

5-30-1961

An Analysis of the Allocation of State Support to Pupil Transportation in New Mexico

Lloyd Laverne Cockrell

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THE RELATIONSHIP OF STATE SUPPORT TO PUPIL TRAJECTORY IN HIGH SCHOOL

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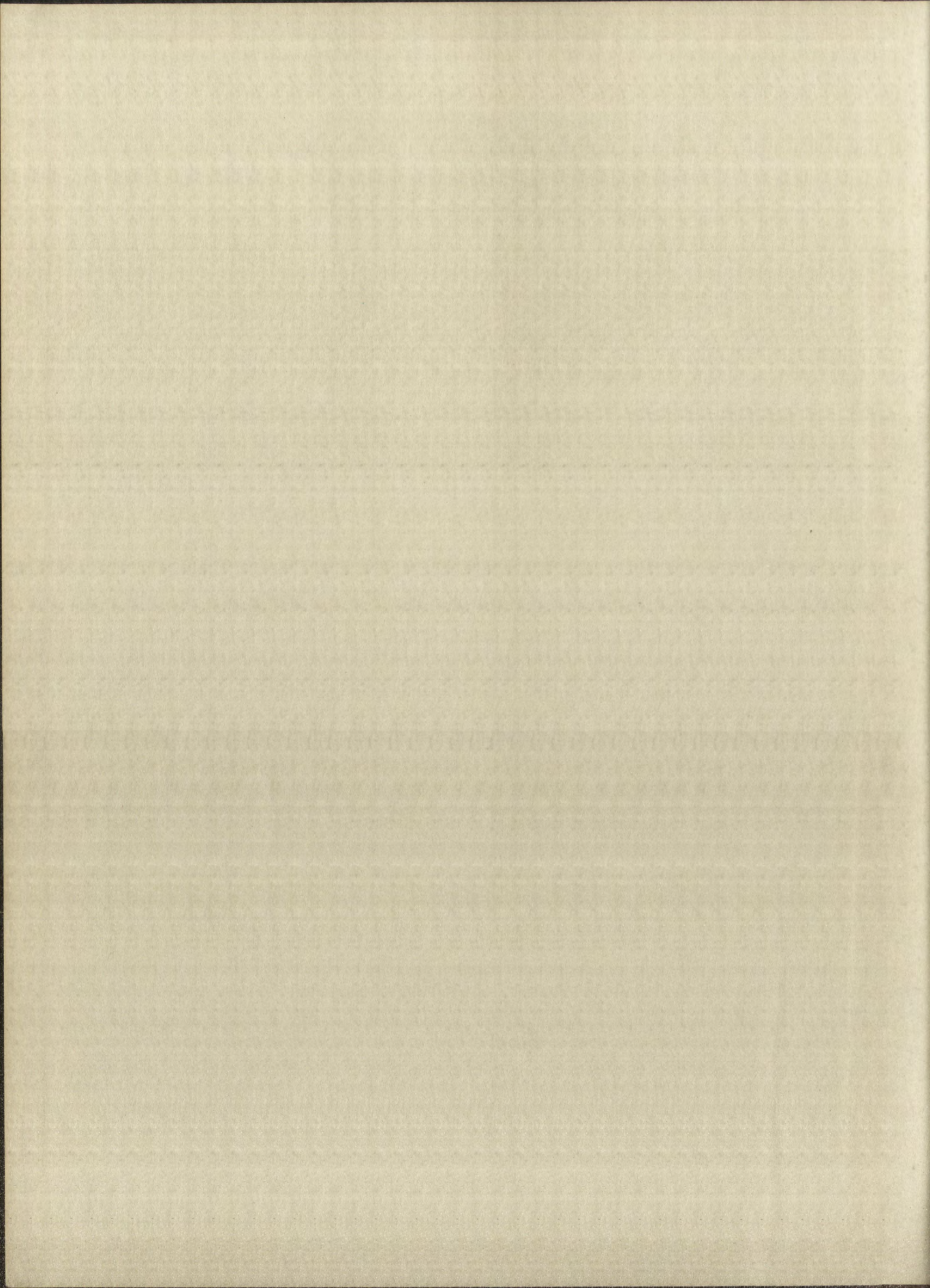
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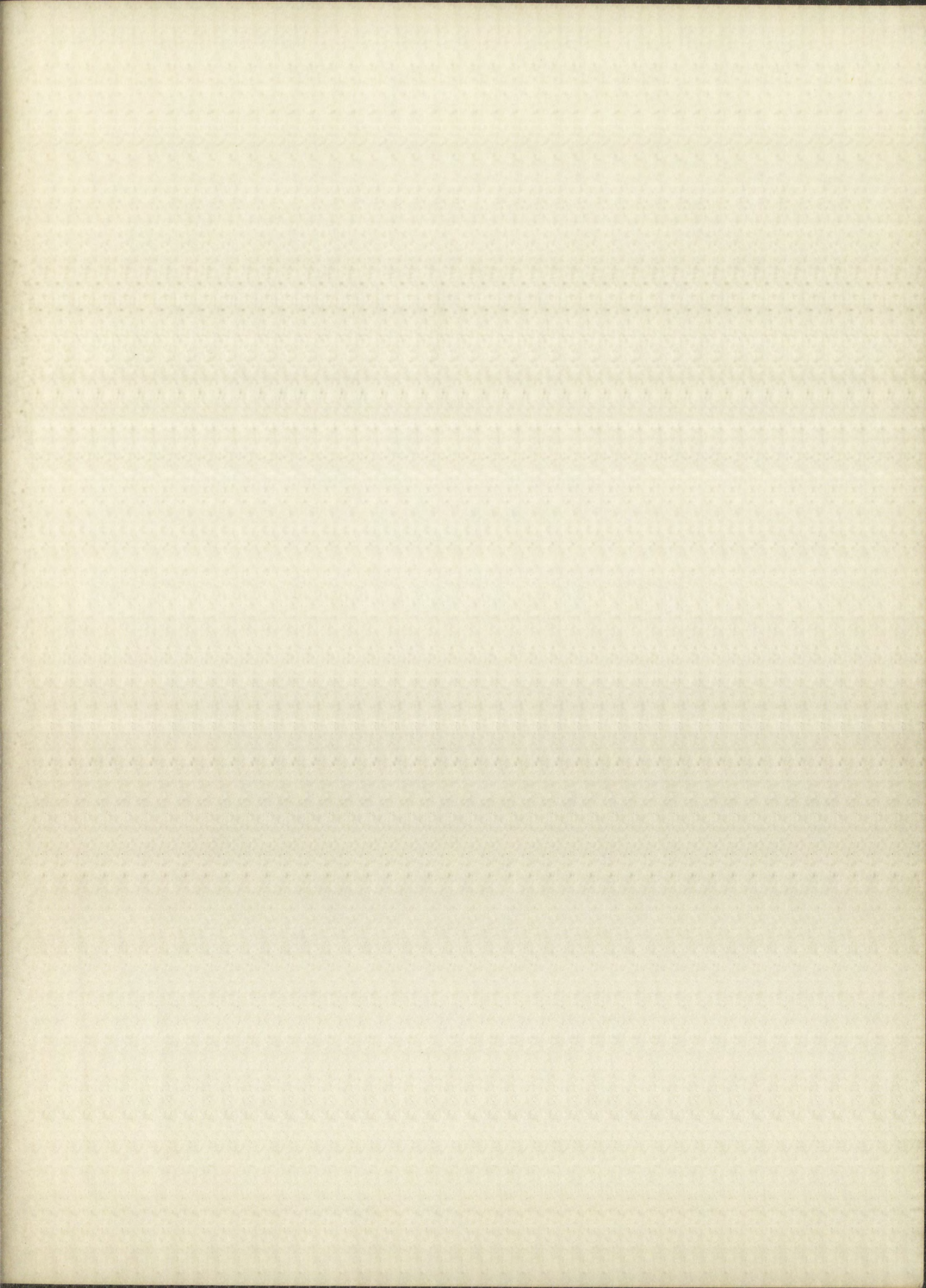
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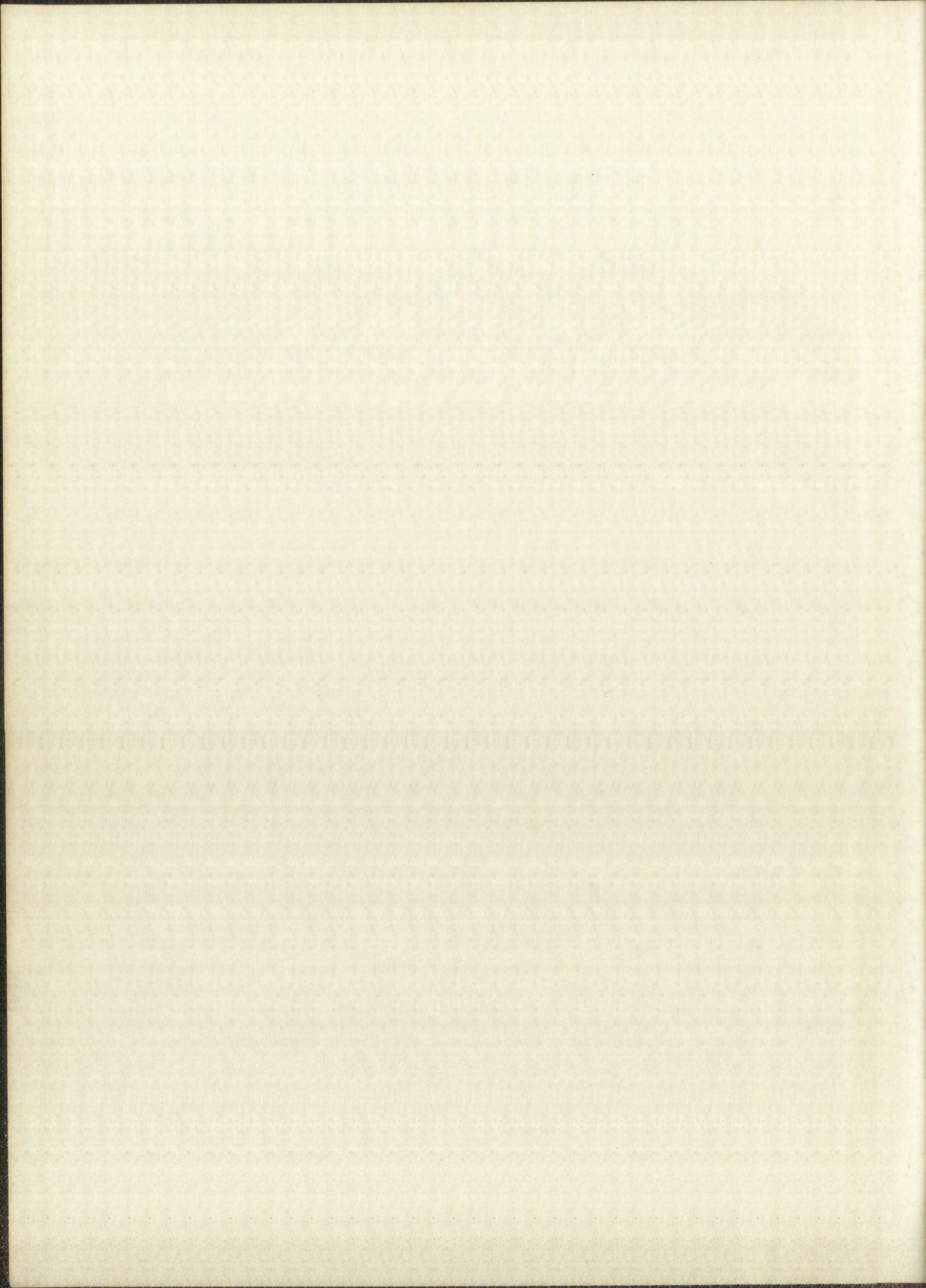
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AN ANALYSIS OF THE ALLOCATION OF
STATE SUPPORT TO PUPIL TRANSPORTATION
IN NEW MEXICO

A Dissertation
Presented to
the Faculty of the Graduate School
University of New Mexico

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by
Lloyd Laverne Cockrell

May 1961

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STATE SUPPORT TO PUBLIC TRANSPORTATION
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A Dissertation

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the Faculty of the Graduate School

University of New Mexico

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

by

Lloyd Lawrence Cockrell

May 1961

This dissertation, directed and approved by the candidate's committee, has been accepted by the Graduate Committee of the University of New Mexico in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

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DOCTOR OF EDUCATION

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ACKNOWLEDGMENTS

I should like to express appreciation to my Dissertation Committee and especially to the Chairman, Dr. Devoy A. Ryan, for his patience and guidance in the entire study.

