AN ANALYSIS OF NATIONAL AND STATE PUPIL TRANSPORTATION WITH SPECIAL EMPHASIS ON COST FACTORS IN TEN SELECTED MICHIGAN COUNTIES

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Wayne Dean Woodby

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This is to certify that the

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by

Wayne Dean Woodby

AN ABSTRACT

Submitted to the School of Advanced Graduate Studies of
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WAYNE DEAN WOODBY ABSTRACT

The steadily increasing importance of pupil transportation coupled with legislative restrictions on amount and distribution of financial aid motivates an analysis of pupil transportation cost factors as a guide to Michigan school districts engaging in pupil transportation.

Statement of the Problem

The purpose is: (1) to ascertain on the national level the present and future status of pupil transportation; (2) to identify and categorize costs of pupil transportation in Michigan into major and minor factors and analyze each in relation to the whole; (3) to examine the structure and operation of the Transportation Code of 1957, with an analysis of the four types of allowances for state aid to transporting school districts; and (4) to suggest specific recommendations in the light of the findings.

Methods, Techniques, and Data

The writer surveyed the 48 states to determine the present status and to gain an estimate of the future.

Information was obtained from libraries relative to material already published on the subject.

The transportation reports of ten selected Michigan counties were then analyzed in the light of the relative value of the ten categories of costs.

A follow-up study was then carried out by questionnaire and interviews with administrators in these ten selected counties.

Conclusions

One conclusion standing out above all was that pupil transportation is a growing and dynamic area of school administration which merits continued attention.

On the national level two additional conclusions were evident. The first was a recognition of the need for improving the quality of pupil transportation through such devices as: (1) in-service and pre-service training of bus drivers; (2) standardization and refinement of school bus insurance practices; (3) adoption of recommended and tested state practices resulting in improved transportation; and (4) a better understanding of school transportation liability.

On the state and local level the study revealed that there were four major and six minor costs of pupil transportation. The major costs were: (1) Driver's salaries (44.69%), (2) Depreciation (20.50%), (3) Total Maintenance (15.89%), and (4) Gasoline (9.22%). The six minor costs collectively amounting to less than ten per cent were as follows: Administration, Insurance, Tires, Interest, Oil, and Driver Education.

The study revealed that metropolitan schools differed from non-metropolitan schools in that they operated on a

relatively lower per capita cost basis and a higher cost per mile basis. Multiple bus routes were found feasible in school districts which averaged less than one hundred annual miles per student.

It was found that better record keeping was essential. The study also revealed that school districts employing school mechanics paid more for bus maintenance but this was almost compensated for in savings in gasoline, oil, and tires.

It was further revealed that Michigan school districts are finding the 1957 Amended Transportation Code generally satisfactory as an instrument governing the transportation of pupils and allocating funds for so doing.

Recommendations

1. That the Department of Public Instruction publish a handbook containing recommended pupil transportation practices.
2. That a study be made of the use of carefully selected, well trained student drivers as a means of reducing pupil transportation costs.
3. That a study be made of the possibility of effecting pupil transportation capital outlay savings by such means as the purchasing or leasing of school buses through a state or county governmental agency.

4. That a further study be made involving the effectiveness of school mechanics as opposed to private garages.
5. That county level studies be encouraged to promote better transportation policies and practices.

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CHAPTER I

INTRODUCTION

Importance of Study

Pupil transportation in the United States has mushroomed to a major economic educational undertaking. Today more than 145,000 buses, each painted the familiar chrome yellow, travel slightly more than seven million miles daily or 280 times around the earth at the equator. This represents more mileage and more personnel carried than all the combined common carriers in our country.[1] It is currently estimated that thirty per cent of all pupils enrolled in public elementary and secondary schools are transported by school bus at a cost of between four and five per cent of the total educational budget. No state transports less than ten per cent of its public school children.[2]

Need for the Study

In spite of the wide participation in this costly venture little information is available on specific cost

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[1] *Mass Transportation*, Vol. 55, No. 2 (February, 1959), pp. 22-23.

[2] J. L. Vickers, "Getting Them There--And Back," *Phi Delta Kappan*, XXXVI (October, 1954), p. 41.

factors of pupil transportation. Many writers complain about the high cost but few recommend practices which result in transportation economies. School district and pupil transportation leaders are seeking economical methods to transport an increasing number of pupils without adversely affecting the adequacy, safety, or economy of their transportation system.

This study is an attempt to isolate cost factors of pupil transportation and to assign a relative value to each of the factors. It is hoped the data and conclusions arrived at will serve as a point of departure for further study of cost factors or for a re-evaluation of currently held theories and practices in pupil transportation.

Statement of the Problem

It is the purpose of this study: (1) to ascertain on the national level the present status together with an opinion of the future of pupil transportation in terms of the following criteria:

a. number of students to be transported,
b. cost per pupil,
c. use of public funds for non-public transportation,
d. extent of financial aid for transportation,
e. size of the administrative unit,
f. degree of state regulation,
g. operation of school district-owned buses as opposed to privately owned buses,

h. percentage of the budget devoted to pupil transportation;

(2) to identify costs of pupil transportation in Michigan into major and minor factors and analyze each in relation to the whole; (3) to examine the structure and operation of the Transportation Code of 1957 with an analysis of the four types of allowances for state aid to transporting school districts; and (4) to suggest specific recommendations in the light of the findings listed above and an examination of pupil transportation records in the state office.

Hypotheses

This study, an analysis of national and state pupil transportation with special emphasis on cost factors in ten selected Michigan counties, is based on the following hypotheses:

1. That the future of pupil transportation on a national scale as evidenced by the opinions of state pupil transportation directors will be characterized by an increase both in cost and participation.
2. That in Michigan as the bus fleet increases in size there is a corresponding decrease in the unit cost of operation.
3. That salaries of bus drivers, depreciation of school buses, maintenance of school buses, and

gasoline constitute the major costs of pupil transportation in Michigan.

4. That there is a discernible difference in the cost per pupil between the metropolitan and the non-metropolitan school districts.
5. That the use of school mechanics results in reduced costs for total maintenance of school buses.
6. That the use of school mechanics results in reduced costs in such items as gasoline, oil, and tires.
7. That the operation of the Transportation Code of 1957 provides a suitable framework around which to build an adequate program of pupil transportation in Michigan.

Methodology

The methods used to answer questions raised in the statement of the problem are basically two. The first method consists of a survey of the forty-eight states to determine what is being done in terms of pupil transportation. An extensive questionnaire[1] directed to the titular head of pupil transportation in each state attempts to determine the actual practice in each state. A major

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[1] Appendix A.

section of the instrument is an opinionnaire designed to determine how to improve the quality or to ascertain the future of pupil transportation.

The second method consists of an analysis of the transportation reports on file in the state office from ten selected counties in Michigan. The ten counties were selected by the Sociology Department of Michigan State University as being representative of the economic areas of Michigan.[1] These ten counties contain 141 of the 893 transporting districts in the State of Michigan. The required annual report of these 141 districts is broken down into the seventeen cost factors listed and the results tabulated on both a mileage and pupil basis.

These procedures were tested in a seminar at Michigan State University, in the spring of 1957, by the reactions of colleagues and instructors to various phases of the pupil transportation problem. The analysis of cost factors was further refined by three follow-up surveys. The first was a double-post card survey of the seventeen school districts which had reported insurance costs of less than $42.00 per bus. The second was a double-post card survey of the ten county superintendents to determine the number of routes operated by each bus in the ten counties. The third was a personal letter to each of the three county

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[1]J. A. Beegle and Donald Halsted, Michigan's Changing Population, Special Bulletin 415 (East Lansing, Michigan: Michigan State University, June, 1957), p. 36.

superintendents whose original report indicated a low per pupil cost with a relatively large number of pupils participating.

Trends, variations, and hunches are noted and analyzed in an attempt to derive basic strengths and weaknesses that could help improve state pupil transportation program.

Limitations of the Study

A complete study of pupil transportation involving the movement of more than ten million young people every school day would contain so many ramifications that it is necessary to restrict the scope of this paper to certain aspects for the sake of clarity. Therefore, this study is limited to four facets of pupil transportation: (1) historical and legal background, (2) survey of transportation practices with opinions regarding trends and predictions in the forty-eight states as reported by the chief state school officer whose duty encompasses pupil transportation in the respective state, (3) an analysis of the seventeen cost factors as listed in the Annual Transportation Report required of all transporting units seeking state aid for transportation from the State of Michigan, (4) an examination of the Transportation Code of 1957 as it relates to the local school districts as an instrument of reimbursing the districts for certain designated items of pupil transportation.

The study is further limited by the fact that only thirty-seven of the forty-eight states responded to the national survey of transportation. The cost analysis on the state level is limited by the fact that only ten of the eighty-three counties are represented.

Definitions of Terms Used

Certain terms are used in the pages that follow, and the ways in which they are to be interpreted should be understood at the outset.

Operation Costs

This term refers to all costs which pertain to the operation, maintenance, inspection, and supervision of a school bus transportation system except capital outlay. Notable examples of operation costs are drivers' salaries, gasoline, tires, oil, repair parts, insurance, bus driver education costs, and mechanics' salary.

Capital Outlay

Capital outlay costs refer to non-operative expense of pupil transportation. In this study the term capital outlay shall refer exclusively to a school bus as the cost of bus garages, permanent garage installation, and other like capital outlay items are not pertinent.

School Bus

A school bus is a motorized vehicle having a capacity of twelve or more used to transport school children.

Public Liability

This is a type of school bus insurance which is commonly expected that all school districts will carry. It is designed as protection against damage done to other individuals as a result of school bus activities. The United States Office of Education terms public liability "for compensation to pupils (and perhaps to other persons) who may be injured in school bus accidents."[1]

Property Damage

This is a generally accepted and approved type of bus insurance designed for the reimbursement of anyone whose car or other property is damaged by a school bus.

Sending District

Generally an elementary school district in Michigan which elects not to provide educational facilities for its resident high school students. Instead it purchases educational privileges through payment of tuition and transportation to some other district which provides those services.

Receiving District

Generally a high school district in Michigan which is willing to educate non-resident pupils from sending districts in the vicinity. Very often the high school district

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[1]School Transportation Insurance, Pamphlet No. 101 (Washington, D. C.: Federal Security Agency, Office of Education, September, 1957), p. 1.

provides transportation services paid for by the sending district.

Total Maintenance

This is an inclusive term which denotes all costs which relate to maintenance of school buses. All costs involved in upkeep of school buses are lumped in this category whether the costs originate in school district owned garages or in private garages with contracted or non-contracted mechanics.

School Mechanic

A school system is considered as using a school mechanic if it pays more than $2,000.00 annually to a mechanic (No. 12 on the Annual Transportation Report), or if the total amount spent on supplies for school garage plus mechanic's salary exceeds that amount spent for labor and supplies at private garages.

Metropolitan

This term refers to a school district located in Macomb, Oakland, or Wayne County of Michigan. It makes no difference how large the district, the fact of location in one of these populous counties is the determining factor.

Non-Metropolitan

This term refers to a school district located in Michigan as opposed to the three counties listed above as Metropolitan. For the purpose of this study, any school

district in any of these seven counties, Allegan, Delta, Gratiot, Kalkaska, Ottawa, Shiawassee, or Van Buren is considered Non-Metropolitan.

Organization of Following Chapters

Chapter II pertains to a review of related literature. The material covered includes the legal basis, scope, and research findings for pupil transportation.

Chapter III is devoted to a national survey of pupil transportation with emphasis on the opinions of the future by state directors of pupil transportation.

Chapter IV deals with analysis of costs of pupil transportation. The matter of combining cost items into ten convenient categories is discussed along with the testing of two hypotheses.

Tabulation and analysis of the four major cost factors is considered in Chapter V.

Chapter VI concerns itself with the six minor cost factors.

Chapter VII is devoted to the application of the Transportation Code of 1954, as amended in 1957, to the reimbursement of the 893 transporting school districts in Michigan.

Chapter VIII contains the summaries of the study, conclusions, and recommendations.

CHAPTER II

REVIEW OF RELATED STUDIES

Introduction

As the European settlements in the New World in the seventeenth and eighteenth centuries provided a fertile area for experimentation along lines of religious and political freedom, so too did this region give rise to the development of a system of education unique among all nations. The emerging concept of universal, compulsory, free educational opportunities has necessitated the formation and extension of many related activities to secure the accomplishment of this American scheme. Among these educational corollaries is the program of pupil transportation at public expense.

As the American ideal of education for all developed slowly, gradually overcoming apathy and even resistance so too did the proposal for transporting pupils to school develop but there was in addition a noticeable lag of more than a century after the development of formal schools. As a matter of fact, the transportation of pupils at public expense is less than ninety years old. A law passed in Massachusetts in 1869 authorized local towns or districts to raise money for schools by "taxation or otherwise." In

that year Greenfield, Massachusetts, united three small schools and began conveying pupils.[1] The town of Quincy issued a comprehensive report[2] in 1874-1875 which is the first officially recorded enumeration of advantages of school consolidation with pupil transportation. The report concluded with these ringing sentences:

> The day of the small, ungraded, remote and isolated schools in a town like Quincy has passed away. Only absolute necessity can now justify it. Even if the plan (pupil transportation) we recommend was as much more costly as it is really less costly than the old one (continuation of district school) we should not hesitate to urge its acceptance as decidedly the cheaper and better.[3]

By 1880 two additional New England states, Vermont and Maine, had given legal sanction for the use of public money in transporting children to and from school.[4]

However, it was not in New England that pupil transportation received its first widespread acceptance, but in the states of the northern central region, notably Ohio. There, the pioneer policy of "a schoolhouse within easy walking distance of every child"[5] began to lose support

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[1]J. F. Abel, Consolidation of Schools and Transportation of Pupils, U. S. Bureau of Education, Bulletin 41 (Washington, D. C.: Government Printing Office, 1923), p.10.

[2]"Report of the Committee of Twelve on Rural Schools," National Education Association (Chicago: University of Chicago Press, 1897), pp. 140-141.

[3]Ibid., p. 141.

[4]Abel, op. cit., p. 10.

[5]Ibid., p. 9.

and many communities were willing to enter into consolidation and arrange for the conveyance of their children by horse-drawn vehicle during the whole school year. Ohio's first system of consolidation and transportation was created in 1892 and the movement has proceeded rapidly.[1] By the 1895-1896 school year the experiment in consolidation and transportation in northeastern Ohio was so successful that it prompted two superintendents to incorporate glowing accounts of success in their annual reports. One of these, Mr. J. R. Adams, Superintendent of Madison Township in Lake County, was moved to enumerate thirteen specific advantages which had appeared under his personal observations:

1. A much larger percent of enumerated pupils enrolled.
2. No tardiness among the transported pupils.
3. Irregular attendance reduced, the per cent of attendance of transported pupils from two sub-districts being each ninety-four per cent, the highest in the township.
4. Pupils can be better classified and graded.
5. No wet feet or clothing, nor colds resulting therefrom.
6. No quarreling, improper language, or improper conduct on the way to and from school.
7. Pupils under the care of responsible persons from the time they leave home in the morning until they return at night.
8. Pupils can have the advantage of that interest, enthusiasm, and confidence which large classes always bring.
9. Pupils can have the advantage of better schoolrooms, better heated, better ventilated and better supplied with apparatus, etc.
10. Better teachers can be employed, hence better schools.

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[1]M. G. Pattington, "Facts for Determining What It Costs to Operate That School Bus Fleet," American School Board Journal, CXII (March, 1946), p. 42.

11. The plan insures more thorough and complete supervision.
12. It is more economical. Under the new plan the cost of tuition per pupil on the basis of total enrollment has been reduced from $16 to $10.48; on the basis of average daily attendance, from $26.66 to $10.67. This statement is for the pupils in subdistricts nos. 10 and 11.
13. A trial of this plan of consolidating our schools has satisfied me that it is a step in the direction toward whatever advantages a well-graded and well-classified school of three or four teachers has over a school of one teacher with five to eight grades, and with about as much time for each recitation as is needed to properly assign the next lesson.[1]

As evidence of the success of the Ohio movement, Rapeer notes five points involving a study of the satisfaction to school patrons of transportation to Ohio consolidated schools:

1. 80 per cent of the parents report that their children attend more regularly under transportation than they did previously.
2. 90 per cent report their children more interested in school than before.
3. 95 per cent think their teachers show more interest in their work.
4. 100 per cent practically agree that the social and educational interests of the township consolidated have greatly improved.
5. 75 per cent of those who were formerly opposed to consolidation and transportation are now in favor of it.[2]

By no means were the favorable comments on pupil transportation restricted to Ohio. The superintendent of Shelby County, Tennessee writes as follows:

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[1]"Report of the Committee of Twelve on Rural Schools," op. cit., p. 139.

[2]Louis W. Rapeer, The Consolidated Rural School (New York: Charles Scribner's Sons, 1920), p. 217.

> The transportation of pupils in public school wagons has proved to be a great success in Shelby County. . . . We now have 15 wagons running with petitions for many more as soon as we can build the consolidated schools. It would be impossible to persuade the pupils to go back to the one-teacher or two-teacher schools from whence they came.[1]

In a doctoral dissertation submitted to the University of Pennsylvania in 1906, Mr. J. C. Hockenberry comments that the rural school of the future

> will involve free transportation at public expense. . . as only in this way can the great handicap to which the rural child is subjected be removed and his chance for all the benefits that come from superior education and training be made equal to his city cousin.[2]

The State Superintendent of Virginia states:

> We have routes as long as 8 miles and as short as 2-1/2 miles. We have wagons on good roads and bad roads, on level roads and mountain roads, on rocky roads and sand roads, on Macadam roads and red clay roads. We have transportation wagons of the latest and most modern type and we have ordinary farm wagons fitted up for the new and precious freight.[3]

Minnesota[4] and Vermont[5] officials praise the conveyance of pupils in similar fashion. Texas ascribes successful and economical transportation by horse and wagon conveyance to improved roads and enlarged districts. In that state "six

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[1] Ibid., p. 217.

[2] John C. Hockenberry, "The Rural School in the United States" (unpublished doctoral dissertation, University of Pennsylvania, 1906), p. 105.

[3] Rapeer, op. cit., p. 215.

[4] Ibid.

[5] Ibid., p. 213.

wagons carried 196 pupils at an average per capita cost of 94 cents per month."[1]

Legal Basis for Pupil Transportation

Since the Constitution of the United States of America did not include education it is a generally accepted rule that education is a responsibility of the state. The various states in turn have created such school districts as seemed desirable to meet the needs of localities in that time. The statutes of the individual states provide a framework with which each of the various types of school districts might operate. The judiciary divisions of the states vary in their interpretation of the authority of the school districts. Legal controversy may, therefore, arise in regard to particular enterprise which school officials undertake to carry on as parts of the school program. Considerable controversy of this kind has arisen in regard to authority to transport children to and from school.

One recognized authority[2] argues the preponderant weight of court decisions hold that school officials are not authorized to provide for pupil transportation under their general powers to maintain schools but must rely on specific statutory grants for authority to provide

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[1] E. V. White, E. E. Davis, "Study of Rural Schools in Texas," University of Texas Bulletin, Extension Series No. 62 (October 10, 1914), p. 52.

[2] H. H. Punke, Law and Liability of Pupil Transportation (Chicago: University of Chicago Press, 1943), p. 1.

transportation. One Illinois case illustrates this point of view when the school officials chose to secure wagons and enter into a contract for transportation because of implied powers for school operation. In denying the directors authority to provide transportation, under legislation which authorized the consolidation of districts, the court said in effect that equal education opportunity is not denied to small children who because of school consolidation must be transported by their parents or must walk three and one-half miles to school. The court stated:

> The directors have only powers which are expressly granted them and such implied powers are necessary to carry into effect the express powers delegated to them. To secure the right and opportunity of equal education does not require that the children be hauled to school any more than it would require that the directors should clothe them or furnish meals.[1]

The celebrated Michigan case[2] regarding pupil transportation reiterated the theme that there must be specific statutory grants for authority to provide transportation.

While there is some evidence that a few schools did proceed with plans for pupil transportation before express statutory approval there was not enough to indicate a widespread movement in that direction. In spite of the glowing reports of success in isolated areas the early stages of

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[1] Ibid., p. 2.

[2] Township School District of Bates v. Elliott, 276 Michigan 575, 276 N. W. 744.

pupil transportation (up to 1900) was singularly marked by public apathy. Far from being ahead of statutory authorization the people were willing to wait for legal sanction.

Stages in Development of Legality for Pupil Transportation

There were three stages in the development of legal approval of pupil transportation. The first phase was that of permissiveness. The state gave permission to the local districts to initiate taxes for the payment of conveying pupils. The discovery of the need and the decision on whether the community would pay for transportation of its school population were both made at the local level. The second stage was that of permissiveness coupled with an incentive on the part of the state. This incentive was generally in the nature of a payment of a stipulated sum of money which would be paid to the local district if the local district would meet specified state requirements. The third stage was mandatory. The state here required that the local districts maintain transportation services under specified circumstances. Often provision was to be made for students living beyond a certain minimum distance from school.

Not all of these stages developed at an equal pace throughout the United States. Some of them have not progressed beyond the first stage. However, by 1900 eighteen of the states had authorized permissive transportation, and by 1919 all states had taken positive action in this

direction. During the early years when legislation was permissive, the cost of transportation was paid by local taxation and, in some instances, by pupil fees.[1] The incentive payment involved at least some state funds. The most recent trend under mandatory legislation was to have the state bear a portion of the cost. At the present time only one state, North Carolina, bears the whole cost of these services.[2]

A survey of court cases involving pupil transportation indicates a direct relationship to the type of statutory authorization. Under permissive legislation little court action resulted. In fact, up to 1900 only five cases were reported in the entire country.[3] There was an average of less than four per year from 1900 to 1920. The greatest amount of litigation involving pupil transportation took place in the decade of 1926-1936. One writer suggests that this was a period of tremendous increase in pupil transportation and that the decrease in litigation since 1936 has been occasioned by more complete statutes "authorizing the expenditures of public funds for transportation of pupils."[4] The same writer anticipates that there will be increased

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[1] Vickers, op. cit., p. 19.

[2] Timon Covert, Financing of Schools as a Function of State Departments of Education, U. S. Office of Education, Bulletin No. 6 (Washington, D. C.: Government Printing Office, 1941), p. 21.

[3] Punke, op. cit., p. 257.

[4] E.C. Bolmeier, "Legal Issues in Pupil Transportation," Law and Contemporary Problems, Vol. 20 (Winter), 1955, p.45.

court activity as more problems arise because school districts are being compelled to provide transportation. He speculates further that the increased tendency of courts to override the established policy of governmental immunity generally enjoyed by school districts is likely to increase the number of court cases. He intimates that school bus drivers who do not pursue extraordinary care in driving are likely to be very susceptible to court action in the future.

The confusion, degree of seriousness, and the anxiety felt by school officials regarding future court action can be lessened by improving statutory provisions of the various states. Much of the litigation has been due to inadequacy and ambiguity of statutory provision along with the uncertainty of the value of the cloak of governmental immunity. A laudable conclusion is embodied in the statement that "in view of the fact that pupil transportation constitutes such an important, costly and hazardous public enterprise it would seem that the legislatures would do well to make a thorough appraisal of their pupil transportation laws to determine wherein improvements might be made."[1]

Scope of Pupil Transportation

It has already been noted that pupil transportation at public expense is less than ninety years old. For the first half of the ninety years in spite of scattered accounts

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[1]Bolmeier, op. cit., p. 58.

of glowing success, very little was accomplished on a nationwide scope. In fact the Rural Education Yearbook for 1953 which is devoted exclusively to pupil transportation states flatly that "pupil transportation at public expense was practically unheard of in most communities in the United States in 1910."[1] Figures for the compilation of national totals were not available until the year 1919-1920. Some authors question the reliability of figures prior to 1926 because of extreme uses of estimates since many states did not keep records.[2] During the last half of the ninety year period the development of pupil transportation has been phenomenal. No state transportated less than ten per cent of its pupil population in 1953.[3] Recent trends indicate continued acceptance and increased participation in pupil transportation.

The growth of pupil transportation is usually measured by a breakdown of the activity into six parts: (1) number of schools using buses, (2) number of pupils carried daily, (3) number of buses in school operation, (4) miles of route, (5) cost, and (6) per cent of total school expenditures.

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[1]Department of Rural Education, Pupil Transportation Yearbook 1953 (Washington, D. C.: Government Printing Office, 1954), p. 15.

[2]J. E. Butterworth and Howard A. Dawson, The Modern Rural School (New York: McGraw-Hill Book Co., 1952), p.389.

[3]Vickers, op. cit., p. 41.

Each of the six show a marked increase since 1926, as shown in the table on the following page.

A 1957 circular[1] issued by the United States Office of Education, indicates that the trend of the figures shown in the above mentioned table is continuing. This report shows the total number of pupils transported as 10,199,276, the number of buses 141,842, and the expenditures of public funds (excluding capital outlay) as $356,349,783. This would indicate that during the six year period from 1950 to 1956, the number of pupils transported has increased 32 per cent, the number of buses increased 36 per cent, while the cost has mushroomed 97 per cent. Growth is even more striking when the 1926 figures are contrasted with the 1956 figures. Over a thirty year span the number of pupils have increased more than a thousand per cent, the number of buses more than 330 per cent, and cost has outdistanced either of the other factors to the astounding rate of more than 1,370 per cent. When these figures are coupled with the indication that there is no reason for believing that there will be any slowing down of pupil transportation in the foreseeable future, it is easy to see why educational and financial leaders in the United States are paying more attention to this fast growing youngster who is occupying a prominent place in the educational spotlight. There appears to be

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[1]Department of Health, Education, and Welfare, Statistics on Pupil Transportation (Washington, D. C.: Office of Education, September, 1957), p. 1.

TABLE 1

DATA SHOWING GROWTH OF PUPIL TRANSPORTATION, 1926--1950[1]

Year	Number of Schools Using Buses	Number of Pupils Carried Daily	Number of Buses in School Operation	Miles of Route (one way)	Cost	Per Cent of Total Expenditures
1926	13,874	875,462	32,778	316,045	$23,430,195	1.5
1930	16,600	1,480,000	45,000	451,000	34,050,000	1.8
1935	28,240	2,920,000	71,850	925,000	52,620,000	3.3
1940	44,250	3,968,000	87,300	1,270,000	76,053,000	3.8
1945	40,000	4,700,000	80,000	1,725,000	93,500,000	3.8
1950	43,813	6,263,704	104,179	2,286,879	180,182,761	4.2

[1]J. E. Butterworth and Howard A. Dawson, The Modern Rural School (New York: McGraw-Hill Book Co., 1952), citing Bus Transportation, Vol. 6, p. 72; Vol. 10, p. 70; Vol. 15, p. 76; Vol. 20, p. 50; Vol. 25, No. 1, p. 69; Vol. 30, p. 40.

some concern lest he force out some other member of the school family. The consensus is that he is here to stay; our job is to live harmoniously with him and help him to be a contributing member of the school society.

Factors Facilitating Pupil Transportation

A review of the literature does not reveal a concise picture explaining why pupil transportation has developed so rapidly in the last forty-five years. Most writers seem to indicate that like "Topsy" it has just "grown up" and appear to express more surprise at its stature than in determining reasons for its gargantuan growth. Some of the factors facilitating the growth and development of pupil transportation are as follows: (1) shifts in pupil population resulting in too small a membership for a school, (2) existence of "company" towns, (3) reorganization of school districts, (4) improvements of roads, (5) advent of motor car traffic, (6) compulsory attendance laws, (7) "educational inertia" as outlined by Kreitlow,[1] and (8) recognition of the need of transportation as an equalizing factor.

The shift of pupil population was undoubtedly a great factor in early pupil transportation. Many early reports revealed that it was cheaper to transport and pay tuition

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[1]Burton W. Kreitlow, Rural Education: Community Backgrounds (New York: Harper and Brothers, 1954), pp. 36-40.

than it was to maintain a school even when the building was already in existence. This could be true only when a small number of pupils were present. With the nationwide increase in population this factor has probably lost some of its significance. However, it gave legitimacy to the movement in its early development and is still in existence in many places. The declining population of the Upper Peninsula and upper portion of the Lower Peninsula in Michigan bears witness to this as a factor in the development of pupil transportation.

The existence of "company" towns probably has been overplayed as a vital factor in transporting pupils. Many company towns develop around the extraction of natural resources such as lumbering or mining. As these resources diminish in one area, attention is centered in a nearby area. Rather than move some of the existing institutions, such as stores, churches, and school buildings, company officials found it easier to transport both adults and pupils, thus encouraging the general movement for pupil transportation.[1]

Most writers[2] agree that reorganization of school

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[1]Burton H. Belknap, The School Bus (Minneapolis: Educational Publishers, Inc., 1950), p. 4.

[2]H. A. Dawson, Floyd W. Reeves, et al., Your School District, Department of Rural Education (Washington, D. C.: National Educational Association of the United States,1948), p. 24; J. F. Thaden, Equalizing Educational Opportunity Through Community School Districts, Special Bulletin No.410, (E. Lansing, Michigan: Michigan State University, January 1957), p. 5; R.S. Strolle, "A Study of School District Reorganization in Michigan" (unpublished Ed.D.dissertation, Michigan State College, 1955), p. 71.

districts is an imperative need now. There is likewise agreement that transportation is an essential adjunct to the redistricting process. The establishment of larger administrative units almost inevitably involves transportation as an essential factor in the improvement of education. The realignment of attendance centers, the adjustments of enriched curriculum to greater homogeneity of students, the extension of the educational program to higher grade levels, all point toward utilization of some form of movement of pupils toward more educational opportunities with pupil transportation as the result.

The improvement of roads and particularly the construction of all weather roads removed one of the most telling arguments of those who opposed pupil transportation. This factor may assume larger proportions than is generally ascribed to it because the development of good roads and the tremendous extensions of pupil transportation went hand in hand. The advent of motor car traffic and the development of the motorized bus were concomitant factors with the construction of good roads. The era of horse drawn vehicles limited the transportation of pupils. Generally, a reasonable time to ride such a wagon was an hour or less. Any transportation of pupils was restricted to a very few miles. The construction of all weather roads and the use of a motorized bus opened up new educational vistas. Further evidence of the importance of the interacting factors of good roads and motorized buses are stressed by educational

leaders in developing minimum standards for school buses. These leaders ascribe the two greatest advances for an organized system of pupil transportation was the invention of the internal combustion engine and the development of the pneumatic tire.[1] The full import of the improvement of roads and the development of self-propelled vehicles should not be overlooked as facilitating factors for pupil transportation.

The relationship of compulsory attendance laws to the boom in pupil transportation may be more fancied than real. We do know that by 1918 all states had enacted compulsory attendance laws of some type.[2] The Bureau of Research and Service of the College of Education of Michigan State University implies a direct relationship in the state of Michigan between an increase in statutory allowance for transportation, coupled with the insistence of continuing beyond an eighth grade education, which resulted in increased school enrollments.[3] H. G. Good is more specific when he states:

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[1]Minimum Standards for School Buses, Recommendations of National Conference on School Transportation, Administered by National Commission on Safety Education (1954 Revised edition; Washington, D. C.: National Education Association, 1954), pp. 7-8.

[2]Lee M. Thurston and William H. Roe, State School Administration (New York: Harper and Brothers, 1957), p.251.

[3]Fred J. Vescolani, Buses and the Schools, Prof. Series Bulletin No. 20 (East Lansing, Michigan: Michigan State University, 1956), pp. 4-5.

> To get the children off the streets in that period (depression of the thirties), legislatures passed more stringent school attendance laws and raised the attendance ages.[1]

It is true that the states were not uniform either in the adoption or stringency of the compulsory attendance laws nor in the increase of pupil transportation but because they were contemporary and mentioned by some authors they are included as a probable facilitating factor in pupil transportation.

If compulsory attendance laws were not elaborated on by many writers as a contributor to the growth of pupil transportation the same can not be said for the factor referred to here as the absence of "educational inertia." This apparently ambiguous term refers to the concept that parents generally desire as much or more education for their children than they themselves obtained. This lack of inertia, the desire to encourage their children to obtain a higher level of formal education than their immediate ancestors possessed not only was a factor of considerable importance in raising the educational level but often fomented the growth of pupil transportation as the only means of achieving that level.[2] The term "educational inertia" suggests a change in the values ascribed to education and a readiness to accept something new because it

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[1]H. G. Good, A History of American Education (New York: The MacMillan Company, 1956), p. 236.

[2]Kreitlow, op. cit., pp. 36-40.

would benefit their children. Therefore, traditional objections to pupil transportation were gradually being overcome.

The upgrading of the changes in educational values as exemplified by the term "educational inertia" brings up what might be termed the most important factor which promotes pupil transportation. As "educational inertia" involves an ever increasing opportunity for boys and girls a corollary naturally follows that pupil transportation is a necessity in equalizing educational opportunities. The 1953 Yearbook of Rural Education, which is devoted almost exclusively to pupil transportation, presents its central thesis when it states:

> Pupil transportation has one primary objective that must always be kept in view; to give all children and youth regardless of where they live an equal opportunity to the services of a good school.[1]

In 1949, D. P. Culp made the following astute observation:

> School transportation was not designed merely as a convenience to children who live beyond a reasonable walking distance from school. In its basic philosophy and practical existence, school transportation is an indispensable and integral part of our systems of consolidated schools, which were developed to serve the educational needs of our time.[2]

The importance of this philosophical factor favoring pupil transporting by insistence of recognition of transportation as an equalizing aspect of education started years

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[1]"Pupil Transportation," Rural Education Yearbook, 1953 (Washington, D. C.: National Education Association, 1953), p. 39.

[2]D. P. Culp, An Administrators Handbook of School Transportation, Bulletin 1950, No. 4 (Montgomery, Alabama: Department of Education, 1950), p. 1.

ago and is still being re-echoed. As early as 1923 this principle of equality of opportunity caused Abel to write:

> It has long been a matter of common opinion that the opportunities for education offered to rural children, especially those living outside the towns and villages, have been and are much inferior to those offered city children. The truth of that opinion is now fairly well proved.[1]

In 1940,Noble commented: "In the first place it should be mentioned that consolidation and transportation are practical means which provide rural children of school age with educational opportunities equal to those enjoyed by children in urban areas."[2] Sixteen years later Vescolani summarized succinctly that "the prime purpose of transportation is to equalize educational opportunities. Transportation as a welfare service is indefensible."[3]

In order to focus our attention on the impact of the factor of transportation as an equalizing factor this concluding statement from The Nation's Schools in 1954 is submitted:

> Transportation costs must be taken care of before the real experience of education is even considered.

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[1]J. F. Abel, Consolidation of Schools and Transportation of Pupils, Bulletin No. 41 (Washington, D. C.: Department of Interior, 1923), p. 1.

[2]M. C. S. Noble, Jr., Pupil Transportation in the United States (Scranton, Pennsylvania: International Textbook Company, 1940), p. 48.

[3]Vescolani, op. cit., p. 1.

> We must get the pupils to the school before we can begin to equalize the cost of their instruction.[1]

Research Findings Regarding Pupil Transportation Costs

While pupil transportation is a comparatively recent innovation in educational circles, it has proved to be a very costly venture. The large amounts of money spent on this service and the prospect that this will be a continuing financial drain has drawn the attention of school administrator and taxpayer alike. Our attention has already been drawn to the conclusion that the feature of transportation is that of an equalizing factor and does not pretend to provide any direct contribution to the instruction of pupils. The auxiliary nature of the transportation enterprise lends itself to research in an attempt to lower costs without reducing the quality of the service provided or eliminating the school advantages of the transported pupil. Burke makes a pertinent comment in this connection:

> Transportation services must be provided as economically as possible. It makes hardly any direct contribution to education, its function being limited to getting children to educational opportunities. . . . Although transportation expense still represents a relatively small part of total expenditures, it is growing in importance and offers more opportunities for waste than most services provided.[2]

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[1]P. E. Burrup, "Equalization Begins with Pupil Transportation," The Nation's Schools, LIV (July, 1954), p. 61.

[2]Arvid J. Burke, Financing Public Schools in the United States (New York: Harper and Brothers, 1951), p. 528.

In spite of the recognition of need in terms of the cost factors in pupil transportation the United States Office of Education admits that it "does not have any materials which are related to analyzing the factors of transportation cost."[1]

Though it is lacking this specific information or data, the Office of Education along with the National Education Association and numerous independent researchers have unearthed a wealth of general information on transportation costs. One of the earliest surveys was made by Muerman in 1922 for the United States Office of Education. His report showed that "all auto transportation costs depend largely upon salary of driver, care of machines, and type of machine used."[2] The conclusion expressed by Muerman thirty-five years ago has been repeated many times and forms a basic foundation for further study. Not all of this investigator's findings have been found palatable. In view of steadily rising costs, the chief among them being that of driver's salary, Muerman recommended that teachers be secured as drivers.[3] This suggestion was favorably received by school boards interested in economy, but it could not be

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[1]Letter from E. Glenn Featherston, Director, Administration of State and Local School Systems, to Wayne Woodby, dated January 29, 1958.

[2]J. C. Muerman, Transportation of Pupils at Public Expense, Rural School Leaflet No. 2, U. S. Office of Education (Washington, D. C.: Government Printing Office, 1923), p. 3.

