 1949, May 26, P. L. 1879.

Section IV

NUMBER OF PUPILS AND PER PUPIL CURRENT EXPENSE COSTS

Over the last thirty years the General Assembly has appropriated large sums of money for the purpose of stimulating, rather than mandating the creation of larger attendance areas.

The establishment of enlarged attendance areas is considered desirable in many cases as facilitating diversification of programs, the employment of more experienced teachers, and the lowering of per pupil costs.

It need not be demonstrated that the enlargement of attendance areas facilitates diversification. It is an often observed fact that experienced school teachers move from small to larger districts.

The relationship between per pupil costs and number of pupils in average daily membership is explored in this section.

Investigation discloses that in selected Pennsylvania school districts with average capacity to support public education, measured in assessed valuation of taxable property per pupil, the total current expense costs, the instruction costs, and the total of all current expense costs other than instruction tend to decrease (on a per pupil basis) as the number of pupils in terms of average daily membership increases.

Generally, decreases in costs are associated with increases in numbers of pupils in the case of both high schools and

elementary schools. Specifically, the types of school organization investigated are: high schools of districts maintaining four-year high schools, and of districts maintaining six-year high schools; elementary schools of districts maintaining eight-year elementary schools, and of districts maintaining six-year elementary schools.³⁰

The total current expense costs as defined for purposes of this study equal the sum of the following items:

1. *Instruction Costs*: salaries of principals, principals' clerks, supervisors and teachers, the costs of textbooks, books for school libraries, school supplies, tuition payments, the costs of attendance at teachers' institutes, the costs of commencement exercises and exhibits, together with certain other lesser costs.
2. *General control*: expenses of business administration, child census enumeration, the salaries of the superintendent, treasurer, and school clerk.
3. *Auxiliary agencies and coordinate activities*: Intra-district transportation of pupils, special provisions for tubercular children and for undernourished children, costs of community lectures, enforcement of compulsory attendance, medical, dental, and nurse service, the costs of operating social centers and recreation centers.

³⁰ Groups of 123 school districts maintaining four-year high schools, 144 school districts maintaining six-year high schools, 397 school districts maintaining eight-year elementary schools, and 191 school districts maintaining six-year elementary schools. These school districts reflected an average capacity to support public education as measured by assessed valuation per teaching unit. For detail of selection of school districts and computation of cost values, see Appendix A.

4. *Operation of the school plant:* expenses of fuel, water, light, and power, the salaries of janitors and other employes who care for the grounds.
5. *Maintenance of the school plant:* repair of buildings, replacements, furniture and equipment costs, and certain costs of upkeep of grounds and buildings (plumbing and lighting costs).
6. *Fixed charges:* insurance, rent, taxes on property, and school employes' retirement payments.

A. School Districts Maintaining Four-Year High Schools

Decreases in costs generally accompany increases in numbers of pupils in the high schools of the group of school districts maintaining four-year high schools.

The number of pupils in terms of average daily membership in the high schools of the 123 districts investigated ranged from 29 in the smallest district to 647 in the largest district. The one hundred and three districts having up to 300 pupils showed a definite decreasing cost pattern, while the remaining twenty having more than 300 were widely scattered.

1. Total Current Expense Costs Per Pupil

The relationship between total current expense costs per pupil and increases in numbers of pupils is shown in Chart 1. Total current expense costs per pupil ranged from \$73.81 to \$467.19. In this chart, each point represents one of the

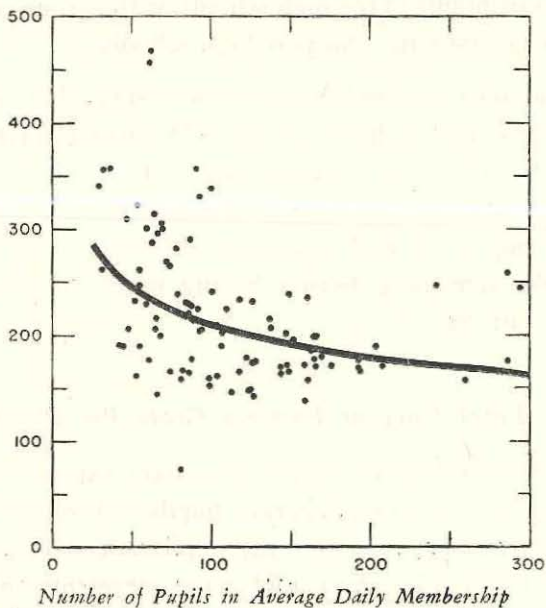
103 school districts with less than 300 pupils. The costs associated with selected numbers of pupils are:

<i>Number of Pupils in Terms of Average Daily Membership</i>	<i>Total Current Expense Costs Per Pupil</i>
50	\$244
100	209
150	191
200	179
250	170
300	163

CHART 1. FOUR-YEAR HIGH SCHOOLS

Total Current Expense Costs Per Pupil in Relation to Number of Pupils in Average Daily Membership

*Total Current Expense Costs
Per Pupil, in Dollars*



2. Instruction Costs Per Pupil

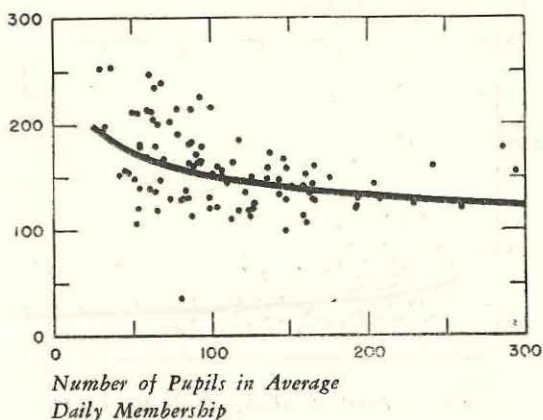
The number of pupils in terms of average daily membership and the instruction costs per pupil for the 103 districts having fewer than 300 pupils are shown in Chart 2. The instruction costs per pupil ranged from \$35.78 to \$253.43 in these school districts. The costs for given numbers of pupils as shown by the trend line are:

<i>Number of Pupils in Terms of Average Daily Membership</i>	<i>Instruction Costs Per Pupil</i>
50	\$173
100	151
150	140
200	132
250	126
300	122

CHART 2. FOUR-YEAR HIGH SCHOOLS

Instruction Costs Per Pupil in Relation to Number of Pupils in Average Daily Membership

*Instruction Costs Per Pupil,
In Dollars*



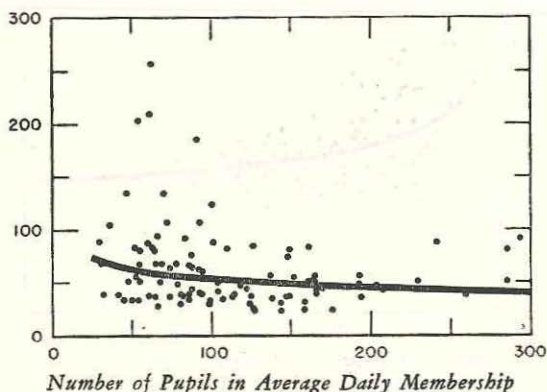
3. Total Current Expense Costs Per Pupil Other Than Instruction Costs

The total of all current expense costs other than instruction costs, on a per pupil basis, ranged from \$23.17 to \$256.01. For the 103 school districts having fewer than 300 pupils, the general relationship between cost and membership is shown in Chart 3. For selected number of pupils this relationship is:

<i>Number of Pupils in Terms of Average Daily Membership</i>	<i>All Current Expense Costs Except Instruction Costs Per Pupil</i>
50	\$63
100	54
150	49
200	46
250	43
300	41

CHART 3. FOUR-YEAR HIGH SCHOOLS
All Current Expense Costs Other Than Instruction Costs Per Pupil in Relation to Number of Pupils in Average Daily Membership

All Current Expense Costs Other Than Instruction Costs Per Pupil, in Dollars



B. School Districts Maintaining Six-Year High Schools

Decreases in costs generally accompany increases in numbers of pupils in the high schools of the group of school districts maintaining six-year high schools.

The number of pupils in terms of average daily membership in the high schools of the 144 districts investigated ranged from 32 in the smallest district to 2,036 in the largest district. The one hundred and twenty-two districts having fewer than 720 pupils showed a definite decreasing cost pattern, while the remaining 22 having more than 720 pupils were widely scattered.

1. Total Current Expense Costs

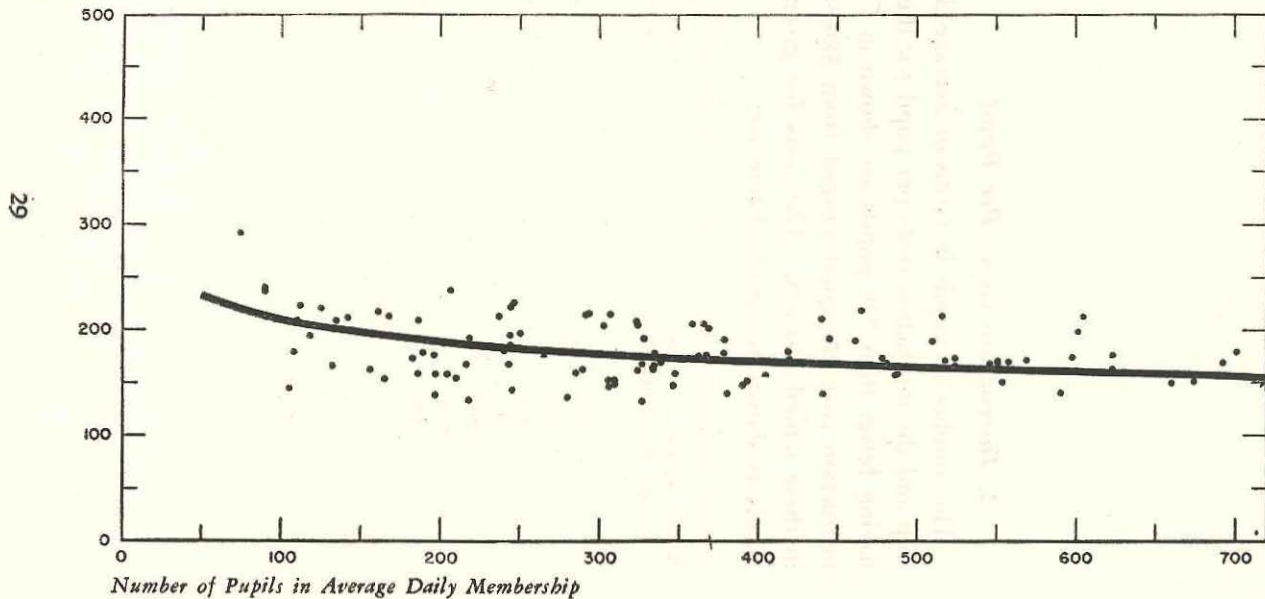
The relationship between total current expense costs per pupil and increases in numbers of pupils is shown in Chart 4. Total current expense costs per pupil ranged from \$116.80 to \$472.97. The costs associated with selected numbers of pupils are:

<i>Number of Pupils in Terms of Average Daily Membership</i>	<i>Total Current Expense Costs Per Pupil</i>
100	\$209
200	188
300	177
400	170
500	164
600	160
700	156