To Mr. J. T. Reece, Director of Pupil Transportation in New Mexico, and to his office staff go thanks for their willingness to assist at all times.

Thanks are due the many school officials throughout New Mexico and others over the Nation for their contributions in time and information. The constant encouragement of my family is gratefully acknowledged.

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ACKNOWLEDGMENT

I should like to express my appreciation to the
Committee and especially to the Chairman, Mr. J. H. [?]
his patience and guidance in the [?]
To Mr. J. H. [?], Director of the [?]
New Mexico, and to the office staff, for their [?]
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CHAPTER I

THE PROBLEM AND THE STUDY

I. INTRODUCTION

The origin and development of pupil transportation in the United States has been influenced by social, economic, and technological factors. In an interdependent way, these factors have directed and controlled the evolution of pupil transportation. The reasons for transporting pupils to school are rooted in the elements of our rural culture and in the social, economic, and technological forces acting upon it. The American farmer, by living on the land he tilled, helped to introduce forms of rural social structure which made pupil transportation inevitable. The needs of early rural people were met by the establishment of social organizations such as churches and schools for carrying on activities beyond those of the economically self-sufficient family unit. The country neighborhood became the most influential pattern of association beyond the family.¹

As the simply structured way of life adapted to the impact of industrialism and technology, the economic interdependence of

¹Paul H. Landis, Rural Life in Process, (New York: McGraw-Hill Book Company, Inc., 1940), p. 30.

the farmer and the village businessman grew. These economic relationships opened the way to social relationships.

... In the early days a farmer's relationships with the trade center were primarily business ones, since it was the place where he went to market his produce and purchase supplies and equipment. With improved means of transportation farmers' contacts with these centers have become more frequent until today, in addition to being trade or business centers, they are becoming also community centers to which farmers have an increasing attachment.²

These secondary group associations through business channels developed into primary group associations through social organizations, such as the school and the church. The rural community which emerged was a socio-economic pattern established according to changing needs and conditions.

According to another sociologist, "thousands of farmers cannot break an inch of ground without first buying gasoline, kerosene, and fuel oil," an indication that the economic interdependence of the farmer and the businessman is complete.³

As needs and situations arose which required the combined efforts of the larger community to effect solutions, the town trading center became more and more important as a social center, leading to

²Douglas Ensminger and Longmore T. Wilson, "Rural Trade Areas and Villages," in Rural Life in The United States, (Alfred A. Knopf, 1955), p. 90.

³Landis, op. cit., p. 310.

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A needs and satisfaction type which typified the economic efforts of the larger community to effect solutions, the town trading center became more and more important as a social center, leading to

²Douglas Huntington and Lawrence T. Wilson, "Rural Trade Areas and Villages," in Rural Life in the United States, (Edited A. B. Smith, 1952), p. 90.

³Landis, op. cit., p. 110.

the establishment of rural high schools in the trading center towns. Some sociologists have found that the most reliable single measure of the boundaries of a rural community is the attendance area of the high school located in the community center.⁴ The existence of the rural community as a pattern of association preceded the development of public school transportation programs. Before transportation of pupils was recognized as a service to be provided by the schools, farmers cooperated in taking turns furnishing transportation to make the high school accessible to their children. Following this beginning, even before automobiles were developed as a practical means of transportation, school districts in some rural areas were hiring horse-drawn vehicles to transport pupils.⁵

The impetus furnished by the establishment of vocational agriculture and home economics classes in high schools served to place pupil transportation more in demand. Pupil transportation service enabled youths from the open country to take advantage of these vocational programs, thereby preparing themselves for more effective work on the farm. The demand for such programs has been one of the factors encouraging the consolidation of small high schools into larger units that could offer such programs.⁶ The

⁴T. Lynn Smith, The Sociology of Rural Life, (New York: Harper and Brothers, 1953), p. 444.

⁵National Education Association, Department of Rural Education, Pupil Transportation, 1953 Yearbook, (Washington, D.C.: The Association, 1953), pp. 1-7.

⁶Ensminger, op. cit., pp. 102-103.

the establishment of rural high schools in the existing center towns. Some sociologists have found that the most reliable single measure of the boundaries of a rural community is the attendance area of the high school located in the community center. The entrance of the rural community as a pattern of associated resources for development of public school transportation programs. Before transportation of pupils was recognized as a service to be provided by the schools, farmers cooperated in taking turns furnishing transportation to make the high school accessible to their children. Following this beginning, even better alternatives were developed as a practical means of transportation, school districts in some rural areas were using horse-drawn vehicles to transport pupils. The factors furnished by the establishment of vocational agriculture and home economics classes in high schools served to place rural transportation more in demand. Rural transportation service enabled youths from the open country to take advantage of these vocational programs, thereby preparing themselves for more effective work on the farm. The demand for such programs has been one of the factors encouraging the consolidation of small high schools into larger units that could offer such programs. The

U. S. Bureau of Education, *The Biology of Rural Life*, (New York: Harper and Brothers, 1933), p. 111.

National Education Association, Department of Rural Education, *Rural Transportation*, 1933 Yearbook, (Washington, D.C.: The Association, 1933), pp. 1-7.

connection between trends and conditions in rural America and the development of pupil transportation may at first appear to be remote. Actually, they are all outward manifestations of social progress in conjunction with economic and technological progress. Improvements in the living standards of rural people were achieved concurrently with educational improvements made possible by school consolidation and transportation. Changes in the rural scene have made pupil transportation both necessary and desirable. It is assumed in this study that during the development of the pupil transportation system in the State of New Mexico, patterns of expectations and behavior have been formed which are companions to the transportation system. It is assumed that tendencies or habits have been formed in connection with the legal structure which provides for pupil transportation in New Mexico and for the financial support of such transportation. Once these tendencies have been formed, they may be accepted as satisfactory without being subjected to careful consideration as to whether the maximum in desirable results is being achieved. Such a situation might be analagous to one in which a man climbs down into a well to drink each time he becomes thirsty, not realizing that time and energy could be saved by drawing water up to the ground level. Because the results are apparently satisfying, he continues to concentrate upon the immediate objectives, neglecting the long-range planning for economy of time and effort. It is the intent

connection between trends and conditions in rural America and the development of rural transportation may at first appear to be remote. Actually, they are all related and interdependent. Progress in connection with economic and technological progress, improvements in the living standards of rural people were achieved concurrently with educational improvements made possible by school consolidation and transportation. Changes in the rural scene have made rural transportation both necessary and desirable. It is assumed in this study that during the development of the rural transportation system in the State of New Mexico, patterns of expectations and behavior have been formed which are dependent on the transportation system. It is assumed that limitations or habits have been formed in connection with the legal system which provides for rural transportation in New Mexico and for the financial support of such transportation. These three limitations have been formed, they may be regarded as self-reinforcing without being subjected to external conditions as to whether the man is desirable results is being achieved. Thus a situation might be suggested to one in which a man climbs down into a well to drink each time he becomes thirsty, not realizing that time and energy could be saved by drawing water up to the ground level because the results are apparently satisfactory, he continues to concentrate upon the immediate objectives, neglecting the long-range planning for economy of time and effort. It is the intent

of this study to subject the structure which supports financially the pupil transportation program of New Mexico to a critical analysis on the basis of present results obtained as opposed to possible improvements in results.

The above paragraph has implications when attempting to carry out the overall task of transporting pupils to school. Immediate and long-range objectives of pupil transportation tend to be somewhat in conflict with each other when the problem of financial support of the transportation program is considered.

Acknowledgment is given for the excellent progress that has been made in bringing the pupil transportation system up to its present level. It is suggested, however, that legal and other circumstances may dictate the administration of the transportation program in a way that fails to incorporate the desired incentives toward economy in transportation. The serving of an educational need and the "efficiency principle" as described by Mort⁷ are said to be mutually exclusive, in that educational need exists independently of ability or desire to pay for the educational program which will meet that need.

When it has been established that a particular educational need exists, then if the only purpose is to fulfill that need, furnishing whatever services are necessary to fulfill it logically

⁷Paul Mort, State Support for Public Education, (Washington, D. C.: American Council on Education through Bureau of Publications, Teachers College, Columbia University, 1933), p. 37.

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follows. This approach, then, depending upon the number and effectiveness of impeding factors which tend to reduce the efficiency of such an approach, theoretically can be most satisfactory. However, the supplying of services to fulfill an educational need implies unlimited funds if the only purpose is to fulfill that need. When funds for furnishing services to fulfill this need are limited, the necessity for economy in practice enters the picture. Then some form of incentive toward economy in spending appears to be the solution. But, as the economy incentive begins to take effect, it is in conflict with the complete fulfillment of the educational need.

It can be safely assumed that the public schools of New Mexico will not soon have unlimited funds for the fulfillment of educational needs. Therefore, a balance between the fulfillment of educational needs and economy in expenditure must be maintained. The correct balance for any state has a philosophical basis in that arbitrary and subjective decisions will influence the determination of emphasis placed on both fulfilling educational needs and economy. The correct balance also has a social basis because traditions, precedents, innovations, and aspirations will influence the effectiveness of any plan derived and implemented for the purpose of maintaining this proper balance.

It is felt that a study dealing with the transportation of pupils needs to be done in broad perspective, rather than

examining one facet of the program in detail without due regard for the total program or for factors which bear upon the operation of the program. Lambert is a strong advocate of the broad perspective. He states that pupil transportation can be an important instrument for educational and social reconstruction and that the social, cultural, and occupational horizons of many pupils, especially those in junior and senior high schools, are changed significantly by their experiences in larger schools. The assumption is then presented that transportation of pupils is not only a resultant of social change but also an instrument by which social and educational change are brought about. Failure to see overall relationships in pupil transportation leads to fallacious thinking about the factors and forces that must be considered when attempting to determine necessary programs of transportation and necessary expenses to be allowed for transportation in a program of state support.⁸ Within the overall relationships in pupil transportation are several factors and forces which must be considered when attempting to determine and implement a state pupil transportation support formula which combines the proper degree of each criterion in order to produce the most acceptable results in practice. Some of these factors and forces are:

1. Recognized philosophy in the state as to the

⁸Asael C. Lambert, School Transportation, (Stanford, California: Stanford University Press, 1938), p. 117.

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1. Recognized philosophy in the state as to the

⁸ Basil G. Lapham, School Transportation, (Stanford, California: Stanford University Press, 1937), p. 117.

relative importance of pupil transportation and the financial responsibility the state has for supporting pupil transportation.

2. Sources and amounts of funds available to be applied to the support of pupil transportation.
3. Criteria used in determining each district's share of available funds for the support of pupil transportation programs.
4. Presence of reward or penalty for either extravagance or economy in spending of transportation funds at the local district level.
5. Philosophy evidenced in existing practices in the expenditure of transportation funds by the local board of education.
6. The extent to which school officials in charge of transportation desire to operate in a sound and businesslike manner.

It is not suggested that the above factors and forces can be measured with any degree of accuracy in most cases. Such factors can be identified to some extent. They can be discussed in such a way that relationships can be shown to exist which influence the actual operation of the pupil transportation system in New Mexico, and likewise influence the amount of public school funds expended for pupil transportation in the state.

relative importance of public transportation and
the financial responsibility the state has for
expanding public transportation.
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There are little or no factual data available upon which to base a discussion of the relationships these factors and forces have to one another, or to the total program of pupil transportation. This no doubt accounts in part for the lack of literature on the subject. This study assumes that the lack of data and literature does not detract from the importance of any of the factors or forces, and there may be reason to believe that the importance of the factors or forces can vary in relation to the frankness, clarity, and detail with which they are discussed.

II. THE PROBLEM

Statement of the problem. The purposes of this study were:

1. To analyze the New Mexico pupil transportation support formula as it relates to principles of sound educational finance as presented by recognized authorities in the area of educational finance;
2. To analyze the New Mexico pupil transportation formula in the light of pupil transportation support formulas for other states in which support formulas are generally considered, by authorities in the field, to be most satisfactory;

3. To analyze available data on pupil transportation costs from school districts owning and operating their own school buses with a view to determining a "reasonable cost" of pupil transportation under certain conditions;
4. To recommend modifications or changes in the New Mexico pupil transportation support formula which might aid the State Director of Transportation and State Board of Education in an approach to a more acceptable balance between economy in operation and the fulfillment of educational need in the transportation of New Mexico school children.