[3]Ibid.

supported by the teaching profession. Individual teachers might wish to add to their salaries by this means, but such practices did not assist the teachers in their struggle for increased pay. Later studies agreed with Muerman's findings on the relative importance of the driver's salary in transportation costs, but no recent research points to the use of teacher-drivers as the answer to the problem. This illustration serves well as a reminder that the long-term economy of operation of school transportation facilities must concern itself with more than immediate costs.

While the idea of teacher-bus driver combination has fallen into disrepute, recent researchers have come up with another combination which has merit and has already achieved recognition in several southern states. North and South Carolina have achieved signal success in the employment of selected, trained students as bus drivers. Their record is equal to that of adult drivers.[1] This gives promise of being a fertile field as a method both of reducing the cost of the admittedly expensive driver and increase the intensity and amount of training given to improve driving habits and skills. Further study should be granted to this promising innovation.

One of Muerman's observations which has received the support of most investigators during the past generation

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[1]Wallace N. Hyde, "When Students Drive the Buses," The Nation's Schools, LIX, No. 3 (March, 1957), p. 55; Mass Transportation, March, 1957, p. 47; "Student Bus Driver," Tarheel Wheels, XIV, No. 7 (July, 1957), p. 2.

is: "The tendency seems to be strongly in favor of district-owned conveyances."[1] The chief reasons offered for district ownership had been economy of operation but Engum put forth another argument for board-ownership, namely, pupil safety. Using a list of thirty construction items as his yardstick, he found the greatest percentage of deficiencies in privately-owned buses, and he stressed the importance of safety ahead of economy, although both criteria favored board-ownership.[2]

Butterworth and Dawson pointed out an equally valid reason for district-ownership in the matter of flexibility, asserting that in meeting changed conditions, private or contracted conveyances are clearly at a disadvantage. If the routing needs to be changed during the year or if more special trips are required than were anticipated, no one outside the schools needs to be consulted.[3]

While almost all researchers agree that school ownership is superior to private ownership, at least one[4] attacks

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[1]Muerman, op. cit., p. 4.

[2]M. C. S. Noble, "Pupil Transportation," Teachers College Record, XLI (January, 1940), p. 357.

[3]Butterworth and Dawson, op. cit., p. 392.

[4]Ibid., p. 393, citing Farnham G. Pope, "The Cost and the Quality of School Bus Transportation in Certain District-Owned and Contract Systems in the Central Schools of New York State" (unpublished Ph. D. thesis, Cornell University, 1949).

the generality of the conclusion on the grounds that the costs of the administrator of the publicly-owned school buses are not included in the costs of transportation as is the case in the contract system. Even with this question, Pope agreed that district-owned conveyances were slightly superior. Hutchins[1] and Roberts[2] each found evidence to support district-ownership, largely on account of better service provided and at less cost. A likely reason for the higher costs under private contract was advanced by Roberts when he stated "contractors do not actually bid on a cost plus profit basis but in terms of the maximum available allowance for transportation."[3]

The size of the administrative unit has been found to be equally important as public versus private-ownership as a cost factor in pupil transportation. The large administrative units can gain the advantages accruing to large scale purchase of buses, fuel, service, et cetera, under board-ownership of transportation facilities, and can effect savings under contract operation on account of the larger number of bids and the better opportunity to compare and

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[1]Clayton D. Hutchins, "School Ownership of Buses," The Nation's Schools, XXXVI, No. 4 (October, 1945), pp.43-44.

[2]R. W. Roberts, "Factors Affecting the Cost of Pupil Transportation," Journal of Educational Research, XXIX (January, 1936), p. 333.

[3]American Association of School Administrators, Schools in Small Communities, Seventeenth Yearbook (Washington, D.C.: American Association of School Administrators, 1939), p. 253.

evaluate bids. In addition, the very important element of greater administrative efficiency accompanying large scale operations under the direction of one whose chief responsibility is insuring the smooth functioning of the transportation program contributes to economy and public support of this service. An example of this economy is provided by McLure, who refers to a study made of New York State which shows that 20 per cent of the cost of operation could be saved by administering transportation of pupils through a large intermediate administrative unit.[1] The outstanding transportation authority of the United States Office of Education, Dr. Glenn E. Featherston,[2] has been just as enthusiastically frank in his espousal of larger administrative units. He advocates an administrative unit large enough to operate from forty to fifty buses, to hire full time as opposed to part-time drivers, to keep effective and meaningful records, and to operate its own bus garage so that an effective program of preventive maintenance can be achieved.[3]

It is obvious that the larger the administrative unit the greater the possibility of arranging routes in order to

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[1]W. P. McLure, "School Finance in District Reorganization," Phi Delta Kappan, XXXII (March, 1951), p. 324.

[2]Marian Telford, "The Next Ten Years," The Nation's Schools, LXII (August, 1958), p. 33.

[3]E. Glenn Featherston, "Transportation of Pupils--A Growing Problem," School Life, XXXI (January, 1949), p. 4.

gain the economy of transporting large numbers of pupils on large buses. As early as 1924, Selke reported: "With few exceptions, the larger the number of pupils transported the less the cost of transportation per pupil per year and per pupil per mile."[1] Evans stated that the shorter the route and the smaller the car the higher the proportionate cost per day.[2] Although Roberts pointed to the number of pupils transported as one of the most significant cost determining factors over which school authorities have little or no control[3] the size of the administrative unit can play an important role in determining the number of pupils to be transported in any one area. Routes can be arranged and buses assigned to routes in such a way which tends to offset the density or sparsity of pupil transportation which in a smaller unit might be the all important factor.

The density or sparsity factor has been found to have a pronounced effect on costs of transportation. According to Hutchins "while density itself may not directly affect the costs, yet there are many conditions which vary with

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[1]G. A. Selke, Transportation Costs in Minnesota Consolidated Schools, Rural School Leaflet No. 29, United States Bureau of Education (Washington, D. C.: Government Printing Office, June, 1924), p. 5.

[2]W. G. Reeder and R. W. Holmstedt, "Financial Economics in Business Management of Schools," Review of Educational Research, II (April, 1932), p. 144.

[3]R. W. Roberts, "Predicting Pupil Transportation Costs," The Nation's Schools, XV, No. 4 (April, 1935), pp. 64 and 66.

density and which do produce changes in the unit cost of transportation."[1] He admitted that relationship between density and cost may be slight and unreliable in areas having mountains, lakes, forests, et cetera.[2] Butterworth and Dawson report that at least three states regard the factor of density as very important,[3] while the state of Indiana goes so far as to make density a vital factor in computing state allocations of funds to local districts which transport pupils.[4]

Another factor affecting transportation costs is the seating capacity of the bus. In general, the larger the vehicle, within practical limits, the less the cost per pupil. This is largely because the driver of a large bus costs little more than for a small one. One fifty passenger vehicle can certainly be operated more cheaply than two twenty-five passenger vehicles.[5] It is significant that the largest pupil transportation system in the United States[6]

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[1]C. D. Hutchins, "Determining Costs of Pupil Transportation," The Nation's Schools, XXV, No. 5 (May, 1940), p.34.

[2]Ibid.

[3]Butterworth and Dawson, op. cit., p. 405.

[4]N. E. Stapley, School Executive, November, 1955,p.56.

[5]Butterworth and Dawson, op. cit., p. 404.

[6]Editorial, "Forty Years of Pupil Transportation," The Nation's Schools, LXII, No. 2 (August, 1958), p. 45.

utilizes the largest known seating capacity currently in operation.[1] Closely related to the seating capacity of the bus as a cost factor in pupil transportation is the length of the bus route. The unit cost of a fifty passenger vehicle on a thirty mile route will not be twice that on a fifteen mile route. This is because driver costs are not likely to be twice as great (unless payment is made on a mileage basis); depreciation if computed on a yearly basis, will be little, if any, different on the two routes; storage will be no different; and insurance is likely to be little, if any, different.[2]

Secondary cost factors listed by some authors are the question of insurance, gasoline and oil purchases, standards for bus drivers, and bus driver education are mentioned but little is learned in terms of recommendations except that further study be given them.[3]

Summary

This chapter traces the history of pupil transportation from its beginning some ninety years ago to its present impressive position in American public education.

The contributions of previous research in this area of school administration may be summarized as follows:

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[1]Los Angeles, California, used 387 buses seating 89 passengers each.

[2]Butterworth and Dawson, op. cit.

[3]Featherston, op. cit., p. 1; Rural Education Yearbook 1953, op.cit., pp. 26-27.

certain factors influence transportation costs and chief among these factors are the cost of the bus driver, the size of the administrative unit, the number of pupils to be transported, the method of vehicle ownership and operations, the density or sparsity of the population, the size of the vehicle, and the length of the route. Although these factors influence transportation, the literature has not identified all costs or placed a relative value on these costs. While there is a wealth of pertinent information on the growing importance of pupil transportation, both from the standpoint of scope and costs, the writer is convinced that there are no studies which places a relative value on the various cost factors and which points out techniques by which costs can be lowered without jeopardizing the safety and adequacy of pupil transportation.

CHAPTER III

NATIONAL SURVEY OF PUPIL TRANSPORTATION

Introduction

Chapter III consists largely of an analysis of pupil transportation on the national level. For several years the writer has been acquainted with the state director of pupil transportation in Michigan. When this director indicated a desire on the part of the Department of Public Instruction to survey the forty-eight states to determine similarities and differences in their pupil transportation policies and practices the writer offered to assist in the survey.

The questionnaire used in the survey was the result of a combined effort on the part of many. Staff members from Michigan State University gave freely of their time with the final approval coming from the office of the State Department of Public Instruction. In fact, the questionnaire was sent out over the signature of the state director of transportation with directions for its return to his office.

The fifty-seven questioned, seven page survey was sent to the educational leader in each state with detailed

instructions for completion together with an assurance that a summary would be furnished if desired.

Thirty-seven states responded to the questions in the national survey of transportation. All areas of the nation were represented. Of the eleven states failing to respond[1] seven were east of the Mississippi River and five of those were smaller eastern states in which pupil transportation may not be so important.

The aim of Chapter III is to focus attention upon the findings of the national survey of transportation as a background for the cost study of the ten selected Michigan Counties. No attempt was made to summarize all the results of the survey. Only such pertinent items which proved helpful in analyzing pupil transportation in Michigan were selected. The complete questionnaire is included as Appendix A.

Future of Pupil Transportation

The state leaders were asked in the final portion of the instrument to give opinions as to the future of pupil transportation. The general trend of that portion of the survey indicated that rather than decreasing in importance, pupil transportation is on the increase.

With two-thirds of the states reporting, Table 2 indicates clearly a belief that the number of pupils

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[1]Colorado, Delaware, Georgia, Indiana, Maryland, Massachusetts, Montana, New Hampshire, New Mexico, Rhode Island, and South Dakota.

TABLE 2

STATE DIRECTOR'S OPINION OF TRANSPORTATION NEEDS FOR YEAR 1975

State	Estimate of Percentage Increase in Number to be Transported					
	Decreased	About the Same	10% More	25% More	40% More	Other (Specify)
Arkansas		x				
California			x			
Florida						80%
Idaho				x(3% per yr.)		
Illinois			x			
Iowa				x		
Kentucky				x		
Louisiana				x		
Maine			x			
Michigan						60-70%
Minnesota						50%
Mississippi			x			
Missouri				x		
Nebraska				x		
Nevada				x		
New Jersey					x	
New York				x		
North Carolina			x			
North Dakota				x		
Ohio				x		
Oklahoma				x		
Oregon				x		
Pennsylvania				x		
South Carolina			x			
Tennessee					x	
Texas			x			
Utah				x		
Vermont			x			
Washington			x			
West Virginia			x			
Wisconsin			x			
Wyoming			x			
TOTAL	--	1	12	14	2	3

transported will increase markedly in the next ten to twenty years. No state believed that there would be a decrease and only one (Arkansas) expected the number to be about the same. On the other hand, 12 states expected a 10 per cent increase, while 14 anticipated a 25 per cent raise. Two states went even farther and predicted a 40 per cent increase. Minnesota, Michigan, and Florida were even more inflationary in their predictions of 50, 60, 70, and 80 per cent increases, respectively. An arithmetical computation indicates that the average increase of the 32 states reporting is 23.2 per cent, or well over one per cent per year.

Per Capita Cost of Transportation

While there is general consensus on the increase in the number of pupils transported, this consensus is lacking in the projected per capita cost of transportation. Table 3 indicates much division of opinion on this issue. Four state directors feel the cost per pupil will decrease, five believe it will remain about the same, twelve predict it will increase 10 per cent, eight look for a 25 per cent raise, and one expects a 40 per cent increase. One state (California) makes no numerical prediction but focuses attention on economic conditions in replying, "depends on inflation." While the extent of decrease in per capita cost is not indicated by four states, the 26 states who believe the cost will either remain stationary or raise, averaged 13.8 per cent increase over the present cost.

TABLE 3

STATE DIRECTOR'S OPINION OF TRANSPORTATION NEEDS FOR YEAR 1975

State	Estimate of Percentage Increase in the Per Capita Cost of Transportation					
	Decreased	About the Same	10% More	25% More	40% More	Other (Specify)
Arkansas				x		
California--depends on inflation						
Florida			x			
Idaho	x					
Illinois			x			
Iowa	x					
Kentucky				x		
Louisiana			x			
Maine			x			
Michigan	x					
Minnesota				x		
Mississippi		x				
Missouri		x				
Nebraska				x		
Nevada				x		
New Jersey			x			
New York			x			
North Carolina			x			
North Dakota			x			
Ohio	x					
Oklahoma			x			
Pennsylvania			x			
South Carolina				x		
Tennessee		x				
Texas					x	
Utah			x			
Vermont				x		
Washington		x				
West Virginia				x		
Wisconsin		x				
Wyoming			x			
TOTAL	4	5	12	8	1	

Non-Public Pupil Transportation

Probably the most controversial portion of this survey was that dealing with the use of public funds for non-public transportation. Table 4 reveals that 32 states responded to this question although only 19 recorded answers in the expected manner. Thirteen states expressed opposition to the practice of using public funds for non-public transportation. The most common form of opposition was the single word "none" written after the question. One state (Oklahoma) spelled out "not legal" while Idaho injected the term "non-favorable." Missouri noted "none used now" in its response. Texas checked the response entitled "about the same," but made its stand clear by also adding "none." On the other hand, Iowa anticipated a 25 per cent increase in the use of public funds for non-public transportation. Illinois, Louisiana, and North Carolina all anticipated a 10 per cent increase in this practice. While the intensity of the opposition to the use of public funds for non-public transportation can not be measured numerically, the few states advocating an increase merely heightens the opposition to the movement. No state reported an expected decrease, in spite the outcry against the use of public funds for non-public transportation.

Transportation Costs Financed by State Funds

Table 5 dealing with the percentage of total transportation costs financed by state funds resulted in a majority

TABLE 4

STATE DIRECTOR'S OPINION OF TRANSPORTATION NEEDS FOR YEAR 1975

State	Estimate of Percentage Increase in the Use of Public Funds for Non-Public Transportation					
	Decreased	About the Same	10% More	25% More	40% More	Other (Specify)
Arkansas		None				
California		x				
Florida		x				
Idaho--non favorable						
Illinois			x			
Iowa				x		
Kentucky		x				
Louisiana			x			
Maine		x				
Michigan		x				
Minnesota		None				
Mississippi		x				
Missouri		None used now				
Nebraska		None				
Nevada		None				
New York		x				
North Carolina			x			
North Dakota		None				
Ohio		x				
Oklahoma--not legal						
Oregon		x				
Pennsylvania		x				
South Carolina		x				
Tennessee		x				
Texas		None				
Utah		None				
Vermont		x				
Washington		x				
West Virginia		None				
Wisconsin		None				
Wyoming		None				
TOTAL	--	15	3	1	--	--

TABLE 5

STATE DIRECTOR'S OPINION OF TRANSPORTATION NEEDS FOR YEAR 1975

State	Estimate of Percentage Increase in Transportation Costs Financed by State Funds					
	Decreased	About the Same	10% More	25% More	40% More	Other (Specify)
Arkansas		x				
California		x				
Florida		x				
Idaho			x			
Illinois		x				
Iowa		x				
Kentucky		x				
Louisiana			x			
Maine			x			
Michigan	x					
Minnesota		x				
Mississippi		x				
Missouri		x				
Nebraksa		None				
Nevada				x		
New Jersey	x					
New York						x 100%nearly
North Carolina		x				
Ohio	x					
Oklahoma				x		
Oregon		x				
Pennsylvania		x				
South Carolina		x				
Tennessee		x				
Texas		x				
Utah		x				
Vermont						x more than 50%
Washington		x				
West Virginia						x 90%
Wisconsin			x			
Wyoming		x				
TOTAL	3	19	4	2	--	3

being satisfied with the "status quo." Nineteen of the 31 states reporting indicated a belief that the future would hold about the same degree of state participation in school transportation costs. It should be kept in mind that this does not indicate that all states would be paying on the same basis but rather that the individual states would be continuing the same practice as is currently being carried on. For example, the state of Nebraska, which is currently paying nothing for state support of transportation would continue to pay nothing in the future.

Three states (Michigan, New Jersey, and Ohio) contended the ratio of state support for transportation would decrease. Inasmuch as there is no proposed plan for federal support, it would naturally be assumed that the local districts would bear an increasing share of the burden. This is more evident in the light of the information contained in Table 2 in which all three states show an increased number to be transported. However, both Michigan and Ohio predict a lower per capita cost in Table 3 while New Jersey expects a per capita cost increase of about 10 per cent. Certainly in the case of New Jersey and probably in the case of Michigan and Ohio, the local school districts would be expected to contribute more for pupil transportation.

While 19 states expect the percentage of state contributions to remain about the same, nine states expect the percentage to increase. Four states (Idaho, Louisiana, Maine, and Wisconsin) expect the percentage to increase by

10 per cent. Five states expect more liberal increases. Nevada and Oklahoma predict that the state contributions will go up 25 per cent. Three states are even more liberal and more specific. Vermont reported an increase of "more than 50%," West Virginia "90%," and New York "nearly 100%." It would appear that New York anticipates the state would practically take over the financial aspects of pupil transportation, while West Virginia indicates a strong trend in that direction. The nine states advocating increasing the state contribution averaged 36.6 per cent increases. However, over half the states expect the percentage to remain about the same and in three cases actually to decrease.

Size of Administrative Units

There was more uniformity of state opinion regarding the size of administrative units in the future. No state expected the units to be smaller. Twelve expected them to remain about the same while 20 expected increases ranging from 10 to 100 per cent. New York expected the units to be twice as large, while Iowa and Wyoming Specified 50 and 70 per cent, respectively. The 20 states anticipating increases in the size of administrative units averaged 30.7 per cent. Presumably many of the districts which reported no projected increase in size of administrative unit are already reorganized into larger units. The average size of the administrative unit of the 32 states was expected to increase by one-fifth (19.1 per cent). See Table 6.

TABLE 6

STATE DIRECTOR'S OPINION OF TRANSPORTATION NEEDS FOR YEAR 1975

State	Estimate of Percentage Increase in Size of Administrative Units					
	Decreased	About the Same	10% More	25% More	40% More	Other (Specify)
Arkansas		x				
California		x				
Florida		x				
Idaho			x			
Illinois			x			
Iowa						x 50%
Kentucky			x			
Louisiana		x				
Maine				x		
Michigan		x Larger				
Minnesota				x		
Mississippi		x				
Missouri					x	
Nebraska				x		
Nevada			x			
New Jersey				x		
New York						x 100%
North Carolina		x				
North Dakota					x	
Ohio				x		
Oklahoma					x	
Oregon				x		
Pennsylvania					x	
South Carolina		x				
Tennessee		x				
Texas			x			
Utah		x				
Vermont			x			
Washington		x				
West Virginia		x				
Wisconsin				x		
Wyoming						x 70%
TOTAL	--	12	6	7	4	3

Degree of State Regulation

There was general satisfaction in the degree of state regulation of pupil transportation in that approximately two-thirds of the states expected no change in the future. Table 7 showed no state expected any decrease in the degree of state regulation. Seven states expected a modest increase of 10 per cent. Two states (Nevada and Vermont) anticipated a 40 per cent increase in degree of state regulation, while Minnesota expected 50 per cent. Wyoming specified only "more" in the column beyond 40 per cent but did not report any specific amount. The implication is that the degree of state regulation will increase as pupil transportation increases but the vast majority feels that it will tend to remain as it is now.

Percentage of District-Owned Buses

Table 8 deals with the interesting question of the percentage of school district-owned buses. In general, the various states transportation leaders' viewpoints coincide with the view expressed in Chapter II advocating school district-owned buses. Twenty-one of the 32 states favor outright ownership of the vehicles by percentages ranging from 10 to 100 per cent. The average percentage of increase is almost 20 per cent. The three states anticipating the greatest increase in school district-owned units are New York (75-80 per cent), Oklahoma (100 per cent), and Vermont (more than 50 per cent). Oregon and Minnesota each expect

TABLE 7

STATE DIRECTOR'S OPINION OF TRANSPORTATION NEEDS FOR YEAR 1975

State	Estimate of Percentage Increase in Degree of State Regulation					
	Decreased	About the Same	10% More	25% More	40% More	Other (Specify)
Arkansas		x				
California		x				
Florida		x				
Idaho			x			
Illinois		x				
Iowa		x				
Kentucky			x			
Louisiana		x				
Maine		x				
Michigan			x			
Minnesota						x 50%
Mississippi		x				
Missouri		x				
Nebraska			x			
Nevada					x	
New Jersey		x				
New York		x				
North Carolina		x				
North Dakota			x			
Ohio		x				
Oklahoma		x				
Oregon		x				
Pennsylvania			x			
South Carolina		x				
Tennessee			x			
Texas		x				
Utah		x				
Vermont					x	
Washington		x				
West Virginia		x				
Wisconsin		x				
Wyoming						x more
TOTAL	--	21	7	--	2	2

TABLE 8

OPINION OF STATE TRANSPORTATION LEADER CONCERNING THE COMPARISON OF 1975 WITH THE PRESENT IN TERMS OF THE PERCENTAGE OF SCHOOL DISTRICT-OWNED BUSES

State	Decreased	About the Same	10% More	25% More	40% More	Other (Specify)
Arkansas		x				
California			x			
Florida		x				
Idaho			x			
Illinois	x					
Iowa			x			
Kentucky				x		
Louisiana	x					
Maine			x			
Michigan			x 4%			
Minnesota					x	
Mississippi			x			
Missouri				x		
Nebraska			x			
Nevada				x		
New Jersey				x		
New York						x 75-80%
North Carolina		x				
North Dakota			x			
Ohio			x			
Oklahoma						x 100% apprx.
Oregon					x	
Pennsylvania		x				
South Carolina		x				
Tennessee				x		
Texas				x		
Utah		x				
Vermont						x more than 50%
Washington		x				
West Virginia				x		
Wisconsin		x				
Wyoming		x				
TOTAL	2	9	9	7	2	3

a 40 per cent increase. Sixteen other states predict either 10 or 25 per cent more school owned vehicles. On the other hand, Illinois and Louisiana expect a decrease in the percentage of district-owned vehicles.

Financial Future of Pupil Transportation

The most important question concerning the future of pupil transportation is the last one, which deals with the percentage of total school budget which will be devoted to transportation.

Table 9 shows beyond any doubt that state leaders believe transportation will be taking a larger slice of the educational melon. Although two states, Michigan and Mississippi, anticipate a decrease, 30 states believe it will either remain the same or increase. The average increase expected by the 30 states is 7.8 per cent increase in the percentage of the total budget ascribed to transportation. In view of the generally accepted figure of four to five per cent of the cost of education going to the process of getting the students to and from the school, the increase of 7.8 per cent more in 30 states is a significant figure. It is possible that some of the state transportation directors may have interpreted the question as meaning that the present percentage be increased by the reported 7.8 per cent rather than 7.8 per cent being added to the current percentage of the school budget which is devoted to pupil transportation. This latter view conceivably indicates that

TABLE 9

OPINION OF STATE TRANSPORTATION LEADER CONCERNING THE COMPARISON OF 1975 WITH THE PRESENT IN TERMS OF THE PERCENTAGE OF TOTAL SCHOOL BUDGET FOR TRANSPORTATION

State	Decreased	About the Same	10% More	25% More	40% More	Other (Specify)
Arkansas		x				
California			x			
Florida		x				
Idaho		x				
Illinois			x			
Iowa						x 5%
Kentucky			x			
Louisiana		x				
Maine			x			
Michigan	x					
Minnesota				x		
Mississippi	x					
Missouri				x		
Nebraska			x			
Nevada			x			
New Jersey				x		
New York		x				
North Carolina		x				
North Dakota			x			
Ohio		x				
Oklahoma		x				
Oregon		x				
Pennsylvania			x			
South Carolina				x		
Tennessee		x				
Texas		x				
Utah		x				
Vermont			x			
Washington			x			
West Virginia			x			
Wisconsin			x			
Wyoming			x			
TOTAL	2	12	13	4	--	1

10 per cent of the total budget might well be allocated to pupil transportation. It is clear that in general there is expectation that there will be an increase in that portion of the school budget devoted to transportation.

Larger Administrative Units

Contemporary with the actual and projected increase in costs of pupil transportation is the reorganization of school districts into larger administrative units. The current opinion seems to be that the school districts are too many and too small.[1] As the school districts throughout our nation become larger and less numerous, there has been conjecture as to the effect this reorganization will have upon pupil transportation. Dawson and Reeves state bluntly that, "as small districts are reorganized into larger units of school administration more pupils will require transportation."[2]

Reports from 37 states would indicate that in states with smaller numbers of districts there is greater participation in pupil transportation. Table 10 arranges states into two groups--those having more than 500 districts at the top and those with fewer than 500 districts on the bottom. It is interesting to note that the state (Nebraska)

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[1]H. A. Dawson and Floyd W. Reeves, Co-Chairmen, Your School District, Department of Rural Education, National Educational Association of the United States (Washington, D. C.: National Education Association, 1948), p. 15.

[2]Ibid., p. 99.

TABLE 10

RELATIONSHIP OF THE TOTAL NUMBER OF SCHOOL DISTRICTS TO THE NUMBER OF SCHOOL DISTRICTS ENGAGED IN TRANSPORTATION OF PUPILS AT PUBLIC EXPENSE

State	Number of School Districts	Number of Districts Transporting	Per Cent
States With More than 500 School Districts			
Nebraska	4694	148	3.1
Kansas	3352	2187	65.2
Iowa	3323	1000	30.0
Minnesota	3298	3270	99.1
Missouri	2890	1150	43.9
Michigan	2867	893	31.1
Pennsylvania	2402	2402	100.0
North Dakota	2008	1541	76.7
Illinois	1862	1403	75.3
California	1818	1300	71.5
Texas	1725	1697	98.3
New York	1489	1340	89.9
Oklahoma	1469	874	59.4
Ohio	1158	1040	89.8
Oregon	716	540	75.4
New Jersey	569	518	91.0
TOTAL	35640	21303	59.7
States With Fewer than 500 School Districts			
Nevada	17	17	100.0
Utah	40	40	100.0
West Virginia	55	55	100.0
Florida	67	67	100.0
Louisiana	67	66	98.5
South Carolina	104	103	99.3
Alabama	112	76	67.8
Maine	115	115	100.0
Virginia	128	105	82.0
Mississippi	151	122	80.8
Tennessee	153	95	62.7
Idaho	169	147	86.9
North Carolina	174	169	97.1
Connecticut	176	149	84.7
Kentucky	216	173	80.1
Wyoming	243	159	65.4
Vermont	261	236	90.4
Arizona	205	285	93.4
Arkansas	424	423	99.7
*TOTAL	2977	2602	87.4

*Wisconsin with 3400 districts and Washington with 481 districts were omitted because neither listed the number of transporting districts.

with the largest number of districts had the smallest percentage of districts transporting students. The four states with the smallest number of districts all had 100 per cent of their districts engaging in pupil transportation. The average of the large district states was 59.7 per cent participation in pupil transportation, while the small district states averaged 87.4 per cent or more than 27 per cent greater participation. If the trend for fewer and larger school districts continues with a resulting demand for more pupil transportation, then the result exemplified by Table 9 indicating a greater share of the school budget being devoted to pupil transportation is clearly reinforced.

Areas for Improvement in Pupil Transportation

In the light of anticipated increases in scope and in cost of pupil transportation, what aspects of the national survey of pupil transportation showed promise either toward cost savings or improvement in quality of pupil transportation? In general, there were five areas which supplied a favorable climate for improvements in pupil transportation. These five areas were grouped in the following categories:

1. Group purchasing
    a. Operational supplies
    b. Capital outlay supplies
2. School transportation liability
3. Preventive maintenance
4. Recommended state practices resulting in lower

cost or improved quality of transportation

5. Bus driver education

Group Purchasing for Operational Supplies

Group purchasing of operational supplies has often been advocated as an economy measure. Table 11 indicates that as a matter of practice this method is not widely used. It is not used at all on a regional basis and in only seven states on a county basis. On a statewide basis ten states secure bus tires through this technique. Of those ten states (Alabama, Florida, Kentucky, Nevada, New York, North Carolina, South Carolina, Texas, Virginia, and West Virginia) seven could qualify as being southern states.

TABLE 11

NUMBER OF STATES REPORTING DEVELOPMENT OF A FORMAL ORGANIZATION FOR JOINT PURCHASING OF THE FOLLOWING OPERATIONAL SUPPLIES FOR TRANSPORTATION

Item	Statewide Basis		Regional Basis		County Basis	
	Yes	No	Yes	No	Yes	No
Gasoline	6	24	-	23	7	21
Tires	10	21	-	23	4	20
Repair Parts	4	25	-	24	6	20
Oil	5	24	-	24	6	21
Others (batteries 2) (chains 1)	3	16	-	18	2	15

It is noteworthy that 15 of the 37 states indicate participation in some form of group purchasing. When these same 15 were asked if they expected to continue group purchasing, 13 answered affirmatively and none were opposed to the continuation. In an attempt to pursue the question of group purchasing more intensively, Question 24 inquires of those who do not currently participate in group purchasing, how many would favor an organization which would permit group purchasing on a statewide, regional, or county basis. The respondents had four "yes" answers and nine "no" answers on a statewide basis, one "yes" and nine "no" on a regional basis, and five "yes" and five "no" on a county basis.

It would appear from the results of the questionnaire that in general those who participate in the practice of group purchasing favor its continuance and that ten states who presently do not have some form of group purchasing would like to do so.

Group purchasing for school buses.--Table 12 portrays the reactions of 36 states to three schemes of joint or group purchasing. It is noticeable that a wide majority do not participate in any form of group or joint purchasing. There is no evidence of any group purchasing on a regional basis and only five states have countywide purchasing. Eight states participate in statewide purchasing. Of the 13 states who indulge in this practice, all except two are southern states. Interestingly enough, the two northern states

TABLE 12

REACTION OF STATE PUPIL TRANSPORTATION LEADERS TOWARD DEVELOPMENT OF AN ORGANIZATION FOR JOINT OR GROUP PURCHASING OF SCHOOL BUSES

State	Statewide		Regional		County		If Your Answer Is "Yes" Do You Favor Continuation?	If Your Answer Is "No" Do You Favor Formation of Such a Program?
	Yes	No	Yes	No	Yes	No		
Alabama	x						x	
Arkansas	x						x	
California		x		x		x		Yes statewide
Connecticut		x		x		x		
Florida					x(volunteer)		x	
Idaho	None							Perhaps statewide
Illinois		x		x		x		No
Iowa		x		x		x		Yes countywide
Kansas		x		x		x		No
Kentucky	x						x	
Louisiana		x		x	x			Yes countywide
Maine		x		x		x		No
Michigan		x		x		x		Yes countywide
Minnesota		x		x		x		Yes countywide
Mississippi	x						x	
Missouri		x		x		x		Yes countywide
Nebraska		x		x		x		
Nevada		x		x	x		no	
New Jersey		x		x		x		Yes countywide
New York	x			x		x	no	
North Carolina	x						x	
Ohio		x		x		x		Yes countywide
Oklahoma		x		x		x		

TABLE 12--Continued

State	Statewide		Regional		County		If Your Answer Is "Yes" Do You Favor Continuation?	If Your Answer Is "No" Do You Favor Formation of Such a Program?
	Yes	No	Yes	No	Yes	No		
Oregon	None							
Pennsylvania		x		x		x		Yes statewide
South Carolina	x						x	
Tennessee					x		x	
Texas	x			x		x	x	
Utah		x		x		x		No
Vermont		x		x		x		Yes statewide
Virginia					x		No	Yes statewide
Washington		x		x		x		Yes statewide + countywide
West Virginia	Controlled by state						x	
Wisconsin		x		x		x		Yes regional
Wyoming		x		x		x		
TOTAL	8	21	--	23	5	21	10 Yes 3 No	8 statewide 1 regional 7 countywide

(Nevada and New York) who currently participate in group purchasing, do not favor the continuance of that program. Virginia likewise, prefers to cease the practice of county-wide purchasing, but would like to participate in statewide buying. However, 10 of the 13 favor the continuation of the program.

While much has been written about mass purchasing of school buses, the practice has not gained general acceptance. Nevertheless, 10 of the 13 states who participate favor the continuation of the program. In addition, 16 states who do not participate would like to do so. This aspect of pupil transportation costs should be studied further as a method of cutting transportation costs without any apparent lessening of the quality of transportation.

School Transportation Liability

Five questions in the questionnaire dealt with some phase of transportation liability. Replies to the first reveals that the laws of nine states[1] place liability on school districts for injury to pupils riding on school buses. In reporting "no," 24 states are relying on traditional governmental immunity. The second question indicates the trend in court decisions maintains governmental immunity by a ratio of 20 to 8. The third question points up the school

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[1]California, Connecticut, Florida, Idaho, Kentucky, New Jersey, Pennsylvania, Washington, and Wisconsin.

favored trend in court decisions when only three states could report actual instances of law suits being instituted in the courts on behalf of pupils injured while being transported to and from school since 1950. Wisconsin reported two cases, Ohio two or three, and Kentucky "estimated" 25. The fourth question probed deeper into the problem to see how many of these suits were successful. Both Wisconsin and Ohio reported that no cases were successful, while Kentucky estimated that 50 per cent were successful.

The last question in this series attempted to determine against whom the judgment was issued in successful suits of the previous question. Kentucky reported that insurance companies paid the judgment in the few cases successfully instituted.

The results of this section of the survey indicated that in spite of rumors of inflationary favoritism for plaintiffs in court action, the actual practice revealed, at least in the case of pupil transportation, traditional immunity of governmental agencies is still supreme. The freedom of school districts from lawsuits is further pointed up by a recent comment in a book designed as a law guide for school superintendents which states: "lawsuits . . . appear to be decreasing."[1]

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[1]Robert L. Drury (ed.), Law and the School Superintendent (Cincinnati, Ohio: W. H. Anderson Co., 1958), p. 251.

Preventive Maintenance

There was general approbation for preventive maintenance as the backbone of the school transportation systems. Some state suggestions were succinctly stated:

Michigan

1. Mandatory, periodic checkups.
2. Single school operated bus garages.
3. Expanded bus driver education program.

North Dakota

1. Enforcement of compulsory maintenance program.

Texas

1. Daily checkup by driver.
2. Periodic checkup by mechanic.

Washington

1. Better record keeping.
2. Preventive maintenance conferences.
3. More extensive training of mechanics and supervisors.

Illinois

1. Additional supervisory assistance from state level.

Missouri

1. District ownership
2. Full time service personnel of garages and mechanical facilities.

Florida

1. Intensive training of mechanics.
2. Training of drivers in the inspection of buses.
3. Analysis of bus specifications.

Minnesota

1. Regular inspection by full time mechanic.
2. Cooperative and wholesale purchasing.

Nevada

1. Frequent inspection.
2. Lubricate when needed.
3. Replace plugs, points, condensers every 8,000 miles.
4. Never recharge batteries.
5. Replacement of equipment at end of eight year period.

Oklahoma

1. Larger grouping of buses.
2. Central shop.

Oregon

1. Proper training of bus drivers.
2. Better shops and maintenance equipment.

Wisconsin

1. Frequent inspection with follow through.

Recommended State Practices Resulting in Lower Cost or Improved Quality of Transportation

As the State Directors were specific on the question of preventive maintenance, they were likewise specific on the question of general recommendations concerning state practices which resulted in lower costs or improved quality of transportation. Nineteen states answered Question 48 with a total of 103 responses. Many of the responses, of course, were duplicated but in general they divided

themselves into five categories. After deleting duplications on closely related factors the following responses were made:

Drivers

1. Carefully selected, adequately trained, and properly supervised student drivers.
2. Adequate driver training and supervision.

Maintenance

1. Improved maintenance.
2. Detailed provision for maintenance cost accounting.
3. Preventive maintenance conferences.

Buses

1. More adequate control of specifications.
2. All state owned and operated buses.
3. Larger buses.
4. Discontinuance use of feeder routes.
5. Use of two-way radio in buses.
6. Use of station wagon (particularly for Kindergarten).

Purchasing

1. Purchases of tires, spark plugs, and batteries at state contract prices.
2. Statewide purchasing.
3. State act as self-insurer.

Administrative Practices

1. Use of transportation committees made up of parents, school patrons, bus riders, bus drivers, and school officials.
2. Better program of route planning and scheduling.