CHART 4. SIX-YEAR HIGH SCHOOLS

Total Current Expense Costs Per Pupil in Relation to Number of Pupils in Average Daily Membership

Total Current Expense Costs Per Pupil,
In Dollars



2. Instruction Costs Per Pupil

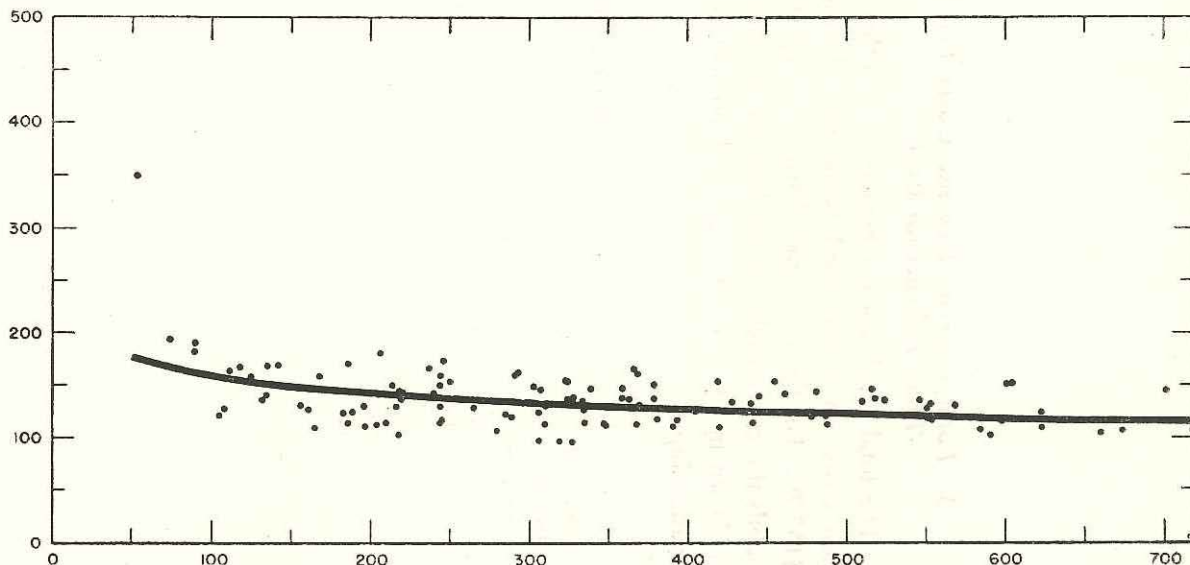
The number of pupils in terms of average daily membership and the instruction costs per pupil for the 122 districts having fewer than 720 pupils are shown in Chart 5. The instruction cost per pupil ranged from \$86.38 to \$350.20 in these school districts. The costs for given numbers of pupils as shown by the trend line are:

<i>Number of Pupils in Terms of Average Daily Membership</i>	<i>Instruction Costs Per Pupil</i>
100	\$158
200	142
300	133
400	127
500	122
600	119
700	116

CHART 5. SIX-YEAR HIGH SCHOOLS

Instruction Costs Per Pupil in Relation to Number of Pupils in Average Daily Membership

*Instruction Costs Per Pupil,
In Dollars*



Number of Pupils in Average Daily Membership

3. Total Current Expense Costs Per Pupil Other Than Instruction Costs

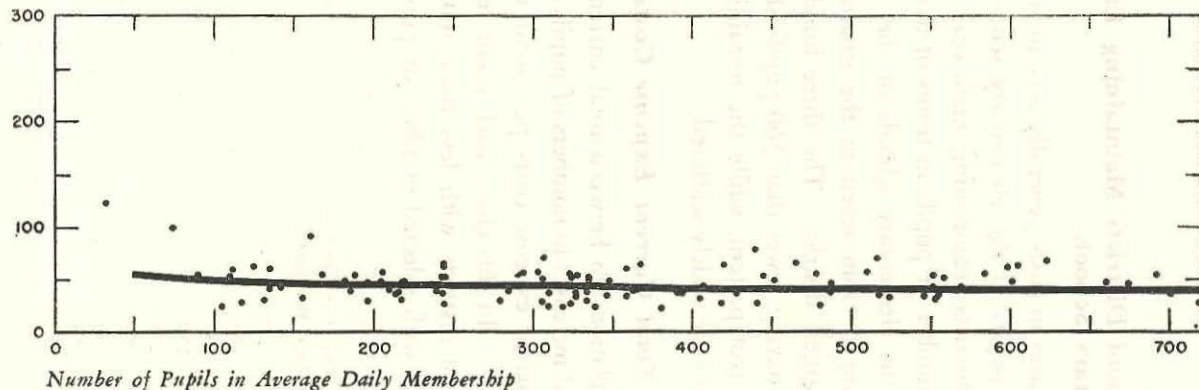
The total of all current expense costs other than instruction costs, on a per pupil basis, ranged from \$22.12 to \$157.79. For the 122 school districts having fewer than 720 pupils the general relationship between cost and membership is shown in Chart 6. For selected numbers of pupils this relationship is:

<i>Number of Pupils in Terms of Average Daily Membership</i>	<i>All Current Expense Costs Except Instruction Costs Per Pupil</i>
100	\$49
200	45
300	43
400	41
500	40
600	39
700	39

CHART 6. SIX-YEAR HIGH SCHOOLS

All Current Expense Costs Other Than Instruction Costs Per Pupil in Relation to Number of Pupils in Average Daily Membership

*All Current Expense Costs Other Than
Instruction Costs Per Pupil, in Dollars*



C. School Districts Maintaining Eight-Year Elementary Schools

Decreases in costs generally accompany increases in numbers of pupils in the elementary schools of the group of school districts maintaining eight-year elementary schools.