Importance of the Study. One of the greatest problems in financing of pupil transportation in the United States has been the development of a state formula for measuring the transportation load of a district, under which all districts will receive equitable treatment. A formula for measuring the transportation load of a district becomes almost synonymous with a formula for apportionment of state support to local school districts for pupil transportation. The need must be measured or determined before support can be provided, and the formula which measures the transportation load is the basis for the apportionment of state support of the transportation program.

3. To analyze available data on pupil transportation costs from school districts making and using their own school buses with a view to determining a "reasonable cost" of pupil transportation under certain conditions;

4. To recommend modifications or changes in the way Mexico pupil transportation agents handle their might and the State Director of Transportation will State Board of Education in an attempt to a more acceptable balance between economy in operation and the fulfillment of educational need in the transportation of low income school children.

Importance of the Study. One of the greatest problems in financing of pupil transportation in the United States has been the development of a state formula for meeting the increasing load of a district, which when all districts will receive equitable treatment. A formula for meeting the transportation load of a district becomes almost synonymous with a formula for apportionment of state support to local school districts for pupil transportation. The need must be measured or determined before support can be provided, and the formula which measures the transportation load is the basis for the apportionment of state support of the transportation program.

The pupil transportation load of any given district is usually in a state of change. Migration of families from one district to another, change in number of students to be transported, improvements in road conditions within a district, consolidation of smaller districts into larger units, and altering of bus routes to reduce total miles where possible are all factors which tend to increase or decrease the pupil transportation load of a district. Variations among districts with respect to all of the above changing factors, along with additional factors which affect the cost of pupil transportation, make it obvious that equitable treatment among districts in the apportionment of state support is a very elusive goal.

As school districts become larger through consolidation and as attendance centers become more distant, one from another, the need for pupil transportation increases. Transportation of pupils from home to attendance centers is necessary to make schools accessible to pupils. Even if the number of pupils to be transported remains constant, the greater distances pupils are transported because of consolidation indicate progressively greater expenditures for pupil transportation.

The measurement of financial need to support pupil transportation in New Mexico has been most difficult. Combinations of topography, seasonal precipitation, and seasonal temperatures are many. The great variations among these factors are manifest in

The first of these is the fact that the
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of smaller distances. It is a matter of
to reduce the distance between the
increase of distance. It is a matter of
Variation in the distance between the
factors, after which it is a matter of
until transportation. It is a matter of
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It is a matter of relative cost.
and as attention is given to the
the fact that the distance between the
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is not the same. It is a matter of
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many. The fact that the distance between

the ultimate cost of pupil transportation.

Elevation is a greater factor in the determination of mean annual temperature than is latitude.⁹ Elevations range from about 2,800 feet up to 13,151 feet.¹⁰ The elevation, in determining the mean temperature, also determines to a large extent whether the precipitation falls in the form of rain or snow. Also important to transportation costs is the amount of precipitation that falls during the months while school is in session. Some of the northern mountain areas of the state receive from 200 to 300 inches of snow during the winter.¹¹

Figures 1 and 2 show the mean maximum and mean minimum temperatures for the state for the month of January. The influence of altitude upon mean temperatures can be easily observed in these figures. Mean annual temperatures range from slightly above 60 degrees fahrenheit in the eastern section of the state to 50 degrees in the northern section.¹² From Figure 3 can be observed the influence of altitude upon mean annual precipitation.

The most accurate measurement of costs depending upon climate and topography would need to be made over a period of years, while holding constant all managerial factors. This accurate

⁹G. F. Von Eschen, Climates of the United States: New Mexico, U. S. Department of Commerce Weather Bureau, Climatology of the United States, No. 60-29, (Washington: Government Printing Office, December, 1959), p. 2.

¹⁰Ibid., p. 1.

¹¹Ibid., p. 2.

¹²Ibid.

the ultimate cost of such transportation.

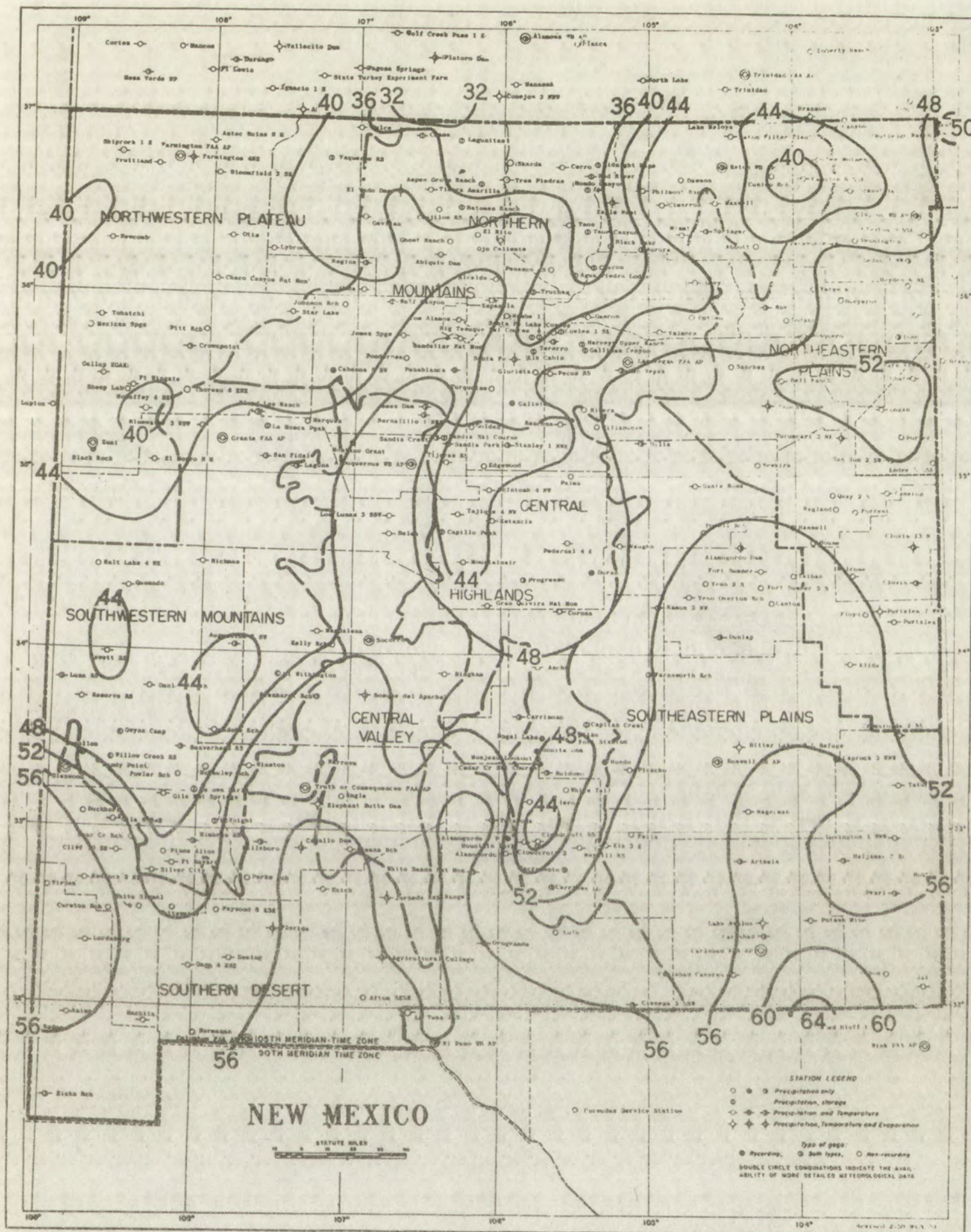
Elevation is a greater factor in the determination of mean annual temperature than latitude.⁹ Elevation ranges from about 2,800 feet up to 12,121 feet.¹⁰ The elevation, in determining the mean temperature, also determines to a large extent whether the precipitation falls in the form of rain or snow. Also important to transportation exists in the amount of precipitation that falls during the months when travel is in season. Some of the highest mountain areas of the state receive from 500 to 800 inches of snow during the winter.¹¹

Figures 1 and 2 show the mean maximum and mean minimum temperatures for the state for the month of January. The influence of altitude upon mean temperatures can be easily observed in these figures. Mean annual temperatures range from slightly above 50 degrees Fahrenheit in the eastern section of the state to 30 degrees in the northern section.¹² From Figure 2 can be observed the influence of altitude upon mean annual precipitation.

The most accurate measurement of precipitation is obtained upon altitudes and topography would need to be made over a period of years, while holding constant all meteorological factors. This accurate

U. S. Department of the Interior, Bureau of Geology
 U. S. Geological Survey, Washington, D. C.
 Office, December, 1907, p. 2.

10 Ibid., p. 1.
 11 Ibid., p. 2.
 12 Ibid.



Based on period 1931-52

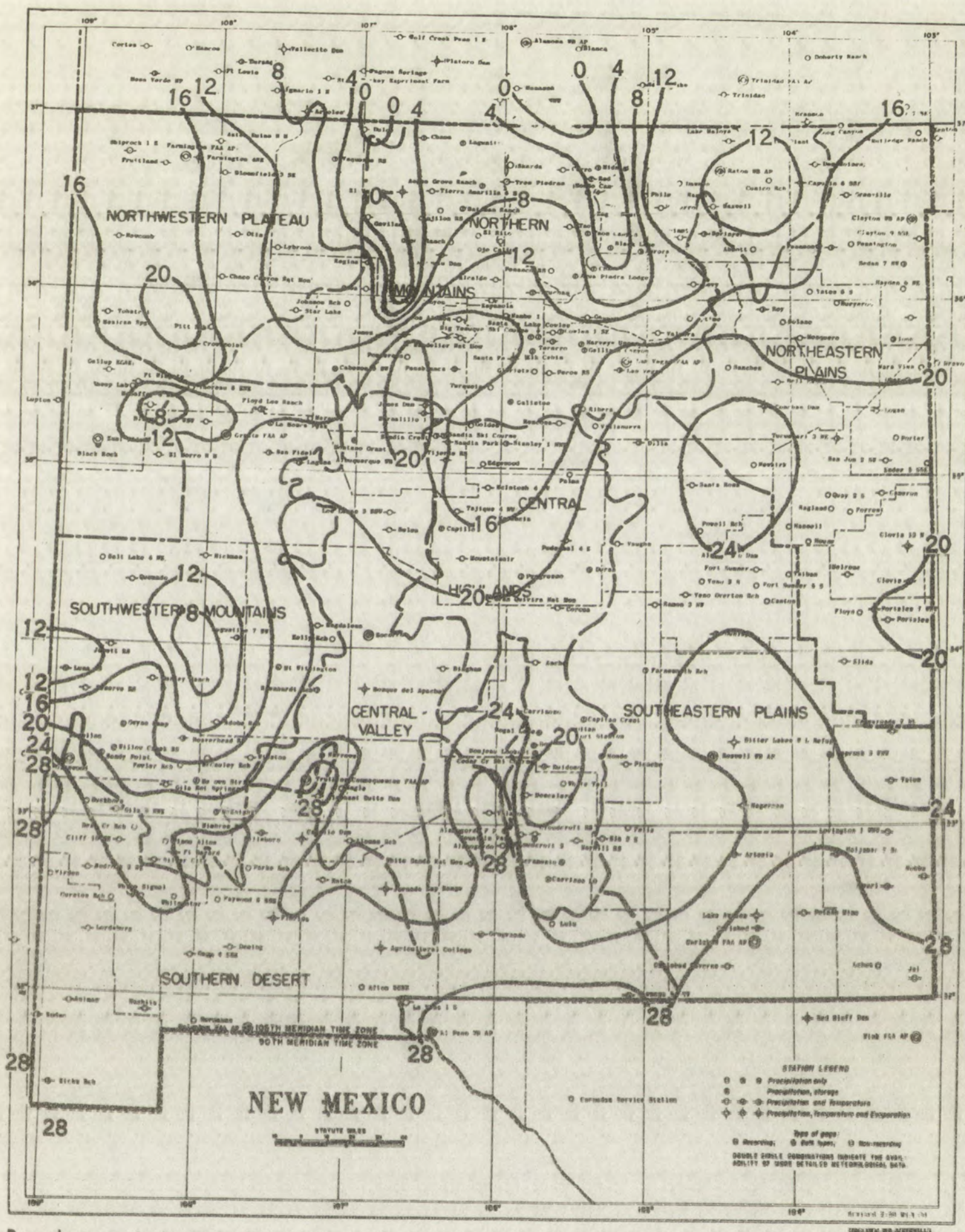
Isolines are drawn through points of approximately equal value. Caution should be used in interpolating on these maps, particularly in mountainous areas.