3. Staggered school opening and closing (to enable betterutilization of buses).

4. Some one person assigned transportation responsibility.

5. Specific policies adopted by board for operating buses.

6. Multiple trips.

7. Transport only eligible children to and from school.

8. Eliminate extra-curricular use of buses.

9. Statewide visitation by transportation supervisor.

Bus Driver Education

State pupil transportation directors were very enthusiastic about the potential values of bus driver education. Twenty-three states reported there is a statewide program of bus driver education in their state, while 13 replied in the negative. All 36 states favored an expanded program of school bus driver education. Twenty-five indicated their state had established a school bus driver program. One respondent qualified his answer by stating that it was for the newer drivers only, one mentioned the program was "limited," and one specified "not extensive."

Table 13 indicates the State Department of Public Instruction (or the Department of Education, as it is called in several states) is the prime instigator of this service although the Highway Department, Highway Patrol, Safety Division, and Department of Motor Vehicles are also mentioned in this connection. The respondents are very

TABLE 13

REACTION OF STATE PUPIL TRANSPORTATION LEADER TOWARD BUS DRIVER EDUCATION

State	Is There a Driver Education Program? Yes	No	If So, Who Provides It?	Total Cost	% Local Funds	% State Funds	Expanded Bus Dr. Education Program Favor	Oppose
Alabama	x		D.P.I.	Not Available	Not Available		x	
Arkansas	x		D.P.I.	$1,000	0	100	x	
California		x					x	
Connecticut		x					x	
Florida	Effective 1958		D.P.I.	$10,000	0	100	x	
Idaho	x		State Police	No figures			x	
Illinois		x					x	
Iowa	x		D.P.I.	--			x	
Kansas	x (limited)		Hwy.Com.	No figures			x	
Kentucky	x	D.P.	D.P.I.	Foundation	90	10	x	
Louisiana	x		D.P.I.	No estimate		100	x	
Maine		x					x	
Michigan	x		Combination	$120,000	7.5	92.5	x	
Minnesota		x					x	
Mississippi	x		D.P.I.	$ 17,464			x	
Missouri		x					x	
Nebraska		x					x	
Nevada		x					x	
New Jersey		x					x	
New York	x		D.P.I.				x	
N.Carolina	x		Dept.Vehicles	--		100	x	
Ohio		x		none			x	
Oklahoma	x		Hwy. Patrol	No data		100	x	
Oregon	x		Dept.Vehicles	--		100	x	
Pennsylvania	x		Hwy. Dept.	free		--	x	
S. Carolina	x		Hwy. Dept.	--		100	x	
Tennessee	x		D.P.I.	$10,000		100	x	

TABLE 13--Continued

State	Is There a Driver Education Program? Yes	No	If so, Who Provides It?	Total Cost	% Local Funds	% State Funds	Expanded Bus Dr. Education Program Favor	Oppose
Texas		x					x	
Utah	x		D.P.I.	Don't Know			x	
Vermont	x		Motor Vehicles	$100		100	x	
Virginia	x		D.P.I.	--		100	x	
Washington	x		D.P.I.	$7,385.50	$5,605.50		x	
W.Virginia	x		Dept. Safety	No data		$1,780.	x	
Wisconsin	x		D.P.I.	$1,500		100	x	
Wyoming		x					x	

uncertain about who assumes the cost of this service. One specifically mentioned that it is "free." Only eight states are able to report a specific figure. These figures vary from Vermont's low of $100.00 to Michigan's high of $120,000. Michigan is also able to specify that the state pays 92.5 per cent of the cost with the remainder assumed locally. The total amounts listed alphabetically by states are as follows:

Arkansas	$ 1,000.00
Florida	10,000.00
Michigan	120,000.00
Mississippi	17,464.00
Tennessee	10,000.00
Vermont	100.00
Washington	7,385.00
Wisconsin	1,500.00

Twelve of the states show that 100 per cent of the cost is raised on the state level, while one shows 92.5 per cent, and another 10 per cent. Kentucky shows that driver education is a part of the total foundation program.

Women were reported as being employed for school bus drivers in every state except one. Students were employed in 20 of the states and rejected by 15 others. There was considerable difference of opinion as to the most successful school bus drivers. Twelve stated there was no difference between men and women; six stated men, women, and students as being equally successful; four listed students were superior. Only two listed men as being best with one state specifying that men and students were equally good. Eleven states reported either that students were superior or were equally good as any other classification of driver.

Women appear to be singularly favored in the question of which group has proved to be least successful. Only one state listed women alone as being the least successful, while five states pointed the finger at men as being least successful and four singled out students with the disfavor. While 15 states do not permit the use of students, the fact that 20 of them do and 11 of the 20 rate the student as being higher or as high as any other group, was indicative of further study on the use of student driver.

Many states are suggesting a differential in both the lower and upper age limits for school bus drivers. This variation, as listed below, indicated that some thought had been given to the problem.

TABLE 14

STATE DIRECTOR'S REPORT ON RECOMMENDED AGES FOR MEN AND WOMEN BUS DRIVERS

Men		Women	
Age Group	Number of Responses	Age Group	Number of Responses
16 - 65	3	16 - 65	2
18 - 50	1	18 - 50	1
18 - 65	3	18 - 60	1
18 with conditions	2	18 with conditions	3
20 - 60	1	20 - 50	1
21 - 60	3	21 on	11
21 on	4	21 - 60	5
21 - 65	3		
25 - 50	3		
25 - 60	1		
25 - 62	2		
25 - 65	1		

There was some indication of a desire for making an upper limit mandatory. No one recommended going over age 65 and several mentioned "physical conditions," while one (Vermont) specified examinations (physical).

Summary

State director's of transportation were asked to give their opinion of the future of certain aspects of transportation in their state. The following is a summary of the report from the 37 states:

1. There will be a marked increase in the number of pupils to be transported in the next 10 to 20 years.

2. There was general consensus that the per capita cost of pupil transportation would increase, but there was less agreement on this question than on the previous question dealing with the number of pupils to be transported. Four states predicted the cost per pupil would decrease, while 26 states reported an average increase of 13.8 per cent over the present per capita cost.

3. The United States appears to be experiencing a period of conflict and flux regarding the practice of the use of public funds for non-public transportation. Many states were uncertain as to how much money was being expended in this direction. The lack of accurate accounting was accompanied by numerous outcries against the practice.

4. More than half the states reported that the percentage of state aid for pupil transportation would remain

about the same. Nine states advocated increasing the states' contribution, while three felt the states were already paying too much. Over-all a slight trend toward an increase on the state level was evident.

5. There was general consensus that school administrative units would be larger. No state expected the size of school districts to decrease and the average of the 32 states responding indicated the size of the units would increase almost one-fifth.

6. There was a slight trend toward a modest increase in the degree of state regulation of pupil transportation. Most states expressed satisfaction with present conditions in this respect.

7. Favorable action toward the operation of school district-owned buses as opposed to leasing privately-owned vehicles was expressed by a majority of the state transportation leaders.

8. An increase in the percentage of the educational budget devoted to pupil transportation appears a certainty with 30 of 32 states anticipating a 7.8 per cent increase in the percentage of the total budget ascribed to transportation.

9. As the number of school administrative units decrease within a state, there was a corresponding increase in the need for pupil transportation.

10. There were five areas which showed promise either toward cost savings or improved quality of pupil

transportation according to the response from 37 states. These areas are:

A. Group or joint purchasing.
   (1) Operational supplies.
   (2) Capital outlay supplies.
B. School transportation liability.
C. Preventive maintenance of school buses.
D. Recommended state practices resulting in lower costs or improved quality of transportation.
E. Bus driver education.

CHAPTER IV

ANALYSIS OF PUPIL TRANSPORTATION IN MICHIGAN

Introduction

Since 1917 the state of Michigan has been contributing funds to local school districts which met specified standards in transporting school children. With the amount of state support increasing practically every year, it is only natural that districts be required to demonstrate that they are maintaining satisfactory transportation practices by filing an Annual Transportation Report. This report is made in triplicate with one copy retained by the transporting unit, one kept in the Office of the County Superintendent of Schools, and the third going to the state office in Lansing.

Considering the complex nature of pupil transportation and the commonly conceived image of the multiplicity of answers required by bureaucratically developed forms, the Transportation report is unusually simple.[1] It consists of four pages containing five sections. The first page is descriptive, listing the year, the type of school organization, and pertinent information regarding school administrative personnel.

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[1]Appendix B.

Section A (page 2), deals with the cost factors of transportation, while Section B (page 3), is restricted to information regarding buses themselves. Section C (page 3), is concerned with the operation of buses in terms of location of pupils, and distances traveled. The last page contains Section D, a record of non-resident pupils transported and Section E, which is a report of equipment sold.

Section A contains the essential requirements for this study. The report lists seventeen cost items in pupil transportation. These items are as follows:[1] drivers' salaries, gasoline, tires, school garage repair parts, private garage repair parts, private garage labor, depreciation of bus, interest costs, insurance, mechanics' salaries, supervisors' salary, clerical salary, oil and lubrication, storage of buses, school garage operation, garage equipment and repairs, and bus driver training.

The seventeen cost factors are combined into ten for east in handling. The more logical figure of ten is obtained in part by uniting seven divisions which deal with the maintaining of school buses. All these items consist of either parts, labor, or storage for school buses. The total of these seven are combined under the term "Total Maintenance" as all are related and are, in fact, nothing but varying methods of achieving maintenance of school buses. The item of supervisor's salary and clerical salary are

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[1]A person may easily compare this listing with the listing and accompanying numbers in the Annual Transportation Report (Appendix B).

joined under the term "administration" as being the amount spent by the local district in administering the transportation program. Through an early legal interpretation neither the superintendent nor the principal can have a portion of his salary ascribed to bus supervision, at lease as far as any reimbursement from state funds is concerned. In terms of numerical listing by the state report the ten cost factors appear as follows:

1. driver's salary
2. gasoline
3. tires
4. total maintenance
5. depreciation
6. interest
7. insurance
8. administration
9. oil and lubrication
10. bus driver training

Their importance in terms of actual cash expenditures will be determined later in this chapter.

Analysis of Data

It was evident at the outset that it would be too difficult to analyze and tabulate the cost data of all 893 transporting school districts in Michigan's 83 counties. The aid of the sociology department of Michigan State University was enlisted in selecting ten representative counties in Michigan for detailed study. The ten counties (Allegan,

Delta, Gratiot, Kalkaska, Macomb, Oakland, Ottawa, Shiawassee, Van Buren, and Wayne[1]) were chosen as representative of the economic areas of Michigan.[2] The annual reports of all transporting schools located in the ten counties were examined in detail. The facilities of the Department of Public Instruction were made available and every courtesy extended the writer during the study.

The 147 schools operating pupil transportation facilities within the ten selected counties vary markedly in the scope of their services. Twenty-six of the schools use one bus only, while seventeen maintain two buses. On the other hand, one school district in Macomb County operated 38 buses while Birmingham, in Oakland County, needed 33 to transport students. Altogether there were 14 schools operating from 20 to 38 buses. Less than one-eighth of the schools have more than 20 buses, while more than one-third get by with running one or two buses. The other 60 districts vary between three and 18, with 12 districts operating between seven and eight.

With information on cost data from 147 schools operating from one to 38 buses, the next problem was how to organize the data.

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[1]These ten counties were selected by Dr. Beegle as not only representing the established economic areas of Michigan but also as typical of the future trend of the state insofar as pupil transportation was concerned.

[2]J. Allen Beegle and Donald Halsted, Michigan's Changing Population, Special Bulletin 415 (East Lansing, Michigan: Michigan State University, June, 1957), p. 36.

The logical first step was to test the hypothesis "As the size of the bus fleet increases the costs of transportation decreases." The national director of pupil transportation had advocated large fleets of buses[1] as a means of reducing costs and increasing efficiency in pupil transportation.

Tabulations and analyses were made on the basis of the number of buses operated, the number of schools operating them, the distance traveled, students per bus, and the cost per bus. It was expected that as the number of buses increased the cost would be lowered, the total mileage would decrease, and the number of pupils transported per bus would increase as the units were used more effectively.

Information in Table 15 indicates the results were not as anticipated by Mr. Featherston's article. There was no indication of decreased costs as the number of buses increased. If anything, the costs tended to increase. As the size of the bus fleets exceeded 11 buses only four groups had average bus costs of less than $3000.00. On the other hand, not one of the smaller sized groups exceeded $4000.00, while four of the larger groups exceeded this figure. The mileage results fluctuated so much that no trend was apparent either from the standpoint of school miles or extra miles.

The most surprising factor was the number of students traveling in each bus. If the capacity of the largest

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[1]E. Glenn Featherston, "Transportation of Pupils--A Growing Problem," School Life, XXXI (January, 1949), p. 5.

TABLE 15

RELATIONSHIP OF SIZE OF SCHOOL BUS FLEET TO MILES TRAVELED, STUDENTS CARRIED, AND COST PER BUS IN TEN SELECTED MICHIGAN COUNTIES (1956-1957)

Number of Buses	Number of Schools	School Miles	Extra[1] Miles	Students Per Bus	Cost Per Bus
1	26	10,626.0	67.3	75.7	$3092.21
2	17	12,837.0	636.4	96.0	3033.25
3	11	9,757.0	137.2	133.7	2905.71
4	11	10,396.9	364.7	107.6	3580.84
5	9	9,226.2	864.9	86.8	3089.58
6	9	9,406.5	617.5	88.5	2929.05
7	12	9,775.1	561.8	76.9	3096.45
8	12	9,288.1	562.1	80.2	2933.42
9	3	8,492.0	584.1	107.6	3172.21
10	3	5,246.4	304.1	93.5	2726.43
11	1	5,538.6	766.3	53.3	2236.29
12	1	9,611.7	733.4	88.4	6938.91
13	1	8,604.0	396.3	73.3	2880.49
14	6	10,382.9	488.0	124.3	3859.68
15	4	7,724.6	466.9	64.9	2771.34
16	4	7,142.4	427.5	104.9	2915.78
17	2	8,353.0	337.4	107.1	2778.63
18	1	9,914.8	219.2	112.3	3752.79
20	2	9,324.5	395.9	148.5	3921.26
22	1	9,715.1	269.3	137.6	3878.19
23	1	10,433.0	329.0	119.9	3476.24
24	2	10,255.0	427.7	116.2	3301.84
25	1	11,357.4	954.2	245.8	4738.16
27	1	8,406.6	421.3	133.5	3521.96
28	1	15,303.5	154.7	224.7	5015.91
29	1	12,220.0	195.3	77.6	3951.28
30	2	11,177.7	449.3	172.9	4279.77
33	1	7,182.2	155.0	100.9	3666.38
38	1	9,461.8	282.4	129.3	3761.15

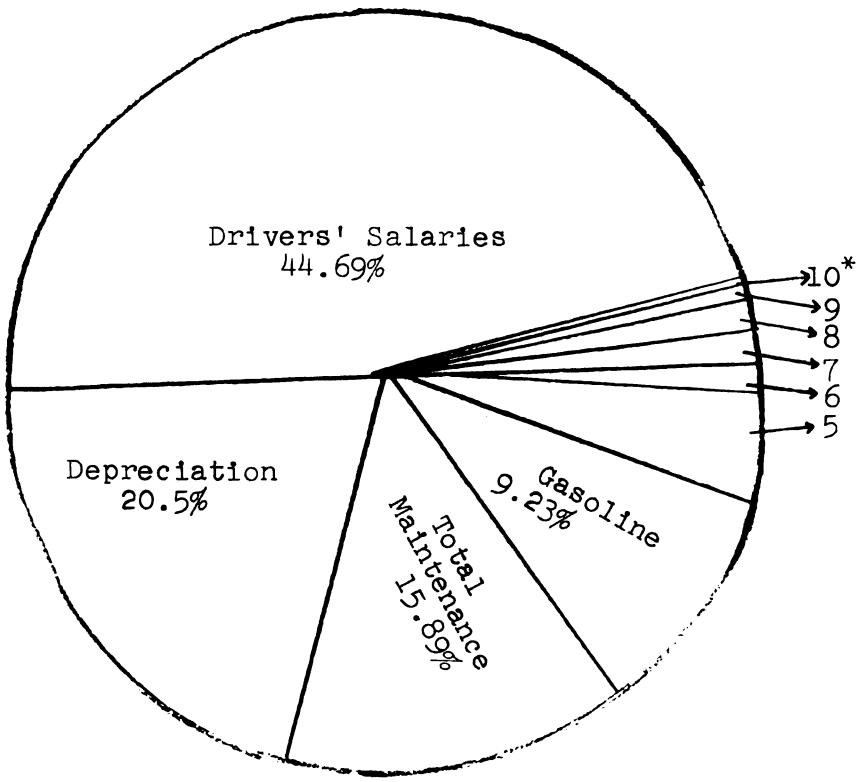
[1]Extra miles refers to any trips, excursions, or extended use of buses beyond the actual transportation of pupils from home to school and back home again.

commonly sold bus (60) were accepted as the normal, then every group except the 11 and 15 bus category were grossly overloaded! The extremely high number of students per bus was more pronounced in the larger bus fleet list. The schools which operated 25 and 28 buses averaged more than 200 pupils per bus. An examination of the 1956-1957 summary for the state of Michigan as a whole revealed that a total of 411,608 students were transported by 5,745 buses. This resulted in an average of 71.8 students per bus which would still be overloading and again only the 11 and 15 bus group revealed themselves as being below the state average. All the other groups were above and many of them strikingly above. This unexpected development needed considerable explanation which was not available at the time. However, this strange mystery will be unraveled later in this chapter.

Relative Value of Cost Factors

After failing to establish that an increase in the number of buses in a transportation system resulted in significant reduction in cost per bus, attention was turned to the relative importance of the ten cost factors of all the 147 schools in the ten counties without regard to the size or location of the school district or the number of buses operated.

Figure 1 graphically shows there are four "major" and six "minor" cost factors in the ten selected counties. More than 90 per cent of the total cost was absorbed by the "major" factors, listed as follows:



*Numerical tabulation of the six "Minor" Cost Factors

5	-- Administration	4.45%
6	-- Insurance	1.91%
7	-- Tires	1.31%
8	-- Interest	.85%
9	-- Oil	.80%
10	-- Driver Education	.44%

Figure 1. Comparison of the Four "Major" Cost Factors With the Six "Minor" Cost Factors in Ten Selected Counties of Michigan, 1956-1957.

1.	Drivers' salaries.	44.69%
2.	Depreciation	20.50%
3.	Total Maintenance.	15.89%
4.	Gasoline	9.23%
	TOTAL.	90.31%

It was interesting to note that four-fifths of the total was swallowed up by the first three factors. On the other hand, less than four per cent was absorbed by the four smallest of the minor cost factors. Not one of the six assume even five per cent of the total as evidenced by the following numerical tabulation of the six minor cost factors:

5.	Administration	4.45%
6.	Insurance.	1.91%
7.	Tires.	1.31%
8.	Interest	.85%
9.	Oil.	.80%
10.	Driver education	.44%
	TOTAL.	9.76%

After determining the classification of "major" and "minor" cost factors and noting the extreme range of 44.69 per cent for salaries to less than one-half of one per cent for driver education, the next task was to see how the various counties fitted into the over-all pattern.

The ten cost factors were arranged in order of importance and then the total and percentages of the counties were listed individually. The results, as shown in Table 16 were not wholly that which might have been expected. Only one county (Wayne) followed the over-all pattern in exact numerical order. Generally, however, all counties followed

TABLE 16

1956-1957 DISTRIBUTION OF COST FACTORS FOR PUPIL TRANSPORTATION IN TEN SELECTED COUNTIES

Item	Over-All	Allegan	Delta	Gratiot	Kalkaska	Macomb
Salary	$1,746,574.37	$ 77,462.47	$ 63,770.76	$49,572.04	$12,019.86	$249,915.65
%	44.69	35.832	44.591	36.591	37.96	42.832
Deprec.	802,007.16	52,166.35	33,044.42	32,305.25	6,883.17	130,356.65
%	20.5	24.13	23.123	28.836	21,738	22.342
Maint.	621,147.25	44,056.95	16,109.17	25,671.40	4,741.28	87,306.39
%	15.89	20.379	11.273	18.941	14.973	14.963
Gasoline	360,622.92	24,557.62	17,184.97	17,037.60	4,579.07	56,790.99
%	9.227	11.369	12.025	12.571	14.461	9.733
Admin.	170,163.75	3,109.90	1,714.57	2,200.00	--------	27,232.59
%	4.354	1.438	1.199	1.623		4.667
Ins.	74,689.31	4,969.85	3,409.63	2,970.11	726.73	12,965.97
%	1.9111	2.298	2.384	2.191	2.295	2.222
Tires	51,230.33	3,580.47	2,944.11	2,764.75	1,090.24	5,570.72
%	1.3109	1.656	2.06	2.039	6.209	.954
Interest	33,229.06	2,733.93	1,913.12	1,204.09	100.00	7,373.03
%	.8502	1.264	1.338	.888	.315	1.263
Oil	31,129.83	2,029.74	1,976.88	1,457.65	585.97	4,310.35
%	.7965	.9389	1.383	1.075	1.85	.738
Dr.Edu.	17,222.21	14,493.24	824.49	327.60	118.50	1,623.33
%	.4406	.6907	.5679	.241	.374	.278
TOTAL	$3,908,016.19	$216,180.52	$135,530.49	$135,530.49	$31,663.82	$583,445.67

TABLE 16--Continued

Item	Oakland	Ottawa	Shiawassee	Van Buren	Wayne
Salary	$ 588,427.17	$ 64,109.72	$ 63,828.55	$ 82,879.37	$494,478.78
%	46.002	40.851	38.586	39.769	50.028
Deprec.	251,324.56	37,847.50	41,247.71	54,982.17	161,849.38
%	19.648	24.086	24.935	26.4	16.375
Maint.	209,711.73	19,081.51	24,272.21	33,927.40	157,680.32
%	16.394	12.143	14.673	15.613	15.953
Gasoline	103,746.61	21,139.65	17,645.85	18,577.48	79,343.08
%	8.11	13.453	10.667	8.92	8.027
Admin.	71,521.27	3,600.00	3,278.25	4,300.00	53,207.17
%	5.591	2.291	1.981	2.064	5.383
Ins.	20,177.99	3,653.54	4,673.87	3,410.33	17,731.29
%	1.577	2.325	2.825	1.627	1.794
Tires	14,670.17	2,693.00	2,830.02	1,539.26	12,728.59
%	1.146	1.713	1.71	.739	1.28
Interest	6,510.60	2,354.91	3,932.07	6,047.02	1,060.29
%	.508	1.498	2.377	2.903	.107
Oil	7,335.43	1,863.44	2,611.56	2,018.53	6,940.28
%	.573	1.185	1.578	.969	.702
Dr. Edu.	5,697.10	705.89	1,098.40	1,987.63	3,346.03
%	.445	.449	.664	.954	.338
TOTAL	$1,279,122.63	$157,130.16	$165,418.49	$208,258.08	$988,365.21

a common pattern. In all cases the first two, salary and depreciation, were constant in their rank. Bus driver education ranked last in every county, and a total of less than one per cent was spent on this service in all counties. It is striking to note that with only three exceptions, all minor cost factors consumed less than five per cent of the costs of transportation. The exceptions were in Oakland and Wayne Counties where the administration figure was slightly over five per cent and in Kalkaska County where, for some unexplicable reason, the tire sales zoomed to six per cent of the total costs. Kalkaska County was also unique in that none of the costs of transportation were ascribed to administration.

More than 90 per cent of the over-all costs were contained in the first four or "major" cost factors. In none of the counties does the figure of the top four dip to less than 87 per cent. It would seem logical that any attempt to effect a material reduction in transportation costs should concentrate on the "major" cost factors of drivers' salaries, depreciation, total maintenance, and gasoline. A further analysis of the "major" and "minor" cost factors will be found in Chapters V and VI, respectively.

While the ten selected counties in general follow an established pattern, there were sufficient variations to occasion closer scrutiny. For example, the most costly figure varied from a low of 35.8 per cent in Allegan County to a high of 50 per cent in Wayne County. Wayne County,

high in salary was low in depreciation with 16 per cent. The depreciation factor finds its zenith in Gratiot County with almost 29 per cent. The total maintenance item was highest in Allegan County with 20 per cent ranging to a low of 11.36 per cent in Delta County. Wayne County was low in gasoline with 7 per cent while Kalkaska County managed to spend almost 14-1/2 per cent on bus fuel. It is obvious that if for some reason a county should find it necessary to spend an unusually large amount for one factor thus causing the percentage of that factor to rise, then the percentage spent for other factors must, of necessity, fall. Although establishing a bond of uniformity in the order of the expenditures for the ten selected counties the variations were sufficient to motivate further investigating seeking causes for the variations.

An attempt was made to show cost variations by injecting the added features of mileage and number transported (see Table 17). The inclusion of these two salient aspects of transportation provided three new county level statistics, namely: cost per person, cost per mile, and mileage per student transported. Even though the counties were arranged alphabetically, a compartmentalizing effect was noticed in that three counties were segregated from the others. These three counties were Macomb, Oakland, and Wayne. These counties, located adjacent to each other, represent the most populous area of our state. The similarity of the statistics was pointed up by their being the three lowest

TABLE 17

1956-1957 DISTRIBUTION OF COST FACTORS FOR PUPIL TRANSPORTATION IN TEN SELECTED COUNTIES, PLUS MILEAGE AND NUMBER TRANSPORTED

Item	Over-All	Allegan	Delta	Gratiot
Salary	$1,746,574.37	$ 77,462.47	$ 63,779.76	$ 49,592.04
%	44.69	35.832	44.132	36.591
Deprec.	802,007.16	52,166.35	33,044.42	32,305.25
%	20.2	24.13	23.103	28.836
Maint.	621,147.25	44,056.95	16,109.17	25,671.40
%	15.89	20.379	11.273	18.941
Gasoline	360,622.92	24,577.62	17,184.97	17,037.60
%	9.227	11.369	12.025	12.571
Adminis.	170,163.75	3,109.90	1,714.59	2,200.00
%	4.354	1.438	1.119	1.623
Insurance	74,689.31	4,969.85	3,409.63	2,970.11
%	1.911	2.298	2.384	2.191
Tires	51,230.33	3,580.47	2,944.11	2,764.75
%	1.3109	1.656	2.06	2.039
Interest	33,229.06	2,733.93	1,913.12	1,204.09
%	.8502	1.264	1.338	.888
Oil	31,129.83	2,029.74	1,976.88	1,457.65
%	.7965	.9389	1.383	1.075
Driver Edu.	17,222.21	1,943.24	824.48	327.60
%	.4406	.6907	.5679	.241
TOTAL	$3,908,016.19	$216,180.52	$142,901.12	$135,530.49
Number transp.	120,891	4618	2948	2428
Cost per person	$ 32.32	46.81	48.45	55.82
Cost per mile	$ .357	.312	.245	.279
Miles per student	90.24	150.23	195.92	206.01

TABLE 17--Continued

Item	Kalkaska	Macomb	Oakland	Gratiot
Salary	$12,019.86	$249,915.65	$ 588,427.17	$ 64,190.72
%	37.96	42.834	46.002	40.851
Deprec.	6,883.17	130,356.65	251,324.56	37,847.50
%	21.738	22.342	19.648	24.086
Maint.	4,741.28	87,306.39	209,711.73	19,081.51
%	14.973	14.963	16.394	12.143
Gasoline	4,579.07	56,790.99	103,746.61	21,139.65
%	14.461	9.733	8.11	13.453
Adminis.	---	27,232.59	71,521.27	3,600.00
%	---	4.667	5.591	2.291
Insurance	726.73	12,965.97	20,177.99	3,653.54
%	2.295	2.222	1.577	2.325
Tires	1,909.24	5,570.72	14,670.17	2,693.00
%	6.029	.954	1.146	1.713
Interest	100.00	7,373.03	6,510.60	2,354.91
%	.315	1.263	.508	1.498
Oil	585.97	4,310.35	7,335.43	1,863.44
%	1.85	.738	.573	1.185
Driver Ed.	118.50	1,623.33	5,697.10	704.89
%	.375	.278	.445	.449
TOTAL	$31,663.82	$583,445.67	$1,279,122.63	$157,130.76
Number transp.	461	20,778	45,597	4,223
Cost per person	68.68	28.08	28.07	37.20
Cost per mile	.198	.431	.358	.293
Miles per student	346.61	65.07	78.21	126.48

TABLE 17--Continued

Item	Shiawassee	VanBuren	Wayne
Salary	$ 63,828.55	$ 82,879.37	$494,478.78
%	38.586	39.796	50.028
Deprec.	41,247.71	54,982.17	161,849.38
%	24.935	26.4	16.375
Maint.	24,272.21	32,516.29	157,680.32
%	14.673	15.613	15.953
Gasoline	17,645.85	18,577.48	79,343.08
%	10.667	8.92	8.027
Adminis.	3,278.25	4,300.00	53,207.17
%	1,981	2,064	5.383
Insurance	4,673.87	3,410.33	17,731.29
%	2.825	1.627	1.794
Tires	2,830.02	1,539.26	12,728.59
%	1.71	.739	1.28
Interest	3,932.07	6,047.02	1,060.29
%	2.377	2.903	.107
Oil	2,611.56	2,018.53	6,940.28
%	1.578	.969	.702
Driver Ed.	1,098.40	1,987.63	3,346.03
%	.664	.954	.338
TOTAL	$165,418.49	$208,258.08	$988,365.21
Number transp.	2959	4,991	31,888
Cost per person	55.90	41.72	30.99
Cost per mile	.311	.336	.441
Miles per student	179.93	123.98	70.21

both in per capita cost and mileage per student, while at the same time their cost per mile was the highest of the group. In the cost per student, all three counties were under $31.00 while the others ranged from $37.50 up to a high of $68.68. Kalkaska County, with by far the highest per capita cost, also outstripped the others in terms of annual mileage per student, while at the same time its cost per mile was lowest of all. Other things being equal, a tremendous increase in mileage resulted in a lower cost per mile. The interesting and focal point here was the resultant extremely high per capita cost of transportation. Mileage alone does not seem to be the dominating factor since all three populous counties in the Detroit area each far outstrip Kalkaska County in mileage. In fact, Macomb County has more than eight times as much mileage as Kalkaska while Wayne and Oakland exceeds that of Kalkaska by more than 10 and 20 times, respectively.

Density As A Factor in Pupil Transportation

With mileage as a unit being placed in a secondary position the factor of density of population comes to the foreground. Previous writers, both expressly[1] and by implication,[2] have stressed this aspect of pupil transportation.

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[1]C. D. Hutchins, "Determining Costs of Pupil Transportation," The Nation's Schools, XXV, No. 5 (May, 1940), p. 34; R. W. Roberts, "Predicting Pupil Transportation Costs," The Nation's Schools, XV, No. 4 (April, 1935), pp. 64 and 66.

[2]G. A. Selke, Transportation Cost in Minnesota Consolidated Schools (Washington, D.C.: Government Printing Office, 1924), p. 5.

The three metropolitan counties were unique in that they all travel less than 80 annual miles per student, which was reflected in a lower cost per student. This low per capita cost was achieved even in the face of higher salaries for bus drivers, which we have already noted is the most expensive of all the cost factors. While this was not gleaned from the table, the fact that each of the counties transports more than 20,000 students by school-owned buses gives rise to much greater flexibility in the establishment of bus routes, the ease of personnel adjustment, as well as mass purchasing of supplies which could likewise result in lower costs.

The previous paragraph referred to the counties of Macomb, Oakland, and Wayne as "metropolitan," and to the fact that transportation within those counties differed markedly from all of the others. Density of school population was advanced as a dominant factor in this differential. The density of population in southeastern Michigan is generally so well accepted that no effort to inject a population map will be made. If we can accept the premise that the extremely populous counties have a profound effect on pupil transportation, then it might be meaningful to transpose this thesis to the question of size which proved to be so disconcerting in Table 15. It will be recalled that we expected to find that as the number of buses of the operating school district increased, the costs of pupil transportation decreased. This was not the case. The most

significant development from Table 15 was that in general all buses tended to be crowded. Realizing that the populous counties contained both large and small schools, an attempt was then made to analyze data to determine significant differences and similarities from which meaningful conclusions could be drawn. This is presented in Table 18. In this case a comparison was made of the average number of students per bus for all sizes of bus fleets. "Metropolitan" and "non-metropolitan" school districts were separated in this table.

Students Per Bus Advantage of Metropolitan Districts

The analysis revealed a surprising trend in which metropolitan bus fleets far surpassed non-metropolitan fleets in terms of students per bus. The pattern of numerical superiority of for the more populous areas was achieved in every bus group. The contrasts of students per bus for the two groups were so pronounced as to invite the following observations as indicative of a possible trend in pupil transportation:

1. Without exception in every bus group in which both metropolitan and non-metropolitan buses were represented, the number of students per bus on the metropolitan buses exceeded the non-metropolitan.
2. The highest number found in any non-metropolitan bus category (77.1 in the two bus group) was smaller than any of the metropolitan category except the 13 and 15 bus group.

TABLE 18

AVERAGE NUMBER OF STUDENTS PER BUS IN METROPOLITAN AND NON-METROPOLITAN SCHOOL DISTRICTS FOR THE 1956-1957 SCHOOL YEAR

Number of Buses	Metropolitan	Non-Metropolitan
1	152.5	65.1
2	151.7	77.1
3	240.0	72.9
4	154.9	63.1
5	763.3	65.0
6	164.8	50.4
7	139.0	56.2
8	116.8	61.9
9	131.0	60.6
10	171.0	54.8
11		53.0
12	88.4	
13	73.3	
14	138.9	51.0
15	76.0	53.8
16	118.4	64.5
17	107.1	
18	112.3	
20	148.5	
22	137.6	
23	119.9	
24	116.2	
25	245.8	
27	133.5	
28	224.7	
29	77.6	
30	172.9	
33	100.9	
38	129.3	

3. No non-metropolitan buses were found in bus groups above the sixteen bus group.
4. The increased seating advantage of the metropolitan buses appeared generally evident in all areas; the size of the bus fleet appeared to have little difference in the relationship.

Are Michigan School Buses Overloaded

While Table 18 revealed there was a marked difference in the number of students carried per bus based apparently on the increased student density of the metropolitan schools, this disturbing question was left, "Can it be that Michigan schools, particularly metropolitan schools are overloading buses?" It is common knowledge that the most popular sized buses in Michigan are the 48, 54, and 60 passenger school buses. The results of Table 18 would indicate all fleets are averaging above the 48 passenger capacity. Some would not be overloaded if the buses averaged 54 or 60 passengers. Even if the larger sized 60 passenger buses were prevalent, every category of the metropolitan districts would be grossly overloaded since Michigan State Police reports permit only a ten per cent overload of school buses.[1] The rumors that larger school buses (66 and 72 passenger buses) are common in some areas of Michigan and may account for apparent overloading, gave rise to the necessity for examining the

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[1]Conversation with Michigan State Police Inspector from South Haven Michigan Post on November 17, 1958.

records of the size of school buses actually in use in 1956-1957.

The manufacturer's rated capacity for buses listed on the Annual Transportation Report as arranged by Table 19 revealed the following summarizations:

1. There were relatively few buses under 30 or over 60 passengers.
2. In general the metropolitan schools used slightly larger buses.
3. There was little variation between the average capacity; the maximum was 55.4 in Macomb County and the minimum was 51.0 in Kalkaska County.
4. Every metropolitan county had a numerical advantage over every non-metropolitan county.

While every metropolitan county had an advantage over every non-metropolitan county, this fact in itself was not sufficient to account for the marked numerical superiority of the average number of pupils transported per bus, since the average rated capacity of the more densely populated areas were less than three more students per bus, while the average number of students actually carried was approximately twice as great as that of the more sparsely populated regions. There must be other reasons since even the non-metropolitan schools appeared to be conveying more pupils than the average capacity of the buses in the seven counties.

TABLE 19

COMPARISON OF SEATING CAPACITIES OF SCHOOL BUSES IN METROPOLITAN AND NON-METROPOLITAN SCHOOL DISTRICTS IN TEN SELECTED MICHIGAN COUNTIES IN 1956-1957

County	No. Buses	Number of Buses According to Seating Capacity					Total Capacity	Average Capacity
		Under 30	48	54	60	Over 60		
Non-Metropolitan								
Allegan	(81)	1	40	17	22	1	4239	52.3
Delta	(47)	1	24	10	11	1	2433	51.7
Gratiot	(49)	1	15	24	9	0	2565	52.3
Kalkaska	(10)	0	6	3	1	0	510	51.0
Ottawa	(62)	0	36	19	7	0	3174	51.1
Shiawassee	(57)	1	13	26	13	4	3087	54.1
Van Buren	(92)	0	42	37	13	0	4794	52.1
Total	398	4	176	136	76	6	20,802	52.2 Av.
Metropolitan								
Macomb	(176)	2	46	26	101	1	9,757	55.4
Oakland	(354)	5	105	39	201	4	19,516	55.1
Wayne	(225)	1	81	33	104	4	12,314	54.7
Total	753	8	232	98	406	9	41,587	55.1 Av.