The number of pupils in terms of average daily membership in the elementary schools of the 397 districts investigated ranged from seven in the smallest district to 1,349 in the largest district. The three hundred and forty-three districts having fewer than 360 pupils showed a definite decreasing cost pattern, while the remaining 54 having more than 360 were widely scattered.

1. Total Current Expense Costs Per Pupil

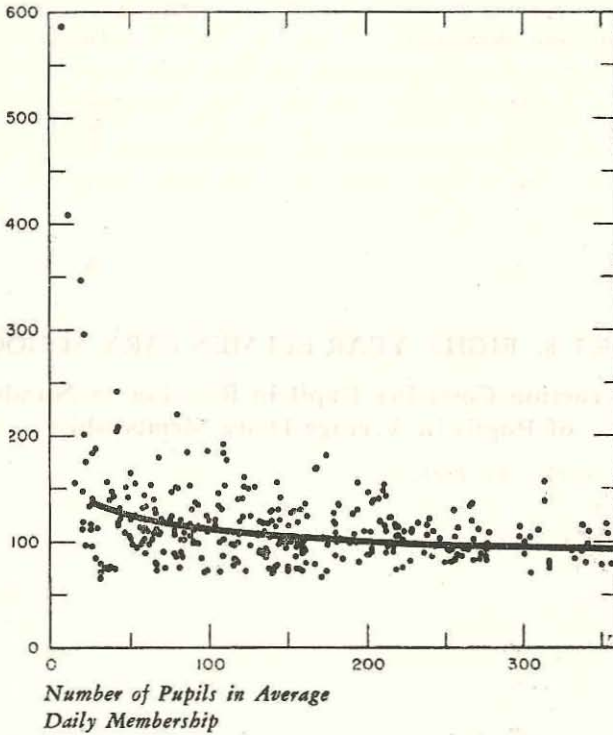
The relationship between total current expense costs per pupil and increases in numbers of pupils is shown in Chart 7. Total current expense costs per pupil ranged from \$63.04 to \$585.79. In this chart, each point represents one of the 343 school districts with less than 360 pupils. The costs associated with selected numbers of pupils are:

<i>Number of Pupils in Terms of Average Daily Membership</i>	<i>Total Current Expense Costs Per Pupil</i>
50	\$124
100	112
150	105
200	101
250	98
300	95
350	93

CHART 7. EIGHT-YEAR ELEMENTARY SCHOOLS

Total Current Expense Costs Per Pupil in Relation to Number of Pupils in Average Daily Membership

*Total Current Expense Costs
Per Pupil, in Dollars*



2. *Instruction Costs Per Pupil*

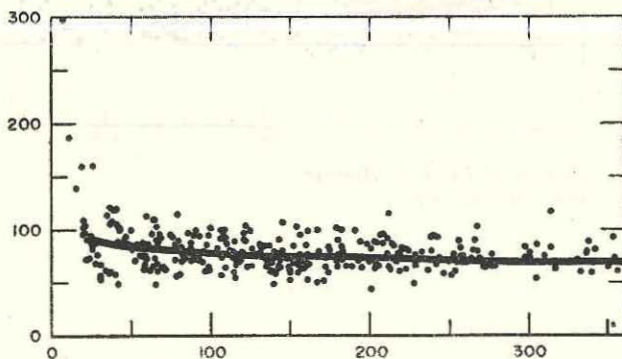
The number of pupils in terms of average daily membership and the instruction costs per pupil for the 343 districts having fewer than 360 pupils are shown in Chart 8. The instruction cost per pupil ranged from \$41.16 to \$297.95 in these school districts. The costs for given numbers of pupils as shown by the trend line are:

<i>Number of Pupils in Terms of Average Daily Membership</i>	<i>Instruction Costs Per Pupil</i>
50	\$84
100	78
150	75
200	73
250	71
300	69
350	68

CHART 8. EIGHT-YEAR ELEMENTARY SCHOOLS

Instruction Costs Per Pupil in Relation to Number of Pupils in Average Daily Membership

*Instruction Costs Per Pupil,
In Dollars*



*Number of Pupils in Average
Daily Membership*

3. Total Current Expense Costs Per Pupil Other Than Instruction Costs

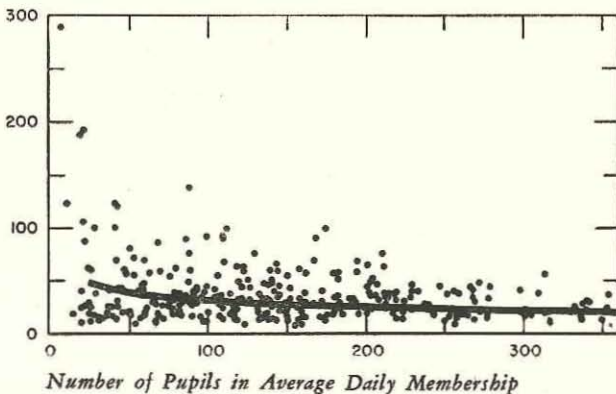
The total of all current expense costs other than instruction costs, on a per pupil basis, ranged from \$7.34 to \$287.84. For the 343 school districts having fewer than 360 pupils the general relationship between cost and membership is shown in Chart 9. For selected numbers of pupils this relationship is:

<i>Number of Pupils in Terms of Average Daily Membership</i>	<i>All Current Expense Costs Except Instruction Costs Per Pupil</i>
50	\$38
100	31
150	27
200	25
250	23
300	21
350	20

CHART 9. EIGHT-YEAR ELEMENTARY SCHOOLS

All Current Expense Costs Other Than Instruction Costs Per Pupil in Relation to Number of Pupils in Average Daily Membership

All Current Expense Costs Other Than Instruction Costs Per Pupil, in Dollars



D. School Districts Maintaining Six-Year Elementary Schools

Decreases in costs generally accompany increases in numbers of pupils in the elementary schools of the group of school districts maintaining six-year elementary schools.