FIGURE 1

Mean Maximum Temperature (°F), (January)



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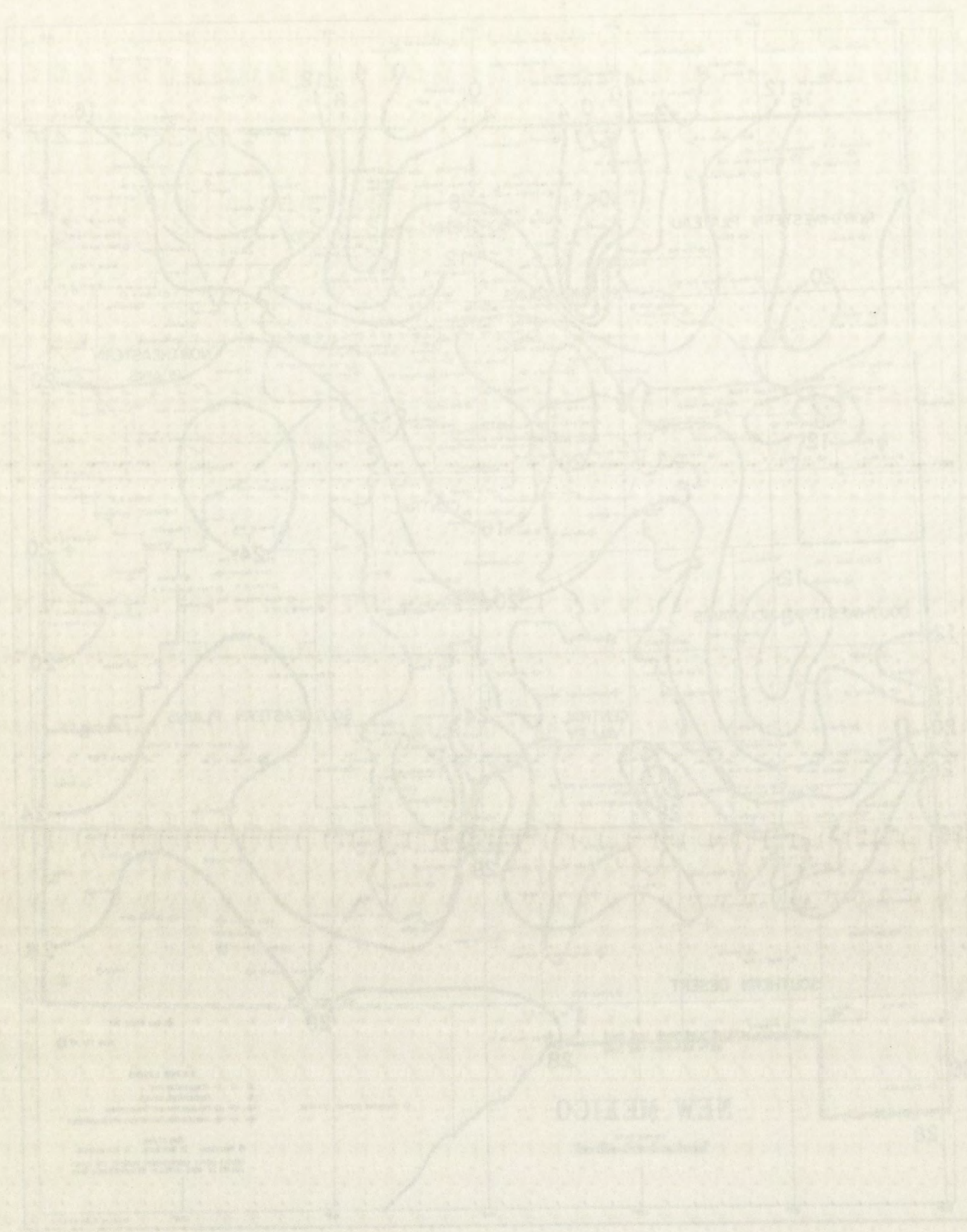


Based on period 1931-52

Isolines are drawn through points of approximately equal value. Caution should be used in interpolating on these maps, particularly in mountainous areas.

FIGURE 2

Mean Minimum Temperature (°F), (January)

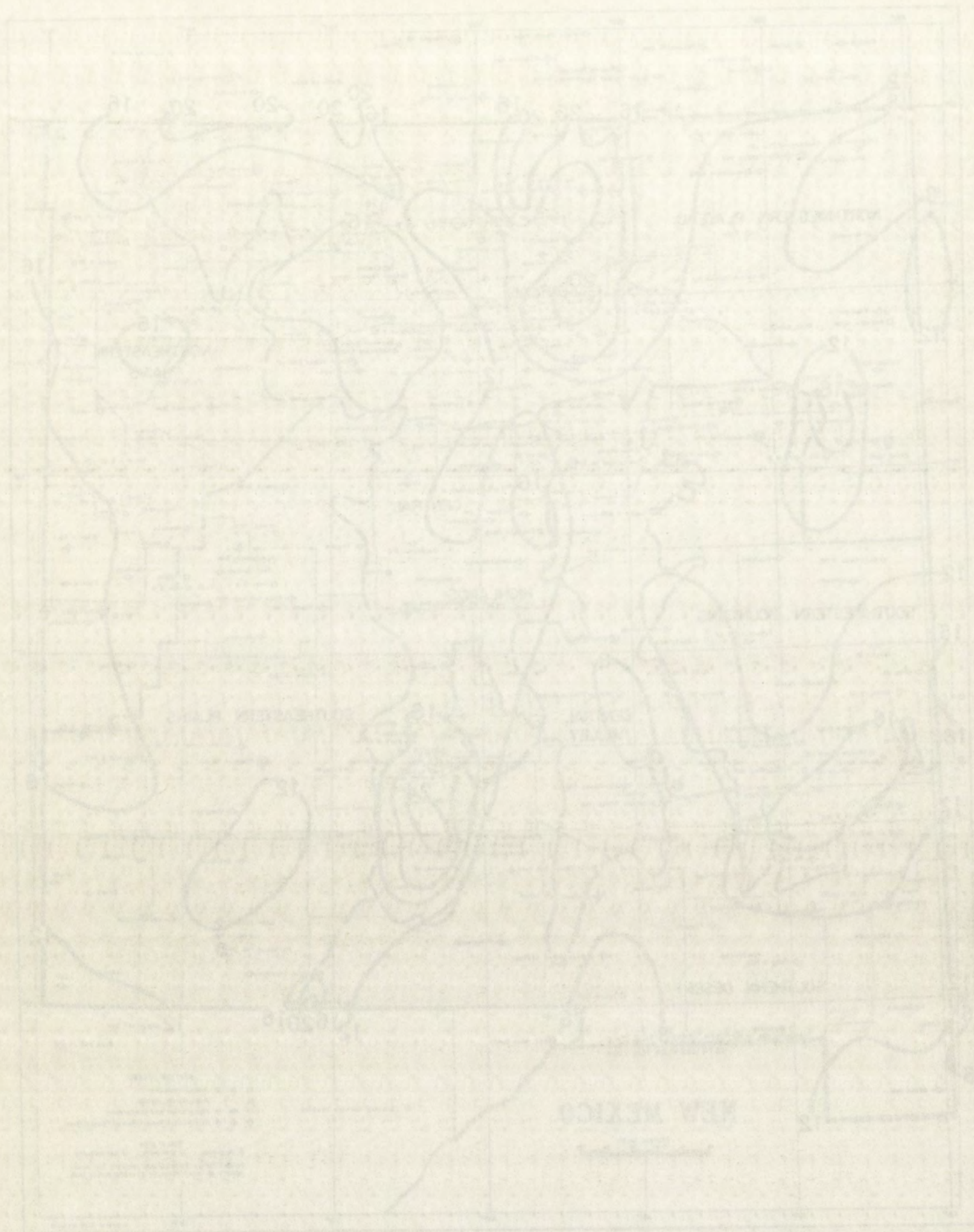


Based on period 1931-42
 Isolines are drawn through points of approximately equal value. Caution should be used
 in interpreting on these maps, particularly in mountainous areas.

Isolines are drawn through points of approximately equal value. Caution should be used in interpolating on these maps, particularly in mountainous areas.

FIGURE 3

Mean Annual Precipitation, Inches



Based on period 1931-32

Isolines are drawn through points of approximately equal value. Caution should be used in interpreting on these maps, particularly in mountainous areas.

measurement is apparently an impossibility, placing emphasis upon the need to determine adequate means of controlling expenditures for transportation other than the allocation of support according to a strictly uniform and objective measurement.

The attention of the public is being called to the fact that large sums of money are being spent to transport pupils to school. A United Press International article points out that 176,000 school buses haul more than 12 million pupils at an annual cost of nearly 450 million dollars, exclusive of capital investment.¹³ This reference is to the national total.

In the period between 1949 and 1959, the expenditure for pupil transportation in New Mexico increased by 101.94 per cent.¹⁴ It appears likely that the upward trend in New Mexico will continue in both number of pupils to be transported and in distances they are transported. The total cost of pupil transportation in New Mexico during the year 1959-1960 was \$4,472,212.68,¹⁵ making pupil transportation the major service performed by the schools of New Mexico which does not in itself provide experiences which are

¹³United Press International Dispatch, Albuquerque (New Mexico) Journal, March 27, 1961.

¹⁴Public School Finance Division, Statistics, Fiscal Year 1959-60, (Santa Fe: New Mexico Department of Finance and Administration, n.d.), p. 27.

¹⁵Recapitulation Sheet, 1959-60, Records of The State Director of Transportation, Santa Fe, New Mexico. (Mimeographed.)

generally conceded to be educational. The number of pupils transported that same year totaled 69,675. The 1959-1960 pupil transportation expenditure equals 5.35 per cent of the sum of the amounts budgeted for maintenance and direct charge by all New Mexico public schools for the same year.¹⁶ This expenditure is a part of the maintenance fund, rather than a separate fund.

Pupil transportation is classified by most authorities in school finance as a supplementary service, and most agree with Burns, who has said, " . . . we must realize that every dollar expended in transportation means one dollar less for those activities, such as instruction, that are a vital part of education."¹⁷ The pupil transportation systems of New Mexico and Delaware stand at one extreme when compared to other state pupil transportation support plans in certain respects. In New Mexico, Delaware, and North Carolina, pupil transportation is, for all practical purposes, 100 per cent state supported. In North Carolina all school buses are owned by the state. In New Mexico 92 per cent of all school buses are privately owned and operated, and in Delaware 94 per cent are privately owned and operated. In no states other than New Mexico and Delaware do state funds support such a large

¹⁶Public School Finance Division, op. cit., p. 12.

¹⁷Robert L. Burns, Measurement of the Need for Transporting Pupils, (New York: Teachers College, Columbia University, 1927), p. 6.

generally considered to be educational. The number of pupils trans-
ported from 1937-1938 to 1938-1939 was 1,000,000. The 1937-1938 pupil trans-
portation amounted to \$1.50 per pupil of the sum of the
amounts budgeted for maintenance and direct charges of all the schools.
Public schools for the same year. This expenditure is a part of
the maintenance fund, which is a separate fund.
Public transportation is financed by most universities in
school finance as a supplementary activity, and is not a part of the
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Public School Finance Division, U.S.D., P. 12.
Edward J. Burns, Assistant Commissioner of Education,
New York State Education Department, Albany, New York, 1937.
P. 8.

proportion of pupil transportation costs while schools contract such a large proportion of pupil transportation service with private contractors. Other states having high proportions of privately contracted school buses are New Hampshire with 88 per cent, and Massachusetts with 97 per cent. Their proportions of state support for pupil transportation are none and 61 per cent respectively.¹⁸

The entire educational support program in Delaware is criticized in an article which says, "Delaware leads the nation in the amount of support appropriated by the state government for the maintenance and operation of the public schools; approximately 88 per cent of the total 1957-58 operating budget for all systems came from state sources. . . . Delaware now ranks first in the nation in state debt with \$336.81 per capita: the median state figure is \$52.24."¹⁹

In speaking of the North Carolina school system, Holmstedt says, "The evidence indicates that a system of state support which eliminates local tax effort stifles local initiative, inhibits educational progress, does not provide for adaptability and variability in local school programs, and generally results in a dead

¹⁸Overview, 1:35, August, 1960.