Multiple Bus Routes As A Factor in Pupil Transportation

The most obvious reason is that school buses are carrying school children on multiple bus routes. This assumption was substantiated by a survey of the ten county superintendents of schools serving the ten counties studied. Table 20 portrayed the average number of routes per bus (excluding Kindergarted). The results showed a marked numerical superiority for the metropolitan counties. The highest non-metropolitan county (Ottawa) averaged 1.51 routes per bus, while the lowest metropolitan county (Macomb) averaged 2.5 routes per bus. The Oakland County buses were utilized on 3.8 routes, while Wayne County school buses averaged the almost unbelievable figure of 6.0 routes. Further evidence suggesting multiplicity of bus routes was found in a Wayne County Board of Education questionnaire which requested information from county school districts concerning the separation of bus loads of students by elementary, junior, and senior high school levels. In addition, the question was asked about the amount of "layover time" salary which was paid to bus drivers.[1] Perhaps even more significant was the great divergence of time in daily opening and closing of schools which facilitates multiple bus routes.[2]

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[1]Wayne County Board of Education Transportation Questionnaire," May, 1958, p. 3. (Mimeographed.)

[2]Ibid.

TABLE 20

AVERAGE NUMBER OF DAILY ROUTES PER BUS IN 1956-1957 (EXCLUDING KINDERGARTEN RUNS) ACCORDING TO REPORT OF COUNTY SUPERINTENDENT

Classification	County	Number of Routes						
		1	2	3	4	5	6	7
Non-Metropolitan	Allegan	xxxx						
	Delta	xxxxxx						
	Gratiot	xxxxxx						
	Kalkaska	xxxx						
	Ottawa	xxxxxx						
	Shiawassee	xxxx						
	Van Burean	xxxx						
Metropolitan	Macomb	xxxxxxxxxx						
	Oakland	xxxxxxxxxxxxxx						
	Wayne	xxxxxxxxxxxxxxxxxxxxxxx						

A December, 1958 letter from Clare Ebersole, Wayne County Pupil Transportation Director, indicated that Wayne County buses averaged 158.7 students per bus with an estimated six routes per day.[1] A similar letter from the

[1]Letter from Clare Ebersole, Wayne County Pupil Transportation Director, dated December 26, 1958.

Oakland County pupil transportation director indicated Oakland County transported 140+ students per bus with an average of 3.8 routes per bus. His letter of December 24th specifically gave credit to multiple routes when he stated: "The school officials have tried to make efficient and effective use of the buses by establishing multiple routes."[1] The third metropolitan pupil transportation director credited multiple routes in Macomb County by asserting that school buses averaged two-plus routes each, exclusive of Kindergarten runs.[2]

On the other hand, the seven out-state county superintendents reported fewer routes operated. Three counties (Allegan, Kalkaska, and Van Buren) reported only one route per day, excluding Kindergarten runs. Delta and Gratiot Counties reported between one and two routes per day. Shiawassee County was more specific in spelling out the following:

60 buses--1 route per day,

5 buses--2 routes per day,

or an average of 1.07 routes per bus. Ottawa County evidenced a mixture of non-metropolitan and metropolitan characteristics with the following tally:

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[1]Letter from Claude M. Elmore, Oakland County Pupil Transportation Director, dated December 24, 1958.

[2]Letter from Robert Beal, Macomb County Pupil Transportation Director, dated December 23, 1958.

68 buses--one route per day

25 buses--between two and three routes per day

5 buses--three routes per day

1 bus ---makes four routes

The results of Table 20 explain in large measure the pattern of apparently excessive student loads on school buses in metropolitan areas. It is relieving to know that Michigan school buses are not being overcrowded at any one time with school pupils. In addition, there is some evidence that a more wholesome environment in pupil transportation can be achieved by some degree of segregation on school buses, for example, similar age or grade level students being separated and transported to individual schools with varying opening and closing hours.

Variations Within Counties

To test the theory of variations within counties, the annual number of miles per student were charted. All schools are listed by number of buses operated with metropolitan schools located with a zero and non-metropolitan charted with a dash (see Figure 2). Interestingly enough most of the non-metropolitan schools were located above the line, denoting 100 miles per student, while most of the dash marks were found below that line. However, there were enough variations to excite interest. Nine zero marks depicting non-metropolitan schools were found with less than 100 annual miles per student. Fifteen dash marks

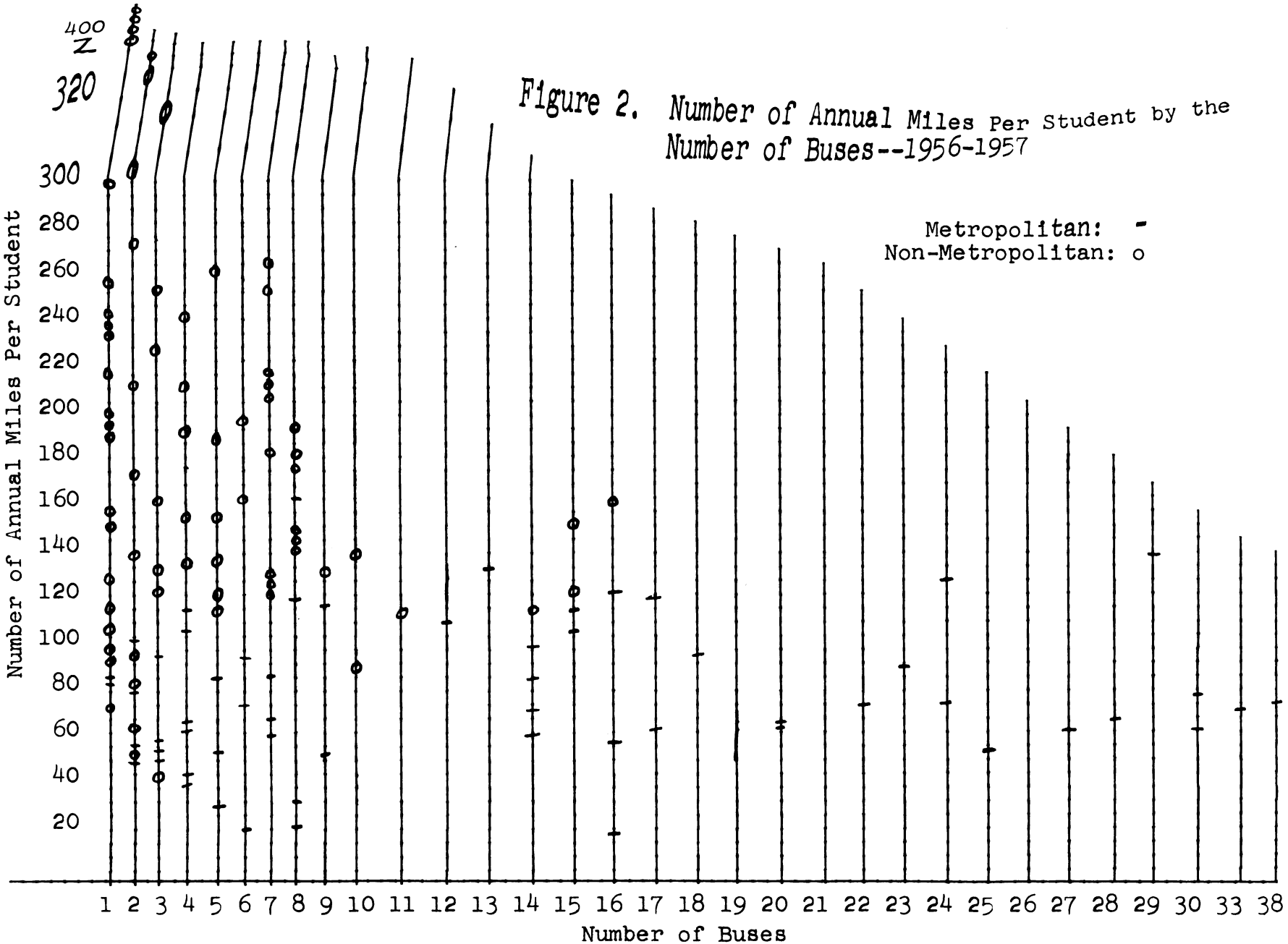

Figure 2. Number of Annual Miles Per Student by the Number of Buses--1956-1957

designating schools in Macomb, Oakland, and Wayne Counties were found above the 100 annual miles per student line. There were nine schools in out-state counties which indicated considerable density of population and, hence, might be eligible for multiple trips. An examination of the nine schools with less than 100 annual miles per student revealed these interesting facts:

1. Most of the schools operated few buses. Three operated one bus, four operated two buses, and one operated three buses. Only one (Covert in Van Buren County) operated as many as ten buses.
2. All of the eight schools with few buses were suburban in character. All eight were located in Ottawa County, with five surrounding Holland, two near Grand Rapids, and one on the outskirts of Grand Haven.
3. Considerable annexation has taken place since the 1956-1957 study, or is currently being contemplated. Ferrysburg, near Grand Haven, has annexed to Grand Haven and is currently operating multiple routes. Three schools (Pine Creek, Beechwood, and Waukazoo) are integral parts of the West Ottawa annexation north of Holland which now operates ten buses with 33 bus routes exclusive of three kindergarten runs. Harrington and Federal schools, both suburbs of Holland, currently operate multiple routes and are considering annexing to Holland or

some other nearby school operating 12 grades. Harrington operates eight routes with three buses and transports high school and elementary students separately. The two schools near Grand Rapids, Georgetown and Georgetown 2, have recently merged and selected a school superintendent and are increasing their transportation. The new school administrator reported their buses are now averaging four routes per day, excluding kindergarten.

4. The only school operating more than three buses with less than 100 annual miles per student was Covert. In 1956-1957 Covert's ten buses traveled 46,197 miles, carrying 564 students for an average of 81.9 miles per student. Today, Covert contemplates traveling 47,700 for 475, or 82.9 annual miles per student. A visit to Covert and a conversation with their superintendent revealed the fact that Covert could save money on pupil transportation by reducing the number of buses and operating multiple trips. This is not being done now because:
   a. this would mean changing the hours of starting and closing schools;
   b. the elementary and high schools are located close to each other and it is convenient to have community teachers ride together--in some

cases teachers work in both the elementary and high school level;

c. the bus drivers like the present arrangement and are not anxious to work longer hours;

d. the buses are being operated economically ($31.10 per student per year), and the financial pinch has not hurt their transportation system.

That Michigan school buses are not unique in operating multiple routes in a suburban situation was indicated by a New York report "which shows that twelve 55-passenger buses transport two thousand pupils to and from six schools; no pupil boards the bus before 8:00 A.M.; no pupil spends more than an hour on a round trip."[1] This school district has the further innovation that they pick up students only on the right hand side of the road (no student crossing the road), and also pick up only seventh through twelfth grades in one group and kindergarten through sixth in another. They eliminate all dead-heading and operate "loop" rather than "shoestring" routes.[2]

Summary

1. There are four "major" and six "minor" cost factors in pupil transportation in Michigan.

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[1]Burton H. Belknap, "School Bus Transportation Survey," School Executive, LXXIII (February, 1954), p. 58.

[2]Ibid.

2. The metropolitan areas differ from out-state areas in that they--
   a. operate on a relatively lower per capita cost basis,
   b. operate on a relatively higher cost per mile basis,
   c. average many more students per bus,
   d. utilize multiple bus routes.
3. Schools which average less than 100 annual miles per student tend to be able to lower costs of pupil transportation by utilizing multiple bus routes.

CHAPTER V

MAJOR COST FACTORS IN PUPIL TRANSPORTATION

Salary

In this study the term salary is used to denote bus driver's salary only. Other salaries, such as mechanics, clerical, or administrators are included either in Total Maintenance or Administration. According to current literature, the bus driver is the key in public relations, safety, and general maintenance of school buses. Certainly this is true in the cost factors of pupil transportation since almost half the expenses of transporting children were attributed to the bus driver. In the ten counties studied, 44.69 per cent, or $1,746,574.37 of a total of $3,908,016.19 cost was paid to the driver of school buses.

In the few analyses of cost factors in pupil transportation available, the high rating of salaries was readily apparent. As early as 1934, the Department of Public Instruction in Michigan issued a mimeographed report on pupil transportation.[1] Strangely enough, the percentage of the total costs ascribed to drivers' salaries was almost exactly that of this study conducted 23 years later. In 1934, the

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[1] Dorr Stack, "A Study of Pupil Transportation in Rural Agricultural Schools of Michigan for 1934" (Lansing, Michigan: State Department of Public Instruction, 1934), p. 4. (Mimeographed.)

percentage was 45 per cent, while in 1957 in the ten counties examined, the results showed 44.69 per cent. In 1934 no effort was made to break down the percentages of the other cost factors, nor were the other cost factors identified.

A 1930 California report listed salaries as being second to depreciation in the following tabulation:[1]

Item	Per Cent	Amount Annual Cost
Depreciation	32.98	$525.60
Salaries	29.50	470.00
Repairs and Upkeep	9.31	148.40
Fuel	8.45	134.60
Tires	7.06	112.50
Interest	6.86	109.30
Insurance	4.97	79.20
Lubricants	.87	13.82

Variations in Salaries

In the ten Michigan counties studied there were considerable variations in the amount paid as salaries. This was true both in the percentages of the various counties and the amounts paid per bus in various bus groups. The range was from a low of 35.83 per cent in Allegan County to a high of 50.03 per cent in Wayne County. In spite of county variations, the factor of salaries rated number one in all counties by a substantial margin. Table 17 indicates that salaries exceeded depreciation, the number two factor

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[1] Frank O. Evans, Factors Affecting the Cost of School Transportation in California, U. S. Department of Interior Bulletin No. 29 (Washington, D. C.: Government Printing Office, 1930), p. 24.

in all counties, by margins ranging from 7.7 per cent in Gratiot County to 33.65 in Wayne County.

As there was considerable variations in the salary percentage in counties, there appeared to be even greater variation in the actual salary paid per bus driver. The lowest reported amount per bus was that paid by a school district in Ottawa County which operated two buses. Here the salary paid per bus was $721.25. At the other extreme, the Redford Union School District in Wayne County, operating 12 buses, paid an average of $5,129.60 per bus. The average of the 1,142 buses was $1,529.39.

The question could well be asked--What causes the tremendous variation in wages paid to bus drivers? Several possible answers can be given each of which probably had an effect. One would be that the prevailing wage varies in different parts of Michigan. Another, that the amount of driving time necessary to transport children to and from school varies from district to district. Some school districts expect drivers to restrict their activities to driving the bus, while others expect detailed reports and even some maintenance and storage services. Some buses' routes are longer than others, and some drivers handle multiple routes.

If the yardstock of time of bus operation in minutes, as exemplified by the Annual Transportation Report,[1] were

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[1] Appendix B, Section D, Part 3.

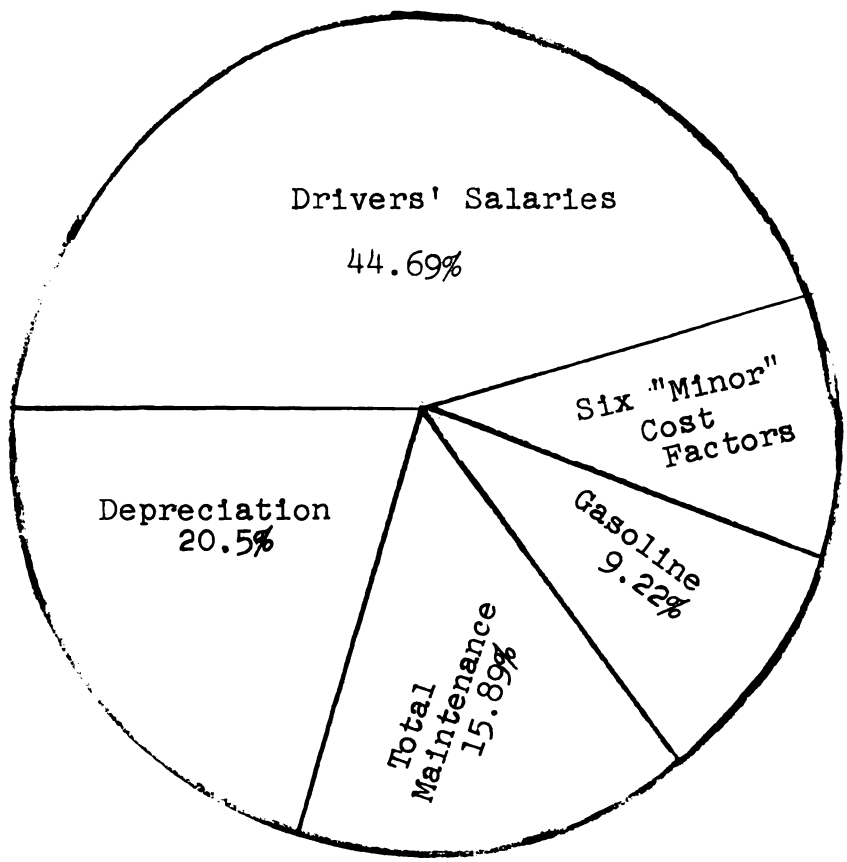

Figure 3. Four "Major" Cost Factors in Pupil Transportation for Ten Selected Counties in Michigan, 1956-1957.

applied to salaries paid, there still remain great extremes in variations. The method of computation was to multiply the number of minutes the bus was operated per day by the number of days of school membership, convert the minutes into hours and divide the resultant figure into the number of dollars paid in salary. The resulting hourly wage paid to bus drivers shows a low of $1.29 per hour paid at Oxford in Oakland, County, to a high of $7.89 paid at the previously mentioned Redford Union School in Wayne County. The fallacy of this time approach to bus drivers' salaries was pointed out by a report from one school which indicated it paid $1.07 per hour when the bus driver is "waiting," and $2.14 per hour when the bus driver is "driving."[1]

Some light was thrown on the uncertain status of bus drivers by the 1957-1958 report of the Michigan School Business Official Survey of Salaries and Fringe Benefits. A questionnaire was sent to all school districts in Michigan having an enrollment of over 800 pupils. Of the 300 districts contacted, 75 replied. Twenty-two of the replies were incomplete. Most of the 53 complete replies were from the southern half of the lower Pensinsula. Twelve of these 53 respondents went out of their way to point out that the bus drivers were part-time only and specified that other duties, such as custodial or maintenance work was

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[1] Committee of Publicity, Information, and Promotion, "Survey of Salaries and Fringe Benefits, Business Area Employees," First Annual Report, Michigan School Business Official 1957-1958, p. 55. (Mimeographed.)

given to the bus drivers. The lack of uniformity of paying bus drivers was pointed out by the reports which indicated some were paid annually, some monthly, some weekly, some daily, some hourly, some by the "run" or the "trip." Further qualifications were put in by spelling out that women were paid at a lower rate than men, and that discrepancies were indicated by variations in pay by length of trip and sometimes by length of service.[1] Twenty-nine did specify that bus drivers qualified for sick leave, varying from two days non-cumulative to 12 days with unlimited accumulation. In most cases it was specified that the sick leave was to be pro-rated because of the part-time characteristics of bus driving. In general, probably because of the part-time nature of the work, bus drivers qualified less often than did other school employees for such fringe benefits as paid hospitalization, severance pay, vacation pay, and sick leave.

The arrangement of average hourly wages paid to bus drivers by number of buses operated, shown in Figure 4, indicated there was more uniformity at the upper and lower end of the scale and more extreme in the middle or 10 to 18 bus group. In the one to nine bus group the range of average salary paid was fairly consistent, varying from a low of $2.20 in the three bus group to a high of $3.08 in the eight bus group. In the large (20 to 38) bus fleets, a consistent policy of hourly bus drivers' wages was apparent with a

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[1] Ibid., p. 35.

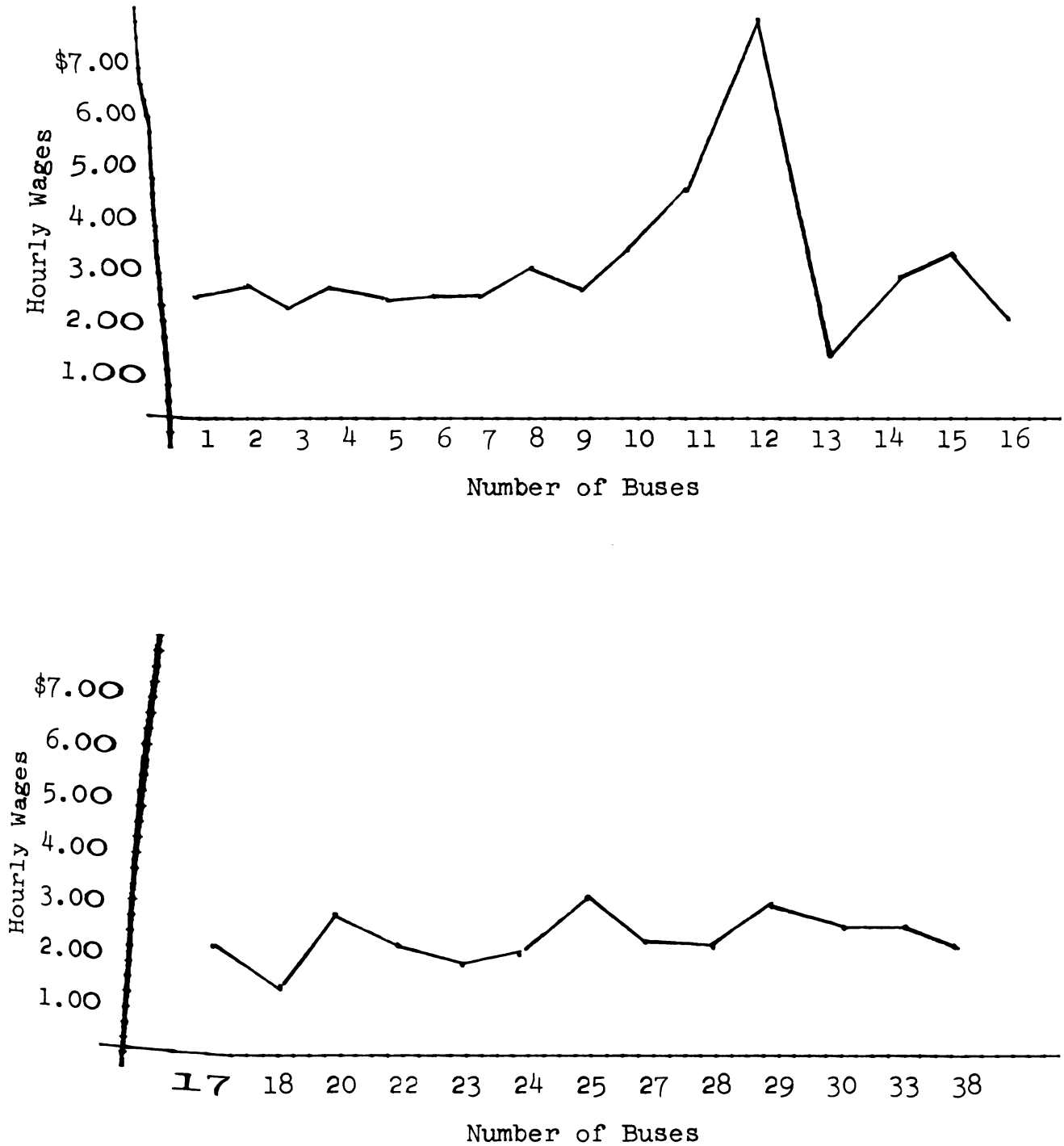

Figure 4. Hourly Wages Paid Bus Drivers According to Number of Buses Operated.

range from $2.04 to $3.38. The middle group (10 to 18) contains the extremes from $1.29 to $7.89. Strangely enough, the two schools with the marked variations represent adjoining size bus groups 13 and 12, respectively. It was interesting to note that Oxford transports 953 students at a salary cost of $13,730.05 or $14.40 per student, while Redford Union pays $61,555.20 for 1,063 or $57.90 per student. Aside from the extremes in the 11, 12, and 13 bus divisions, the average salaries followed a generally accepted pattern, varying from $1.82 per hour to $3.24 per hour. It should be kept in mind, however, these are average hourly wages and do not reflect some extremes. Table 21 shows a more meaningful breakdown of wages paid by all schools.

In this analysis, the factor of metropolitan and non-metropolitan schools was injected again. The most consistent pattern was exemplified by the large (20 to 38) bus groups where hourly ranges of $2.01 to $3.38 was evident. All these schools were metropolitan since there were no out-state schools having more than 16 buses in the ten counties studied. Both the metropolitan and non-metropolitan districts in the small (1 to 9) schools group exhibit some extremes when they showed 18 below the $2.00 level and 10 schools above the $3.50 bracket. In the medium sized bus operations (10 to 18) six schools were below and five were above the large (20 to 38) bus range.

As an added feature of Table 21, the summary of 17 School Business Officials, who reported on hourly wages for

TABLE 21

HOURLY WAGES PAID TO BUS DRIVERS BY NUMBER OF BUSES OPERATED AND BY CHARACTERISTIC OF SCHOOL

Bus Group	Hourly Wages													
	Below $1.50	$1.50 1.75	$1.75 2.00	$2.00 2.25	$2.25 2.50	$2.50 2.75	$2.75 3.00	$3.00 3.25	$3.25 3.50	$3.50 3.75	$3.75 4.00	$4.00 4.25	$4.25 4.50	$4.50 4.75
1-9 Metro.*		1	3	4	2	3	2	2	2	2	1	1	1	
N-Metro*	1	6	7	13	20	5	14	3	3	0	1	2	1	1
10-18 Metro.	1	2	3	3	1	2				1		1		2
N-Metro.						1	2	1	1				1	
20-38 Metro.				4	2	1	3	1	1					
N-Metro.														
	Hourly Wages Reported by School Business Officials													
		2	7	8										

*Metro.--"Metropolitan"; N-Metro.--"Non-Metropolitan."

bus drivers, were included. This summary indicated a greater uniformity of lower level hourly pay. The noticeable bunching of relatively low wages may be accounted for in that the schools were paying for "waiting time" as well as "driving time." The fact that more School Business Officials report wages paid to bus drivers in terms other than amount per hour was probably an indication that the schools could compensate bus drivers more equitably over the longer period of time. The absence of any uniformity of payment on the part of schools who were progressive enough to provide Business Managers, was an indication there was no commonly accepted policy.

With pupil transportation costs increasing steadily, and with the knowledge that the driver constitutes the large share of the total, it would seem logical that some would suggest decreasing drivers' salaries. Strangely enough, this was not the case. Nowhere was there any suggestion that school bus drivers be selected on a bid basis. On the contrary, there were demands for more stringent selections, better training, and increased pay. One writer emphasized the interaction of selection and training with the following statement: "With good selection and poor training or poor selection and good training . . . the results will always be poor."[1] The University of the State of New York suggests

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[1]Carl Sypher, "The ABC's of Getting Good Bus Drivers," School Bus Trends, February, 1956, p. 52.

the use of dual trips in order to pay better salaries and to the end that better bus drivers could be recruited.[1] A South Dakota school transportation specialist stated bluntly that "procuring adequate and conscientious bus driver at a salary most of our school districts are able to pay is one of our major problems."[2] E. Glenn Featherston, Pupil Transportation Specialist in the United States Office of Education, proposes that efficient school bus transportation necessitates sufficiently large school districts so 40 to 50 buses can be utilized and that bus drivers will be employed on a full-time basis.[3] Whether the driver be employed full-time as bus driver, or whether additional jobs be provided of another nature seems to make little difference so long as a competent driver be available when needed. Adequate payment to secure this driver was implicit, if not expressed, in the literature. So far as is known, only two techniques have recently been adopted which may result in lowered salaries of bus drivers. These two devices are the employment of women and student drivers. Each of these were sufficiently important in the realm of the essential and costly bus driver as to merit special treatment.

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1 School Business Management Handbook (New York: University of the State of New York, 1955), p.53.

2 James C. Schooler, "Procuring Adequate and Conscientious Bus Drivers," The Nation's Schools, LXII (August, 1958), p. 45.

3 Featherston, "Transportation of Pupils--A Growing Problem," op. cit., p. 4.

The use of women school bus drivers is widespread. Thirty-six of 37 states reporting in a national survey of pupil transportation[1] employed women drivers. Four of these states reported women driving as more successful than either men or students. Eleven states classed women as being equally successful as men. Six states considered women as equally successful as men or students. Significantly, no state regarded women as being the least successful of the three classifications.

The use of women drivers in Michigan, particularly southern Michigan, is widespread. Bus Driver Education reports list many feminine names. Eighty-five per cent of the Southfield bus drivers are women.[2] The importance of women drivers was stressed in the following admission by a Michigan school superintendent: ". . . we bow to the inevitable--women can successfully solve the school transportation problem."[3]

While women drivers are very important in some areas, there is some question that their employment actually results in financial savings. Little evidence has been presented which indicated lesser salaries for women drivers

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[1] Appendix B.

[2] Glenn Schoenhals, "School Bus Transportation in Southfield," Michigan School Board Journal, April, 1958, p. 17.

[3] Ibid.

than men drivers. There was no question that the employment of student drivers does result in financial savings. The Governor of the State of South Carolina, James F. Byrnes, attributed much of the success of the pupil transportation in that state to the employment of 90 per cent student drivers at a montly salary of $25.00 to $35.00.[1] The superior skill of student drivers was extolled in a series of School Bus Roadeosat Chapel Hill, North Carolina, where 60 seniors, with unblemished records, finalists from as many districts competed for the state trophy.

Advocates of use of students drivers are found in many areas. Twenty of the 37 states reported their use. Four states stated student drivers were more successful than either men or women. Six states found that men, women, and students were equally successful. However, four states did report that students were the least successful of the three categories. At a topic discussion group of the 1958 American Association of School Administrator's Convention in Cleveland, the panel members of "Vexing Problems of School Transportation," all of whom represented areas below the Mason-Dixon line, agreed the use of student drivers had merit, although it was observed that not all the audience shared this view.[2]

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[1] W. B. Southerlin, "State Control of Transportation Is A Vital Part of South Carolina's Plan," The Nation's Schools, Vol. 52 (December, 1953), p. 63.

[2] Panel Discussion, "Vexing Problems of Pupil Transportation," American Association of School Administrator's Convention, Auditorium, Cleveland Board of Education, Cleveland, Ohio, March 31, 1958.

There was no question that the employment of student bus drivers would result in financial savings. One writer listed seven advantages secured when student drivers were employed. Just previous to the careful enumeration of the seven advantages he casually stated that the base pay of student drivers was $22.00 per month. From a realistic standpoint, this may be more important than any of the following important observations favoring student drivers.[1]

1. Schools can be more selective with students.
2. Students are familiar with operation.
3. Student drivers can be subjected to a more intensive training program.
4. Adequate substitute drivers are available when students are used.
5. Student drivers make it possible for school officials to exercise close supervision over the transportation system.
6. Highway patrolmen inspect driving habits, cleanliness of bus, condition of route, and mechanical condition of buses.
7. Accident records show students to be as safe as adult drivers.

It should be pointed out that at least in some states the statutes prevent the use of most students. In Michigan, a bus driver must be at least twenty-one years of age to qualify as a bus driver. Thus, legally the state is not in a position to consider the use of students as drivers. If the prime motive of this study was the reduction of pupil transportation costs, then it might be in order to consider changing that statute, since almost half the costs of transportation go to the driver of the school bus, and it

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[1] Wallace N. Hyde, "When Students Drive the Buses," The Nation's Schools, Vol. 59, No. 3 (March, 1957), p. 55.

stands to reason that students would drive for less money than adults generally receive.

Summary

There appears to be little inclination to cut costs of pupil transportation through a decrease in salaries paid to drivers. On the contrary, there was an implication that to secure better drivers more money must be paid. Multiple trips and additional remuneration for school related jobs have been suggested as a means of attracting better drivers. Student drivers have been utilized in some areas with favorable results and decreased costs. Women drivers were almost universally used, but no noticeable evidence of decreased costs.

Depreciation

Depreciation represents the original cost of a school bus, divided by a specified number of years the bus is useable. Seven years was generally used for most buses. Some of the larger, more expensive buses were depreciated over a ten year period. The original cost of the bus, of course, determines the cost of depreciation.

Depreciation was the second largest of the cost factors in the ten selected Michigan counties studied. Table 17, page 89 of this dissertation, indicated that over-all 20.5 per cent of the total costs of pupil transportation were consumed in paying for school buses. The range varies from

a low of 16.375 per cent in Wayne County to a high of 28.835 per cent in Gratiot County.

Table 22 presents an interesting aspect of the relation of size of bus group to the percentage of cost per bus going to depreciation. While the depreciation cost per bus was approximately the same, the percentage of cost for depreciation decreased as the size of bus fleet increased.

The cost of school buses has long been an important factor in pupil transportation. When private horse drawn vehicles were contracted as early as 1871 the conveyances plus the driver were the largest (and often only) cost.[1] In 1935, private ownership of buses still prevailed by a 65-35 margin. By 1958, the percentage of ownership was almost exactly reversed and the trend toward district-ownership firmly established.[2] The extent of capital outlay payments for pupil transportation was pointed up by a recent report which credits the Los Angeles Public School system with operating 600 pieces of rolling equipment.[3] During all this transition money paid for vehicles for pupil transportation has been a costly item.

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[1]National Education Association, Report of the Committee of Twelve on Rural Schools (Chicago: University of Chicago Press, 1897), p. 14.

[2]William McKillop, "School Bus Programs--How They Grew," The Nation's Schools, LXII, No. 2 (August, 1958), p. 38.

[3]"Editorial," The Nation's Schools, LXII, No. 2 (August, 1958), p. 45.

TABLE 22

RELATIONSHIP OF SIZE OF BUS GROUP TO PERCENTAGE OF COST PER BUS GOING TO DEPRECIATION

Bus Group	Number Buses Represented	Average Cost Per Bus	Total Cost	Depreciation Cost Per Bus	Per Cent of Total Cost Per Bus
1-9	443	$ 3,089.59	$313,911.84	$ 708.60	.229
10-18	326	3,275.48	229,857.54	705.08	.215
20-38	373	3,942.60	266,445.97	714.33	.188

As early as 1934, a Michigan report stressed the cost of school buses.[1] During the 1940's, a Kentucky educator suggested statewide purchasing of buses to reduce the cost of pupil transportation, and pointed up the advantage of purchasing at a time other than during the summer months.[2] The cost factor of school buses was highlighted at an interest group meeting of the American Association of School Administrators in Atlantic City, New Jersey, in 1957, when Dr. Frank W. Cyr accused school leaders of spending too much for school buses. He charged that when boards of education considered the subject of school buses, safety was adequately weighed but economy went out of the window.[3] He stated some districts paid as little as $4,500 a unit, while others paid from $7,500 to $17,000 without any apparent major improvement in the safety record. He suggested that several districts band together to get the benefit of joint purchase on a fleet cost basis.[4] Another prominent magazine[5] commenting on the same transportation interest meeting

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[1]A Study of the Growth of Rural Agricultural Schools in Michigan from 1919 to 1935 (Lansing, Michigan: Michigan Department of Public Instruction, 1935), p. 4.

[2]Robert L. Hopper, "Purchasing School Buses," American School and University (New York: American School Publishing Corporation, 1950), p. 398.

[3]The Nation's Schools, Vol. 59, No. 3 (March, 1957), p. 72.

[4]Ibid.

[5]Mass Transportation, March, 1957, p. 46.

characterized the discussion as a "two hour tirade" by Dr. Cyr against excessive transportation costs by emphasizing that we were:

1. spending too much for school buses,
2. not using student drivers enough,
3. too much door to door pick up,
4. not enough usage made of school buses.

Our report from 37 states indicated that 19 recommended an improved method of school bus purchasing. In Michigan, a committee of school superintendents reported dissatisfaction with present transportation finances. One of their findings in a survey was the great differences which existed in the price paid for school buses. Buses of 48-passenger capacity cost varied $4,000 to $5,916. A 54-passenger bus cost from $5,035 to $6,865. A 60-passenger bus cost from $6,073 to $8,100.[1]

The variation in prices for a new school bus was well illustrated by the results of an advertisement for bids for a 54-passenger, 1958 model chassis and body, published in a central Michigan county seat newspaper. The results were as shown in the tabulation on the following page.[2] The low bid was accepted by the board of education. It was significant that there was a spread of $2,435.00 while all

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[1]Michigan Association of School Administrations,"MASA--G A B Information Bulletin," Vol. 4, No. 2 (February, 1958), p. 6. (Mimeographed.)

[2]Letter from Harold Broka, Superintendent of Schools, Beaverton, Michigan, July 22, 1958.

Bodies			
Bluebird	Wayne	Bidder	City
	$8,100.00	H. V. Young Co.	Gladwin
	6,540.00	MacMurray GMC Sales	Gladwin
$6,151.00	6,549.00	Lee Equipment Co.	Mt.Pleasant
5,877.00	6,127.00	Presidio's Ford Sales	Beaverton
5,665.00	6,062.00	Colbeck Chevrolet	Beaverton

were bidding on the same specifications. Another town located only eight miles away was not so fortunate, although it advertised in the same way in the same paper for the same sized bus. In this case, the lowest bid still resulted in an unusually high price of $8,728.00.[1] This cost was considerably higher than the highest range quoted earlier by a committee of school superintendents. In this case there were only three bids with a small spread above the $8,728.00 accepted figure.

Another factor in variations in cost and depreciation was the size of bus. The School Business Officials of Oakland County discovered a more reasonable way of computing depreciation when they surveyed their 1956-1957 Pupil Transportation Report. In order to compensate for buses of differing capacities, they computed their figures on a per seat basis.[2] (See Table 23)

[1]Letter from W. E. Hartman, Superintendent of Schools, Gladwin, Michigan, February 13, 1958.