The number of pupils in terms of average daily membership in the elementary schools of the 191 districts investigated ranged from 12 in the smallest district to 2,515 in the largest district. The 126 districts having fewer than 360 pupils showed a definite decreasing cost pattern, while the remaining 65 having more than 360 were widely scattered.

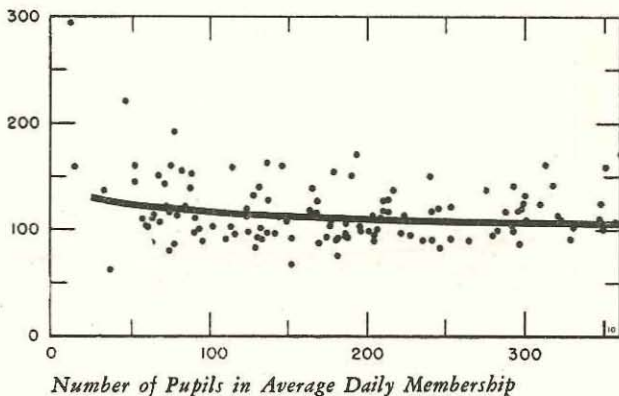
1. Total Current Expense Costs Per Pupil

The relationship between total current expense costs per pupil and increases in number of pupils is shown in Chart 10. Total current expense costs per pupil ranged from \$60.80 to \$292.64. In this chart, each point represents one of the 126 school districts with less than 360 pupils. The costs associated with selected numbers of pupils are:

<i>Number of Pupils in Terms of Average Daily Membership</i>	<i>Total Current Expense Costs Per Pupil</i>
50	\$123
100	116
150	113
200	110
250	108
300	106
350	105

CHART 10. SIX-YEAR ELEMENTARY SCHOOLS
Total Current Expense Costs Per Pupil in Relation
to Number of Pupils in Average Daily
Membership

Total Current Expense Costs Per Pupil,
In Dollars



2. Instruction Costs Per Pupil

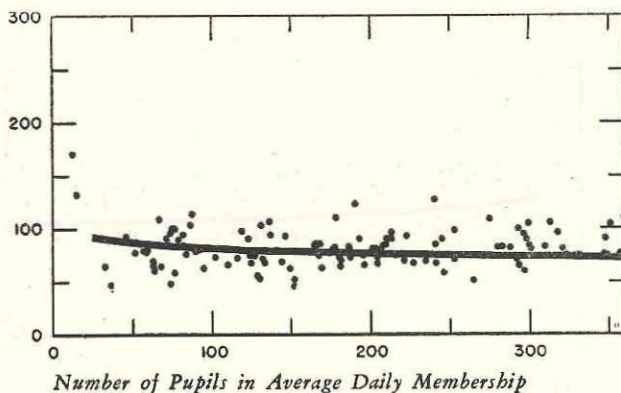
The number of pupils in terms of average daily membership and the instruction costs per pupil for the 126 districts having fewer than 360 pupils are shown in Chart 11. The instruction cost per pupil ranged from \$28.31 to \$169.24 in these school districts. The costs for given numbers of pupils as shown by the trend line are:

<i>Number of Pupils in Terms of Average Daily Membership</i>	<i>Instruction Costs Per Pupil</i>
50	\$86
100	81
150	78
200	76
250	74
300	73
350	72

CHART 11. SIX-YEAR ELEMENTARY SCHOOLS

Instruction Costs Per Pupil in Relation to Number of Pupils in Average Daily Membership

*Instruction Costs Per Pupil,
In Dollars*



3. Total Current Expense Costs Per Pupil Other Than Instruction Costs

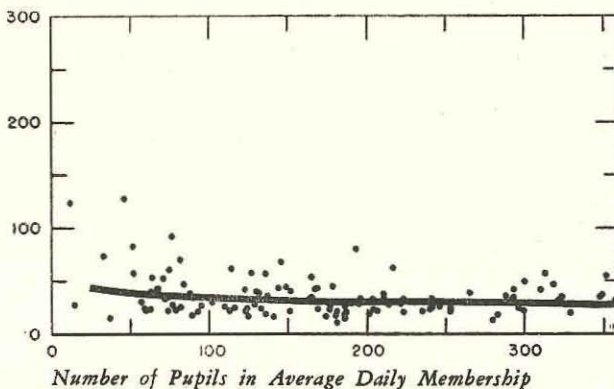
The total of all current expense costs other than instruction costs, on a per pupil basis, ranged from \$10.46 to \$127.26. For the 126 school districts having fewer than 360 pupils, the general relationship between cost and membership is shown in Chart 12. For selected numbers of pupils this relationship is:

<i>Number of Pupils in Terms of Average Daily Membership</i>	<i>All Current Expense Costs Except Instruction Costs Per Pupil</i>
50	\$38
100	34
150	31
200	30
250	29
300	28
350	27

CHART 12. SIX-YEAR ELEMENTARY SCHOOLS

All Current Expense Costs Other Than Instruction Costs Per Pupil in Relation to Number of Pupils in Average Daily Membership

All Current Expense Costs Other Than Instruction Costs Per Pupil, in Dollars



Section V

PER PUPIL COSTS OF INTER-DISTRICT TRANSPORTATION

The enlarging of public school attendance areas gives rise to costs of inter-district transportation when pupils are sent to schools outside the districts in which they reside. The additional cost per pupil for inter-district transportation must be considered along with the general decrease in inter-district total current expense cost per pupil as greater numbers of pupils are brought together in a school attendance area.