¹⁹Richard A. Dershimer, "Delaware Examines the Question: A State Supported School System?", Overview, 1:54-55, April, 1960.

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In speaking of the North Carolina school system, Hines says, "The evidence indicates that a system of state support which eliminates local tax effort stifles local initiative, inhibits educational progress, does not provide for adaptability and ability in local school programs, and generally results in a dead

18 Overview, 1-35, August, 1960.

19 Richard A. Hines, "Delaware Examines the Question: A State-Supported School System", Overview, 1-35, April, 1960.

level of mediocrity in all school systems."²⁰

According to Tate, the method of computing transportation apportionments in New Mexico is unsatisfactory in that it is generally on a subjective basis and the formula used has not been subjected to objective evaluations and comparisons.²¹ An attempt has been made in this study to evaluate and compare the New Mexico pupil transportation support formula with authoritative criteria for good support formulas.

Delimitations of the Study. This study was limited to one aspect of pupil transportation: the state support formula.

No support formula for pupil transportation other than that for New Mexico was analyzed intensively, and references to other state support formulas were for purposes of comparison and evaluation only.

Detailed data on pupil transportation costs were limited to buses owned by school districts in New Mexico and operated by the districts on regular routes transporting pupils to and from school.

²⁰R. W. Holmstedt, "Fiscal Controls," in Problems and Issues in Public School Finance, National Conference of Professors of Educational Administration, (New York: Teachers College, Columbia University, 1955), p. 276.

²¹N. G. Tate, "The Administration of Pupil Transportation in the Public Schools in New Mexico," (unpublished Doctoral dissertation, The University of Southern California, Los Angeles, 1951), p. 3.

level of accuracy in all school systems.²⁰

According to Table 1, the method of comparing transportation

expenditures in New Mexico as well as in other states is that it is generally on a subjective basis and the formula used has not been subjected to objective evaluation and comparison.²¹ An attempt has been made in this study to evaluate and compare the New Mexico pupil transportation support formula with authoritative criteria for good support formulas.

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²⁰ W. M. Hoberg, "Rural Schools," in *Frontiers and Issues in Public School Finance*, National Conference of Commissioners of Educational Administration, New York: Teachers College, Columbia University, 1952, p. 276.

²¹ E. O. Tate, "The Administration of Pupil Transportation in the Public Schools in New Mexico," unpublished doctoral dissertation, The University of Southern California, Los Angeles, 1951, p. 2.

No attempt was made to validate the statistics obtained from official sources. Where statistics on transportation costs were translated from the official records by responsible officials responding to the questionnaire which was a part of this study, it was assumed that no validation was necessary.

For purposes of establishing a pattern of the principles of sound educational finance, the study was limited to the following authorities in the school finance field: Paul Mort, Arvid J. Burke, Edgar L. Morphet, and Roe L. Johns.

Procedure. Surveys and analyses of the New Mexico pupil transportation support formula were made by a thorough study of evidence from the following sources:

1. State Laws of New Mexico;
2. State Board of Education Rules and Regulations;
3. Records in the office of the State Director of Transportation;
4. Statistical cost data reported by officials in local districts;
5. Handbook for Administrators on School Bus Transportation as published by the State Department of Education, Transportation Division;
6. Reports required by the State Director of Transportation from local district officials;

The attempt was made to validate the statistics obtained from official sources. Where statistics on transportation costs were furnished from the official records by responsible officials responding to the questionnaire, which was a part of this study, it was assumed that no validation was necessary.

For purposes of establishing a picture of the problem of sound educational finance, the study was limited to the following activities in the school finance field: local, county, state, Edgar L. Murphy, and Lee L. Jones.

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4. Statistical cost data reported by officials in local districts;
5. Handbook for Administrators on School Bus Transportation as published by the State Department of Education, Transportation Division;
6. Reports required by the State Director of Transportation from local district officials;

7. Records on transportation accounts maintained by local school districts including vouchers, invoices, and total budgets.

The New Mexico pupil transportation support formula was:

(1) evaluated in the light of principles of sound educational finance as determined by recognized authorities in the field of educational finance, and (2) compared with the pupil transportation support formulas of four states considered by authorities in the field to have the most satisfactory pupil transportation support formulas.

Available transportation cost statistics from districts owning and operating some or all of their buses were analyzed to determine the extent to which proper cost accounting was done and to attempt to determine the "reasonable cost" of pupil transportation under certain conditions.

On the basis of these surveys and analyses, comparisons and evaluations were made, and recommendations for modifications and changes in the New Mexico pupil transportation support formula were made. It is hoped that the discussion of and recommendations pertaining to the pupil transportation formula for New Mexico will lend direction to officials of the State in modifying the pupil transportation support formula to include those principles consistent with both excellence and efficiency.

III. DEFINITION OF TERMS

Terms used in this study are limited to the following interpretations:

Route One Way. This term applies to the number of miles traveled by the bus from where the first pupil enters the bus to the school. This distance may include more than one trip per morning over the same route.

Linear Density. The number of transported pupils per mile of route is described by the term linear density.

Legally Transported Pupil. A pupil who lives more than the legal minimum distance from school and must, therefore, be furnished transportation to school is identified as a legally transported pupil.

Reasonable Cost. The reasonable cost is a reasonable amount to pay for a certain material or service, as established by an authority.

Equalization Principle or Equity. This principle is not concerned with equal rewards or outcomes, but with equal chances or opportunity. Since this is admittedly an inexact area, the concern is not with exact equality, but rather with "reasonable" equivalence.

III. DEFINITION OF TERMS

Terms used in this study are limited to the following in-

terpretation:

Range Day. This term applied to the number of miles traveled by the bus from where the first child enters the bus to the school. This distance was included more than one trip per morning over the same route.

Direct Journey. The number of transported pupils per mile

of route as described by the term Direct Journey.

Legal Transported Pupil. A pupil who lives more than

the legal minimum distance from school and must, therefore, be

transported by the school as defined in a legally

Transported Pupil.

Responsible Unit. The responsible unit is a responsible amount

to pay for a certain material or service, as established by an

authority.

Qualitative Analysis on Funding. This principle is not

concerned with equal amounts of resources, but with equal chances of

opportunity. Since this is defined in a general sense, the concern

is not with exact equality, but rather with "reasonable" equality.

CHAPTER II

REVIEW OF RELATED LITERATURE

I. INTRODUCTION

Literature was selected for review to determine the underlying forces which have influenced the development of pupil transportation, to trace the evolution of the finance of pupil transportation through state support, and to develop a pattern of concepts in the area of educational finance which have been either proven by test of actual practice or stated as obviously good by recognized authorities in the field.

These studies include work done in the measurement of transportation load of school districts from the inception of state support for pupil transportation, and the translation of this measurement of transportation load into financial support to be provided for pupil transportation.

Literature which, because of its subjective nature, has necessitated its being limited to theory with little objective data to support its validity, has been reviewed in relation to its application to state and local district responsibilities for the provision and administration of support for pupil transportation. Pupil transportation support formulas from four states were selected to provide a basis for comparison between the results obtained in the practical application of support programs and the

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New Mexico pupil transportation support program.

II. LITERATURE ON MEASUREMENT OF TRANSPORTATION LOAD

Following his study of 1924 on the measurement of educational need, Paul Mort suggested the possibility of measuring the transportation load in school districts.

There is need for development of an adequate index for measuring the cost of transporting pupils. In some communities transportation of pupils is necessary in order that the state's minimum program may be offered. The costs of such transportation are legitimate responsibilities of the state as a whole. They should be considered as a part of the cost of the minimum program. Up to this time, however, no adequate index of transportation cost has been developed.¹

Under the direction and influence of Mort, Robert L. Burns derived a formula from data taken from New Jersey School Reports and the U. S. Census Report for 1920, in which he used: (1) pupils transported, (2) average daily attendance, (3) area of the county, and (4) number of school buildings in the unit as factors to get two variables with which to compute correlation and the regression equation. Burns stated that the technique used in his study was, with proper adjustments, applicable to any state. This study led the way in the empirical search for the transportation index. Because the study was based upon distribution of state support to county units, rather than to districts as separate and smaller

¹Paul Mort, State Support for Public Schools, (New York: Teachers College, Columbia University, 1926), p. 99.

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II. LITERATURE ON MEASUREMENT OF TRANSPORTATION LOAD

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Paul Horn, State Bureau for Public Schools, (New York: Teachers College, Columbia University, 1935), p. 55.

units, it appears that Burns did not anticipate the need for a formula to support transportation in any type of organization other than the county unit.²

In the year following the study by Burns, a study by R. L. Johns, another student of Mort, attempted a refinement of the formula derived by Burns. Johns' formula was based upon: (1) the average daily attendance per square mile, and (2) per cent of average daily attendance transported. Johns set up standards to determine the validity of his formula. These standards were:

1. That the state should recognize the transportation being carried on in the average community in a group of communities whose needs for transportation are similar due to approximately equal effects of factors beyond the control of these communities, as the basis of the minimum program it will recognize in terms of number of students transported.
2. That the state should recognize, as the per pupil cost of its minimum program, the price paid by the average community in a group of communities whose costs of transportation are similarly affected by factors beyond their control.
3. That the state should recognize in its program of support the transportation done within the minimum determined by (1), and at a cost within the legitimate minimum determined by (2).
4. That state aid for transportation should not be distributed independent of the rest of the state's program of support, but should be combined with it and distributed on the basis of the community's ability to support education.

²R. L. Burns, Measurement of the Need for Transporting Pupils, (New York: Teachers College, Columbia University, 1927).

5. That the state in administering its program of support, while justly refusing to distribute aid on the basis of effort, should not by its administration of these funds encourage local inefficiency or extravagance or render the community inflexible to educational change or reorganization as the science of education progresses.
6. That if it is shown in the administering of the plan that communities by reason of factors beyond their control have a transportation need at variance with that predicted by a selected independent variable, or variables, that variation should be included in the program.³

A second part of Johns' study found that cost accounting records for pupil transportation were not adequate in Florida, and a series of forms for cost accounting was developed and suggested.⁴

Johns, writing twenty-eight years after he completed his original study, said:

Unfortunately, the development of sound practices for the apportionment of state funds for school transportation has been neglected in most states. A great variety of techniques are in use, some of which are obviously inequitable. For instance, one state just simply allows each local school unit during the current year what it actually spent for transportation during some designated previous year. Such a method encourages extravagance and discourages efficiency.⁵

Johns expressed the view that any factors which are subject to local administrative manipulation should not be included in the transportation support formula. His criteria for a plan of state

³Roe L. Johns, State and Local Administration of School Transportation, (New York: Teachers College, Columbia University, 1928), pp. 14-15.

⁴Ibid.

⁵Johns, "Determining Pupil Transportation Costs," The Nation's Schools, 43:48-49, February, 1949.

5. That the state in administering its program of support, while fully realizing the importance of the state of effort, should not by its administration of these funds encourage local inefficiency or extravagance or render the community inflexible to educational change or reorganization as the science of education progresses.

6. That it is within the administration of the plan that communities by reason of factors beyond their control have a transportation need as various with that provided by a selected independent variable, or variables, that variation should be included in the program.

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Johns, "Determining Pupil Transportation Costs," in National Education, 13:15-16, February, 1912.

support for pupil transportation are that it:

1. Provides adequate transportation services for all pupils who need it.
2. Encourages efficiency and discourages extravagance in local transportation management.
3. Is based on a completely objective formula leaving nothing to the subjective judgment of state officials.
4. Is based on an equitable formula which takes into consideration all substantial variations in necessary transportation costs resulting from factors beyond the control of the local boards.
5. Is a part of a balanced comprehensive foundation program of education financed by an equitable taxing system.⁶

Somewhat in conflict with Hutchins' concession that the relationship between density and cost of transportation might be slight and unreliable in areas having mountains, deserts, forests, lakes, and other uninhabited areas,⁷ Johns states that common sense and the statistical reliability of the formula developed by Flathmann⁸ would seem to indicate that the influence of factors other than density of transported pupils and road conditions is negligible.⁹

⁶Ibid., p. 49.