[2]"Final Report of Transportation Study Committee," June, 1958, pp. 18-20. (Mimeographed.)

TABLE 23

CAPACITY OF BUSES ON PER SEAT BASIS

School	Number of Buses	Mean Year	Number of Seats	Cost Per Seat
Birmingham	33	1955	1812	98.38
Farmington	27	1954	1620	98.69
Holly	24	1953	1095	96.85
Huron Valley	29	1954	1562	90.11
Rochester	23	1954	1356	96.24
Southfield	30	1952	1446	84.71
Walled Lake	24	1954	1335	92.35
Waterford	28	1952	1575	86.05
Brandon	14	1954	774	86.10
Clarkston	18	1955	1032	98.09
Lake Orion	17	1954	966	95.84
Lyon	16	1953	790	94.56
Oxford	13	1955	703	100.86
Pontiac	16	1954	768	90.87
Troy	14	1955	780	91.51
Avondale	9	1955	486	98.70
Clarenceville	6	1953	360	112.90
Dublin	2	1952	120	91.83
Bloomfield Hills	1	1953	60	99.68
Lamphere	4	1954	228	89.35
Novi	6	1953	318	99.04
West Bloomfield	5	1953	330	80.25

The effect of inflation was evident when it was noted that those schools in general with an average older age had received a lower cost per seat. The cost per seat varied from $80.25 to $112.90, whereas the cost per seat of the $8,728.00 bus mentioned above skyrocketed to $161.62 without any apparent benefit to the purchaser.

The United States Office of Education emphasized the importance of procedures for purchasing school buses in its 1958 circular,[1] suggesting that bids be taken where possible. The report further pointed out that the state purchasing agency was involved in some states. In North and South Carolina this was mandatory as the purchase was made with state funds. In four states, Alabama, Kentucky, Nevada, and New York, the local district may use the state purchasing agency if it so desires. In Texas, school bus purchases must be made through the State Board of Control, unless it grants permission to purchase directly.[2]

Dr. Frank Cyr's insistence on economy in school bus purchasing was a natural outcome of his previous work in developing a Minimum Standards for School Buses. In 1939, following a careful study of existing conditions, he succeeded in organizing a national conference on school bus

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[1]E. Glenn Featherston, Plans for and Procedures in Purchasing School Buses, U. S. Department of Health, Education, and Welfare, Circular No.457 (Washington, D. C.: Government Printing Office, November, 1958), p. 1.

[2]Ibid.

standards.[1] The conference was held under the sponsorship of the National Commission on Safety Education and the National Council of Chief State School Officers. Membership at the conference was composed of representatives of the 48 state educational departments and bus manufacturers and engineers.

This first national conference on school bus construction standards resulted in national minimum construction standards that could serve the basic needs of all the states. Most states adopted these minimum standards and supplemented them with items of special equipment and other minor provisions to compensate for local conditions. This enabled bus manufacturers to build the same basic buses for service in any state with minor adjustments required by individual states not seriously affecting mass manufacturing processes. Revisions were made in subsequent meetings in 1945, 1948, and 1951. The net result was more economical bus purchase through standardization. The standardization also set up a chain reaction which permitted further economies through greater competitive bidding for school buses, and in many states was perfected even more through cooperative purchasing through regional or state levels.[2]

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[1]National Education Association of the United States, Department of Rural Education, Pupil Transportation, 1953 Yearbook (Washington, D. C.: Government Printing Office, 1953), p. 146.

[2]Ibid.

In the matter of competitive bidding, the importance of detailed and understandable specifications for bidding cannot be overstressed. These should be so drawn that tires, batteries, generator, and other items of equipment are adequately spelled out for the size of the bus. These bids should be opened and read at a public meeting with at least a week intervening in order to tabulate and analyze the bids before a contract is awarded.[1]

One article in The Nation's Schools pointed out 25 items to consider in selecting school bus equipment and 12 procedures which help to keep prices down when buses were purchased. Some specific recommendations in this article are as follows:[2]

1. School districts can save 10-20% on the cost of a bus by dealing direct with the manufacturer.
2. Demand a one year guarantee supported by a performance bond.
3. Demand delivery one week before acceptance time.
4. Prepare proper forms that make up the contract documents, such as:
   a. legal bid invitation form for advertising,
   b. general conditions and instructions to bidder,
   c. general specifications,
   d. forms by which manufacturer may submit complete specifications,
   e. bid proposal form should be on first page of contract documents so bid proposal can be easily read,
   f. form of purchase agreement.

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[1]John T. Sidener, "Buy School Buses Wisely," The Nation's Schools, Vol. 33 (September, 1942), p. 39.

[2]Ibid.

That the adoption of business-like competitive practices for the purchase of school business would result in tremendous savings was evidenced by the action of county boards of education in Alabama in 1951 when they purchased 48-passenger buses for about $2,700.00 each, delivered.[1] These buses were on standard chassis of the low priced makes, with bodies from leading manufacturers. These buses did meet all national minimum construction specifications, but had only a few items of additional equipment. Heaters, for example, were not needed in Alabama and were not furnished at bid prices. These large scale purchases at competitive bidding resulted in a per seat price of $56.25. The Oakland County survey previously quoted showed almost twice as much paid per seat, although it must be admitted that the majority of those buses had been purchased since 1951 when inflation had taken its toll.

One other Michigan school proposed a unique method of bus purchasing which ostensibly saved money. This technique certainly mollified local dealers because the bus chassis was purchased from local dealers on an alternating schedule at 10 per cent above dealer cost.[2] The bus bodies were then purchased after competitive bidding by leading bus body distributors with the understanding that they would attach

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[1] Pupil Transportation, 1953 Yearbook, op. cit., p. 148.

[2] Charles G. Coggins, "How the Holly Area School District Buys a Bus," Michigan School Board Journal (Midland, Michigan), April, 1958, pp. 15-17.

the body to the chassis. The cost per seat for this school district was $96.85 which does reflect somewhat of a savings over the generally accepted figure of $100.00 per seat currently being espoused as a standard.

Summary of Depreciation Costs

The use of such devices as complete and detailed specifications, competitive bidding from a wide area for acceptable constructed school buses, joint purchasing where possible, uniformity of makes and models of school buses, in short the adoption of whatever methods possible to effect economical purchasing of school buses, will be a great stride forward in effecting savings on depreciation, the second largest cost factor in pupil transportation.

Total Maintenance

Total maintenance, as used in this study, denotes all costs which relate to maintenance of school buses. It made no difference whether the costs were incurred in school garages with district employed mechanics or in private garages with contracted or non-contracted mechanics. In the state of Michigan seven categories were combined to form total maintenance. Four of these were school administered and three were privately controlled. The school supervised categories were supplies and repair parts (school garage), mechanic's salary, school garage operation, and garage equipment and repairs. The three non-school categories were

maintenance at private garage--repair parts, maintenance at private garage--labor, and storage of buses.

Table 17 shows that in the over-all picture of the ten counties studied, Total Maintenance rated a strong third in cost factors in pupil transportation with a total of $621,147.25, or almost 16 per cent of the gross amount. Only in two counties (Delta and Ottawa) was Total Maintenance nudged out of third place by Gasoline, and then by a narrow margin. Table 18 reiterated the strong third place position of Total Maintenance, both in the metropolitan and non-metropolitan classification. It should be kept in mind that Table 18 is not all inclusive. The only groups included were those 13 bus groups between one and 16 which include both metropolitan and non-metropolitan school districts. The results of Table 18 indicated that the metropolitan schools spend an average of $171.40 more per bus than do the out-state schools. In spite of this marked variation per bus, each remains strongly entrenched in third place. With such a variation evident between metropolitan and non-metropolitan schools, it would seem likely that some variation might likewise exist among the seven factors in Total Maintenance. Figure 5 utilized the three divisions in terms of size of buses as applied to the seven factors. It was evident that four items assumed major proportions, while three were relatively less important.

The last item in Figure 5 indicated, in general, the average maintenance cost per bus was greatest in the middle

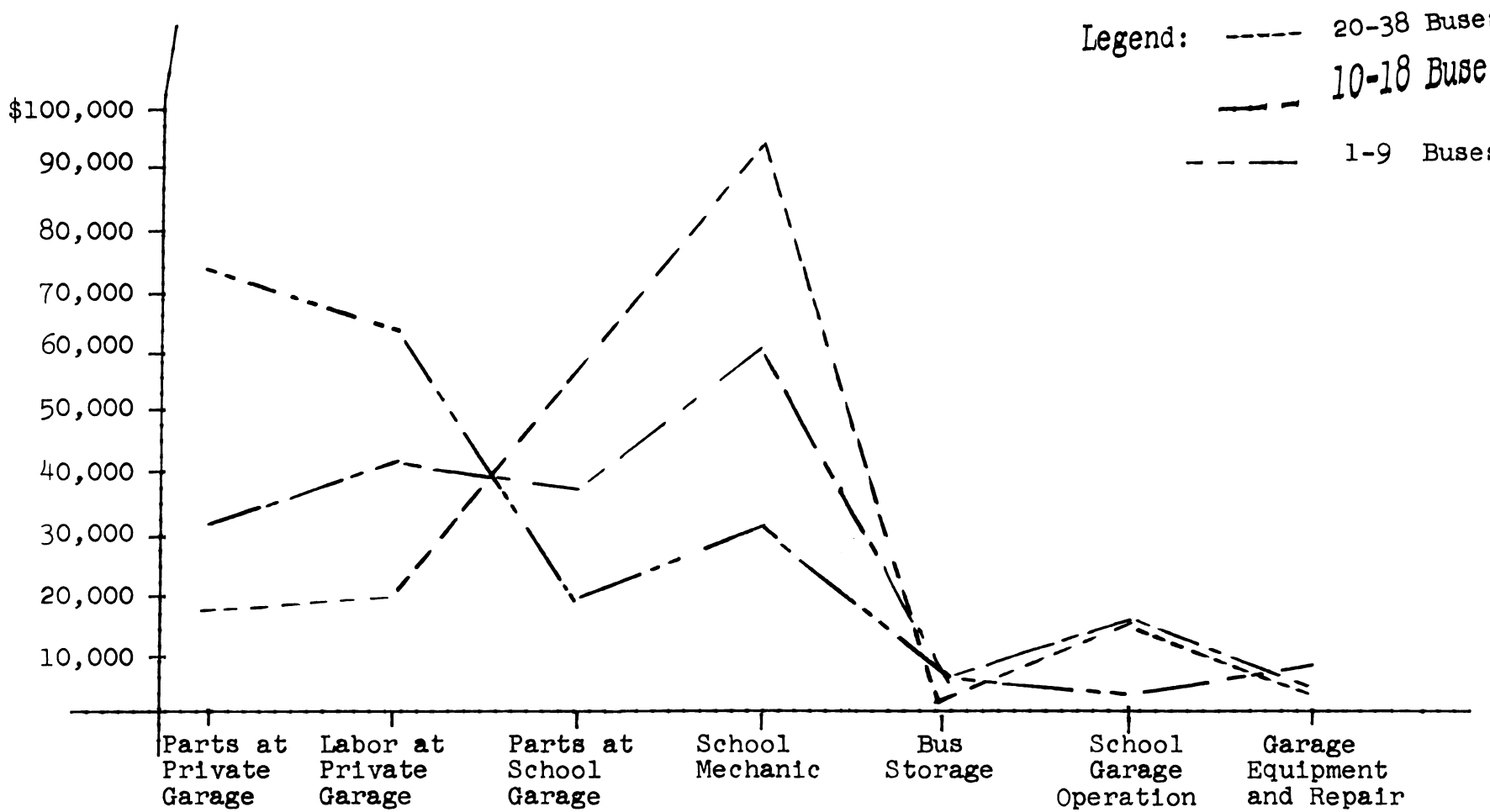

Figure 5. Comparison of Seven Total Maintenance Cost Factors with Three Sizes of Buses.

group (10—18 buses), while the least money was spent for the smallest group (1-9 buses). The increased cost per bus in the middle sized group was also indicated by a second glance at Table 24, which showed the highest percentage was maintained by this same group. Here a total of 18.23 per cent was spent for maintenance, which was almost four per cent more than either the 1-9 or the 20-38 groups of buses.

Major Aspects of Total Maintenance

The striking part of Figure 5 was the important position of Item 12, or school mechanic's salary. As might be expected, the schools operating 1-9 buses spent less for mechanic's salary. Nevertheless, this amounted to $69.77 per bus, which represented more than any group spent on factors of storage, garage operation, or garage equipment or repair. This too was more than the largest group spent on either repair parts or labor at private garages. The increasing relative importance of a mechanic as the size of the fleet increased was vividly portrayed by Figure 5. The often asked question as to the point in number of buses where a mechanic can justifiably be employed will be treated later in this discussion. At this time it is important to note that more than 30.52 per cent of the cost of maintenance was consumed by school mechanics. Approximately ten per cent less (20.56%) was spent on labor at private garages. Paralleling labor at private garages was the item of parts at private garages. Interestingly enough, throughout the

TABLE 24

PERCENTAGES OF TEN COST FACTORS BASED ON SMALL, MEDIUM, AND LARGE BUS FLEETS IN 1956-1957

Cost Factors	Per Cent (Per Bus)	Dollars (Per Bus)
Group 1 - 9 Buses		
Salary	41.86	$1,299.44
Depreciation	23.036	708.60
Total Maintenance	14.97	462.24
Gasoline	11.081	340.87
Insurance	2.598	79.93
Administration	2.171	66.79
Tires	1.688	51.94
Oil	1.136	34.95
Interest	.952	29.30
Driver Education	.5045	15.52
Group 10 - 18 Buses		
Salary	43.051	1,410.14
Depreciation	21.526	705.08
Total Maintenance	18.232	597.19
Gasoline	8.676	284.18
Insurance	1.792	58.72
Administration	3.751	122.87
Tires	1.08	35.40
Oil	.658	21.56
Interest	.7897	25.87
Driver Education	.4418	14.47
Group 20 - 38 Buses		
Salary	48.58	1,915.32
Depreciation	18.118	714.33
Total Maintenance	14.244	561.61
Gasoline	8.099	319.31
Insurance	1.386	54.63
Administration	6.931	273.26
Tires	1.18	46.55
Oil	.586	23.10
Interest	.4847	19.11
Driver Education	.39	15.38

study the cost figures of parts and labor approximated each other. The final calculations showed that parts at private garages (20.00%) was about one-half of one per cent less than labor. Trailing slightly behind both parts at private garages and labor at private garages was the item of parts at school garages with a total of 18.66 per cent of the total. As a sidelight to the comparison of parts at school and private garages, when the factor of normal discount was included, the value of parts at school garages should somewhat surpass the value of parts at private garages.

Minor Aspects of Total Maintenance

The three minor aspects of Total Maintenance, namely, storage, school garage operation, and garage equipment and repairs, accounted for a combined total of less than ten per cent. To gloss over the three minor factors as simply accounting for less than ten per cent of the Total Maintenance cost may be a gross injustice to these items. It could be that the buses which were stored adequately either in privately rented garages, or in school garages were kept in such better condition that they could be used longer then the standard seven years, or could be sold to private concerns for more money than those buses which were not stored or cared for in garages. An entirely separate study could well be conducted on those lines alone. The recent application of the Transportation Code of 1954, as amended, provided the same capital outlay payment ($14.00 per eligible

child) for a bus over seven years of age as for a bus under seven years of age. This was a tremendous incentive for school officials to take better care of buses in order to participate in the capital outlay payment for longer than the customary seven year period. However, the part played by storage, school garage operation, and garage equipment and repairs as a factor in longer bus operation was unknown. It would appear reasonable to assume that additional monies spent in this direction would be helpful, but there were no known available statistics to support this supposition.

The direct relationship of a school bus mechanic to school garage operation, equipment, and storage was pointed up by a survey of school bus mechanics at 19 representative school systems surrounding Central Michigan College. The results showed that 18 of the 19 mechanics worked full-time on 203 buses, utilizing 111 garage stalls.[1] The survey further showed that 44, or more than one-third of the total, were heated stalls. Six of the 19 mechanics conducted minor repairs, only, while 13 were expected to perform major repairs.

When Is A School Bus Mechanic Needed

There has been considerable conjecture as to the point in the size of the bus fleet where it becomes economically feasible to employ a school mechanic. From the standpoint

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[1] "Survey of School Bus Mechanics at 19 Representative School Systems," School Bus Driver Education, Central Michigan College, 1957, p. 1. (Mimeographed.)

of practice in the ten counties studied, that point lies between the eight and nine bus fleet. Table 25 shows only three school systems under the eight bus category employ a school mechanic. In every group above the eight bus category, more than half the transporting schools employed their own bus repairmen. In the case of the eight bus systems, less than half employed a mechanic. A New York transportation specialist stated flatly that a school district operating a fleet of ten buses can justify a full-time mechanic.[1] He stated further that when the bus fleet gets as large as from 15-20 units, two full-time mechanics were needed. Between 10 and 15 units a mechanic's helper can be employed to help the mechanics.

A 1948 report from the United States Office of Education pinpoints more specifically the recommended use of mechanics. "A full mechanic with a driver helper is suggested for the operation of a fleet of eleven to fifteen buses."[2] From six to ten buses a driver-mechanic and a driver-helper were offered as a solution, and a driver-mechanic alone for the three to five bus group. No mechanic was suggested for those schools operated fewer than three buses.[3]

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[1]M. G. Osborne, "Transportation," The Nation's Schools, Vol. 62, No. 5 (November, 1958), p. 73.

[2]E. Glenn Featherston, School Bus Maintenance, U. S. Office of Education, Bulletin No. 2 (Washington, D. C.: Government Printing Office, 1948), p. 40.

[3]Ibid., p. 42.

TABLE 25

RELATIONSHIP OF SIZE OF BUS FLEET OPERATED TO THE USE OF SCHOOL BUS MECHANICS[1]

Number of Buses Operated	Number of Schools	Number of Schools Using School Bus Mechanics	% Using School Bus Mechanics
1	26	0	0
2	17	0	0
3	11	0	0
4	11	0	0
5	9	1	11.11
6	9	1	11.11
7	12	1	8.33
8	12	5	41.66
9	3	2	66.66
10	3	2	66.66
11-18	20	13	65.00
20-38	14	10	71.42

[1]A school system was considered as using a mechanic or mechanics if it paid over $2,000.00 to a mechanic, or if the total amount spent on school garage parts and school mechanic exceeded that of parts and labor at private garages.

Appendix C contains as a summary of recommendations on personnel, garage facilities, and equipment necessary for bus fleets of various sizes listing both desirable and essential accomodations.[1]

Cost of School Mechanics

Having established both the relatively high position of school bus mechanics in the cost of total maintenance, and the relatively high percentage of larger school districts which do maintain buses through the use of school mechanics, the next step was to analyze the actual costs of maintenance in the districts with school bus mechanics. The arrangement of Table 26 reveals there are 34 school districts in the ten counties which fulfill the definition previously given of a school bus mechanic. Ten schools represent the 1-9 and the 20-38 bus groups, while 14 schools were middle sized in that 10-18 buses were operated. While the number of schools in each group do not vary markedly, the number of buses serviced by mechanics do vary. Only 76 buses were found in the 1-9 group, while 202 and 281 were listed in the middle sized and large group, respectively. It was interesting to note the costs average almost $100.00 higher with the smaller number of buses. The three schools with the greatest cost were all found in the small group. As a further evidence of cost stability in larger sized

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[1]Appendix C condensed from ibid., pp. 40-42.

TABLE 26

COMPARISON OF COSTS OF 34 SCHOOL DISTRICTS FURNISHING SCHOOL BUS MAINTENANCE BY MECHANICS IN SCHOOL OPERATED GARAGES

School	No. Buses	Total Maintenance Costs	Cost Per Bus
Riverdale	5	$ 4,442.28	$ 888.45
Allegan	6	4,005.76	667.72
Fulton	7	4,791.63	684.52
South Haven	8	4,904.75	613.09
Fennville	8	3,467.91	433.48
Hopkins	8	7,020.75	877.59
Shiawassee #1	8	4,455.18	556.89
Shiawassee #9	8	7,051.90	881.48
Martin	9	4,122.31	458.03
New Haven	9	6,832.38	753.59
TOTAL 1-9 Buses	76	$51,044.77	$ 671.64
Covert	10	$ 4,216.81	$ 421.68
Shiawassee #3	10	4,970.09	497.00
Wayland	11	4,854.15	441.28
Redford Union	12	7,441.08	620.09
Brandon	14	9,157.52	654.09
Wayne	15	12,734.53	850.30
Mattawan	15	6,474.58	431.63
Otsego	15	11,590.09	772.67
Plainwell	16	8,407.74	525.48
South Lyon	16	10,398.94	649.93
Pontiac	16	6,951.47	434.46
Lake Orion	17	7,417.62	436.29
Romeo	17	8,427.04	495.70
Clarkston	18	15,152.18	841.78
TOTAL 10-18 Buses	202	$118,193.24	$ 579.34
Romulus	22	$ 10,256.44	$ 466.20
Rochester	23	15,871.52	690.06
Holly	24	8,434.74	351.44
Walled Lake	24	18,958.80	789.95
Waterford	28	16,889.16	603.18
Huron Valley	29	17,377.72	599.23
Taylor Township	30	18,476.85	615.56
Southfield	30	16,692.91	556.43
Birmingham	33	20,775.63	629.56
Utica	38	19,634.54	516.69
TOTAL 20-38 Buses	281	$163,368.30	$ 581.38

fleets, no school paid over $800.00 maintenance per bus in the 20-38 bus group, and only one in excess of $700.00. This largest group also contained the most economical cost per bus when Holly maintained 24 buses at a cost of $351.44 per bus.

While Table 26 indicated school mechanic or mechanics were more economically used in larger bus fleets, their effectiveness could best be measured by a comparison of costs with those schools not employing mechanics. Strangely enough, there was almost an equal division of school buses which were serviced by school mechanics and those maintained in private garages. Although the literature generally pointed up the advantages of school mechanics, the economy of school bus maintenance clearly favored the private garages (see Table 27). In this study, 581 buses were maintained at an average cost of $475.61. On the other hand, 561 buses cost 24.6 per cent more to maintain with the use of school mechanics at the average annual cost of $592.88. Only in the 10-18 bus group did the school garaged buses show to advantage. Even in this group, it was only through a re-examination of data resulting in a shift of a school, with the most costly maintenanced buses, from the mechanic to the non-mechanics column that made this possible. In this case, a Wayne County school, with 14 buses, purchased $4,533.21 worth of parts at the school garage, but they did not qualify in terms of the amount of money spent for mechanic's salary. Hence, they were shifted to the non-mechanics group. This

TABLE 27

COMPARISON OF MAINTENANCE COSTS OF SCHOOL DISTRICTS WITH AND WITHOUT SCHOOL BUS MECHANICS IN 1956-1957

Group	Classification	No. Buses	Total Cost	Cost Per Bus
1-9	School Mechanics	76	$ 51,044.77	$671.64
	No School Mechanics	367	153,729.77	418.88
	All 1-9 Buses	443	204,774.54	462.24
10-18	School Mechanics	202	118,193.24	579.34
	No School Mechanics	124	76,489.49	616.84
	All 10-18 Buses	326	194,682.73	594.11
20-38	School Mechanics	281	163,368.30	581.38
	No School Mechanics	92	46,112.79	501.22
	All 20-38 Buses	373	209,481.09	561.61
All Buses	School Mechanics	561	$332,606.31	$592.88
	No School Mechanics	581	276,332.05	475.61

school district spent a disproportionately large amount of money for maintenance--$324.66 per bus more than any other school to be exact. Their placement in the mechanics or non-mechanics column meant a great deal of difference. Apparently, this school had an unusual amount of maintenance which may have been caused by some accidents. At any rate they were placed in the non-mechanics listing. The middle bus group did show an advantage for school mechanics, while the original placement in the mechanics column followed the pattern of the other groups with a pronounced financial advantage for those school districts who had school bus maintenance work done in private garages.

The range of advantage of this latter group varied from 33.9 per cent down to 24.6 per cent, depending on whether the most expensive school was placed in the school mechanic or the non-mechanic group. For practical purposes, the advantage of hiring outsiders to do maintenance work on school buses varied from one-third, down to one-fourth.

In the light of this information, a school district should reflect carefully before embarking upon a school-operated bus maintenance program which often necessitates a capital outlay for a bus garage, and garage equipment, before any maintenance work can be started. The following arguments were generally advanced favoring school mechanics:

1. The work can be done sooner by school mechanics thus obviating time lost for lay up of buses in private garages.

2. Work done by school mechanics is superior since they can specialize on school buses.

3. Preventive maintenance can be practiced better in school garages.

4. Additional work such as washing and cleaning of buses can better be done in school garages.

5. Parts can be purchased more economically in school garages.

6. Buses serviced in school garages will last longer.

7. The use of bus mechanics permits lower cost on other items such as gasoline, oil, and tires.

In spite of the above arguments, the results of Table 27, indicated that from the standpoint of annual cost, school buses serviced by school mechanics were more expensive than those serviced in private garages.

There were a few shreds of comfort for those who advocate school operated maintenance centers. In the first place, the presence of school mechanics appears to give some stability to bus maintenance costs. There was much less variation in costs per bus. With the school mechanics, the range was from a low of $351.44 to a high of $888.45, while the private garages resulted in a low of $12.80 to the previously mentioned high of $1,213.11. Secondly, the experience of the 20-38 bus groups with a preponderance of 281 to 92 buses favoring school mechanics, indicated that at least the larger fleets find school mechanics desirable, even if expensive. Thirdly, the higher costs per bus in the middle and large bus fleets for the private garages as opposed to the cost of the smaller fleets, would indicate that the use of private garages was no assurance of lower costs in the light of probable increased transportation in the future.

Savings in Gasoline, Tires, and Oil by School Mechanics

While the three shreds of comfort for those advocating school operated maintenance centers were cloaked in generalities as in general are the advantages commonly listed in the literature, there was one statement which can be measured objectively. This was argument number seven (7) which was as follows: (7) the use of bus mechanics permit lowered costs on items such as gasoline, oil, and tires.

Apparently statement number 7 was based on the assumption that the use of school mechanics with school owned gasoline tanks, oil containers, and tire supplies would result in savings in the costs of gasoline, oil, and tires. The information presented by Table 28 showed this was precisely the case. Not only was there savings in each of the three cost factors, but the combination of savings effected a major economy of school bus operation. The results pointed up the importance of gasoline as a major cost factor and the relative lesser importance of oil and tires. Nevertheless, the total net result was an advantage of $103.03 per bus for those school districts employing school bus mechanics.

The savings were evident in every division of each of the three cost factors except in the case of the 1-9 bus group where tires for the 76 school serviced buses were slightly higher than the average of the 367 buses serviced by private garages. In the totals of all buses the tire

TABLE 28

COMPARISON OF GASOLINE, TIRES, AND OIL COSTS OF SCHOOL DISTRICTS WITH SCHOOL MECHANICS AND THOSE WITHOUT SCHOOL MECHANICS

Buses	Classification	No. Buses	Gallons of Gasoline	Cost of Gasoline	Cost Per Gallon	Gas Cost Per Bus	Tire Cost Per Bus	Oil Cost Per Bus
1-9	School Mechanics	76	129,989	$22,363.91	$.171	$294.26	$57.76	$ 28.71
	No School Mechanics	367	578,358	128,644.48	.222	350.52	50.73	36.24
10-18	School Mechanics	202	270,765	50,812.54	.187	251.54	25.10	18.33
	No School Mechanics	124	209,897	41,830.86	.199	337.34	52.16	26.81
20-38	School Mechanics	281	512,267	83,091.14	.162	295.69	43.52	16.43
	No School Mechanics	92	183,923	36,013.45	.195	391.45	47.55	43.47
All Buses	School Mechanics	561	931,021	156,267.59	.171	278.55	40.67	18.72
	No School Mechanics	581	972,178	206,488.79	.212	355.40	50.07	35.50

Total of Three Costs Per Bus [Gasoline] [Tire] [Oil]

School Mechanics $337.94
No School Mechanics $440.97

cost per bus was almost $10.00 cheaper in the buses maintained by school mechanics. Oil costs were almost cut in half when school mechanics were on the job.

The really big savings were not felt in oil and tires since the total cost for each of these is relatively small. It was in gasoline costs that school mechanics were most valuable. It was evident that school mechanics must be operating school owned gasoline tanks since the savings per gallon are so pronounced that wholesale gasoline prices often prevail. With a margin of more than four cents per gallon, it was easy to see a saving of $76.85 reflected per bus. The total saving of $103.03 in the three measurable cost factors of gasoline, tires, and oil went a long way in erasing the advantage of $117.27 found in maintenance costs per bus for those buses securing maintenance at private garages.

Summary of Total Maintenance

Maintenance of school buses rated a strong third place position. The salary of school bus mechanics was important in that more than 30 per cent was involved here, with lesser amounts for labor and parts at private garages, and parts at school garages. The high percentage for the mechanics salary was reflected in the higher cost (24.6%) per bus for school buses serviced in school garages. There was a suggestion that the increased cost occasioned by the use of school mechanics, might result in better care or longer

service, but this was only a suggestion, and has not been substantiated. Savings in gasoline, oil, and tires have been substantiated; in fact a combined saving of $103.03 per bus offsets in large measure the increased maintenance cost of $117.27 per bus of buses serviced by school mechanics. From the experience of the schools studied, the presence of a school mechanic was indicated when a bus fleet reached nine buses.

Gasoline

Gasoline was the fourth largest cost factor when analyzing costs in 147 Michigan schools studied. In percentage of total cost the range was from a low of 8.03 per cent in Wayne County to a high of 13.43 per cent in Ottawa County.

The price per gallon varied from .137¢ in some large Oakland County schools, to slightly more than .35¢ in some small Ottawa schools. Within the ten counties, a total of 1,868,341 gallons were purchased at a cost of $360,622.92. This resulted in an average cost of .193¢ per gallon. The figures in Table 29 reflects the high and low variations.

As the number of buses in the fleet increased the cost per gallon decreased. In the 1-9 bus group the average cost was .213 while in the largest 20-38 bus group the average cost was .171. In the medium size bus category (10-18) the average price per gallon was .197. This variation can largely be explained by the volume of gasoline used. The schools operating one or only a few buses do not find it

TABLE 29

GASOLINE STATISTICS BY COUNTIES

County	Gallons	Total Gasoline Cost	Cost Per Gallon
Allegan	115,784	$ 24,577.62	.212
Delta	80,041	17,184.97	.214
Gratiot	81,877	17,037.60	.207
Kalkaska	20,800	4,579.07	.220
Macomb	260,572	56,790.99	.217
Oakland	624,836	103,746.61	.166
Ottawa	84,429	21,139.65	.250
Shiawassee	90,203	17,645.85	.195
Van Buren	104,889	20,626.48	.196
Wayne	404,910	79,343.08	.195
TOTAL	1,868,341	$360,622.92	.193

advantageous to purchase a storage tank and usually purchase gasoline at retail sources. On the other hand, those with large fleets, staffed by their own bus service personnel, can buy gasoline as cheaply as can the service station operator. Oakland County, the volume leader of pupil transportation, reports that seven schools purchased gasoline in 5,000--10,000 gallon quantities at a time.[1] These seven schools were able to purchase gasoline at a net cost (without taxes) of 13-15 cents per gallon. The relationship of volume to cost was indicated by the following tabulation from Oakland County as set forth in Table 30.[2]

It was interesting to note that even in this large county which admittedly had the most favorable pricing practices on gasoline, not all the gasoline was purchased on bids. Only 12 of the 22 schools made a practice of taking bids. The lowest price was achieved where the greatest number of bids were taken. It may be that other schools might effect similar savings in gasoline and in other cost items by the simple expedient of taking bids on specific needs. That no one company controlled the school gasoline market was evident from the Oakland County report on source of supply of gasoline (see Table 31).

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[1]Oakland County School Business Officials, "Final Report of Transportation Study Committee," June, 1958, p. 6. (Mimeographed.)

[2]Ibid.

TABLE 30

RELATIONSHIP OF VOLUME OF GASOLINE TO COST[1]

	Items	Group I More Than 20 Buses	Group II 10-20 Buses	Group III Less Than 10 Buses	Total
A.	Net Cost (without taxes) per gallon:				
	13¢ - 15¢	5	2	0	7
	15¢ - 17¢	2	2	3	7
	17¢ - 20¢	2	1	2	5
	20¢ +	0	1	2	3
	Is the price determined by bids?				
	Yes	6	3	3	12
	No	2	4	4	10
B.	Quantities purchased at one time:				
	Bus tank	0	1	4	5
	1,000 gal. - less	2	1	3	6
	1,000 - 2,000 gal.	1	2	0	3
	2,000 - 5,000 gal.	1	0	0	1
	5,000 -10,000 gal.	4	3	0	7
	Storage Capacity:				
	None	0	1	4	5
	1,000	2	1	2	5
	2,000	1	1	1	3
	3,000	0	1	0	1
	6,000	1	2	0	3
	10,000	4	1	0	5

[1]Oakland County School Business Officials, "Final Report of Transportation Study Committee," June, 1958, p. 6. (Mimeographed.)

TABLE 31

SOURCE OF SUPPLY OF GASOLINE FOR OAKLAND COUNTY, MICHIGAN[1]

Type of Gasoline	Group I More Than 20 Buses	Group II 10-20 Buses	Group III Less Than 10 Buses	Total
Socony	0	1	1	2
Mobile	1	0	0	1
Gulf	1	0	1	2
Standard Oil	3	2	1	6
Shell	0	0	2	2
City Service	1	1	0	2
Clark Oil	0	1	0	1
Sinclair	2	0	0	2
Others	0	2	2	4
What type?				
Regular	8	6	5	19
Ethyl	0	0	1	1
Both	0	1	1	2

[1]Oakland County School Business Officials, "Final Report of Transportation Study Committee," June, 1958, p. 6. (Mimeographed.)

The marked preference of regular gasoline was shown when the question "What type?" was answered, as shown in preceding table. This acceptance of regular gasoline was made more pronounced by the fact that 19 of the 22 schools used no additives to the gasoline.[1]

Gasoline Tax Rebate

An interesting sidelight on the per gallon cost of gasoline was that many schools either were not aware that schools were exempt from paying state and federal taxes on gasoline, or they did not take advantage of the opportunity to make the saving. At least three schools in Shiawassee County, two in Allegan County, and several in Ottawa County reported more than 30¢ per gallon was paid for gasoline. While most of these schools operated only one or two buses, and may find it expedient to make purchases at retail outlets, at least one school in Shiawassee County operated six buses, yet reportedly paid .3281 cents per gallon.[2] This would appear to be in line with normal retail prices prevalent at the time. In view of a six cent state tax and a three cent federal tax, not to mention a three per cent state sales tax, it would seem that at least 9-1/2¢ a gallon

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[1] Ibid., p. 10.

[2] W. J. Smith, "Per Mile Cost Analysis of School Buses Operating in Shiawassee County" (Corunna, Michigan: Shiawassee County Board of Education, 1958), p. 1. (Mimeographed.)

could be saved merely by going through accepted channels and applying for the rebate. The tremendous amount of money involved in state and federal taxes was pointed up by multiplying 9-1/2¢ times the number of gallons of gasoline used in the ten counties studied. The total $175,000.00, was more than was spent on the combined factors of tires, interest, oil, and driver education in the ten counties studied. Most schools, as a matter of course and good business practice, arrange to purchase and eliminate the tax.

It may be that some schools listed the total amount paid for gasoline and neglected to reduce their total when the gasoline rebate check came back from the state capital. This was evading the spirit, if not the letter, of the Annual Transportation Report. The mass of evidence, especially among the larger schools, supported the belief that most schools were correctly filling out the Report and were adequately handling tax reductions. The smaller schools may need some guidance in saving money in gasoline costs, the fourth largest cost factor in pupil transportation.

Summary

Drivers' salaries, depreciation, total maintenance, and gasoline costs accounted for more than 90 per cent of the pupil transportation costs in the ten counties studied. With two exceptions, this respective rating was common to the ten counties.

It seems apparent that any major economy was likely to be found in one of these four areas. There was little inclination to effect savings in the item of drivers' salaries, except possibly through the utilization of student drivers. Depreciation costs were felt to be excessive in some cases, and could be alleviated through greater use of such devices as increased standardization, competitive bidding with complete and detailed specifications, and joint purchasing where possible. Total maintenance costs reflected the high percentage of school mechanics' salaries and suggested the elimination of this factor. The actual practice, particularly of the larger schools, indicated its continuance. Gasoline costs showed the greatest promise of savings without lessening the quality of pupil transportation. Purchasing on bids and making certain that the gasoline tax rebate was channeled back would appreciably reduce the cost of transporting Michigan school children.

CHAPTER VI

MINOR COST FACTORS IN PUPIL TRANSPORTATION

Administration

Administration consists of the cost items occasioned by supervision of the pupil transportation system. For purposes of accounting, only salaries of supervisory personnel were eligible. The Annual Transportation Report listed only two lines, namely, supervisor's salary and clerical salary. All other expenses normally associated with a system of record keeping were expected to be provided by the usual administrative functions of a school district, and as such, were not charged against pupil transportation. This situation enabled private contractors to cry "unfair,"[1] when comparative costs reveal that school district-owned buses operated more economically than did privately-operated buses.