Decreases in the cost of transporting one pupil one mile (contract transportation for secondary school pupils) are generally related to increases in the numbers of miles traveled and to increases in the numbers of pupils transported.³¹

The inter-district contract cost of transporting one pupil one mile twice a day during a school term of 180 days ranged from \$.32 to \$14 in the 151 school districts sending all secondary pupils to schools of other districts and for which complete data were available.

The one-way daily mileage of school bus routes ranged from 1.7 miles to 55 miles in these school districts. The relationship between the number of miles pupils are transported as measured by the one-way mileage of the school bus and the transportation costs per pupil as measured by

³¹ The cost relationships were established for the 151 school districts maintaining elementary schools only and sending all high school pupils to schools of other districts and for which complete inter-district transportation data were available. Since data for school district-owned transportation were available for few districts, contract transportation only was used. For detail of computation of cost relationships, see Appendix B.

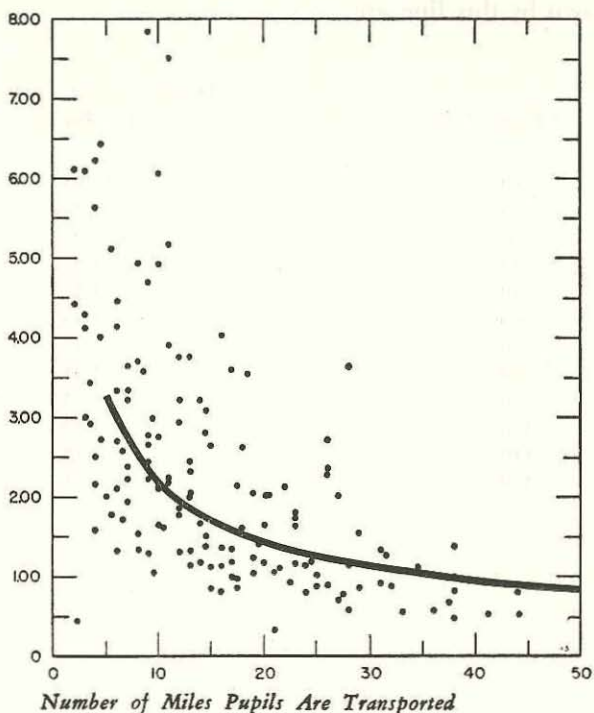
the cost of transporting one pupil one mile twice a day for a school term of 180 days is shown in Chart 13. Each point represents one of the 149 school districts whose one-way school bus mileage is less than 50 miles and whose cost of transporting one pupil one mile twice a day for a school term of 180 days is less than \$8. The dollar values associated with selected numbers of miles are:

<i>Number of Miles Pupils Are Transported</i>	<i>Transportation Costs Per Pupil Per Mile</i>
5	\$3.27
10	2.17
15	1.70
20	1.44
25	1.26
30	1.13
35	1.03
4095
4589
5083

CHART 13.

Transportation Costs Per Pupil in Relation to Number of Miles Pupils Are Transported in School Districts Which Do Not Maintain Their Own High Schools

*Transportation Costs Per Pupil,
In Dollars*



The number of pupils transported in the 151 school districts ranged from five pupils to 186 pupils. The relationship between the number of pupils transported and the transportation costs per pupil as measured by the cost of transporting one pupil one mile twice a day for a school term of 180 days is shown in Chart 14. On the chart, each point represents one of the 146 school districts transporting fewer than 120 pupils and having a cost of less than \$8. The typical transportation costs are shown by the curved line in Chart 14, and the costs related to given numbers of pupils as shown by this line are:

<i>Number of Pupils Transported</i>	<i>Transportation Costs Per Mile Per Pupil</i>
10	\$2.95
20	2.25
30	1.92
40	1.71
50	1.57
60	1.46
70	1.38
80	1.31
90	1.25
100	1.20
110	1.15
120	1.11

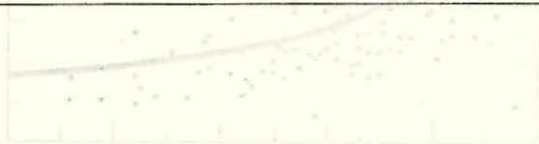
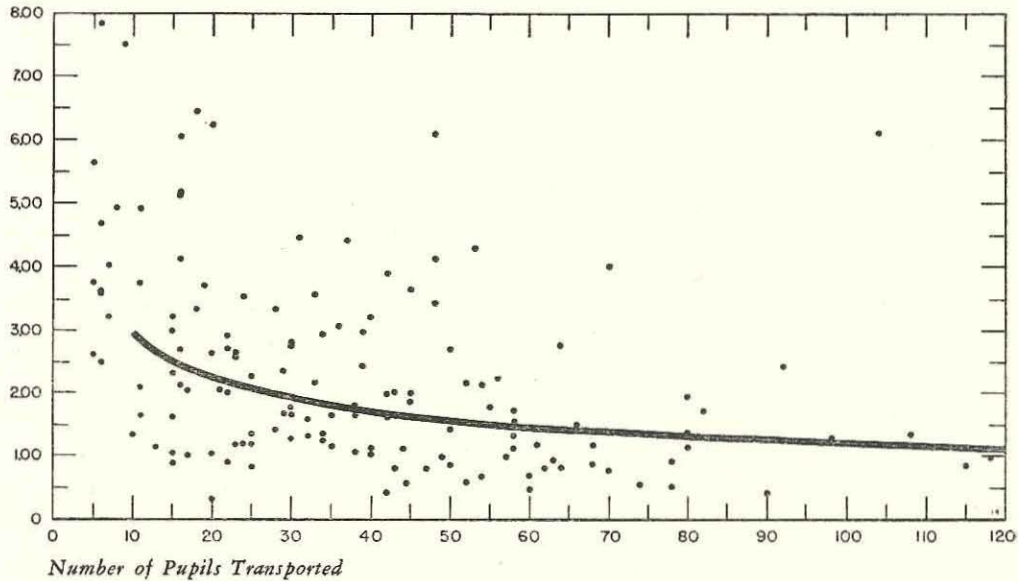


CHART 14.