⁷C. D. Hutchins, "Determining Costs of Pupil Transportation," The Nation's Schools, 25:35, May, 1940.

⁸Sue Ella Flathmann, "A Problem in Curve Fitting," (unpublished Master's Thesis, University of Florida, Tallahassee, 1948).

⁹Johns, "Determining Pupil Transportation Costs," op. cit., p. 49.

THE JOURNAL OF THE

REPORT FOR THE YEAR 1900

1. The first section of the report deals with the general condition of the country during the year 1900. It shows that the country was in a state of general prosperity, and that the people were well satisfied with the government.
2. The second section of the report deals with the condition of the different branches of the government. It shows that the executive branch was well administered, and that the legislative branch was well organized.
3. The third section of the report deals with the condition of the different departments of the government. It shows that the different departments were well organized, and that the people were well satisfied with the government.
4. The fourth section of the report deals with the condition of the different branches of the government. It shows that the executive branch was well administered, and that the legislative branch was well organized.
5. The fifth section of the report deals with the condition of the different departments of the government. It shows that the different departments were well organized, and that the people were well satisfied with the government.

The report also contains a number of tables and charts, which show the condition of the different branches of the government, and the condition of the different departments of the government. These tables and charts are very interesting, and they show that the country was in a state of general prosperity, and that the people were well satisfied with the government.

The report is a very interesting and valuable document, and it is well worth reading. It shows that the country was in a state of general prosperity, and that the people were well satisfied with the government. It also shows that the different branches of the government were well administered, and that the different departments of the government were well organized.

Evans set out to gain insight into the causes of variations among costs of transportation in districts in California. His immediate objective was to determine the average, the range, and the variability. His ultimate purpose was to evaluate the causes which lay back of the variation in costs. He listed as probable causes of variations in cost:

1. Length of routes and distances children are transported.
2. Number of children for whom transportation is furnished.
3. Type of equipment used.
4. Ownership of equipment of letting contracts for transporting children.
5. Age of children -- elementary versus high school.
6. Density of school population.
7. Size of school district.
8. Topography of the country and type of roads in use.
9. Type of persons used as drivers, and wages paid.
10. Methods used in purchasing and in providing for service.
11. System of accounting in use.
12. Policy used in determining those entitled to transportation.¹⁰

¹⁰Frank O. Evans, Factors Affecting the Cost of School Transportation in California, U. S. Bureau of Education Bulletin No. 28 (Washington: Government Printing Office, 1930), p. 3.

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12. Policy used in determining those entitled to transportation.

Evans says these factors are not all equally adapted to objective measurement and that many of them interact in such a way that to separate them and weigh the effects of each would be exceedingly difficult. He attempted to find a way to measure the effect of the most essential factors. He believed that this procedure would show the most important causes of variation and would disclose evidence of the importance of those factors that were less objective.¹¹

One of Evans' findings was that there was a great lack of proper accounting with regard to expenditures for transportation. He suggested that a good accounting system for school transportation must be simple, must present the facts about each project separately, and must show the total cost and exact service rendered.¹²

Evans stated an interest in knowing to what extent the cost of transportation is determined by the natural difficulties and to what extent by the business methods. He points out that a much closer prediction of cost can be made by use of the purchase price of the bus as the known variable than from the use of both mileage and load together.¹³

¹¹Ibid.

¹²Ibid., p. 37.

¹³Ibid., p. 23.

Evans says these factors are not all equally adjusted to objective measurement and that many of them factors in such a way that to separate them and weigh the effects of each would be exceedingly difficult. He attempted to find a way to measure the effect of the most essential factors. He believed that this procedure would show the most important causes of variation and would disclose evidence of the importance of those factors that were less objective.

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In a survey of the West Virginia schools, McLure studied the effect of sparsity of school population on transportation costs. His method has taken into account: (1) the highway mileage in each county, and (2) the average daily attendance of pupils living in open country and in population centers of less than 2,500 people. He divided counties into two groups, according to prevalent road patterns, and a separate regression computation was used for each. As is the case with other studies using the county as the school unit for distributing transportation support by formula, this method, while eliminating some of the subjective element, appears to shift a portion of it from the state level to the county level.¹⁴

Cornell and McLure used: (1) total square miles in a district, and (2) number of dwellings in the district to predict the cost of pupil transportation in Illinois.¹⁵ They suggest, however, that the use of pupil data rather than number of dwellings, might be more suitable for estimating potential transportation cost.

Hutchins' work with pupil transportation costs in Ohio caused him to make the following observations:

. . . The larger number of school districts into which the state is divided produces exaggerated extremes on any of the conditions related to the cost of pupil transportation.

¹⁴William P. McLure, The Effect of Population Sparsity on School Cost, (New York: Teacher's College, Columbia University, 1942).

¹⁵Francis G. Cornell, et al., Financing Education in Efficient School Districts, (Urbana: Bureau of Research and Service, University of Illinois, 1949); and McLure, loc. cit.

In a survey of the West Virginia schools, Moore studied the effect of separation of school population on transportation costs. His method has taken into account (1) the highway mileage in each county, and (2) the average daily attendance of pupils living in open country and in population centers of less than 2,500 people. He divided counties into two groups, according to prevalent road patterns, and a separate regression comparison was used for each. As in the case with other studies using the county as the school unit for describing transportation support by formula, this method, while eliminating some of the subjective element, appears to shift a portion of it from the state level to the county level. Cornell and Moore made (1) local agency miles in a district, and (2) number of dwellings in the district to predict the cost of pupil transportation in Illinois. They suggest, however, that the use of pupil data rather than number of dwellings might be more reliable for estimating potential transportation cost. Huskins' work with pupil transportation costs in Ohio caused him to make the following observations: . . . The larger number of school districts into which the state is divided produces exaggerated extremes on any of the conditions related to the cost of pupil transportation.

William F. Moore, The Effect of Population Density on School Cost, (New York: Teachers College, Columbia University, 1937).

Franklin E. Cornell, et al., Transportation Expenditures in Illinois School Districts, (Urbana: Bureau of Research and Service, University of Illinois, 1935); and Moore, loc. cit.

. . . The use of ten factors in Ohio greatly increases the accuracy in predicting the right cost for any district While ten factors are used in Ohio to obtain greater accuracy, it must be admitted that the factor density was found to have a closer relationship to cost than any of the other nine.

It is readily conceded that the relationship between density and cost of transportation might be slight and unreliable in areas having mountains, deserts, forests, lakes, and other uninhabited areas, but for states like Ohio, in which geographical features do not greatly interfere with the establishment of homes, the relationship is found to be close and reliable. It is not maintained that a host of factors, such as road conditions, size of vehicle, pupils per bus, investment per pupil, number of stops, extra trips and wage scale, which do affect costs, accompanies or is regulated by density.¹⁶

Hutchins used three factors, which were beyond the control of the board of education, to develop a regression equation for the purpose of predicting a right cost for each district depending upon the situation in the district with regard to these factors:

(1) number of pupils transported, (2) density, and (3) road conditions.¹⁷

The costs as predicted by this regression equation were compared with the actual district costs, and the direction as well as the amount of difference noted. These variations were then related to a number of influential managerial factors one at a time, to determine what relationship existed. The trend of the relationship was used to prepare a table of adjustments which should be

¹⁶Hutchins, op. cit., pp. 34-35.

¹⁷Ibid., p. 34.

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distance.

The costs as predicted by this regression equation were compared with the actual district costs, and the difference as well as the amount of difference noted. These variations were then related to a number of influential unmeasured factors one at a time, to determine what relationship existed. The trend of the relationship was used to prepare a table of adjustments which should be

applied to the cost predicted to obtain calculated costs agreeing more closely with the actual costs.¹⁸

III. MANAGERIAL FACTORS AND COST

Noble, among others, has divided the factors affecting pupil transportation costs into categories of: (1) managerial, and (2) natural. Managerial factors account for from two-thirds to three-fourths of the total cost of pupil transportation. Noble makes no suggestion as to what plan for allocation of support to pupil transportation is best. Rather, he suggests that the North Carolina plan where the state owns and operates all buses represents the best plan of its kind, that the plan prepared by Hutchins for Ohio represents the best of the formula plans, and that each state should select from the two plans that plan which is best suited to the philosophy of the people within the state.¹⁹

Amis, in his analysis of cost factors, found that those items affected largely by managerial factors included 80.57 per cent of the total cost, while operation cost items amounted to 19.43 per cent of the total cost of pupil transportation.²⁰

¹⁸Ibid., p. 35.

¹⁹M. C. S. Noble, Jr., Pupil Transportation in the United States, (Scranton, Pennsylvania: International Textbook Company, 1940, p. 175.

²⁰Otis C. Amis, "School Transportation Costs," Phi Delta Kappan, 23:171-172, December, 1940.

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Oosting attributed the largest single cost in the operation of school bus fleets to the item of personnel. He emphasized the managerial factors in pupil transportation costs with the statement that "the enormous size of the school transportation program, its rapid and continuing expansion, and the tremendous cost of this school service combine to highlight the need for sympathetic and competent administrative talent in this area."²¹

Several authorities have defined good administrative and managerial practices which have resulted in efficient operation in many school transportation programs. These practices are universally known. However, they have served to produce economy only in those operations where the structure of the support program has been conducive to economy or in those having administrators with a strong desire to operate in a businesslike manner. When relating managerial factors to a support formula, the support formula must be analyzed carefully to discover what the effect of any one or combination of its constituents is upon the managerial practices which are manifest at the local district level.

Lambert has been one of those who have protested against the statistical derivation of support formulas from factors which are beyond the control of the local board. His view is:

²¹B. R. Oosting, "Administering the Transportation Program," The Nation's Schools, 65:78-79, May, 1960.

Getting attention for the study cost in the operation of school bus fleets on the part of personnel. He emphasized the managerial factors in public transportation costs with the statement that the enormous size of the school transportation program, its rapid and continuing expansion, and the tremendous cost of this school service continue to highlight the need for sympathetic and cooperative administrative action in this area.

Several authorities have defined good administrative and managerial practices which have resulted in efficient operation in many school transportation programs. These practices are universally known. However, they have served to produce secondary only in those operations where the structure of the support program has been conducive to economy or in those having coincidences with a strong desire to operate in a businesslike manner. When viewed the managerial factors as a support formula, the support formula must be assigned entirely to discover what the effect of any one or combination of the conditions is upon the managerial practices which are manifest at the local district level.

Indeed, there has been one of those who have proceeded against the statistical derivation of support formulas from factors which are beyond the control of the local board. His view is:

R. H. Gentry, "Administering the Transportation Program,"
 The Nelson's Journal, 1950-51, May, 1950.

To a certain degree each state will present a special case in which the general plan for providing state aid for public education, including transportation, will have to be fitted into conditions that govern the whole economic and fiscal structure of that state. Regardless of the efforts that schoolmen (and others) make continuously for the improvement of general plans for financing states and their public schools, the fact remains that no one formula will fit all states. In this connection, the writer is convinced also that proposals for predicting the necessary transportation cost for states on the basis of equations derived by correlating some expression of the cost of transportation with some expression of the density of population are quite unsound.²²

. . . The question of just how much equipment and service is to be recognized in a given minimum or foundational program and just what portion of the expense of that transportation is to be included in some statement of necessary cost will be answered by judgment There appears to be a very definite limit to which short cuts and formulas can be used in this area of state aid without defeating their own purposes. State supervisors of pupil transportation should at least study carefully the basic point of view expressed in this volume before they rush into attractive ready-made plans for giving state aid to transportation.²³

Lambert's conclusions include the statement that:

. . . Management techniques that insure safety, comfort, flexibility, and economy in the operation of school buses must be founded upon a sound philosophy of the social and educational role of pupil transportation. State aid for transportation must be supported by these same principles.²⁴

The apportionment of state support to pupil transportation remains a philosophical problem. Divided according to philosophical

²²Asael C. Lambert, School Transportation, (Stanford: Stanford University Press, 1938), p. 41.

²³Ibid., p. 43.

²⁴Ibid., p. 117.