In addition to the limitation of administrative costs to salary items, school officials have considerable latitude as to whether or not salary is charged to transportation. This observation appeared especially applicable to smaller

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[1]Bruce Howat (ed.), "Contract Haulers Have Special Problems," Mass Transportation, LXX (February, 1956), p. 49.

school systems in which duties carry over into other fields and the school administrator chose to ignore possible fractional charges to transportation and allocated the total costs to general school administration. In some schools the elimination of charges directed against transportation can result in increased financial benefits, particularly in cases where non-resident tuition was a factor in school finances. In some cases no doubt the question of administrative salaries was simply overlooked. Regardless of the reason, the fact remains that in many cases administration was not listed. Of the 147 schools included in the study, only 82 reported administrative costs. Sixty-five schools did not bother to include this minor cost factor at all.

There was a direct relationship to administrative costs and the size of the fleet operated. As the size of the fleet increased, there was a greater tendency for administrative costs to go up. Only two of the 26 schools operating one bus listed administrative expenses, and then only $25.00 each. On the other hand, every one of the schools within the 20-38 bus group listed some administrative costs. In the middle sized group (10-18 buses) 73.91 per cent of the school districts listed administrative costs. Figure 6 shows graphically the general trend of increased administrative costs with increases in the bus fleet. Table 24 reiterates the growing importance of administration in the over-all cost factors with a low of

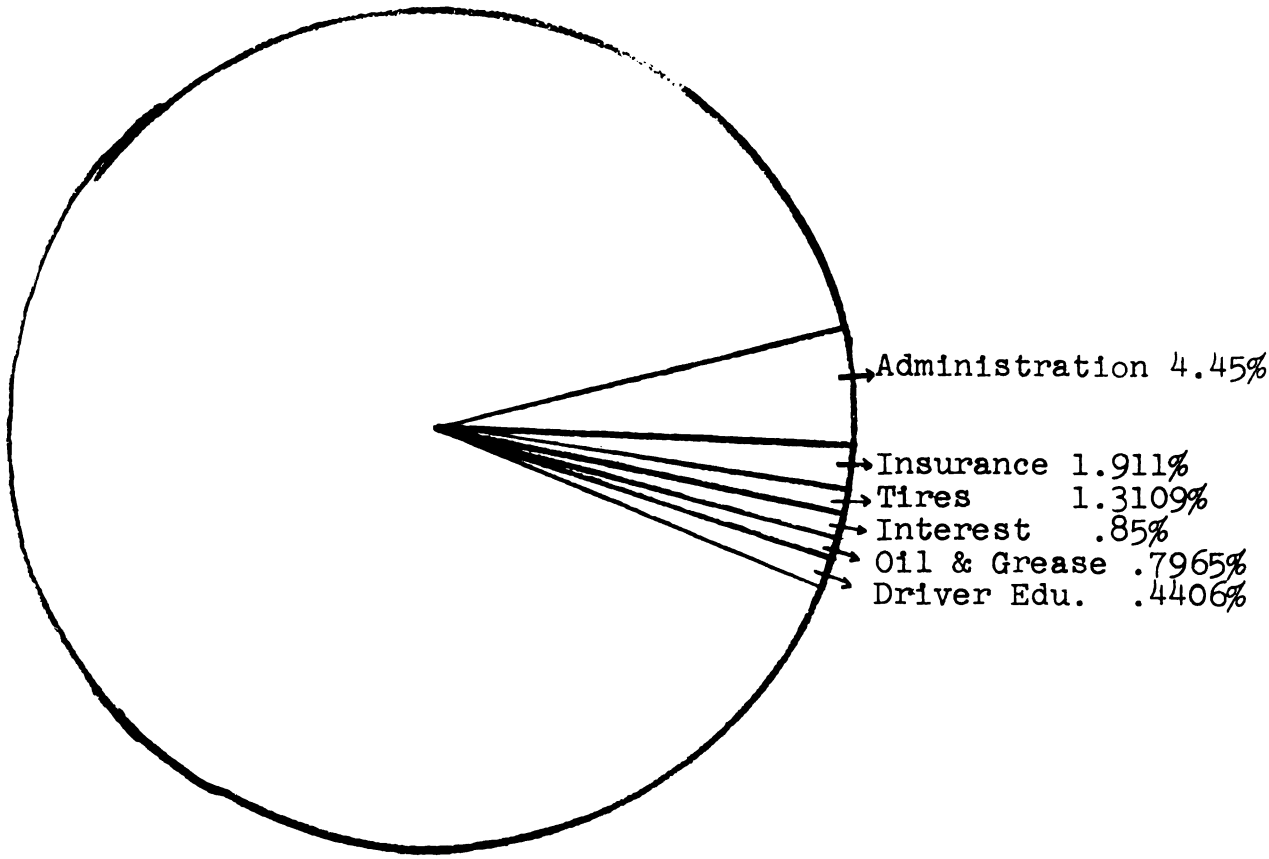

Figure 6. Six "Minor" Cost Factors in Pupil Transportation for Ten Selected Counties in Michigan, 1956-1957.

2.171 per cent being reported in the 1-9 bus group and a high of 6.93 per cent in the large bus fleet category.

There was a noticeable relationship between the geographical location of the school and administrative costs. The metropolitan schools in Macomb, Oakland, and Wayne Counties were inclined to spend more for administrative costs. More than two-thirds (67.18%) of the schools in these three counties listed administration expenses, while less than half (45.78%) of the out-state schools indulged in this cost factor. These percentages were not surprising when we noted that all 14 schools of the large bus group were metropolitan districts which we have previously noted as going 100 per cent for administrative costs. The great majority of the small fleet schools with few administrative costs were non-metropolitan.

Table 32, a comparison of the six minor cost factors among bus fleets containing both metropolitan and non-metropolitan schools, bears out the observation that metropolitan schools spend more per bus than non-metropolitan. In this case the average metropolitan bus utilized more than three times as much for administration as did the non-metropolitan bus ($33.45 for the non-metropolitan and $108.31 for the metropolitan).

From the standpoint of maintenance of adequate and meaningful accounting, the administration costs would appear to be justified as little difficulty was encountered in compilation of the accounts of the larger schools which

TABLE 32

COMPARISON OF SIX MINOR COST FACTORS IN METROPOLITAN AND NON-METROPOLITAN SCHOOL DISTRICTS

Item	No. Buses	Non-Metropolitan	Metropolitan
Tires	1	$ 67.56	$ 58.20
Oil		30.77	20.42
Interest		44.05	5.60
Insurance		80.20	91.31
Administration		2.27	---
Driver Education		7.71	6.60
TOTAL		$ 201.79	182.13
TOTAL COST PER BUS		$2900.85	$3710.88
Tires	2	$ 63.15	$ 87.07
Oil		34.68	27.52
Interest		65.33	---
Insurance		97.55	173.04
Administration		----	29.16
Driver Education		15.63	15.37
TOTAL		$ 276.34	334.16
TOTAL COST PER BUS		$2474.36	$4053.54
Tires	3	$ 25.58	$ 42.45
Oil		34.79	56.75
Interest		3.40	72.65
Insurance		64.86	162.17
Administration		5.47	37.50
Driver Education		8.39	9.21
TOTAL		$ 142.49	$ 380.75
TOTAL COST PER BUS		$2525.39	$3726.92
Tires	4	$ 91.62	$ 43.84
Oil		38.55	35.28
Interest		28.76	22.86
Insurance		83.15	105.36
Administration		45.47	115.71
Driver Education		16.05	13.33
TOTAL		$ 303.60	$ 316.38
TOTAL COST PER BUS		$3179.06	$3638.60
Tires	5	$ 42.13	$ 31.37
Oil		40.00	33.81
Interest		43.52	21.57
Insurance		67.36	81.92
Administration		25.00	49.87
Driver Education		16.64	17.34
TOTAL		$ 234.65	$ 235.88
TOTAL COST PER BUS		$2937.23	$3366.71

TABLE 32--Continued

Item	No. Buses	Non-Metropolitan	Metropolitan
Tires	6	$ 57.25	$ 44.97
Oil		52.75	31.08
Interest		25.04	5.00
Insurance		85.58	94.80
Administration		61.81	63.88
Driver Education		10.55	7.77
TOTAL		$ 292.97	$ 247.50
TOTAL COST PER BUS		$2915.30	$3459.44
Tires	7	$ 61.09	$ 81.20
Oil		39.93	27.88
Interest		32.57	37.36
Insurance		53.00	87.85
Administration		93.41	293.83
Driver Education		7.09	19.24
TOTAL		$ 287.09	$ 547.36
TOTAL COST PER BUS		$2746.00	$4148.01
Tires	8	$ 37.48	$ 36.32
Oil		29.93	23.99
Interest		46.36	---
Insurance		55.91	80.28
Administration		87.27	41.87
Driver Education		31.93	2.18
TOTAL		$ 288.88	$ 184.64
TOTAL COST PER BUS		$2915.98	$3041.86
Tires	9	$ 32.68	$ 47.53
Oil		10.55	28.43
Interest		---	28.20
Insurance		58.32	97.53
Administration		6.66	63.75
Driver Education		28.93	11.90
TOTAL		$ 137.14	$ 277.34
TOTAL COST PER BUS		$2395.18	$3595.21
Tires	10	$ 14.77	$ 14.27
Oil		16.26	---
Interest		27.63	---
Insurance		54.55	113.14
Administration		51.35	115.00
Driver Education		15.29	---
TOTAL		$ 179.85	$ 242.41
TOTAL COST PER BUS		$2487.30	$3253.56

TABLE 32--Continued

Item	No. Buses	Non-Metropolitan	Metropolitan
Tires	14	$ 64.41	$ 57.29
Oil		20.95	35.12
Interest		---	40.46
Insurance		12.16	70.39
Administration		---	240.67
Driver Education		12.09	16.37
TOTAL		$ 109.61	$ 460.30
TOTAL COST PER BUS		$2583.21	$4118.49
Tires	15	$ 55.10	$ 34.82
Oil		23.96	17.02
Interest		39.04	20.27
Insurance		42.41	72.75
Administration		56.19	206.17
Driver Education		10.13	4.66
TOTAL		$ 226.93	$ 355.69
TOTAL COST PER BUS		$2710.20	$2645.26
Tires	16	$ 8.18	$ 34.15
Oil		22.27	14.90
Interest		---	22.72
Insurance		73.33	45.70
Administration		---	150.63
Driver Education		---	24.85
TOTAL		$ 103.78	$ 292.95
TOTAL COST PER BUS		$2827.56	$2822.75
GRAND TOTAL			
Tires		$ 620.90	$ 613.48
Oil		395.39	353.21
Interest		355.70	256.69
Insurance		828.48	1276.24
Administration		434.90	1408.04
Driver Education		180.43	133.50
AVERAGE			
Tires		$ 46.76	$ 47.19
Oil		30.41	27.17
Interest		27.36	19.74
Insurance		63.73	98.17
Administration		33.45	108.31
Driver Education		13.88	10.27

showed administration costs, while this was not the case with the smaller schools. Two of the smaller schools had to be eliminated from the study since their records were incomplete. Some schools without administrative costs neglected to list any expenses for oil or insurance.

Summary and Recommendations

While Administration is the largest of the six minor cost factors and it appears to increase as the size of the bus fleet increases, there is a general lack of consistency as to what administration is and where it belongs in the pupil transportation program. School districts utilizing administration costs tend to maintain better records, but there still is a lack of standardization as to what should be included in administration. More specific directions from the state office would be desirable to initiate such a program as has proved beneficial in Macomb, Oakland, and Wayne Counties.

Insurance

School bus insurance appears to be the most confused and varied segment of the pupil transportation problem. In contrast with the rather specific standards which have been accepted for equipment, school bus insurance has scarcely begun to move in the direction of clearly recognized goals. The complexity of the insurance problem stems primarily from six situations:

1. Genuine differences exist among the states with respect to the amount of authority and responsibility conferred on local school authorities.

2. School transportation as we know it today, having come into existence during the past twenty-five years, has not yet had sufficient time to permit legislative policy and judicial opinion to crystallize into a definite pattern. In each state there has been experimentation, attention to specific pressures and often a patchwork of insurance regulations.

3. A third factor which has delayed the acceptance of some uniform insurance plan is the complexity of the problem itself. There are at least four major types of school bus insurance:

   a. Liability--For compensation to pupils (and perhaps to other persons) who may be injured in school bus accidents.
   b. Property Damage--For the reimbursement of anyone whose car or other property is damaged by a school bus.
   c. Fire, Theft, Storm Damage, etc.--For specified losses incurred.
   d. Collision--For the repair of damage to school buses themselves.

4. To complicate the issue further, the ownership, operation, and degree of control over school buses takes several different forms:

   a. Publicly owned buses--The school district purchases its vehicles, employs its drivers, and is in fact, the operator of its school buses.
   b. Leased vehicles--The school board sometimes leases its school buses, again hires its own drivers, and operates the fleets as if the buses were publicly owned.
   c. Buses operated under contract with individual owners--The Board may contract with one or more persons, each of whom owns and drives his own bus.
   d. Contracts with fleet owners--The Board may contract with a public carrier or with the owner of a fleet of buses, the company to provide both the vehicles and the drivers.
   e. Combined types--The Board may purchase some of its buses, lease others, or perhaps enter into contracts with individual owners or fleet owners for part of the transportation which must be

provided. The board may own the bus body, but contract with an operator who provides the chassis. All sorts of combinations are found.

5. There has been little systematic over-all study of the problem in most of the states which has resulted in any legislation clearly defining the authority and responsibility of the board of education with respect to the various kinds of transportation.

6. A final source of variation in school bus insurances is found in the variety of types of legal authority on which it rests. In some instances the legal status of a given type of school bus insurance comes from specific legislation which (a) may require the insurance to be carried; (b) may authorize at the discretion of the board, or (c) may forbid it. At other times the law may confer upon the board some general power which seems to imply that a particular type of insurance for school buses is permissible; or, on the contrary it may name the powers of the board in such detail that failure to mention insurance seems to imply that the authority to provide it is not intended. In still other cases the law is so completely silent on the question that only judicial opinion and administrative practice--court decisions, opinions by the attorney general, recommendations by the state departments of education and sometimes merely the weight of prevailing practice within a given state--provide whatever definition of status can be identified. In some instances these seem to depend more upon what is assumed to be the proper sphere of school district authority than upon any clear-cut legislative basis.[1]

In addition, there is a changing legal principle notably present in the field of liability insurance. The schools as agents of the state, traditionally have been immune to suits involving liability. Despite the traditional immunity, state legislatures began to make exceptions to it and to require schools to assume varying degrees of liability.

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[1]Federal Security Agency, Office of Education, School Transportation Insurance, Pamphlet No. 101 (Washington, D.C.: Government Printing Office, 1947), p. 12.

These exceptions most often had taken the direction of providing for the assumption of liability to the extent that insurance is being carried, with the school district being protected by law from any liability beyond the amount of the insurance. These laws often specify the minimum amounts of insurance that shall be carried.[1]

A further cause for bewilderment in the amount and type of insurance which school district may or should carry was the legal terminology. The fact that 23 states did not reply to a questionnaire involving the distinction between "liability" insurance and "indemnity" insurance was an indication that even many state school administrators were not aware of the fine distinction among some of the terms.

The extreme variations in premiums charged reflect further variations in actual practices among the states. In addition to the lack of specificity in determining the types and amounts of insurance asked for, many school districts fail to take advantage of the savings which come as a result of asking for bids.

A National Survey of Pupil Transportation[2] revealed that, in general throughout the United States, only one-third were accepted on the basis of sealed bids. This was

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[1]E. Glenn Featherston, Liability and Property Damage Insurance on School Buses, Department of Health, Education, and Welfare, Circular No. 486 (Washington, D. C.: Government Printing Office, 1956), p. 2.

[2]Appendix B, Question 26.

a definite mistake, according to a 1954 Florida State Department of Education report which stated that:

> Every county, in view of the many factors involved in determining the premium on bodily injury and property damage, should request bids on this type insurance.[1]

As evidence of the savings which can come from asking for bids, the example of Pinellas County (Florida) was cited, which revealed that there was a total of 17 bids ranging from a high of $5,050.68 to a low of $2,384.93. The second lowest bid was $2,693.22, or 11 per cent above the low bid.[2] All 17 companies were bidding on the same specifications.

An examination of the experiences of 366 Michigan public school districts of the first, second, third, and fourth classes, revealed similarities to the Florida study. In Michigan the highest premiums were paid by the districts which operated less than five buses.[3] In the majority of cases the larger sized fleets received lower premium rates. However, premium rates between similar sized fleets varied greatly. The comparison of premium rates between school districts showed a close correlation between low premium cost and the use of bids.[4]

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[1]Thomas D. Bailey, Liability for Bodily Injury and Property Damage on School Buses and Trucks (Tallahassee, Florida: State Department of Education, June, 1954), p. 17.

[2]Ibid.

[3]Paul J. Voskuil, "Desirable Features of a School Bus Transportation Program (for the State of Michigan)" (unpublished Doctor's thesis, Wayne State University, Detroit, Michigan, 1959), p. 221.

[4]Ibid.

Michigan School Bus Insurance Costs

While Michigan's school transportation insurance costs reflected the general confusion and misunderstandings regarding insurance, the ten county study did substantiate the previous Michigan study in that the districts operating fewer buses paid larger premiums per bus. Table 33 shows that only two groups averaged more than $100.00 per bus for insurance. The two bus group averaged $123.31, and the three bus group $100.25. The 29 bus fleet group, on the other hand, lowered the premium costs to $31.83. A section of Table 33 classifies buses according to metropolitan and non-metropolitan. This table shows some apparent contradiction. In the 13 groupings which contained both metropolitan and non-metropolitan fleets, every comparison except the 16 bus group revealed that the metropolitan buses paid higher premiums than the non-metropolitan. On Table 33 this low metropolitan insurance cost is marked with an asterisk along with other low figures and will be considered later. The average metropolitan bus cost $98.17 for insurance, while the out-state buses averaged only $63.73. It was, however, only fair to mention that the insurance rates were higher in the three county metropolitan area. As might be expected the two and three bus category led the metropolitan field in costs with an average of $173.04 and $162.17, respectively.

The per bus cost for insurance, while obviously high in the small bus groups, does not show a definite trend.

TABLE 33

PER BUS COST OF INSURANCE BY SIZE OF BUS FLEETS--
"METROPOLITAN" AND "NON-METROPOLITAN"
CLASSIFICATION ADDED WHERE APPLICABLE

Size of Fleet	Cost Per Bus	Non-Metropolitan Cost Per Bus	Metropolitan Cost Per Bus
1	$85.19	$80.20	$91.31
2	123.31	97.55	173.04
3	100.25	64.86	162.17
4	95.26	83.15	105.36
5	70.59	67.36	81.92
6	88.65	85.58	94.80
7	61.71	53.00	87.85
8	64.03	55.91	80.28
9	84.83	58.32	97.53
10	74.08	54.55	111.14
11	48.89		
12	81.97		
13	64.75		
14	60.69	12.16	70.39
15	57.63	42.41	72.75
16	52.57	73.33	45.70*
17	37.97*		
18	74.73		
20	68.68		
22	39.37*		
23	85.26		
24	34.97*		
25	39.54*		
27	54.50		
28	61.24		
29	31.83*		
30	75.34		
33	33.14*		
38	60.39		

*Asterisked items explained on succeeding pages.

It was necessary to combine groups to observe a trend. More meaningful than the costs of insurance of any numerical sized fleet was the tabulation set forth in Table 34, which groups the small (1-9) bus fleets, the medium (10-18), and the large (20-38) groups.

TABLE 34

COST OF INSURANCE BY GROUP SIZES

No. of Buses Group Size	Total No. of Buses	Insurance Cost (Per Bus)	% Total Expenditure Devoted to Insurance
1 - 9	443	$79.93	2.598
10 - 18	326	58.72	1.792
20 - 38	373	54.63	1.386

It would seem from the above tabulation that as a size of the bus fleet increased both the cost per bus and the percentage of expenditure devoted to insurance decreased.

Before accepting any sweeping generalization regarding school bus insurance costs, an analysis should be made of the type and amount of insurance carried. It may be that the smaller sized group carried more insurance. It may be, too, they carry collision insurance with is neither recommended nor reimbursed by the state of Michigan. However, this is not likely to be the determining factor since the only three schools which neglected to include insurance were two schools in the one bus group and one school in the

three bus category. Naturally, those figures could not be used in computing insurance costs, so actually the totals of the small bus group should have been even higher.

In connection with the school bus insurance costs, it was interesting to note that in terms of reimbursement to transporting school districts the state of Michigan sets a maximum allowance of $42.00 per bus for public liability, property damage, and comprehensive insurance for each bus used.[1] As shown in Table 35, more than half the schools securing insurance premiums of less than $42.00 per bus were from metropolitan counties. Moreover, there are 216 metropolitan school buses represented as opposed to 71 non-metropolitan. This would be in direct opposition to the thesis that the rates were higher in the metropolitan counties. It would be more likely that the insurance figures were secured on the basis of sealed bids. Table 35 also reveals only one truly small school achieved a favorable insurance premium. There was no evidence to show that a reduced premium resulted in any decreased service from the insurance company. The relative paucity of school bus accidents, resulting in court action with financial judgments,[2]

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[1]Superintendent of Public Instruction, "Transportation Code," Amendment to Administrative Code (Lansing, Michigan: Department of Public Instruction, 1957), p. 2. (Mimeographed.)

[2]Appendix B, Questions 27-31; Harry N. Rosenfield, "School Bus Safety in the Courts," Mass Transportation, December, 1957, pp. 39-40.

TABLE 35

SCHOOL DISTRICTS MAINTAINING INSURANCE COSTS OF LESS THAN $42.00 PER BUS FOR THE SCHOOL YEAR 1956-1957

School District	No. Buses Operated	Total Annual Cost	Cost Per Bus	Metro.* or N-Mtr.
Grand Haven #5	1	$ 38.71	$38.71	N
Gobles	7	251.08	35.86	N
Lawton	7	219.36	31.33	N
Fennville	8	323.45	40.41	N
South Haven	8	288.62	36.07	N
Covert	10	335.07	33.50	N
Coopersville	14	170.30	12.16	N
Mattawan	16	522.85	32.67	N
South Lyon	16	637.34	39.83	M
Pontiac	16	584.76	36.54	M
Romeo	17	592.50	34.82	M
Romulus	22	866.18	39.36	M
Holly	24	863.06	35.95	M
Walled Lake	24	815.70	33.98	M
Van Buren	25	988.61	39.54	M
Huron Valley	29	933.22	32.18	M
Birmingham	33	1195.45	33.19	M
				71 N-M 216 M

*Metro. (M)--Metropolitan; N-Mtr. (N)--Non-Metropolitan

plus the willingness of many insurance companies to bid on school bus insurance,[1] was an indication that this type of insurance is highly desirable. If this is true, then school officials would be exhibiting good judgment in asking for bids on school bus insurance whenever there is any indication that more than one company will be willing to submit a bid.

Table 33, referred to a short time ago, revealed that in general the non-metropolitan schools achieved a more favorable insurance cost than did the metropolitan schools. Nevertheless, some larger metropolitan schools recorded a very low per bus cost for insurance. An asterisk was noted on the results of these schools in Table 33. A more thorough examination of the records revealed that 17 schools achieved a per bus insurance cost of less than $42.00, the maximum allowed for reimbursement by the state of Michigan. More than half of these 17 schools were metropolitan. Moreover, the nine schools operated 216 of the 289 buses covered by the lower insurance costs. A follow-up post-card survey revealed that of the 17 schools which received favorable premiums, at least 15 asked for and received bids. Moreover, 100 per cent of those who received bids expressed the desire to continue securing school bus insurance by that method. It would seem that failure to do this would be penalizing the school district.

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[1]Bailey, loc. cit.

Table 35 shows the insurance costs of the 17 school districts. While this tabulation does not indicate those schools which paid higher premiums, the fact that approximately 90 per cent of those receiving low bids did ask for and receive bids was significant.

A possible sequel to the story of saving money by asking for bids, several members of the Michigan Association of School Business Officials suggested a further step be taken in that the state act as self-insurer of school buses. This practice is currently being carried on in North Carolina.[1] In effect, this practice is partially being done in Michigan in that the Department of Public Instruction is recommending that collision insurance be eliminated from school bus insurance. They are suggesting that the mileage allowance is sufficient that the schools can act as their own insurer. The philosophy seems to be that with the good record schools have achieved with only 423 reported accidents by more than 5,000 buses in the "bad" year of 1955,[2] schools can afford to repair the effects of collisions rather than pay some insurance company a profit for doing the same thing. If the Michigan Association of School Business Officials program for fire insurance can pass the legislative hurdles

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[1]Appendix B, Question 26.

[2]Michigan State Police, Analysis of Rural School Bus Accidents in Michigan (E. Lansing, Michigan: Michigan State Police, 1955), p. 1.

and become enacted into law, the next step will be to include school bus insurance under the same roof. It was predicted that the enactment of the proposed fire insurance bill would save the schools of Michigan more than $500,000.00 annually.[1]

It was difficult to anticipate how much transportation money could be saved by improved insurance purchasing. The current study shows that $74,689.31 was being spent for insurance on 1,142 buses. This means an average expenditure of $65.40 per bus. If we accept the state allowance of $42.00 per bus as sufficient insurance, a saving of 37.7 per cent is in evidence here. A conservative estimate of the savings effected by the state acting as self-insurer could easily achieve an additional 14.3 per cent. A 50 per cent savings in insurance cost could readily be envisioned. While insurance consumes only 1.9111 per cent of the total transportation cost,[2] and the ceiling of $12,000,000.00 was used as the base cost of transportation, a total of $229,332.00 is involved in this minor cost factor. Using the 50 per cent possible saving previously mentioned, a fund of $114,666.00 is obtained. While some detractors may point out this represents less than one per cent of the total cost of transportation, yet it remains a saving achieved through

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[1]Michigan Association of School Business Officials, School Losses in Michigan 1947-1957, n. d., p. 1. (Pamphlet.)

[2]Table 17.

business-like channels which would not detract from the quality of transportation. It is an approach to improved financing of transportation which merits further study. Perhaps more than any of the other cost factors, it presents an avenue which can and should be explored to ferret out savings for reduction of costs without disruption of service.

Summary

Insurance is one of the more confusing and misunderstood aspects of pupil transportation costs. More specific directions and recommendations from the state office as to what is desirable in pupil transportation would be helpful. At this time 130 districts are paying more than the state is willing to reimburse. Of the 17 who did achieve insurance costs under the $42.00 limitation, 15 asked for and received bids. All 15 indicated they will continue to insure school buses through the use of sealed bids. Those districts operating larger bus fleets are able to secure insurance at a lower per bus cost and at a smaller percentage of the total cost.

Tires

The expense in connection with tires on school buses accounts for the seventh largest item of pupil transportation in the ten selected counties studied. The total monies spent, $51,230.33, represents 1.31 per cent of the total cost, a relatively small fraction of the total cost.

Within this small fraction there appeared several variations. Van Buren County was the lowest with $1,539.26, or .739 per cent. This represented an average of $17.69 per bus. The upper limit was found in Kalkaska County, where an average of $190.92 per bus was spent for tires. The average was $44.85 per bus.

Little information appeared in the literature regarding tires. Oakland County, with the largest number of school-owned buses studied, issued a School Business Officials report which recommended, among other items, a further study in the area of purchasing policies on gas, oil, lubrication, parts, tires, and other necessary items in transportation system.[1] The only specific comment regarding tires is the following:

> 16 of the 22 districts do use recap tires, with three of these 16 districts using them on the rear wheels only; 17 of the 22 districts use regular truck tread tires with tubes. Bids are not taken for tires by 15 of the 22 districts.[2]

With Oakland County only slightly below the average in terms of costs for tires, there is a suggestion that possibly bids could be taken which might result in decreased costs. The general use of recapped tires in the front, as well as in the back, suggested a possible saving for other

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[1] Oakland County School Business Officials, "Final Report of Transportation Study Committee," 1958, p. 2.

[2] Ibid., p. 3.

districts, but this should receive further study before meaningful observations can be taken. Current periodicals advocate a tire care system together with the judicious use of retreads as being capable of effecting a 50 per cent saving in tire costs.[1] In summary, even in the "minor" cost factors of pupil transportation some savings can be effected if enough attention is given to detail. The implication is clear, however, that these savings can best be effected when a conscientious school bus mechanic is on the job.

Interest

Interest is a minor but non-the-less puzzling factor in the cost of school bus operations in the ten Michigan counties studied. Less than one per cent of the total expenditures were attributed to interest. Only $33,229.06 out of a total of over $3,900,000.00 were spent for the use of borrowed money. No county costs exceeded $7,400.00. Yet, there were six schools which spent more than $1,000 each for the privilege of waiting to pay for school buses. Utica, in Macomb County, assessed themselves the largest amount, $3,365.00.

The factor of interest poses a tantalizing question, because only 52 of the 147 schools participate in this item

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[1]Mort Watkins, "For More Miles--Transportation Service Follows 9-Point Tire Program," Commerical Car Journal, Vol. 96, No. 1 (September, 1958), p. 74; "For More Miles--Get the Most From Retreads," Commercial Car Journal, Vol. 96, No. 1 (September, 1958), p. 70.

of expense. Almost two-thirds of the schools eliminated interest from their transportation budget. Further, most of the schools who do pay interest operate few buses. Seventy-three per cent were included in the group of 1-9 buses and almost half of that number were included in one and two bus categories. Only nine were found in the 10-18 group and five in the 20-38 listing. The variation in size of group is reflected in the percentages ascribed to interest. Table 36 shows that the 1-9 size of bus fleet used .952 per cent interest. In the medium size fleet of 10-18 buses the percentage dropped to .789 per cent, while in the large 20-38 bus group the percentage descended to .487 per cent.

County totals also showed considerable variation in the percentage of interest cost. The range was .07 per cent to 2.903 per cent with Wayne County at the low figure and Van Buren the high amount. Shiawassee joins Van Buren in being above two per cent, while Kalkaska, Oakland, and Gratiot were united with Wayne in having less than one per cent for interest.

At least one county (Shiawassee), placed interest in the same classification with depreciation. They combined under the pointed title interest and depreciation[1] those costs which directly or indirectly determine the total cost of school buses. There was no evidence to indicate that

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[1]Smith, op. cit.

TABLE 36

COMPARISON OF COSTS AND PERCENTAGES OF TEN COST FACTORS BASED ON SMALL, MEDIUM, AND LARGE BUS FLEETS IN 1956-1957

Items	Bus Groups		
	1 - 9	10 - 18	20 - 38
Salary	$1299.44	$1410.14	$1915.32
%	41.86	43.051	48.58
Depreciation	708.60	705.08	714.33
%	23.036	21.526	18.12
Total Maintenance	462.24	597.19	561.61
%	14.97	18.232	14.244
Gasoline	340.87	284.18	319.31
%	11.08	8.627	8.1
Insurance	79.93	58.72	54.63
%	2.598	1.792	1.386
Administration	66.79	122.87	273.26
%	2.171	3.751	6.93
Tires	51.94	35.40	46.55
%	1.688	1.08	1.18
Oil	34.95	21.56	23.10
%	1.136	.658	.586
Interest	29.30	26.87	19.11
%	.952	.79	.485
Driver Education	15.52	14.47	15.38
%	.5045	.44	.39
Total			
443 buses	$3089.59		
326 buses		$1410.14	
373 buses			$1915.32

interest was paid on any commodity other than school buses. Previous to the adoption of the Transportation Code of 1954, interest was a reimbursable item from state funds. This encouraged many school districts to embark upon a transportation program. In fact, some school bus salesmen pointed out to the school administrators that if school finances dictated the borrowing of money, it could be done with very little, if any, penalty to the school district providing the cost could be kept down to a maximum of $60.00 per child. The logic of including interest with depreciation was indicated by the general acceptance of both being a method of securing school buses for transporting children with the exception that the total cost would be amortized over a period of years which was generally the life expectancy of the school bus. As has been mentioned previously, the annual transportation report specifically indicated one-seventh of the total cost of the bus. In at least some cases interest charges were shown for a seven year old bus. Now that the factor of interest allowance has been exempted from state reimbursement, many schools find it more expedient to pay cash for school buses.

The existence of 52 school districts in ten counties still paying over $33,000 for interest indicated that schools were unable as yet to free themselves entirely from the necessity of borrowing money for capital outlay. In the same way that L. F. Greene pointed out the tremendous savings which could be effected if the interest could be

eliminated from the capital outlay costs of school buildings,[1] so too could the costs of school transportation be pared by the reduction or elimination of interest charges. In the absence of sufficient financial stability to circumvent borrowing, it is likely that transporting school districts will continue to include interest charges as a minor cost factor.

Oil

Oil and lubrication was the official title for the next to the least costly factor of pupil transportation in Michigan. Since the inception of the gasoline engine, every school boy and every mechanic has been impressed with the necessity of oil and grease as a deterrent to friction and as a prime requisite for long and successful utilization of moving parts. Oil and lubrication was listed as number 15 of the cost factors, appearing near the bottom of the page below supervisors' and clerical salaries and above storage and school garage operation. All of the factors on the bottom half of the page beginning with insurance and ending with bus driver training appeared to have secondary qualifications. They were important, but a bus could operate if they were lacking.

Oil and lubricants would seem to be the exception to this observation. In spite of the generally recognized

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[1]L. F. Greene, "Critical Appraisal of Bonding Practices in Michigan Public Schools" (unpublished Ed. D. thesis, Michigan State University, 1957), p. 170.

importance of oil and lubrication, several schools ascribed secondary or lower qualities to oil and lubrication by omitting them entirely as a cost factor. This was particularly true of schools operating few buses. Seven out of 26 schools operating one bus only reported no oil as a cost in pupil transportation. Altogether there were 14 schools which eliminated oil and lubrication from cost computation. One was a school which operated ten buses. All schools in the study, operating more than ten buses, included oil and grease in their calculations.

Between the one and ten bus groups, there was one in the seven bus group, two in the five bus group, one in those operating four buses, and two with the two buses which reported no oil and lubrication expenses. Naturally, it can not be assumed that a total of 42 buses operated during the 1956-1957 school year without using any oil and/or grease. It is more likely that the cost of necessary lubrication was inadvertently placed with supplies and repair parts or possibly with maintenance at private garages rather than in this proper category. It was another evidence that better records were essential to accurate cost accounting.

While oil and lubrication are commonly considered together, and in this case were lumped together, one school (Fennville) noted that the costs of oil and lubrication (greasing) tended to assume equal proportions particularly when the lubrication work was done in private garages and

the oil was purchased in quantities and changed and checked by the school mechanic. It was likely that this balance would fluctuate depending on whether or not the school garages had facilities to do all the greasing, or if it were necessary to have the work done at private garages. During the remainder of this study, and for the sake of brevity, the term "oil" should be construed as including both cylinder oil and greases of all types.

A total of $31,129.83 was reportedly spent for oil in the ten counties studied. This represented slightly less than one per cent of the total costs (.7965%). The range percentagewise varies from a low of .702 per cent in Wayne County ($6,940.28), to a high of 1.85 per cent in Kalkaska County ($585.97).

Table 24 shows an interesting trend as far as oil was concerned. In the breakdown of 1-9 buses, oil assumed 1.136 per cent of the costs of pupil transportation; in the 10-18 category the percentage ascribed to oil decreased to .658 per cent; and in the largest bus category (20-38 buses) the figure was still lower at .586 per cent. This constantly lowering percentage was even more remarkable when we recalled that 32 of the buses in group I reportedly spent nothing for oil. At this same time ten buses from group II listed no expenditures for oil, while all buses in the large (20-38) bus group reported oil purchases. The decreasing costs for oil as the size of the bus fleet increased may be accounted for in part by increased use of

mechanics in the larger bus systems. This lowered cost for oil might help explain higher cost for mechanics in the larger systems since the use of mechanics could well result in lowered oil costs bought in large quantities through bids.

Summary

While less than one per cent of the pupil transportation costs can be attributed to oil, this minor cost factor accentuates the importance of an accurate accounting system. In common with most other "minor" cost factors as the size of the bus fleet increased, the percentage spent for oil decreased.

Bus Driver Education

Bus driver education was listed last of the ten cost factors and it likewise was listed last in the ranking of the ten selected counties in Michigan. A total expenditure of $17,222.21 was utilized for in-service education of bus drivers. This amounted to an average of $16.60 per bus. Less than one-half of one per cent was spent for this service. In none of the ten counties studied did bus driver education equal one per cent of the total cost. The range was from a low of .241 in Gratiot County, to a high of .951 of one per cent in Van Buren County. It was noteworthy that all counties recorded bus driver education as the lowest cost factor in pupil transportation.

While it received a low ranking as far as actual dollars expended, specialists in the field of pupil

transportation on a national scale were enthusiastic in their praise of bus driver education, and strongly suggested its expansion. The National Survey of Pupil Transportation[1] showed 25 of the 37 states responding had established bus driver education programs and all respondents favored an expanded bus driver education program. A recent education journal,[2] which featured 16 pages devoted to pupil transportation, stressed the importance of driver training. Such expressions as "importance of selection, training, and supervision of drivers," "training for, and supervision of local transportation personnel," "development of an effective training program for bus operators--in-service as well as pre-service," and "comprehensive school bus driver programs should be organized" permeate the reports of transportation experts from the various states. The 1958 program for a regional meeting of the American Association of School Administrators listed the provocative title of "Vexing Problems of Pupil Transportation."[3] The discussion of this group session centered around the essential nature of bus driver training.