Transportation Costs Per Pupil in Relation to Number of Pupils Transported in School Districts Which Do Not Maintain Their Own High Schools

*Transportation Costs Per Pupil,
In Dollars*



APPENDIX

APPENDIX A

Computation of the Relationship Between Number of Pupils and Selected Per Pupil Current Expense Costs

The selection of school districts of comparable financial ability to support public education as measured by the Standard Reimbursement Fractions, calculated on the basis of assessed valuation of taxable real property as shown on the county duplicate, was made from the following distribution:

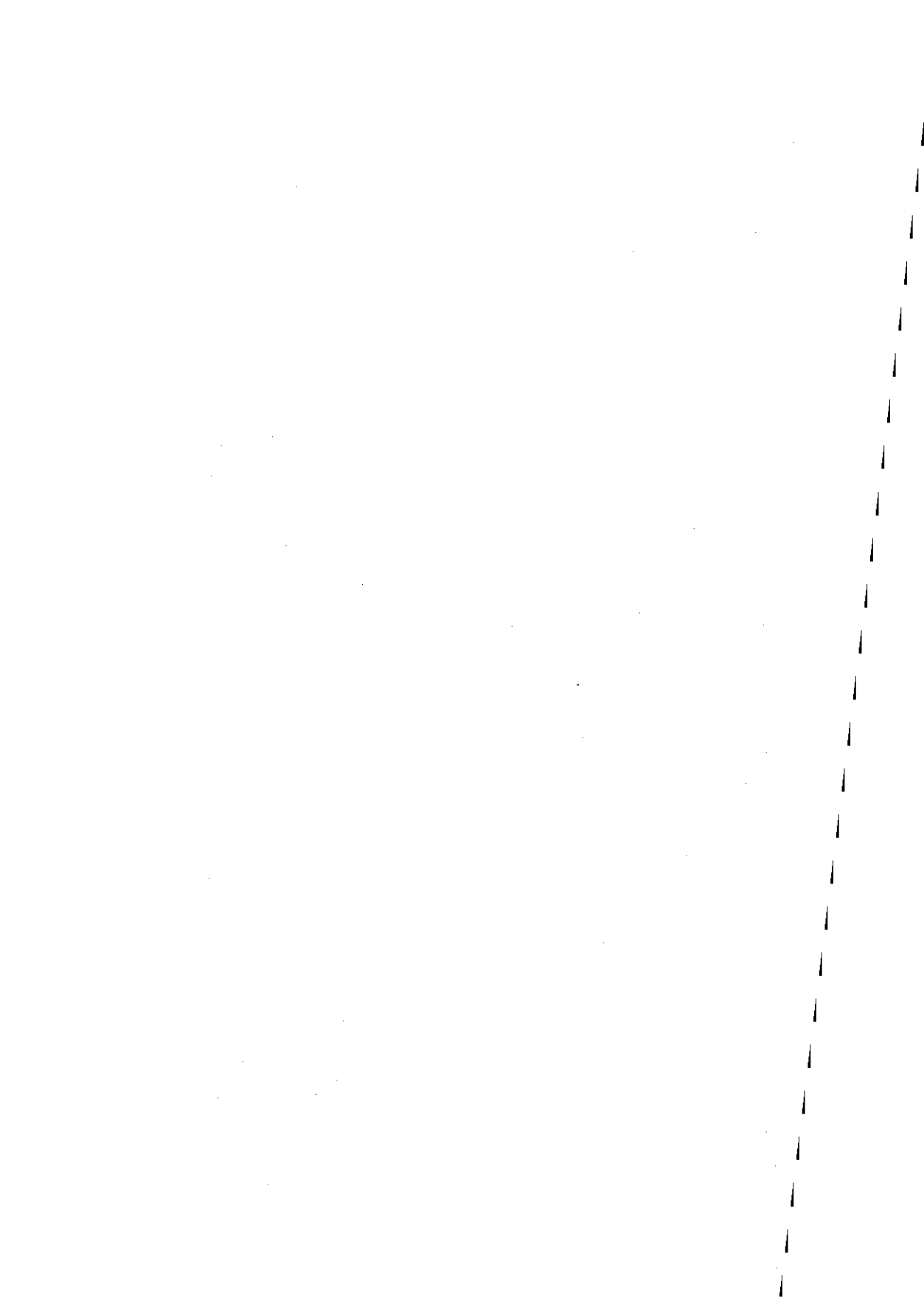
<i>Range of Standard Reimbursement Fraction (1946-1947)</i>	<i>Range of Assessed Valuation Per Teaching Unit Equivalent to Standard Reimbursement Fraction</i>	<i>Number of School Districts</i>
less than .4000	greater than \$216,000	90
.4000 to .5000	\$180,000 to \$216,000	45
.5000 to .6000	\$144,000 to \$180,000	93
.6000 to .7000	\$108,000 to \$144,000	195
.7000 to .8000	\$ 72,000 to \$108,000	456
.8000 to .9000	\$ 36,000 to \$ 72,000	1,137
.9000 and over	\$ 36,000 and less	530