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The appointment of state support to pupil transportation remains a philosophical problem. Divided according to philosophical

²² Asael G. Lambert, School Transportation (Spartanburg: Spartan University Press, 1936), p. 111.

²³ Ibid., p. 111.

²⁴ Ibid., p. 111.

orientation are those who desire to have state support to school transportation apportioned on the basis of a mathematically derived formula, and those who believe that transportation programs are satisfactory only when they are determined by judgment based upon study and experience. The former group has been called the Eastern group because this philosophy had its origin in Teachers College, Columbia University; the latter group has been called the Western group because this philosophy originated in Stanford University and has held its strength throughout most of the West.

IV. LITERATURE ON PATTERNS AND PRINCIPLES OF SCHOOL FINANCE

A pattern of finance for schools in the United States is difficult if not impossible to identify. Proportionate shares of support for public schools furnished by local, state, and federal governments range from 14 per cent at the local level in New Mexico to 90 per cent in Nebraska, from 5 to 80 per cent at the state level, and from 1 to 18 per cent from federal funds.²⁵

The Committee for Economic Development suggests that experience is available throughout the country to show what can and must be done in the financing of public schools. Their stand is that competent professional leadership and informed lay citizens

²⁵Committee for Economic Development, "Paying for Better Schools," A Report prepared by The Committee, December, 1959, p. 48.

orientation are those who desire to have state support of school transportation apportioned on the basis of a mathematically derived formula, and those who believe that transportation programs are satisfactory only when they are determined by judgment based upon study and experience. The former group has been called the Eastern group because this philosophy had its origin in Eastern colleges, Columbia University; the latter group has been called the Western group because this philosophy originated in Stanford University and has held its strength throughout most of the West.

IV. LITERATURE ON PATTERNS AND TRENDS

OF SCHOOL FINANCE

A pattern of finance for schools in the United States is difficult if not impossible to identify. Irregularities of finance for public schools furnished by local, state, and federal governments range from 15 per cent at the local level in New Mexico to 95 per cent in Nebraska, from 5 to 50 per cent at the state level, and from 1 to 15 per cent from federal funds.

The Committee for Economic Development suggests that no picture is available throughout the country to show what can and must be done in the financing of public schools. Their study is that competent professional leadership and informed lay citizens

are the key to formulation of school programs which are well-designed to meet the community's educational objectives, and to command popular backing from the community.²⁶

The National Education Association favors including the support of pupil transportation in a comprehensive foundation program, which is financed jointly by state and local funds. Principles advocated by the National Education Association include: (1) equitable local effort, to preserve local initiative and interest in education, and (2) local tax leeway to permit educational innovation and experimentation. The Association's literature reveals the following proportions of revenue from state governments in these states: Delaware, 88.2 per cent; New Mexico, 77.2 per cent; Hawaii, 73.7 per cent; Alabama, 72.5 per cent.²⁷

A conflict is present between the figures quoted by the National Education Association and those quoted by the Committee for Economic Development. According to the Committee for Economic Development, New Mexico public schools received 14 per cent of their support from the local level, and were the low extreme in local support. According to the National Education Association, Delaware public schools received 88.2 per cent of their support

²⁶Ibid., p. 56.

²⁷National Education Association, Department of Rural Education, Rural Education--A Forward Look, 1955 Yearbook, (Washington, D. C.: The Association, 1955), p. 117.

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governments in these states: Delaware, 66.3 per cent; New Mexico,
77.2 per cent; Hawaii, 73.4 per cent; Alaska, 75.5 per cent. 37
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National Education Association and those given by the Committee
for Economic Development. According to the Committee for Economic
Development, New Mexico public schools received 16 per cent of
their support from the local level, and were the low extreme in
local support. According to the National Education Association,
Delaware public schools received 66.3 per cent of their support

38 Ibid., p. 56.

National Education Association, Department of Rural
Education, Rural Education--A Forward Look, 1955 Yearbook, (Washing-
ton, D. C.: The Association, 1955), p. 117.

from the state. Obviously, if Delaware schools receive this percentage of support from the state, they are lowest in per cent of support from local sources. Their remaining 11.8 per cent would be made up of local and federal support.

In his criticism of the Delaware state support system, Dershimer suggested that because 88 per cent of the support for public schools came from state sources, school administrators are being forced to spend too much time on legislative matters, time which many of them believe could be spent more profitably in their schools and with the electorate in their own districts. Many other administrators believe that too many educational policy decisions are being made, either directly or inferentially, in the state legislature instead of by local boards of education.²⁸

The following quotations by Paul Mort may provide a frame of reference for his ideas on transportation support formulas. The first statement was published before Burns and Johns completed their transportation studies under the supervision of Mort.

In some communities transportation of pupils is necessary in order that the state's minimum program may be offered. The costs of such transportation are legitimate responsibilities of the state as a whole. They should be considered as a part of the cost of the minimum program. Up to this time however, no adequate index of transportation

²⁸ Richard A. Dershimer, "Delaware Examines the Question: A State Supported School System?", Overview, 1:55, April, 1960.

cost has been developed. States that are seriously attempting to assume the responsibility for a satisfactory minimum program are handicapped by the lack of such an index.²⁹

Much of the popularity of state aid designed to reward effort resulted from the belief that such aid stimulated local initiative. The importance of this element has probably not been overemphasized. Whether it is an essential feature of our governmental system or a product of our long tradition of local support, the progress of education within a given state depends largely upon the willingness of individual communities to move beyond the established level set by the state. A continually changing social order demands this constant experimentation and change in educational programs.³⁰

. . . There is reason for such a position in that local initiative as it is reflected in tax leeway, in order to be of any great significance, should be local initiative beyond the defensible minimum program rather than local initiative in the area between the present unsatisfactory minimum program and the defensible minimum program. Local initiative in the latter area would seem to be significant only as it makes possible the extension of the present actual minimum program at local expense, rather than at state expense.³¹

Burke has summarized some of the principles of educational finance, on the basis of surveys of experience in various states. His summary explained the limitations and advantages of central finance of public schools. His stand places emphasis upon leadership, service, and technical assistance from the state level, avoiding the enforcement of minimum standards. According to Burke, minimum standards are usually symptomatic of unwholesome structural, managerial, fiscal, or political conditions which cannot be corrected

²⁹Paul Mort, State Support for Public Schools, (New York: Teachers College, Columbia University, 1926), p. 99.

³⁰Mort, State Support for Public Education, op. cit., p. 151.

³¹Ibid., p. 154.

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by minimum standards. He feels that these conditions require a direct attack upon the conditions themselves, demanding leadership and planning.³²

Burke's recognition of the transportation support dilemma is apparent when he writes:

Some of the factors which create a need for transportation do not lend themselves readily to measurement It is not possible in a decentralized structure to precisely determine the need for transportation. At best it can only be approximated.³³

Burke prefers three plans of state support for education in the following order: (1) state control and operation of the program; (2) state pays the approved actual operating cost; and (3) a simple but adequate formula frequently reviewed and accompanied by sufficient state oversight.³⁴

Morphet has set forth these observations based upon the results of studies:

1. Special provision must be made for transportation in the state support program if the program is to be equitable and needs are to be met satisfactorily;
2. The classroom or pupil unit does not provide a satisfactory basis for computing transportation costs unless special adjustments are worked out for density or sparsity of population;

³²Arvid J. Burke, Financing Public Schools in the United States, (New York: Harper and Brothers, 1957), pp. 568-74, 617-628.

³³Ibid., p. 618.

³⁴Ibid., p. 627.

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Barth's recognition of the transportation support element is apparent when he writes:

Some of the factors which create a need for transportation do not lend themselves readily to measurement. It is not possible in a decentralized structure to precisely determine the need for transportation. At best it can only be approximated.

Barth presents three plans of state support for education in the following order: (1) state control and operation of the program; (2) state pays the approved actual operating cost; and (3) a state and adequate formula frequently reviewed and adjusted by sufficient state oversight. Barth has not forth these observations based upon the results of studies.

1. Special provision must be made for transportation in the state support program if the program is to be equitable and needs are to be met satisfactorily.
2. The classroom or pupil unit does not provide a satisfactory basis for computing transportation costs unless special adjustments are worked out for density or quality of population.

3. Providing a fixed amount per pupil or per bus will not meet the needs satisfactorily;
4. Allowing a percentage of expenditure does not encourage economy and efficiency;
5. Density of transported pupils, with corrections if necessary for road conditions, is probably the best single factor to use in determining transportation need and cost.³⁵

V. SUMMARY

The allocation of state support of pupil transportation to local districts has been and will continue to be a source of considerable concern to persons charged with the responsibility of administering pupil transportation. It is realized that, theoretically, the responsibility for support of pupil transportation belongs with the state, rather than with the local district. However, methods of encouraging economy at the local administrative level have not been effected in most states.

Studies have shown that most of the costs of pupil transportation are connected to managerial factors, while those factors beyond the control of the local boards account for only about 20-30 per cent of the total cost. Nevertheless, the trend has been in

³⁵Edgar L. Morphet, "Characteristics of State Support Programs," in Problems and Issues in Public School Finance, National Conference of Professors of Educational Administration, (New York: Teachers College, Columbia University, 1952), p. 177.

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Byron L. Harpster, "Administration of State Support for Pupil Transportation," in Problems and Issues in Public School Finance, National Conference of Teachers of Education, (New York: Teachers College, Columbia University, 1952), p. 177.

the direction of attempting to allocate state support on the basis of these factors over which the board has no control.

Proponents of the "Eastern" and the "Western" philosophies of support allocation are together in the goal which they seek to reach. Both groups desire adequate, safe, efficient, and economical pupil transportation. Both desire to achieve a just and equitable support of transportation. Their differences stem from preferences for separate approaches to the solution of the problem.

Indicated in the literature is a consensus that some incentive to economize must be present in the transportation program because such a high percentage of expenditure for pupil transportation is within the area of managerial costs. The question remains whether to achieve the desired economy through objective measurement of transportation need or through competent and effective leadership at the local level. Chapter III discusses the significance of the formula by which support is allocated as it relates to the foregoing question.

CHAPTER III

EVALUATION AND ANALYSIS OF THE NEW MEXICO PUPIL TRANSPORTATION SUPPORT FORMULA

I. DERIVATION OF CRITERIA FOR EVALUATION

The value of an analysis of the support formula depends upon: (1) the validity of the criteria used in measuring the desirability of the formula, and (2) the accuracy with which the analyst interprets and expresses the different aspects of the support formula and their relationships to one another and to the criteria.

The criteria used for this analysis have been derived from the work, study and experience of authors in the fields of school finance and pupil transportation. Some criteria have been adopted directly from the literature and are used as direct quotes. Others are syntheses of ideas expressed in the literature by the authors selected as authorities for this study. An attempt has been made by the writer to avoid removing statements of any author from their context.

There is little disagreement among the authorities used in this study as to the principles of educational finance which should be applied when apportioning state support to local districts, whatever the primary purpose of the support. An examination of lists

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of suggested criteria by different authors discloses generally more disagreement between some criteria of the same author than is evident between one author and another. It will be noted by the reader that one criterion by Johns compromises with the ideal to some extent when it contains the words "all substantial variations." Criteria for pupil transportation support formulas as suggested by Johns are as follows:

No plan of state support for school transportation is adequate unless it:

1. Provides adequate transportation services for all pupils who need it.
2. Encourages efficiency and discourages extravagance in local transportation management.
3. Is based on a completely objective formula leaving nothing to the subjective judgment of state officials.
4. Is based on an equitable formula which takes into consideration all substantial variations in necessary transportation costs resulting from factors beyond the control of local boards.
5. Is part of a balanced comprehensive foundation program of education financed by an equitable taxing system.¹

Some of the above criteria, in essence, are repeated in Morphet's work:

1. Special provision must be made for transportation in the state support program if the program is to be equitable and needs are to be met satisfactorily.

¹Johns, "Determining Pupil Transportation Costs," The Nation's Schools, 43:48-49, February, 1949.

2. The classroom or pupil unit does not provide a satisfactory basis for computing transportation costs unless special adjustments are worked out for density or sparsity of population.