The state of Michigan gives official cognizance to bus driver training in setting up the mechanics for

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[1]Appendix B, Questions 45 and 46.

[2]The Nation's Schools, Vol. 32, No. 2 (August, 1958), pp. 33-49.

[3]American Association of School Administrators Official Program, n. d., p. 30.

distribution of state aid to transporting school districts. One of the four allowances was specifically marked "Allowance for Bus Driver Education."[1] While it was true that this factor was the least important of the four allowances from the standpoint of money allotted, at least official sanction was given to the program. Four lines were devoted to the question, as follows:

23. Number of drivers attending eight or more hours _____ x $12.50, or actual cost = $_____

24. Mileage allowance at $0.07 x total miles = $_____

25. Meal allowance $_____

26. Total bus driver education allowance $_____

That Michigan schools did not place high prestige value on bus driver education was indicated by reluctance of many schools to participate in formal bus driver training. This appeared to be most noticeable in those schools operating few buses. Of the 26 schools operating only one bus, 20 schools reported no money spent on driver education. Of the 54 schools operating one, two, or three buses, only 22 reported expenditures for training of drivers. The largest amount spent was $80.49 in Clintondale in Macomb County with three buses. Table 32 does not indicate any trend regarding the amount of money spent per bus in terms of the number of buses operated. Birmingham, with 33 buses, spent nothing for driver education. On the other hand, Huron Valley, with 29 buses, devoted a total of $829.33 to this cause. On a

[1]Superintendent of Public Instruction, "Transportation Code," Amendment to Administrative Code (Lansing, Mich.: Department of Public Instruction, 1957), p. 2. (Mimeographed.)

per bus basis, schools operating four buses showed an average of $35.03, while schools with 11 buses showed the greatest, namely, $36.54. The lower extreme was the previously mentioned zero in the 33 bus group, and $5.25 in the 20 bus group.

Summary

In summary, 47 schools operating 204 buses did not participate in any reported, formal training program of bus drivers. Those who did report affirmatively showed that less than one-half of one per cent of the cost of pupil transportation was spent for the training of school bus drivers. There appeared to be more emphasis on "preaching" concerning the virtues of bus driver education than "practice" as far as the ten counties of Michigan were concerned.

CHAPTER VII

TRANSPORTATION CODE OF MICHIGAN

Introduction

In 1957 Michigan faced a dilemma in terms of pupil transportation. Both the number of pupils transported and the cost of transportation were on an upward trend. A large segment of the state's population was opposed to the state subsidy of pupil transportation. Three-fourths of the school children were not affected by the transportation, nevertheless, the number of pupils and the total cost continued to mount. The legislature took action to restrain the mounting costs of state aid for transportation. It increased the distance a child should walk from one to one and a half miles before any reimbursement could be given, and it put a ceiling of $12,000,000 on the transportation appropriation.

It was the duty of the Department of Public Instruction to implement this action of the legislature. A committee of school administrators was selected to meet with the Department officials to inaugurate a transportation program incorporating the new legislation. The committee was composed of the following members:[1] Glenn Loomis, Walter

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[1]Minutes of the meeting on Transportation Code, House of Representatives, Lansing, Michigan, Sept. 10, 1957, p. 1.

Gumser, W. T. Simmons, James Ten Brink, Clare Ebersole, Claude Elmore, Clifford Smart, Rev. V. J. Hawkins, Willis Bates, Ted Butler, Leslie Green, John A. VanderArk, S. J. Roth, and Austin Bates.

Before examining the methodology and accomplishments of the committee, a review of the factors leading up to the transportation dilemma of 1957 would be helpful for an understanding of the problem.

Background of Pupil Transportation Dilemma

Transportation at public expense for school children in Michigan was first made possible by a law enacted in 1903. This law was concerned primarily with consolidating schools through a state supported pupil transportation program. Very little consolidation or transportation resulted, however, because of poor roads, inadequate vehicles, and high tuition costs.[1] In 1917, the Rural Agricultural School Act was designed to give real impetus to school consolidation through pupil transportation. The Act was refined in 1931 to encourage fewer and better elementary and secondary schools, larger area cooperation, and a more practical use of buildings and equipment.[2] In 1935, the legislature passed an act which authorized primary, graded,

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[1]Fred J. Vescolani, Buses and the Schools, Professional Series Bulletin No. 20 (East Lansing, Michigan: College of Education, Michigan State University, 1956), p. 4.

[2]Ibid.

rural agricultural, and township school districts to provide transportation within the district, although only the latter two were reimbursed from state funds for this action.[1] In 1936, primary, graded, and township districts were permitted to close specified grades, transport them to another school, and receive reimbursement up to $40.00 per child.[2]

The following calendar of transportation allowances exemplified the increasing reimbursement allowances per child:

1933 P.A. 236 Sec. 7 Maximum $30 per year per pupil

1935 P.A. 192 Sec. 7 Maximum $40 per year per pupil

1945 P.A. 368 Sec. 6 Maximum $45 per year per pupil

1947 P.A. 331 Sec.34 Maximum $50 per year per pupil

1958 P.A. 26 Sec.16 Maximum $60 per year per pupil

As the allowance per pupil increased over the years, the allowance to school districts increased as the following tabulations indicate:[3]

1945	$ 1,293,102.15
1950	$ 6,477,967.83
1955	$11,266,966.82

This increasing cost of transportation which siphoned off funds which otherwise would have been distributed to

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[1] Pupil Transportation in Michigan, Bulletin No. 401 (Lansing, Michigan: Department of Public Instruction, 1937), p. 7.

[2] Ibid., pp. 8-9.

[3] Vescolani, op. cit., p. 6.

school districts on the state aid formula, plus legislative restrictions, was the problem which faced department officials and the transportation committee in September of 1957. To further complicate matters, the transportation payment for 1957-1958 was was to be based on the 1956-1957 report. In other words, the legislative decision was retroactive, all students living between a mile and a mile and a half were to be deleted from state reimbursement for transportation, and the school districts had no prior knowledge of this action.

Committee Reaction to the Problem

The committee took a realistic approach to the problem by proposing rules and regulations for the Administrative Code. The acting chairman stated that:

> The purpose of the Code is to distribute the money available in the best way possible to all types of school districts.[1]

He further stated that as costs and conditions changed, some adjustments should be made. He stressed that because of the 12 million dollar limitation set by the legislature, the formula probably could not be paid in full. In that event, the school districts would be paid on a pro rata basis.

There ensued a lengthy session of questions and answers for the most part dealing with specific examples of

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[1]Comments of George Schutt, from the Minutes of the Meeting on Transportation, September 10, 1957, p. 4.

local situations. In one case it was pointed out that one district which practiced the philosophy of neighborhood attendance centers or diffused elementary schools would be penalized because of the mile and a half restriction. In another case, the question was asked whether the mile and a half distance meant the straightest distance to the school, or did the mile and a half follow the highway from the child's home. Other questions concerned the necessity of providing transportation to pupils in areas where road traffic hazards and a lack of sidewalks existed. The answer was, it was up to the local districts to determine whether or not pupil transportation was to exist, but if a child lived less than a mile and a half from school as measured by highway mileage, that child was not eligible for reimbursement from state funds.[1] The question of relative values of the four areas of state aid was discussed with the amount for operation being stressed above that of capital outlay, insurance, or bus driver education, because "if you make an analysis of the whole transportation costs you will find 65% is for drivers' salaries."[2]

While the minutes indicate that not everyone was satisfied with the provisions, there was general agreement that the policies were fair and the participants would "wait and see" how the program worked out.

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[1]From the Minutes of the State Meeting on Pupil Transportation, House of Representatives, Lansing, Michigan, September 10, 1957, pp. 2-4.

[2]Ibid., p. 4.

Provisions of Pupil Transportation Agreement

Basically, the final agreement embodied these provisions: (1) there would be four distinct types of allowances; (2) the maximum per capita allowance would remain at $60.00; (3) if the total costs of transportation exceeded $12,000,000, then an over-all percentage cut would be made reducing the allowable $12,000,000 limitation.

The innovation of four distinct types of allowances resulted in this type of arrangement:

1. Capital Outlay Allowance for Buses

The capital outlay allowance provided for a payment of $14.00 a seat for the manufacturers rated capacity of each bus figures on a minimum of 13 lineal inches per person. If the total eligible (more than 1-1/2 miles distant from the school) children transported were less than the manufacturers rated capacity of the bus, this number would be used to determine the capital outlay allowance. The rated capacity multiplied by $14.00 was the maximum financial allowance per bus for capital outlay. However, the limitation of seven years per bus was lifted. In other words, as long as this bus was operated on a regular route, the $14.00 allowance per seat was in effect.

2. Allowance for Operation

In this computation the number of students per mile was determined. This result was given a value

carrying from 18 to 26 cents, depending on the density per mile. The value per mile was then multiplied by the total annual map mileage as certified by the county superintendent of schools. From this was subtracted a deduction based on the number of ineligible children carried. This deduction was either $8.00, or 25 per cent of the per capita cost, whichever was higher.

3. Allowance for Insurance

The allowance for insurance was $42.00 per bus in daily use, or the actual cost of insurance, whichever was less. The computation of insurance costs included public liability, property damage, and comprehensive insurance. Other types of insurance, such as pupil accident or collision were non-reimburseable.

4. Allowance for Bus Driver Education

Bus driver education, as we have noted earlier, was a relatively unimportant factor in over-all costs. However, its inclusion here was a recognition of its importance, and an indication of some status. The actual provisions included the number of drivers who attend eight or more hours of training at $12.50 per driver, or actual cost. In addition, the drivers were allowed meals and mileage at seven cents a mile.

Analysis of Four Allowances Under the Transportation Code

Allowance for Capital Outlay

The $14.00 allowance per seat per year was fair and equitable. It eliminated the old practice of the willingness of some districts to accept any price on a school bus, because "the state paid for it anyway" over a seven year period. It encouraged districts to shop wisely for the best buy in school buses. It also encouraged better care and the practive of preventive maintenance, because the $14.00 allowance was not limited to a seven year period. The Minutes of the Committee Meeting revealed that $14.00 per seat represented the average cost of school buses in Wayne and Oakland Counties.[1] The Oakland County School Business Officials final report in 1957 substantiated that contention.[2] It was true that a school district would have to purchase a bus for a little less than $100.00 a seat in order to amortize this cost over a seven year period. Most 60 passenger buses are currently selling for more than $6,000, but with proper care an eight or nine year depreciation figure can be achieved so there is no great loss on the capital outlay allowance.

Table 37 presents the most compelling evidence favoring the adequacy of $14.00 per seat as reimbursement

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[1] Ibid., p. 1.

[2] Oakland County School Business Officials, op. cit., pp. 18-23.

TABLE 37

WAYNE COUNTY CAPITAL OUTLAY COST FOR SCHOOL BUSES IN THE 1956-1957 SCHOOL YEAR

Capacity	Number Reported	Seating Capacity	Total Cost	Cost Per Seat
48	82	3,936	$ 342,627.50	$ 87.04
54	33	1,782	161,171.72	90.44
60	104	6,240	607,937.59	97.42
66	1	66	6,854.80	103.86
73	4	292	44,807.89	153.45
	TOTAL	12,314	$1,163,399.50	$ 94.47

for capital outlay. This Wayne County report emphatically shows that in every case, except the 66 and 73 passenger buses, the $14.00 a seat over the normal seven year period would more than compensate for the cost of the buses. Only five buses were at stake in these latter two categories. The average cost per seat of all Wayne County buses reported was $94.47, and in the seven year period a total of $98.00 would have been allowed, assuming that these buses were utilized to full capacity. If full loads were not carried, then fewer buses should have been used. Those who argue that $14.00 per seat was not enough were not aware of the facts unless Oakland and Wayne Counties were atypical. It should also be kept in mind that the $14.00 per seat was not confined to a seven year period. Given good care, with adequate maintenance there would be no reason why the capital

outlay payment of $14.00 per seat would not be continued for nine or ten years, or even longer.

A cursory glance at Table 37 might lead one to believe that the smaller capacitied buses were the best buses from the standpoint of capital outlay. This would be a misleading conclusion, occasioned largely by the fact that the 48 passenger buses were generally older and purchased when prices were lower. Conversations with school bus salesmen lead one to believe that 60 passenger and larger buses are now in vogue. It was noteworthy, too, concerning the most expensive cost factor, that of drivers' salaries, that it was not customary to pay any more for driving a 60 passenger bus than a 48 passenger vehicle. The net result was that on a per seat basis the larger buses were more economically operated in terms of drivers' salaries. This, plus improvements in bus specifications and minimum standards,[1] along with the need to transport increased number of pupils has resulted in a trend in recent years for larger vehicles.

It must be readily admitted that it was difficult to purchase buses at this time within the $14.00 allowance margin, but when this capital outlay figure was considered in the light of the age of the buses, the $14.00 figure was adequate. This figure may have to be revised later,

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[1]National Commission on Safety Education, Minimum Standards for School Buses (1954 revised edition; Washington, D. C.: National Education Association, 1934), p. 23.

but it was inconceivable at the time of this study that one of the four allowances would permit school districts to receive more allowance from the state than was actually occasioned by the expenditure. This was particularly true when good business practices enable districts to purchase buses economically. The establishment of a higher figure at a time when transportation allowances were being cut back, would appear to be wishful thinking with too much emphasis on original cost instead of sufficient scrutiny of the larger and more important factor of allowance for operation.

Allowance for Operation

The allowance for operation was based on three factors only. These factors could well be termed the "Three D's," distance, density, and deductions. The first was the total annual mileage of all buses as established by local school officials and certified by the county superintendent of schools. The second was the factor of density which will be explained in some detail later. The third was a deductible factor in which the cost of transporting non-eligible children was subtracted from the gross allowance for operation. A non-eligible child was one who lived and attended school within the corporate limits of a village or city, or one who lives less than a mile and a half of the school he attended. By far the greater number of children were in the latter category. A figure of either $8.00, or

25 per cent of the per capita cost of operation, whichever was greater, was used as the penalty for each non-eligible child conveyed.

The first, and probably the most important factor in allowance for operation, was that of the total annual mileage traveled by the bus fleet of a school district. The ten cost factors were vitally influenced by the total distance covered by buses. Most school districts were able to compute their cost on a bus mile basis. Obviously, the greater number of miles the buses went on a yearly basis, *the* greater was the cost to the school district. Reimbursement to the school district from state funds was likewise made on the basis of the actual combined miles of buses carrying eligible students to and from school. The costs of additional miles involved in the use of buses for excursions, additional trips, or in any activity except for transporting students to and from school was expected to be defrayed by the local school district. Local school districts had been advised by state transportation officials to keep the use of school buses for extended trips to a minimum, and then only after evaluating the returns from such activities. That extra trip mileage was important was indicated by the State School Bus Transportation Summary which showed 2,343,397 extra miles traveled in 1956-1957. This represented 4.5 per cent of the total of 51,070,220 miles covered by school buses during that year in the state of Michigan. This mileage was the combined mileages of 893

transporting school districts which received reimbursement from state funds. This reimbursement, in turn, was distributed on a mileage basis varying from 18 to 26 cents per mile. The more densely populated areas were favored on the following scale:[1]

less than one student per mile. . .	$.18
1 but less than two per mile . . .	.20
2 but less than three per mile. . .	.22
3 but less than four per mile . . .	.24
4 or more per mile.	.26

Density, or the number of pupils transported per mile, has been shown to be closely related to the unit cost of pupil transportation. According to Hutchins, "While density itself may not directly affect the costs, yet there are many conditions which vary with density and which do produce changes in the unit cost of transportation."[2]

Ten years earlier, in 1930, a California study recognized the importance of density but stated flatly that "data are lacking to evaluate the effect of the density of school population."[3] In 1927, a New Jersey study presented a complicated mathematical formula which featured the density of

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[1]"State Aid Allowance for Transportation," Department of Public Instruction, Lansing, Michigan, n. d., p. 1. (Mimeographed.)

[2]C. D. Hutchins, "Determining Costs of Pupil Transportation," The Nation's Schools, XXV, No. 5 (May, 1940), p. 34.

[3]Frank O. Evans, Factors Affecting the Cost of School Transportation in California, U. S. Department of Interior Bulletin No. 29 (Washington, D. C.: Government Printing Office, December, 1930), p. 36.

school population, but recognized that local policy and the number of school buildings obscured the operation of the formula.[1] In 1949, R. L. Johns proposed a formula for allocating state aid for transportation based on road conditions and the number of riders per square mile.[2] Five years later, Indiana was using a combination of the density factor and the ability factor in relation to $20.00 per child in determining reimbursement to local districts.[3] In none of the density formulae was there a marked deviation for reimbursement and sometimes the formula favored sparsely settled areas and sometimes the densely peopled regions. One of the reasons for this discrepancy was the confusion over which costs to use. Some formulae use cost per person and some use cost per mile. Recent studies indicated that under normal conditions, the cost per pupil was lower and the cost per mile greater as the density increased.[4]

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[1]Robert Leo Burns, Measurement of the Need for Transporting Pupils; Basis for State Equalization of Transportation Costs, Teachers College Columbia University Contributions to Education, No. 289 (New York: Bureau of Publications, Teachers College, Columbia University, 1927), p. 19.

[2]R. L. Johns, "Determining Pupil Transportation Costs," The Nation's Schools, XLIII, No. 2 (February, 1949), p. 49.

[3]Montfort Barr, School Executive, November, 1955, p. 56.

[4]Willard Brehaut, A Survey of Factors Related to Variations in the Cost of Elementary and Secondary School Pupils in Ontario 1953-54 (Toronto: University of Toronto Press, 1955), p. 14; W. Montfort Barr, et al., Trends in School District Reorganization in Indiana, Bulletin of the School of Education (Bloomington, Indiana: Indiana University, 1956), pp. 59-60. "The Indiana Formula for State Support of Transportation," believes Barr and School Executives.

In 1956, Michigan recognized the increased cost per mile per bus as density increased by setting up an increased allowance for operation varying from .18 cents per mile to .2467 cents per mile. In the above example the density was compensated as follows:[1]

1. If the average number of children picked up per mile is more than six, the allowance shall be $.2467 per mile.

2. If the average number of children picked up per mile is six or less, but more than three, the allowance shall be $.2133 per mile.

3. If the average number of children picked up per mile is three or less, the allowance shall be $.18 per mile.

The experience of working under this code for a year furnished the background for a slight enrichment with greater specificity to the current scale which is as follows:[2]

Less than 1 student per mile	$.18
1 but less than 2 students per mile . . .	.20
2 but less than 3 students per mile . . .	.22
3 but less than 4 students per mile . . .	.24
4 or more students per mile.	.26

Allowance for Insurance

The State Aid Allowance sheet for transportation was very brief and very concise when it commented on insurance: "Number of buses used daily for transportation x $42 or actual cost whichever is less." The next line further

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[1]Superintendent of Public Instruction, "Transportation," Amendment to Administrative Code of 1954, Lansing, Michigan, pp. 1-2. (Mimeographed.)

[2]"State Aid Allowance for Transportation," op. cit.

specified that only public liability, property damage, and comprehensive (fire, theft, glass breakage) were to be included. If such items as collision and pupil accident insurance were to be carried, it would be done at the express cost of the local school district. The 1958-1959 Annual Transportation Reports were more explicit in terms of insurance than previous reports. In this case a separate account with a different number had been accorded the reimbursable and the non-reimbursible insurance premiums. In this way there was little opportunity to be casual with insurance accounting.

That insurance could be secured for the figure of $42.00 per bus was evidenced by Table 35 showing that 11-1/2 per cent of the school districts did purchase insurance under the code allowance figure. With only one exception, these 17 school districts operated seven or more buses. The total number of buses involved was 287, or slightly more than one-fourth the number of buses studied. The range was from a low of $12.16 to $40.41 per bus with all the other 15 maintaining figures in the "thirties." Credit for achieving premium costs of $42.00 and less was ascribed largely to asking for bids and being particular not to purchase non-reimbursable types of insurance.

Allowance for Bus Driver Education

Bus driver education was the least costly of all the cost factors in transportation. An average of only $16.60

was spent per bus. There were 47 schools operating 204 buses who apparently did not participate in any driver education program. While the present cost was low, the interest in driver education was high. The present 1958-1959 Transportation Report showed four lines indicating four types of allowable costs:

1. Fees _____
2. Mileage _____
3. Salaries _____
4. Meals _____

These four opportunities appeared more liberal than the 1957 listing, as follows:

1. Number of drivers attending eight or more hours ___ x $12.50, or actual cost = $_____
2. Mileage allowance at $0.07 x total miles = $_____
3. Meal allowance $_____

Current literature from the teachers' colleges and universities indicate an honest attempt is being made to improve the quality and scope of bus driver education.

Relative Importance of Four Code Allowance

The rate of the current reimbursement for operational allowance has been enumerated twice to emphasize its importance as compared with the other three allowances. The relative importance of operation as opposed to either capital outlay, insurance, or driver education allowance was readily apparent. Driver education was so small as to be almost negligible (less than $17.00 per bus) and insurance was limited to $42.00 per bus.

The average capital outlay allowance based on $14.00 per seat was $770 for the larger sized metropolitan buses and $728 for the non-metropolitan schools.[1] Almost without exception, the allowance for operation was more than twice as large as the capital outlay allowance. The average of the 26 group categories showed that the operation allowance was 252 per cent more than the larger (metropolitan) capital outlay allowance.

The marked superiority of operational reimbursement was evident in both metropolitan and non-metropolitan classifications and in all sizes of bus fleets. The one and two bus groups appeared to be favored slightly in both classifications, while those districts operating ten buses received smaller operational reimbursement. One limiting factor must be pointed out however. All operational reimbursement will be reduced by the number of non-eligible students carried. The effect of carried non-eligible students will be reviewed later in this chapter.

Adequacy of Code Allowance

Having established the importance of the four code allowances, the next logical question could be this: Were the total allowances adequate to do the job for which they were intended? An examination of the transportation records in the state office for the ten counties involved, indicated

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[1]Average seating capacity of metropolitan schools was 55.4, while average seating of non-metropolitan schools was 52.5. See Table 19.

the allowances were adequate. In fact, 16 of the 147 school districts failed to show costs which equalled the code allowances. Consequently, transportation officials in the state office reduced the allowances so that no one exceeded or even equalled costs. With more than 10 per cent of the schools failing to list costs equal to the allowance, this would seem to indicate the allowances were too great. It would appear that a smaller allowance would be in order. A more detailed analysis of Table 38 brings out the following observations:

1. All schools represented were non-metropolitan.
2. Most of the districts involved operate few buses.
3. Only 47 (4%) of the buses were involved.
4. The counties represented appeared to be sparsely populated.
5. Aside from Allegan, Delta, and Kalkaska Counties, very little money was involved.

Nevertheless, it was disconcerting to find such a large number of school systems apparently destined by the code to receive more money than the actual costs demanded. Realizing the allowances for capital outlay, insurance, and driver education were fairly stable, Tables 39 and 40 attempt to derive more specific information from each of the 16 districts in terms of the actual cost of operation to the code allowance for operation. These tables also reveal that because of faulty reporting, two of the schools in Ottawa County, each of whom operate only one bus, actually do have

TABLE 38

A COMPARISON OF THE 16 SCHOOL DISTRICTS WHICH REPORTEDLY HAD ACTUAL TRANSPORTATION COSTS LESS THAN CODE ALLOWANCES IN 1956-1957

Counties	Number of Schools	Number of Buses Involved	Amount of Excess of Allowances Over Costs
		Non-Metropolitan	
Allegan	4	15	$ 3,758.53
Delta	3	13	6,134.39
Gratiot	1	7	66.15
Kalkaska	3	7	1,880.97
Ottawa	4	4	901.35
Shiawassee	0	0	00
Van Buren	1	1	96.21
TOTAL	16	47	$12,837.60
		Metropolitan	
Macomb	0	0	00
Oakland	0	0	00
Wayne	0	0	00

TABLE 39

SCHOOL DISTRICTS WHOSE 1956-1957 COSTS OF TRANSPORTATION WERE LESS THAN CODE ALLOWANCES

County and District	No. of Buses	Cost	Code Allowance	Excess of Code Over Cost
Allegan--				
Dorr	1	$ 1,961.10	$ 2,349.93	$ 388.83
Fennville	8	20,985.58	22,890.88	1,905.30
Saugatuck	3	5,401.11	5,674.00	272.89
Moline	3	5,056.49	6,248.00	1,191.51
Delta--				
Baldwin	2	6,151.56	6,462.98	311.42
Bark Driver	8	23,752.20	25,853.94	2,101.74
Ford River	3	11,390.44	15,111.67	3,721.23
Gratiot--				
Breckenridge	7	19,211.00	19,277.15	66.15
Kalkaska--				
Kalkaska	4	12,652.71	13,074.56	421.95
Blue Lake	1	3,716.22	4,267.60	551.38
South Boardman	2	4,928.76	5,836.40	907.64
Ottawa--				
North Holland	1	2,402.33	2,514.00	111.67
Rosy Mound	1	2,637.30	2,818.00	180.70
West Crisp	1	3,329.91	3,422.00	92.09
Connell	1	1,886.31	2,403.20	516.89
Van Buren--				
Breedsville	1	2,993.61	3,089.82	96.21

TABLE 40

COMPARISON OF CODE OPERATIONAL ALLOWANCE PER MILE, WITH THE ACTUAL OPERATIONAL COST PER MILE OF 16 DISTRICTS IN PREVIOUS TABLE

County and District	No. Buses	Miles Per Day	Number Students Transported	Students Per Mile	Code Allowance Per Mile	Actual Cost Per Mile
Allegan--						
Dorr	1	55.6	51	.91	$ .18	$ .107
Fennville	8	455.3	479	1.05	.20	.182
Saugatuck	3	137.9	156	1.13	.20	.170
Moline	3	109.0	168	1.54	.20	.181
Delta--						
Baldwin	2	161.0	458	.87	.18	.134
Bark River	8	602.7	584	.96	.18	.168
Ford River	3	335.5	276	.82	.18	.150
Gratiot--						
Breckenridge	7	436.0	458	1.05	.20	.182
Kalkaska--						
Kalkaska	4	385.8	219	.57	.18	.138
Blue Lake	1	105.5	38	.36	.18	.156
South Boardman	2	167.0	73	.43	.18	.117
Ottawa--						
North Holland	1	40.0	48	1.20	.20	.193
Rosy Mound	1	57.5	90	1.56	.20	.176
West Crisp	1	63.8	46	.72	.18	.214
Connell	1	55.5	12	.21	.18	.181
Van Buren--						
Breedsville	1	77.1	59	.76	.18	.140

operating costs in excess of the code allowance. All of the remaining 14 schools were comparatively sparsely populated. All had less than two students per mile. In fact, only two had more than 1.5 students per mile. More than half of the districts had less than one to the mile. All the Kalkaska County and Delta County representatives had less than one student per mile, and were granted the code allowance of .18 cents per mile. It was in the less dense areas that the greatest discrepancies occurred. For example, Dorr, in Allegan County, had less than one student per mile, operated on a cost of .107 cents per mile, and was entitled to .18 cents per mile. South Boardman, with two buses in Kalkaska County, was allocated .18 by the code yet was able to operate on .117 cents. Two other districts expected the minimum of .18, yet were able to operate on less than .14 cents per mile. In an attempt to pin-point the ability of some of these districts to operate so cheaply, Table 41 lists all six of the operational cost factors, along with the number of buses, the miles per day, the total costs for each district, as well as the cost per bus. The reasons for the ability of these 14 districts to operate at less than code allowance were included in one or more of the following causes:

1. An unusually long route. In this case the number of miles traversed piled up until even at the minimum figure of .18 cents, a total allowance was reached which was in excess of the actual costs.

TABLE 41

OPERATIONAL COSTS ANALYSIS PER BUS OF 14 SCHOOL DISTRICTS WHOSE TOTAL ALLOWABLE COSTS AS COMPUTED BY THE CODE EXCEEDED THE ACTUAL COSTS

School	No. Buses	Daily Miles	Salary	Gasoline	Tires	Oil	Total Maintenance	Administration	Total Cost (Operational)
Dorr	1	55.6	$ 741.42	$ 268.96	$-----	$25.00	$ 36.90	$------	$1,072.28
Fennville	8	56.9	1,077.59	269.37	26.63	41.93	433.48	25.00	1,874.02
Saugatuck	3	45.6	950.60	390.32	3.96	29.25	40.81	------	1,418.29
Moline	3	36.3	732.50	285.15	52.48	20.92	77.27	16.66	1,185.00
Baldwin	2	80.5	1,215.00	415.00	-----	69.45	250.20	------	1,849.65
Ford River	3	111.6	1,928.33	499.30	-----	75.56	531.77	------	3,034.97
Bark River	8	75.3	1,231.87	362.35	52.95	26.98	462.03	147.50	2,283.69
Breckenridge	7	62.2	924.14	431.00	36.89	52.19	609.02	------	2,053.26
Kalkaska	4	96.4	1,170.00	459.54	193.29	58.26	460.86	62.50	2,404.46
Blue Lake	1	105.5	1,571.30	615.67	200.57	49.99	530.27	------	2,967.80
S. Boardman	2	83.5	900.00	471.82	160.00	45.22	199.73	------	1,776.79
Breedsville	1	77.1	978.50	492.13	120.37	26.55	331.80	------	1,949.35
N. Holland	1	40.0	960.00	341.62	-----	25.00	90.73	25.00	1,442.35
Rosy Mound	1	57.5	1,180.24	395.65	-----	52.50	198.13	------	1,826.52

2. A situation in which the school district was able to achieve an extremely favorable (to them) cost in one or more of the six operational cost factors.
3. A situation in which the students per mile was just over the minimum allowance as to put the school district in a more remunerative bracket.
4. A combination of the above causes.

Distance as a Factor of Code Allowances

For six of the 14 schools the factor of distance was paramount. These six districts were equally divided between the Counties of Delta and Kalkaska, where sparsity of population was important. The range in distances a bus traveled per day was from 75.3 miles to 111.8 miles. The actual cost varied from .117 cents per mile to a .168 cents per mile. South Boardman with two buses was able to operate at the extremely low mileage cost of .117 cents because of low salaries to bus drivers ($900.00 each), and total maintenance costs of less than $200.00 per bus. The important point to keep in mind is that with a minimum of 75 miles per bus per day operating 180 days per year, and being allowed .18 cents per mile, each bus would be allowed $2,430.00. This was more than the total actual cost per bus of any of this group except Ford River. In this case, the actual cost amounted to $3,034.00. However, Ford River averaged 111.6 miles per day per bus. Computing this on the basis of 180 days at .18 cents per mile, the total was $3,605.84,

or more than $500.00 more than actual cost. Breedsville, the only reported school in Van Buren County to have code operational allowance in excess of costs, was another school whose bus traveled more than 75 miles per day and amassed more mileage allowance than actual costs warranted.

Cost Factors of Code Allowance

Three of the four Allegan County schools were able to secure a very low cost per bus largely by paying drivers less than a $1,000.00 per year. Dorr was able to operate their bus for a year at less than most schools have to pay for drivers alone. Their total maintenance cost was only $36.90. Saugatuck and Moline each had a low total maintenance figure to go along with the low bus drivers' salaries.

The two Ottawa County primary school districts, which each operate one bus only, likewise have a low salary. In addition, both eliminated any tire purchases during the year. However, none of the three minor costs (tires, oil, and administration) had a significant bearing on the total costs. As a matter of fact, Rosy Mound with a mileage of 57.5 per day, or 10,350 per year, had a mileage allowance in excess of costs in spite of paying $220.24 more for driver's salary than did neighboring North Holland.

Breckenridge and Fennville were two schools which appeared to have economical operational costs, plus being just over the one student per mile (each had an identical rating of 1.05) which entitled the school districts to two

cents additional per mile. By a coincidence, each school had an actual cost of .182 cents. This reasonable cost per mile for each school was achieved largely through drivers' salaries of slightly less than a thousand dollars in the case of Breckenridge, and slightly more than a thousand dollars per bus in the case of Fennville. Fennville had a better gasoline and total maintenance program. These two schools, plus Bark River, were the only school districts achieving a lower cost record and still operating more than four buses. Undoubtedly the factor of having .05 students over the one student per mile was the strong characteristic which brought about the phenomenon. If there had been .06 fewer students per mile, then each school would have joined the ranks of the greater number whose costs exceeded the code allowance.

While four per cent of the buses and nine per cent of the schools were characterized by having code allowances in excess of transportation costs, actually this situation was not serious. It was not serious because in all cases state level administrators substituted actual costs for code allowances so that nobody gained or lost any money. In effect, this situation was extremely fair since in sparsely settled areas, where school buses travel greater distances and there was more apparent need for pupil transportation, the minimum per mile payment assured an approximation of the cost of operation.

Earlier in the discussion of Operation Allowance, the "Three D's,"--distance, density, and deductions--were used. The importance of distance and density have been considered. The matter of deduction for non-eligible children will be discussed in more detail in connection with over-all allowance. For the present it is sufficient to say that the greater the number of non-eligible children transported the less was the code allowance for operation and the greater the contribution of the local district to make up the complete budget for transportation.

Comparison of Code Allowances in Metropolitan and Non-Metropolitan Schools

It was interesting to compare the total of the code allowances of the metropolitan schools to the non-metropolitan schools. One might expect there would be little difference because the code allowance would apply equally to both types of schools. Figure 7 shows the comparison of the percentage the average total code allowances bears to the average costs of each bus group. A pattern surprisingly develops which favors the non-metropolitan buses in every bus group except one.

Only in the 15 bus fleet group does the percentage of reimbursement for the metropolitan districts exceed that of the outstate schools. It should be kept in mind that Figure 7 was developed under the following conditions:

1. These were average figures for all schools in those bus fleet categories which included both

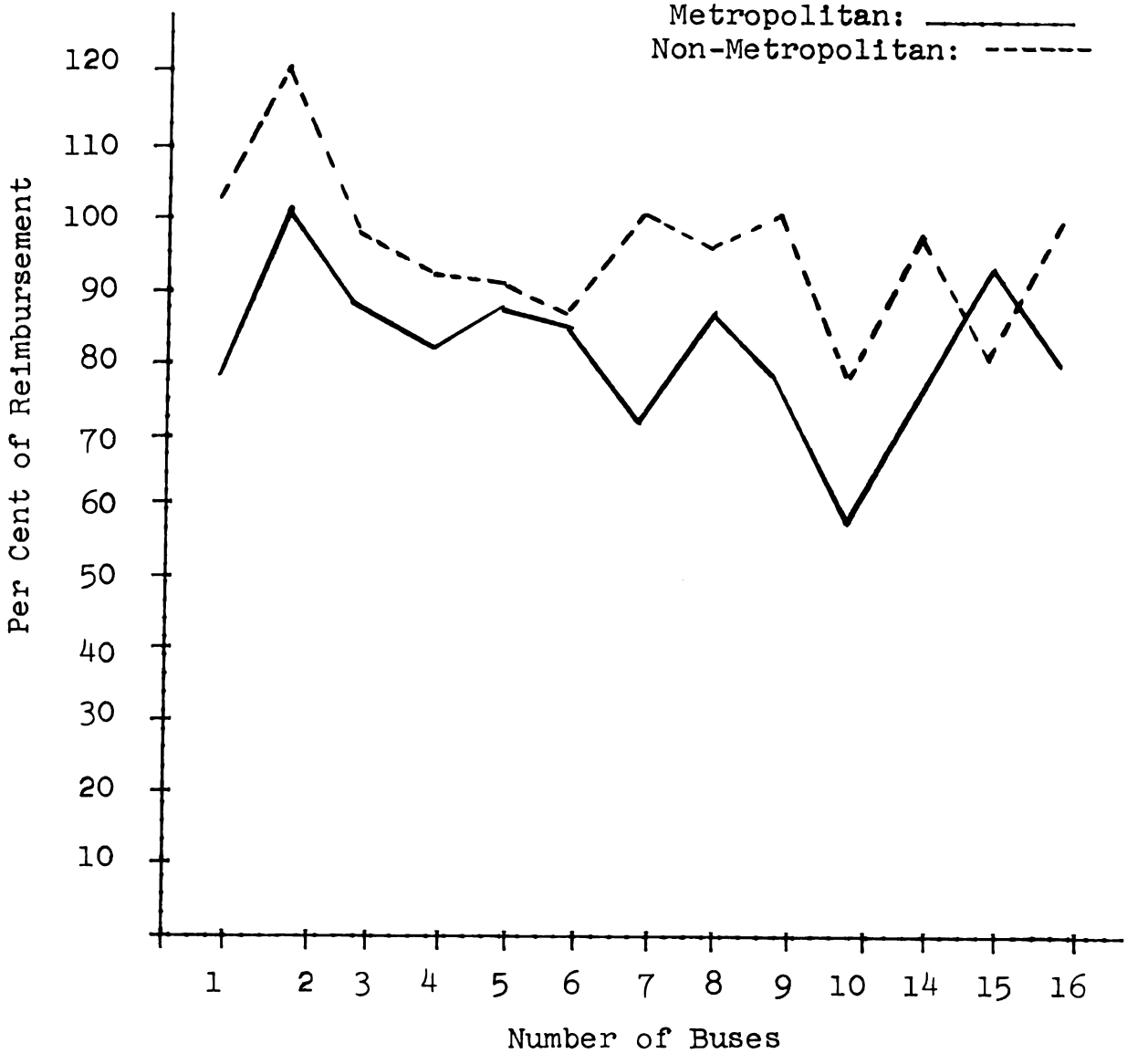

Figure 7. Comparison of Non-Metropolitan to Metropolitan School Districts in Terms of Percentage of Reimbursement to Costs of Transportation in 1956-1957.

metropolitan and non-metropolitan schools. None of those percentages represented actual school percentages.