The modal group of 1,137 school districts had Standard Reimbursement Fractions of .8000 and less than .9000 (reflecting assessed valuations per teaching unit of not more than \$72,000 and not less than \$36,000), and comprised almost 45 per cent of the total school districts in the state. Included in this group are 81 third class districts and 1,056 fourth class districts, which together represent 65 counties of the state (all counties except Philadelphia and Pike). Of these school districts, 340 maintained their own secondary schools, and, of these, 146 maintained four-year high schools, and 155 maintained six-year high schools. The remaining 39 maintained other plans of high school organization. Nine hundred and seventy-nine of the 1,137 school districts maintained their own elementary schools, and, of this total, 708 maintained eight-year elementary schools, and 249 maintained six-year elementary

APPENDIX TABLE C

Equations of the Regression Lines of "Number of Pupils" Against Designated "Costs," by Type of School and Plan of Organization

Variables	<i>High Schools</i>		<i>Elementary Schools</i>	
	<i>Districts Maintaining Four-Year High Schools</i>	<i>Districts Maintaining Six-Year High Schools</i>	<i>Districts Maintaining Eight-Year Elementary Schools</i>	<i>Districts Maintaining Six-Year Elementary Schools</i>
(1)	(2)	(3)	(4)	(5)
57 Number of Pupils (x) Against Per Pupil Total Current Ex- pense Cost (y) ..	$y = 2.76405x^{(-.22198)}$	$y = 2.62167x^{(-.15068)}$	$y = 2.33973x^{(-.14548)}$	$y = 2.23126x^{(-.08276)}$
Number of Pupils (x) Against Per Pupil Instruction Cost (y)	$y = 2.57566x^{(-.19821)}$	$y = 2.52092x^{(-.160597)}$	$y = 2.11482x^{(-.11068)}$	$y = 2.08688x^{(-.09039)}$
Number of Pupils (x) Against Per Pupil Costs of Current Expense Other than Instruction (y) ...	$y = 2.20244x^{(-.23639)}$	$y = 1.94367x^{(-.12528)}$	$y = 2.13240x^{(-.32268)}$	$y = 1.88795x^{(-.18082)}$



APPENDIX B

Computation of the Relationship Between Number of Pupils and Per Pupil Cost of Transportation and of the Rela- tionship Between Number of Miles Travelled and Per Pupil Cost of Transportation

Complete inter-district transportation data were available for 151 school districts which had Standard Reimbursement Fractions of .8000 and less than .9000¹ and which maintained elementary schools only, sending all high school pupils to schools of other districts.

The mileage used was one-way daily mileage. In school districts where two or more buses or cars were used, an average weighted by the number of pupils was computed. The school districts in one-way daily mileage ranges are shown in Appendix Table D.

The number of pupils used was the total number of high school pupils transported during the year. The ranges of the number of pupils are shown in Appendix Table E.

In Appendix Table F, the school districts in the ranges of inter-district costs of transporting one pupil one mile twice a day during a school term of 180 days, are shown.

Regression lines showing the relationship between number of miles and the cost of transporting one pupil one mile twice a day during a school term of 180 days; and between number of pupils and cost of transporting one pupil one mile twice a day during a school term of 180 days, were fitted. The equations of the regression lines are, respectively, $y = 1.92929x - .59338$ and $y = 1.86172x - .39176$. The correlation coefficients are $-.64$ and $-.45$, respectively, and are both significant.

¹ See Appendix A.

A multiple regression line was fitted to these three variables. This line shows that as both number of miles and number of pupils increase, (no relation exists between number of miles and number of pupils) the cost of transporting one pupil one mile twice a day during a school term of 180 days decreases. The rate of decrease is greater than the rate when either number of miles or number of pupils is alone increased. This equation is $y = 2.4840x_1 - .62628x_2 - .34490$, and the correlation coefficient is $-.78$.

APPENDIX TABLE D
Number of School Districts in One-Way Daily
Transportation Mileage Ranges

<i>One-Way Daily Mileage Ranges</i>	<i>Number of School Districts</i>
(1)	(2)
0- 5	19
5.1-10	35
10.1-15	31
15.1-20	22
20.1-25	14
25.1-30	13
30.1-35	6
35.1-40	7
40.1-45	2
45.1-50
50.1-55	2
	151

APPENDIX TABLE E
Number of School Districts in Ranges of
Number of Pupils Transported

<i>Ranges of Number of Pupils</i>	<i>Number of School Districts</i>
(1)	(2)
0- 10	13
11- 20	30
21- 30	25
31- 40	19
41- 50	20
51- 60	14
61- 70	10
71- 80	8
81- 90	2
91-100	2
101-125	4
126-150	1
151-175
176-200	3
	151

APPENDIX TABLE F

Number of School Districts in Ranges of Cost of Transporting One Pupil One Mile Twice a Day During a School Term of 180 Days

<i>Ranges of Cost of Transporting One Pupil One Mile Twice a Day During School Term of 180 Days</i>	<i>Number of School Districts</i>
(1)	(2)
.26- .50	4
.51- .75	6
.76-1.00	17
1.01-1.25	18
1.26-1.50	14
1.51-1.75	12
1.76-2.00	7
2.01-2.25	14
2.26-2.50	7
2.51-2.75	8
2.76-3.00	6
3.01-3.25	4
3.26-3.50	3
3.51-3.75	9
3.76-4.00	2
4.01-4.50	6
4.51-5.00	3
5.01-5.50	2
5.51-6.00	1
6.01-6.50	5
6.51-7.00
7.01-7.50	1
7.51-8.00	1
8.01 and over	1
	151