2. In all cases the assumption was made that the maximum capital outlay allowance was obtained on all buses. The maximum of $42.00 per bus was allowed for insurance in all instances. The average allowance was made for driver education in all bus fleet sizes.
3. In terms of Allowance for Operation no deductions for non-eligible students were made. This accounts in many cases for the percentage of reimbursement exceeding 100 per cent in several categories.

For a more realistic examination of the relationship of reimbursement to costs, the following excerpts from the 1956-1957 county summaries were compiled in Table 42. This table, which utilized only number transported, costs, and allowances, indicates that the metropolitan and non-metropolitan schools were bunched closely together with reimbursement percentages in the sixties. Strangely enough, the metropolitan schools had a slight advantage over the non-metropolitan schools. This would indicate the metropolitan schools were favored in terms of reimbursement. It would also indicate a very low figure of reimbursement was in evidence. However, in this table one important aspect of the transportation picture was lacking. This omitted aspect was supplied by the inclusion of payments to

TABLE 42

COMPARISON OF STATE ALLOWANCES TO COSTS IN NON-METROPOLITAN AND METROPOLITAN COUNTIES

County	Number Transported	Resident	Non-Resident	% Non-Resident	Cost	Allowance	% State Allowance to Cost
			Non-Metropolitan				
Allegan	4,618	3,970	648	14.0	$ 218,843.71	$153,232.88	69.1
Delta	2,974	2,932	42	1.4	145,006.67	124,268.81	85.6
Gratiot	2,500	1,346	1,154	46.1	138,967.12	57,391.66	41.3
Kalkaska	460	326	134	29.1	34,206.42	19,580.24	57.2
Ottawa	5,001	3,901	1,101	21.9	190,088.21	87,694.85	46.1
Shiawassee	3,228	2,082	1,146	35.5	173,346.76	81,180.81	46.7
Van Buren	5,469	4,576	893	16.3	234,067.37	165,104.88	70.5
TOTAL	24,220	19,133	5,117	21.1	$1,134,526.26	$688,453.73	60.6
			Metropolitan				
Macomb	20,236	20,183	53	.26	$ 590,150.39	$422,538.06	71.5
Oakland	47,011	46,974	37	.08	1,332,914.32	963,054.63	72.2
Wayne	41,215	41,123	92	.22	1,246,683.10	683,421.70	54.8
TOTAL	108,462	108,280	182	.16	$3,169,747.81	$2,069,014.39	65.2

the transporting districts in each county by non-resident pupils. In most cases this payment was made by non-transporting districts for secondary students attending some high school. In some cases the payments were made by students or their parents. The inclusion of payments by others markedly effects the results of the program of reimbursement. Table 43 contains payments by others as well as information on the number of non-resident children transported. The inclusion of the additional information permits some meaningful observations. It was immediately apparent that the non-metropolitan counties were favored in terms of reimbursement of costs. Every non-metropolitan county exceeded the three densely populated counties in percentage of reimbursement. In one case (Gratiot County) the payments by others exceeded the state allowance. In every county except Delta, the payments by others represented a substantial figure in relation to the state allowance. Even with the inclusion of Delta County, the totals of the seven non-metropolitan counties showed this payment by others was more than 40 per cent of the state allowance. On the other hand, the payments by others in the metropolitan counties showed only .004 per cent of the state allowance. The relationship of the payments by others to the non-resident students transported could be seen at a glance. More than a fifth (21.9%) of the non-metropolitan students were non-residents, while much less than one per cent (.16%) of the metropolitan students were non-residents. It would

TABLE 43

COMPARISON OF STATE ALLOWANCES, PLUS PAYMENTS BY OTHERS, TO TOTAL OF PUPIL TRANSPORTATION COSTS IN NON-METROPOLITAN AND METROPOLITAN COUNTIES

County	% Non-Resident	Total Costs	Payment By Others	State Allowance Plus Payment by Others	% of Total Cost
		Non-Metropolitan			
Allegan	14.0	$ 218,843.71	$ 37,763.21	$ 190,996.09	87.2
Delta	1.4	145,006.67	2,134.01	126,402.82	86.4
Gratiot	46.1	138,967.12	61,723.61	119,114.87	85.7
Kalkaska	29.1	34,206.42	6,942.41	26,522.65	77.5
Ottawa	21.9	190,088.21	59,467.91	147,162.76	77.4
Shiawassee	35.5	173,346.76	63,884.00	145,064.95	83.6
Van Buren	16.3	234,067.37	50,089.33	215,194.21	91.9
TOTAL	21.1	$1,134,526.26	$ 282,004.62	$ 970,458.35	85.5
		Metropolitan			
Macomb	.26	$ 590,150.39	$ 1,882.76	$ 424,420.82	71.9
Oakland	.079	1,332,914.32	1,869.96	964,924.59	72.3
Wayne	.22	1,246,683.10	2,433.13	685,854.83	55.1
TOTAL	.16	$3,169,747.81	$ 6,185.85	$2,075,200.24	65.4

appear it was financially advantageous for a transporting district to include a large proportion of non-residents. The policy of the State Department of Public Instruction to permit transporting units to charge 100 per cent of per capita cost for non-residents helped to explain this condition. It was obvious a transporting unit would not be subject to the penalties for carrying non-eligible students for their membership in another school district would be likely to preclude the possibility of the students being located within one and a half miles of the school they attended. The addition of the payments occasioned by the inclusion of non-residents brought every non-metropolitan county above the percentage of reimbursement of any metropolitan county. The average of the out-state counties was 85.5 per cent, while the metropolitan counties was 65.4 per cent, or more than one-fifth more than the densely populated counties. The small percentage of the latter counties was partly occasioned, of course, by the small number of non-residents transported.

If the percentage of reimbursement was raised by the transportation of non-resident students, what happens when non-eligible students were transported? The term "non-eligible" denotes a penalty for such transportation. This penalty was either $8.00 per student, or one-fourth of the per capita cost, whichever was higher. It was obvious the greater the number of non-eligible students transported, the smaller the amount of reimbursement paid. Table 44 which

TABLE 44

COMPARISON OF PERCENTAGE OF NON-REIMBURSABLE STUDENTS TRANSPORTED TO PERCENTAGE OF REIMBURSEMENT FOR TRANSPORTATION IN NON-METROPOLITAN AND METROPOLITAN COUNTIES

County	Number Non-Reimbursable Students	% Non-Reimbursable	Cost	State Allowance Plus Payment by Others	% Total Allowance
			Non-Metropolitan		
Allegan	259	5.6	$ 218,843.71	$ 190,996.09	87.2
Delta	259	8.6	145,006.67	126,402.82	86.4
Gratiot	188	7.5	138,967.12	119,114.87	85.7
Kalkaska	126	27.3	34,206.42	26,522.65	77.5
Ottawa	1,527	35.3	190,088.21	147,162.76	77.4
Shiawassee	287	8.8	173,346.76	145,064.95	83.6
Van Buren	342	6.0	234,067.37	215,194.21	91.9
TOTAL	2,988	12.3	$1,134,526.26	$ 970,458.35	85.5
			Metropolitan		
Macomb	5,925	29.2	$ 590,150.39	$ 424,420.82	71.9
Oakland	12,676	26.9	1,332,914.32	963,054.63	72.3
Wayne	14,780	35.8	1,246,683.10	683,421.70	55.1
TOTAL	33,381	30.7	$3,169,747.81	$2,075,200.24	65.4

shows the number and per cent of non-reimbursable students and total allowances (state allowance plus payment by others) bears out this observation. The metropolitan county (Wayne) with the highest per cent of non-reimbursable students received the lowest per cent of net reimbursement. The non-metropolitan county (Ottawa) with the highest per cent of non-reimbursable students received the lowest per cent of net reimbursement. Ottawa and Kalkaska Counties appeared to experience an unusually high ratio of non-reimbursable students. Michigan transportation officials attributed this to the situation of their being caught in the change-over year with a lot of suburban students within one and a half miles of the schools. In spite of the penalties, those two non-metropolitan counties had a percentage reimbursement which exceeded that of any of the metropolitan counties.

Optimum Reimbursement Through Code Allowances

The statistics presented would indicate that to achieve the optimum reimbursement a school district should strive to transport many non-resident and few, or no, non-reimbursable students. While this practice might result in the highest possible percentage of reimbursement from state funds, it is not necessarily, or even likely, the best policy for a school to follow. In the opinion of the writer, a school should not attempt to operate a transportation system exclusively from state funds. The objective of a transportation

system is to improve current educational opportunity by utilizing school buses to bring students and educational facilities together. This will cost money. A school district should embark upon school transportation venture with the expectation that it will consume some district funds but it will also wisely oversee that the consumed funds are not wasted. It may be to the district's advantage to see that more non-reimbursible students are conveyed. There were primarily five reasons why a school district should consider transporting non-eligible children:

1. It is not really costly. The code provides that these students can be conveyed at a minimal cost. Only $8.00, or one-fourth the per capita cost, was deducted from the gross allowance if they were carried. In relation to the total cost, the charge for carrying a non-eligible student was purposely placed at a low figure to entice school districts into transporting them. For example, Fennville carried 20 ineligible students in 1958-1959. With a per capita cost of $39.23, this cost the school district less than $200.00. There was a total of 604 students transported at a cost of $20,301.47. This means that more than three per cent of the students were carried at less than one per cent of the cost. In relation to the total cost, the price of carrying a few non-eligible students was surprisingly low.

2. The practice of carrying deserving non-eligible students would likely improve public relations. The practice of some schools in making a red line on the roadway and

saying, "we will take no one beyond this line" is not likely to make friends. All school patrons are taxpayers and most taxpayers resent being denied services if reasons for that service can be forthcoming.

3. The practice of carrying non-eligible students can result in better utilization of school buses. It permits laying out bus routes so that a full load can be carried. In the event more than a full load develops, arrangements could be made for multiple trips. A transportation program involving the use of multiple trips bringing each child as close to the bus route has possible as proved not only feasible but economical from the standpoint of cost per person.

4. The safety of boys and girls can not and should not be overlooked. Recent periodicals emphasize this point as a factor in determining bus policy.[1] Many students are forced to walk over congested highways along hazardous routes. A good program of safety for students who live within the mile and a half limitation can not only result in willingness on the part of school patrons to pay increased taxes for transportation, but also a desire for improvement along other educational lines.

5. The elimination of the stigma often attached to those who can and those who cannot ride the buses is another,

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[1]Emory Stoops, "Determining Your School Bus Policy," Overview, Vol. 1, No. 4 (April,1960),p. 66; Allen P.Jeffries, "Overloading Buses Must Be Prevented," The Nation's Schools, Vol. 62, No. 2 (August, 1958), p. 43.

although perhaps minor, effect of transporting non-eligible students. The application of the yardstick of the "welfare of the child" theory is preferable to the fastidious use of a tape measure in determining whether or not a child can ride. The absence of discrimination on account of distance is a help to the student who is affected by the taunts of other children.

Limitation of Code Allowance

One of the bad features of the operations of the Transportation Code was that it acted indirectly as a financial deterrent to school reorganization. Some school superintendents who have experienced the financial pinch of transportation, realize full well they can charge and receive full per capita costs of transportation from the sending districts. If these sending districts were to annex to the receiving transporting district, the amount of reimbursement from state funds would be subject to the general restrictions of the code. In addition, there was always the strong possibility of an "across the board" percentage cut if the total state obligations exceeded $12,000,000. As if the probability of the two types of cuts were not penalty enough, there is a time lag of some six months to a year before transportation payments are included in state aid warrants. It is little wonder then that many receiving districts prefer to bill the sending districts twice during the current year and collect full per capita costs. The net result is that

school district organization so ably advocated by Thaden and others,[1] has been minimized by the reactions of the receiving districts to the methods of payments for transportation. It is not right that a school does receive more money for transporting non-resident students than resident students. The non-residents should be subject to the same restrictions as the resident students.

Summary

The democratically inspired Transportation Code of 1957 was the result of Department of Public Instruction action to reconcile rising pupil transportation costs and legislative action limiting the payment of state aid to $12,000,000, and imposing additional walking requirements on the students. The code, as adopted, included provisions for payments of state aid on four distinct types of allowances, the continuance of the maximum allowance of $60.00 per child and for pro rata cuts in combined allowances if the costs exceeded $12,000,000.

The analysis of reimbursement on the basis of the four allowances revealed two large areas and two smaller areas. Operation, the greatest allowance, was generally twice as large as capital outlay. Insurance was limited to $42.00 per bus, and driver education was even smaller than that amount.

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[1] J. F. Thaden, Equalization Educational Opportunity Through Community School Districts, Special Bulletin 410 (East Lansing, Michigan: Michigan State University, January, 1957), p. 5; H. A. Dawson and Floyd W. Reeves (co-chairman), Your District School (Washington, D.C.: National Education Association, 1948), p. 15.

The transportation code, as amended in 1957, is operating satisfactorily within reasonable expectations.

1. The Code has kept the cost down to the legislative limits. The school districts have been made aware that a percentage cut is being made to comply with legislation. The school districts know that improvements in the economical operation of their system is to their best interest. They know, too, that lax operation and accounting will lessen the amount of money available for other aspects of the educational program.

2. During the time the Code has been in operation more children have been transported, and there is every reason to believe this condition will continue.

3. The operation of the Code, particularly in terms of the $14.00 allowance per seat, per year tends to keep down the cost of transportation by more economical bus purchasing.

4. The Code invites the exercise of local option. It permits school districts to determine what students shall be transported by setting up a schedule deduction for transporting pupils within a mile and a half of the school building attended.

5. The operation of the Code is resulting in more study with recommendations for action. In addition to this study, many other related studies are currently in progress.

6. The Code is flexible. Announcements have been made that portions are subject to review. This places

responsibility on those who advocate a change. They must come up not only with suggestions but facts supporting their recommendations for change. Current legislative recommendations are more concerned with raising the amount available for increased transportation requirements than with changing the provisions of the code.

Recommendations

Because of the short elapsed time since the inception of the Transportation Code, very few changes should be made. Three of the four allowances should be left unchanged. The Allowance for Insurance, or $42.00 per operating bus, is ample to meet the needs of insurance. The results of the survey show that adequate specifications with invitations for bids can result in insurance premiums of less than the limitations. The inclusion of items such as collision and pupil accident can be eliminated unless the school district insists upon them, and is willing to increase local tax levies in order to have them.

The Allowance for Bus Driver Education is flexible enough to include increases in this essential aspect of transportation. While it is the smallest allowance, it likewise is the one which has the best chance for expansion and still be extremely reasonable.

The Allowance for Capital Outlay is sufficient at the present time. With the expectation that preventive maintenance practices can extend the life of a school bus beyond

the normal seven year figure, the $14.00 per seat, per year feature is enough remuneration. The socialistic feature of the "state is paying for it anyway" has been at least partially eliminated. More evidence indicating spiralling inflation is required before the cost per seat is increased.

The Allowance for Operation is the most important allowance and the one which merits some change. The evidence that mileage allowances in sparsely settled areas is exceeding the actual costs is an indication of a need for change. The need is apparent only in the two primary areas of little density; those with less than one student per mile and those with more than one, but less than two per mile. The obvious answer is to make a small reduction. The question is, what constitutes a small reduction? In order to prevent the use of fractions of cents, each of the two most sparsely settled category might be reduced by one cent a mile. This would result in the following formula:

Less than 1 student per mile	$.17
1 but less than 2 students per mile.	.19
2 but less than 3 students per mile.	.22
3 but less than 4 students per mile.	.24
4 or more students per mile . . .	.26

Critics might point to the large gap between the second and third category as being too large. There might be too much incentive for transporting district to include just enough students to place them over the second category and into the third. The fact of the matter is that a district does

not normally consider that aspect and does not have sufficient control over the number of students in its area even if it had the inclination to do so. If spiralling costs can justify a legislative increase in the allotment beyond the $12,000,000 limitations a more meaningful change would be to increase the last three categories by one cent each and leave the first two as they are at present. In that case, there would still be a three cent gap between the second and third step. However, in the event that the allowance exceeded the cost, the policy of using cost rather than allowance would take precedence. From that point of view, there would be no harm done in leaving the figures where they are at present until further study shows the need and direction for revision.

The operation of the code should be altered so that it is not beneficial for transporting districts to carry non-resident students. The adoption of the current House Bill 91 which requires every student to be a resident of a school district which operates a K-12 program would achieve this result. If the time element is too great before the enactment of a legislative program, then the sending district should have deducted from the transportation portion of the state aid payments an amount equal to the penalties assessed the transporting unit.

CHAPTER VIII

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

From an intensive search of the literature regarding pupil transportation, as well as from the original research on the local and state level, there is one outstanding conclusion. This conclusion is--pupil transportation is on the increase and there is no likelihood of any change of direction in the foreseeable future. Nowhere in the literature has there been any suggestion of a decrease nor any mention of the pending existence of any factor that would tend to diminish the importance of the transportation of boys and girls. On the contrary, current periodicals offer ample evidence of the widespread effects of pupil transportation in terms of such varied educational ventures as school building planning,[1] emergency school disaster instructions,[2] and the extension of the instructional school day.[3]

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[1]Merton J. Turck, Jr., "Parking and Transportation--Its Relation to School Site," Michigan School Board Journal, Vol. 3, No. 2 (May, 1957), p. 7.

[2]David H. Soule, "Tornado Procedures for School Bus Operators," School Bus Trends, April, 1957, p. 43.

[3]Merton J. Turck, Jr., "The School Bus Ride--An Extension of the Instructional Day," Mass Transportation, Vol. 52, No. 2 (February, 1956), p. 43; Velma Linford, "Making the Bus Ride A Learning Experience," School Bus Trends, Vol. 5, No. 2 (April, 1960), p. 12.

The ever increasing stature of pupil transportation on the state level is pointed up by the National Survey of Pupil Transportation covering 37 states, in which the following major hypothesis was validated:

> THE FUTURE OF PUPIL TRANSPORTATION ON A NATIONAL SCALE AS EVIDENCED BY THE OPINIONS OF STATE PUPIL TRANSPORTATION DIRECTORS, WILL BE CHARACTERIZED BY AN INCREASE BOTH IN THE NUMBER OF PUPILS TO BE TRANSPORTED AND IN THE PERCENTAGE OF THE BUDGET DEVOTED TO TRANSPORTATION.

The following conclusions concerning pupil transportation on the national level were verified:

1. that the per capita cost would increase;
2. that along with a lack of accurate accounting and numerous opposing outcries there is a period of conflict and uncertainty regarding the practice of using public funds for non-public transportation;
3. that the percentage of state aid would remain about the same;
4. that the school administrative units would be larger;
5. that there was a slight trend toward a modest increase in the degree of state regulation;
6. that there is a continued trend toward school district ownership of school buses;
7. that as the number of school administrative units decrease there is a corresponding increase in the need for pupil transportation;

8. that the following six areas show promise either toward cost savings, improved quality, or better understanding of pupil transportation:
   a. group or joint purchasing buses and supplies
   b. school bus insurance studies
   c. school transportation liability studies
   d. preventive maintenance practices on school buses
   e. adoption of recommended and tested state practices resulting in lower costs or improved quality
   f. bus driver education studies.

A disconcerting aspect of the study was the revelation that two hypotheses were not only invalid, but there was a trend toward a reverse application. The two hypotheses were:

1. THAT AS THE BUS FLEET INCREASES IN SIZE THERE IS A CORRESPONDING DECREASE IN THE COST OF OPERATION.
2. THAT THE USE OF SCHOOL MECHANICS RESULTS IN A DECREASE IN THE UNIT COST OF TOTAL MAINTENANCE.

All other hypotheses were verified by data.

The sting of the invalidation of the theory that the use of school mechanics reduced maintenance costs was removed when the hypothesis THAT THE USE OF SCHOOL MECHANICS LOWERED THE COST OF GASOLINE, OIL, AND TIRES was verified. The per bus savings of these three items almost erased the increased cost of total maintenance when school mechanics were used.

Another conclusion which was apparent early in the study was that metropolitan schools differed from non-metropolitan schools in that they operated on a relatively lower cost per capita basis and a higher cost per mile basis than did the out-state schools. The chief reasons for this distinction was that the metropolitan schools were able to convey many more students per bus largely through the density of population and through the utilization of multiple bus routes.

As a follow-up of the study of density, the conclusion was reached that regardless of the classification of the county, into a metropolitan or non-metropolitan category, there were variations of population within a county which determine whether or not multiple routes were applicable. The further conclusion was reached that schools which average less than 100 annual miles per student should consider and practice the use of multiple routes for buses as a means of improving the quality and lowering the cost of pupil transportation.

The study revealed that better record keeping is essential. This is particularly true in smaller bus fleets where glaring omissions were evident. The utilization of additional personnel as an administration cost usually results in better accounting. In connection with inadequate records, the study revealed that many schools were disregarding the spirit if not the letter of the regulations regarding state gasoline tax rebate. Many schools were

either not taking advantage of the saving or were ignoring making the savings apparent on the records. If the six cents per gallon gasoline savings were not realized the responsible school officials were indulging in unsound business practices; if the savings were realized and not accounted for in the records of the school, the officials were exposing themselves to extreme criticism.

Increased use of bids for both capital outlay and operational needs, joint purchasing where practicable, and increased standardization are reiterated in various parts of the study as a means of saving taxpayers money in pupil transportation.

The study revealed Michigan schools are finding the 1957 amended Transportation Code generally satisfactory as an instrument governing the transportation of pupils and providing state financial aid for so doing. The Code is flexible in that there were provisions for change, but no changes have been made. The Code is optional in that the local district determines:

1. whether or not there will be pupil transportation;
2. which pupils within the district are to ride;
3. whether or not there will be non-resident transportation;
4. whether or not non-public students shall be conveyed;
5. whether or not non-eligible students shall be conveyed;

6. the length of time school buses shall be used;
7. the amount and type of state allowances they wish to be entitled to as a result of pupil transportation.

The evidence showed that only in the case of sparsely settled areas where many miles per student were amassed, did the total allowance exceed the cost. In these cases, actual costs rather than allowances controlled.

Recommendations

1. That the Department of Public Instruction prepare and publish a handbook for the perusal of boards of education. The handbook should contain recommended practices for transporting school districts together with a list of practices which should be avoided.

2. That a study be made of the use of carefully selected, well-trained student drivers as a means of reducing pupil transportation costs. An essential adjunct of this study would of necessity be the enabling legislation to permit this procedure.

3. That a study be made of the possibility of effecting pupil transportation capital outlay savings by such means as the purchasing or leasing of school buses through a state or county governmental agency.

4. That a follow-up study be made of the same school districts found in Table 26, or other school districts, to determine the effectiveness of school mechanics as opposed

to private garages on the basis of the following criteria:

A. The mean years of full time service of school buses serviced by the two types of maintenance;

B. The nature and extent of service breakdowns by both types of maintenance service;

C. Complete maintenance costs over the life span of buses on both types of maintenance;

D. The continuance or discontinuance of either type of maintenance.

E. An objective comparison of satisfactory performance of school buses from the standpoint of parents, pupils, and school officials by the two methods of school bus maintenance.

5. That on the county level a study be made of pupil transportation costs and other pertinent transportation data through the office of the county superintendent of schools. Such factors and conclusions as may be meaningful should be compiled and disseminated to local districts, together with recommendations for improvement at the state level.

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APPENDIX

APPENDIX A

NATIONAL SURVEY OF PUPIL TRANSPORTATION

General Information

1. Please indicate the total number of school districts in your state on June 30, 1957._____

2. Please indicate the total number of school districts in your state on the above date engaged in the transportation of pupils to and from school at public expense._____

3. Please indicate the total number of school district owned and operated school buses in 1956-57._____

4. Please indicate the total number of privately owned and operated school buses in 1956-57._____

5. Please indicate the total number of pupils (K-12) enrolled in the public schools of your state._____

6. Please indicate the total number of pupils (K-12) transported at public expense on school district owned and operated school buses._____

7. Please indicate the total number of pupils (K-12) transported at public expense on privately owned and operated school buses._____

8. Please indicate the total number of pupils (K-12) transported at public expense in all other types of vehicles._____

9. Please indicate the total number of non-public school pupils (K-12) transported at public expense._____

10. Please indicate the total cost of transportation less capital outlay for all pupils transported at public expense on school district owned and operated school buses._____

11. Please indicate the total operational cost of transportation for all pupils transported at public expense on privately owned and operated school buses._____

12. Please indicate the total operational cost of transportation for all pupils transported at public expense on vehicles other than school buses._____

13. Please indicate the total annual mileage for all school district owned and operated school buses in your state._____

14. Please indicate the total annual mileage for all privately owned and operated school buses._____

15. Please indicate the minimum number of days school must be in operation in your state to meet legal requirements._____

16. Please indicate how far a pupil must live from the school he attends to qualify for transportation aid from state sources. (K-6)_____(7-12)_____

17. Please indicate how far a pupil may be required to walk to meet a school bus. (K-6)_____ (7-12)_____

18. Do pupils living within corporate limits of a municipality qualify for transportation aid from state sources?_____yes _____no

19. Is it compulsory to transport all pupils who meet the requirements as listed in question 16, 17 and 18?_____yes _____no

If your answer is "no" please enumerate exceptions.

B. Transportation costs

20. How does your state determine transportation aid to local school districts? (Please attach formula if your state has one)

21. Please indicate the per cent of total operational costs (excluding all capital outlay) for transportation of pupils for (a) local school districts and (b) state sources for each of the following years

	(a) local school districts	(b) state sources
1948	_____%	_____%
1950	_____%	_____%
1952	_____%	_____%
1954	_____%	_____%
1956	_____%	_____%

22. Please indicate upon what basis, if any, your state has developed a formal organization for joint or group purchasing of the following operational supplies for transportation.

	statewide basis		regional basis		county basis	
	yes	no	yes	no	yes	no
gasoline	____	____	____	____	____	____
tires	____	____	____	____	____	____
repair parts	____	____	____	____	____	____
oil	____	____	____	____	____	____
other (specify)	____	____	____	____	____	____

23. Where you have indicated "yes" for question 22 do you favor the continuation of the program? _____yes _____no

24. If your answer was "no" for question 22 do you favor the formation of a formal organization for joint or group purchasing of operational supplies for transportation on a statewide basis _____yes _____no, regional basis _____yes _____no, county basis_____yes _____no.

Insurance

25. In the following types of insurance please check those types which: (1) your state requires the school districts to carry; (2) you think the school districts should carry; (3) you think the school districts should not carry.

	(1) Required to carry	(2) Should carry	(3) Should not carry
Public liability	_____	_____	_____
Property damage	_____	_____	_____
Collision on transporting vehicle	_____	_____	_____
Fire	_____	_____	_____
Theft	_____	_____	_____
Pupil Accident	_____	_____	_____
Medical payment to passengers	_____	_____	_____
Liability for bus drivers	_____	_____	_____
Other	_____	_____	_____
Other	_____	_____	_____

26. In general are school bus insurance needs being secured on the basis of sealed bids in your state at the present time?_____yes _____no

27. Do the laws of your state indicate that school districts should accept liability for injury to pupils riding on school buses?_____yes _____no

28. Does the trend in court decisions in your state indicate an increased liability on the part of the school district for injuries to pupils transported?____yes ____no

29. Please indicate the number of suits instituted in the courts of your state on behalf of pupils injured while being transported to and from school since 1950._____

30. Please indicate how many of the suits instituted in question 29 were successful in obtaining a judgment against the school district or its agencies._____

31. Please indicate against whom the judgment was issued in the number of successful suits listed in question 30._____

Capital outlay

32. In your opinion what percentage most nearly represents the ideal contribution of the local school district to the cost of the following items in transportation with the state paying the remainder: (please check one answer in each column)

Capital outlay	Operation
0% _____	0%_____
25% _____	25%_____
50% _____	50%_____
75% _____	75%_____
100% _____	100%_____

33. Please indicate upon what basis, if any, your state has developed a formal organization for joint or group purchasing of capital outlay needs such as school buses for pupil transportation.

	statewide basis		regional basis		county basis	
	yes	no	yes	no	yes	no
School buses	____	____	____	____	____	____

34. If your answer was "yes" for question 33 do you favor the continuation of the program?_____yes _____no

35. If your answer was "no" for question 33 do you favor the formation of a formal organization for joint or group purchasing of capital outlay needs such as school buses on a statewide basis _____yes _____no, regional basis _____yes _____no, county basis _____yes _____no.

Bus Driver Education

36. Is there a statewide program of school bus driver education in your state? _____yes _____no.

37. If the answer to question 36 is "yes" who provides this program?

_____State Department of Public Instruction

_____Colleges and/or universities

_____Combination of Department of Public Instruction and colleges

_____Other (please specify)

38. What was the approximate total cost of the bus driver education program in 1956-57? _____

39. Please indicate how much of the amount in question 38 was paid by the local school districts._____ How much of this amount was paid by state funds?_____

40. Are women employed as school bus drivers in your state? _____yes _____no

41. Are high school students employed as school bus drivers in your state?_____yes _____no

42. Which have proven most successful in your state as school bus drivers?

Men_____

Women_____

Students_____

No difference between men and women_____

No difference between women and students_____

No difference between men and students_____

No difference between men, women or students_____

43. Which have proven least successful in your state as school bus drivers?

Men_____

Women_____

Students_____

No difference between men and women_____

No difference between women and students_____

No difference between men and students_____

No difference between men, women or students_____

44. What age limits would you recommend for school bus drivers in your state?

Men from _____ to _____

Women from _____ to _____

Students from _____ to _____

45. Do you favor an expanded program of school bus driver education?_____yes _____no

46. Has your State Department of Education established a school bus driver education program?_____yes _____no

Other needed information

47. In your opinion what steps could be taken to reduce transportation costs through preventive maintenance?

48. Have you discovered any practices in pupil transportation which you would recommend for acceptance in other states which might result in lowered costs or improved quality of transportation?

49. Does your state provide additional financial aid for the transportation of mentally or physically handicapped pupils enrolled in special education programs?
_____yes _____no

If your answer is "yes" please indicate the amount of additional aid for:

A. Mentally handicapped pupils. _____

B. Physically handicapped pupils._____

. Put

50.

51.

52.

53.

54.

55

56

57

D. Future of pupil transportation

Please indicate what you expect your state will likely be doing in the next 10-20 years in the following areas (estimated comparison of 1975 or thereabouts with the present).

	decreased	about the same	10% more	25% more	40% more	other(spec if
50. Total number of pupils transported	____	____	____	____	____	____
51. Per capita cost of transportation	____	____	____	____	____	____
52. Use of public funds for non-public transportation	____	____	____	____	____	____
53. Percentage of total transportation costs financed by state funds	____	____	____	____	____	____
54. Size of administrative units	____	____	____	____	____	____
55. Degree of state regulation in pupil transportation	____	____	____	____	____	____
56. Percentage of school district owned buses	____	____	____	____	____	____
57. Percentage of total school budget for transportation	____	____	____	____	____	____

SECTION A

DISTRICT OWNED OR LEASED BUSES

1	2	3		4	5	6	7	8	9	10
Bus No.	Drivers' Salaries	Gasoline		Tires	Other Supplies & Repair Parts (school garage)	Maintenance at Private Garages		Depreciation of Bus (1/4 of Cost)	Interest Charge	Total Cost (Add all items)
		Gallons	Cost			Repair Parts	Labor			
OTAL										

Insurance:	Public Liability	Property Damage	Collision	Fire, Theft	Pupil Accident	Other	Total

Mechanic's salary..........

Supervisor's salary..........

Clerical salary..........

Oil and lubrication..........

Storage (number of buses stored________)..........

School garage operation..........

Garage equipment and repairs..........

Bus driver training (number of drivers________)..........

Feeder routes..........

Leases..........

OTAL..........

Parents and other persons..........

Bus companies..........

Board and Room..........

Bus drivers' salaries for extra trips..........

Extra miles travelled during year..........

Refunds to school districts..........

SECTION B

1	2	3	4	5	6	7	8	9
Bus No.	Name or Make of Chassis	Name or Make of Body	Year Purchased	Year Bus Manufactured	Engine No.	Amount Credited for Old Bus	Net Cost to District	Pupil Capacity

SECTION C

1	2	3	4	5	6	7	8	9	10
Bus No.	Distance Bus Travels During Day	Time of Bus Operation in Minutes	Average Number Pupils Transported	Average Number Resident Pupils on Bus Who Live Outside Corporate Limits and Over One Mile from School	Average Number Pupils More than Mile from Schoolhouse	Average Number Resident Pupils Transported Who Live a Mile or Less from School Attended	Average Number Resident Pupils Transported to Non-Public Schools	Average Number Non-Resident Pupils Transported	Total Miles Bus Travels During Year
TOTAL									

SECTION D

RECORD OF NON-RESIDENT PUPILS TRANSPORTED

1	2	3	4				5	6	7	8	9	10
District Number	Township	County	Average Number of Pupils Transported				Amount Charged	Total Amount Received from School Districts Current Year	Total Amount Unpaid	Total Amount Received from Parents and Others	Payments for Prior Years	Refunds
			(K—8)		(9—12)							
			P	NP	P	NP						
TOTAL												

SECTION E

REPORT OF EQUIPMENT SOLD

1	2	3	4	5	6	7	8
Chassis Body or Bus	Name or Make	Date Sold	To Whom Sold	Engine No.	Cash Received	Credited on New Bus	Years Used

ANNUAL TRANSPORTATION REPORT

District No.................................

Township of..County of..

....
(Name of District)

For Year Ending June 30, 19...........

Number of months school buses in operation..

Type of organization..

Superintendent..

Secretary..

Treasurer..

Address of School..

Non-High School Districts will please give name of High School to which pupils were transported.

Name of High School..

Signed..
(Supt. or Sec.)

APPENDIX C

RECOMMENDATIONS ON PERSONNEL, GARAGE FACILITIES, AND EQUIPMENT NECESSARY FOR BUS FLEETS OF VARIOUS SIZES

Item	Number of Buses to be Maintained									
	3-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50
Personnel										
Chief mechanic	0	0	0	0	1	1	1	1	1	1
Mechanic	0	0	1	1	1	1	1	1	1	1
Mechanic's helper	0	0	0	1	0	0	1	0	1	1
Driver-mechanic	1	1	0	0	0	0	0	0	0	0
Driver-helper	0	1	0	0	0	1	0	1	0	1
Garage Facilities										
Wash-lubrication			**	**	**	**	**	**	**	**
Repair stall (in addition to wash lubrication-paint stall)	1	1	2	2	2	3	3	3	3	4
Office space		**	**	**	**	**	**	**	**	**
Locker--toilet space	*	*	**	**	**	**	**	**	**	**
Parts room			**	**	**	**	**	**	**	**
Gasoline pump or pumps	*	*	**	**	**	**	**	**	**	**
Service truck		*	**	**	**	**	**	**	**	**
Garage Equipment										
5" - 7" portable sander			**	**	**	**	**	**	**	**
Paint spray gun			**	**	**	**	**	**	**	**
Universal brake lining machine			**	**	**	**	**	**	**	**
Brake cylinder hone			**	**	**	**	**	**	**	**
Hydraulic pressure bleeding equip.			*	*	*	*	*	*	*	*
Air gauge (truck type)	**	**	**	**	**	**	**	**	**	**
Voltmeter (6 volts)	**	**	**	**	**	**	**	**	**	**
Compression gauge			**	**	**	**	**	**	**	**
Vacuum pressure gauge			**	**	**	**	**	**	**	**
Hard valve seat grinder			*	*	*	**	**	**	**	**

* = Desirable; ** = Essential.

APPENDIX C--Continued

Item	Number of Buses to be Maintained									
	3-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50
Garage Equipment--Continued										
Valve refacer			*	*	*	**	**	**	**	**
Gear puller			*	*	*	**	**	**	**	**
Body tools			*	*	*	**	**	**	**	**
Hydraulic hand jack	**	**	**	**	**	**	**	**	**	**
Engine stand						*	*	*	*	**
Chain hoist			**	**	**	**	**	**	**	**
Air compressor	**	**	**	**	**	**	**	**	**	**
Electric drill and stand 1/2"			**	**	**	**	**	**	**	**
Tension wrench		**	**	**	**	**	**	**	**	**
Acetylene welding and cutting equipment		**	**	**	**	**	**	**	**	**
Electric arc welder						*	*	*	*	**
Bench grinder	*	*	**	**	**	**	**	**	**	**
Hand grease gun	**	**	**	**	**	**	**	**	**	**
Airoperated grease gun	**	**	**	**	**	**	**	**	**	**
Differential lube equipment	**	**	**	**	**	**	**	**	**	**
Oil-dispensing equipment	**	**	**	**	**	**	**	**	**	**
Creeper	**	**	**	**	**	**	**	**	**	**
Vise	**	**	**	**	**	**	**	**	**	**

Source: E. Glenn Featherston, School Bus Maintenance, U. S. Office of Education, Bulletin No. 2 (Washington, D. C.: Government Printing Office, 1948), pp. 40-42.