3. Providing a fixed amount per pupil or per bus will not meet the needs satisfactorily.

4. Allowing a percentage of expenditure does not encourage economy and efficiency.

5. Density of transported pupils, with corrections if necessary for road conditions, is probably the best single factor to use in determining transportation cost.²

The following excerpts have definite implications for apportionment of state support for pupil transportation:

. . . If it (a state) is going to retain a decentralized structure, it should direct much more effort toward strengthening the local structure, improving its functioning and management, increasing its fiscal powers, and removing the causes of unsatisfactory budgeting procedures and operations than upon adopting and enforcing state minimum requirements. Failure to put more stress upon freeing local initiative than upon financial equalization can result only in a centralized system. This can happen without abolishing local units through restricting local budgetary freedom and fiscal powers. If the latter happens, the result is worse than complete centralization, because the expensive overhead of local government is retained without the advantages that come from local responsibility for the character and success of the operations.³

There are two major difficulties to be overcome in providing central finance for transportation; measuring the need and the fixing of costs under conditions of decentralized operation.⁴

²Edgar L. Morphet, "Characteristics of State Support Programs," in Problems and Issues in Public School Finance, National Conference of Professors of Educational Administration, (New York: Teachers College, Columbia University, 1952), p. 177.

³Arvid J. Burke, Financing Public Schools in the United States, (New York: Harper and Brothers, 1957), pp. 568-74, 617-628.

⁴Ibid., p. 617.

2. The classroom or pupil unit does not provide a satisfactory basis for computing transportation costs unless special adjustments are worked out for density or sparsity of population.

3. Providing a fixed amount per pupil or per unit will not meet the needs satisfactorily.

4. Allowing a percentage of expenditure does not encourage economy and efficiency.

5. Transfer of transportation pupils, with corresponding increase for road conditions, is probably the best single factor to use in determining transportation cost.

The following excerpts have definite implications for apportionment of state support for pupil transportation:

Statement of state support for pupil transportation:

... If it is (a state) in going to retain a decentralized structure, it should direct much more effort toward strengthening the local structure, improving its functioning and management, increasing its fiscal power, and removing the causes of unsatisfactory operating procedures and operations. Then upon adopting and enforcing state minimum requirements relative to per capita state upon local initiative upon financial equalization can result only in a centralized system. This can happen without abolishing local units through restricting local autonomy freedom and fiscal power. If the latter happens, the result is worse than complete centralization, because the expense overhead of local government is retained without the advantages that come from local responsibility for the character and success of the operations.

There are two major difficulties to be overcome in providing central finance for transportation; securing the need and the fixing of costs under conditions of decentralized operation.

Robert E. Harpeth, "Apportionment of State Support for Transportation," in Problems and Issues in Public School Finance, National Conference of Commissioners of Educational Administration, (New York: Teachers College, Columbia University, 1931), p. 117.

James L. Burke, Transportation in the United States, (New York: Harper and Brothers, 1931), pp. 128-129-130.

. . . It is not possible to fix costs in a state-aid formula which would be appropriate for all of the operating conditions encountered in providing transportation. Neither is it possible to rule out managerial factors completely in establishing costs for the purposes of state aid.⁵

. . . The determination of reasonable cost allowances has not been solved. Yet unless the basic state-aid program includes the full measured cost of safe transportation, equality of tax burden for the support of the foundation program and reorganization of districts in rural areas will not be realized States that attempt to finance transportation with local operational freedom have far to go in allowing for natural and managerial factors affecting costs. Existing cost accounting methods generally do not provide the basic data needed.⁶

It is better to have a local share of transportation costs in the formula than to provide inadequate treatment of the problem in a foundation program. A local share, moreover, encourages careful and economical management. Whatever formula is used, it must be constantly reviewed for under estimation or over estimation of costs. This review requires better cost accounting than exists in most school systems.⁷

Principles of sound educational finance include the following statements from Mort's work:

. . . If the cost of transportation is added, the aid is increased over what it would otherwise be by the total amount allowed for transportation. Theoretically this should be 100 per cent of all necessary cost.⁸

⁵Ibid., p. 619.

⁶Ibid., p. 623.

⁷Ibid., p. 625.

⁸Paul R. Mort, Walter C. Reusser, and John W. Polley, Public School Finance, (New York: McGraw-Hill Book Company, Inc., 1960.

. . . In the case of transportation corrections, all methods that have been developed rely upon expenditure practice in the community. If the community spends more than the amount computed by formula, it receives only the amount computed by formula. If by some combination of circumstances it saves and spends less than the amount computed by formula, the state gets the advantage of the saving rather than the community. This takes away some of the spur to economy that would arise if the community could have the funds justified and then could utilize the savings for other purposes.⁹

The progress of the development of equalization programs based on objective measures rather than on the administrative judgment of state officials gives further proof of the willingness of the American people to break away from the traditional attitude that every dollar which the state provides for schools should be accompanied by the shifting of commensurate control from the locality to the state.¹⁰

. . . The analysis showed that, in the net, equalization tended to shift to more able communities some of the undue burden carried by less able communities, while payment for effort tended to shift the burden from the richer to the poorer.¹¹

II. CRITERIA FOR EVALUATION

Certain common agreements among the foregoing excerpts are apparent. Although the possibility of achieving the ideal of all criteria in one formula is quite remote, the criteria derived from authoritative literature can be used for evaluating the New Mexico transportation support formula, and as a basis for discussion of

⁹Ibid., p. 291.

¹⁰Paul Mort, State Support for Public Schools, (New York: Teachers College, Columbia University, 1926), p. 149.

¹¹Ibid., p. 37.

... in the case of transportation companies, all methods that have been developed rely upon expenditures made in the community. If the community spends more than the amount computed by formula, it receives only the amount returned by formula. If by some combination of circumstances it saves and spends less than the amount computed by formula, the state gets the advantage of the saving rather than the community. This leaves any amount the state is to receive that would arise in the community itself has the funds justified and then could utilize the savings for other purposes.

The program of the development of equalization provisions is based on the principle that the state should have a right to equalize the educational standards of its schools. The program of the state officials gives further proof of the willingness of the American people to sweep away from the traditional attitude that every dollar which the state provides for schools should be appropriated by the state of course, and that the locality is to be paid.

... The analysis showed that, in the past, equalization funds have been used to shift the burden from one district to another, and to shift the burden from one district to the other.

III. CURRENT AND FUTURE

Certain common agreements among the various experts are apparent. Although the possibility of achieving the ideal of all districts is one thing, in this respect, the attitude derived from authorities is different. It can be said for evaluating the New Mexico transportation support formula, and as a basis for discussion of

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Report of the State Board of Education, (New Mexico) Teachers College, Columbia University, 1930, p. 12.

Page 16

points where the New Mexico support formula appears to be strong or weak. Some explanation of criterion number one appears to be in order here. The acceptance of responsibility by the state for the full measured cost of safe transportation for all pupils who need it refers to a philosophical position reflected in the legal structure which supports pupil transportation. The basis for the position of acceptance of responsibility for the full measured cost is found in statements by Mort. These statements are repeated for purposes of clarifying the theoretical ideal:

In some communities transportation of pupils is necessary in order that the state's minimum program may be offered. The costs of such transportation are legitimate responsibilities of the state as a whole. They should be considered as a part of the cost of the minimum program.¹²

. . . If the cost of transportation is added, the aid is increased over what it would otherwise be by the total amount allowed for transportation. Theoretically this should be 100 per cent of all necessary cost.¹³

The strictest interpretation of this theoretical ideal would be that complete equity had been achieved in the allocation of transportation support. Each district would have received the exact amount of support that was right and just under prevailing conditions, no more and no less. No district would have had to supply any transportation funds from local sources.

¹²Paul Mort, State Support for Public Schools, (New York: Teachers College, Columbia University, 1926), p. 99.

¹³Mort, Reusser, and Polley, loc. cit.

points where the New Mexico support formula appears to be strong or weak. Some explanation of certain minor one appears to be in order here. The acceptance of responsibility by the state for the full measured cost of safe transportation for all pupils who need it refers to a philosophical position reflected in the legal structure which supports pupil transportation. The basis for the position of acceptance of responsibility for the full measured cost is found in statements by Kant. These statements are repeated for purposes of clarifying the theoretical basis:

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¹²Paul Hays, State Support for Public Schools, (New York: Teachers College, Columbia University, 1935), p. 92.
¹³Hays, Kottner, and Weller, loc. cit.

This philosophical point of view reflects the acceptance of state responsibility without necessarily accepting or advocating that this ideal can be accomplished in practice. The methods of measurement of transportation need have not been developed to the extent that the exact "right" cost can be determined for a given amount of service.

Other views on this question are indicated by practices in states which support little or none of the cost of pupil transportation. Nebraska, Arizona, New Hampshire, North Dakota, South Dakota, Vermont, and Hawaii do not support any of the cost of transportation.¹⁴

The authorities in school finance from whose work the criteria were derived are: (1) Paul Mort; (2) Arvid J. Burke; (3) Edgar L. Morphet; and (4) Roe L. Johns. These authorities were selected from among those who write in the area of school finance because of their general acceptance as authorities throughout the United States. Numerous books in the area of school finance by these authors have been published by reputable publishing companies.

A list of criteria is presented as a basis for the discussion. The pupil transportation support formula should:

¹⁴Richard A. Dershimer, "Delaware Examines the Question: A State Supported School System?", Overview, 1:54-55, April, 1960.

This philosophical point of view reflects the acceptance of state responsibility which necessarily involves an acknowledgment that this ideal can be accomplished in practice. The methods of measurement of transportation need have not been developed to the extent that the exact "right" can be determined for a given amount of service.

Other views on this question are advanced by practitioners in states which support bills on the cost of child transportation. Nebraska, Kansas, New Hampshire, North Dakota, South Dakota, Vermont, and Hawaii do not support any of the cost of transportation.

The authorities on school finance agree upon the criteria used to judge error: (1) Fairness, (2) Equity, (3) Efficiency, (4) Economy, and (5) Simplicity. These authorities were selected from among those who write in the area of school finance because of their general acceptance as authorities throughout the United States. Numerous books in the area of school finance by these authors have been published by reputable publishing companies.

A list of criteria is presented as a basis for the discussion. The pupil transportation support formula should:

Richard A. Hartman, "Public Education: The Question of State-Supported School System", *Survey*, 1931-32, April, 1932.

1. Reflect the acceptance of responsibility by the state for the full measured cost of safe transportation for all pupils who need it.
2. Encourage efficiency and discourage extravagance in local transportation management.
3. Be based on an objective formula, excluding judgment of officials in charge of apportionment of funds.
4. Be based on an equitable formula which takes into consideration all substantial variations in necessary transportation costs resulting from factors beyond the control of local boards.
5. Be a part of a comprehensive foundation program in education financed by an equitable taxing system.

III. PROVISIONS OF THE NEW MEXICO SUPPORT FORMULA

State support for pupil transportation in New Mexico is based upon: (1) number of pupils transported, (2) length of routes, (3) class of roads over which bus routes are established, and (4) capacity of bus. Funds for pupil transportation are a part of the state Public School Equalization Fund. Expenditures for the state for pupil transportation may not exceed 20 per cent of the equalization fund for the fiscal year. The aggregate amount budgeted for school bus transportation in the maintenance budgets of any county shall not exceed 25 per cent of the total amount of such budgets.

- I. Reaffirm the acceptance of responsibility by the state for the full measured cost of all transportation for all pupils who need it.
- II. Encourage efficiency and decrease expenditures in local transportation management.
- III. Be based on an objective formula, excluding judgment of officials in charge of apportionment of funds.
- IV. Be based on an objective formula which takes into consideration all substantial variations in necessary transportation costs resulting from factors beyond the control of local boards.
- V. Be a part of a comprehensive transportation program in education financed by an equitable taxing system.

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The law governing pupil transportation is included in Appendix A, page 127. However, the essential features of the formula can be presented in condensed form. Allocations are credited to districts on the basis of the following characteristics of each route:

1. Twenty-five dollars (\$25.00) for each separate school bus unit per month, with a capacity of ten children or less.
2. Fifty dollars (\$50.00) per school bus unit, per month, for buses having a capacity of more than ten, but less than twenty-one (21).

Two dollars (\$2.00) per pupil, per month, for the next twenty pupils.

One dollar (\$1.00) per pupil, per month, in excess of forty (40) pupils one (1) way.

3. Two dollars and fifty cents (\$2.50) per mile, or major fraction thereof, per month, for the first fifteen (15) miles one (1) way.

4. One dollar and twenty-five cents (\$1.25) per mile, or major fraction thereof, per month, for the next fifteen (15) miles one (1) way.

5. Fifty cents (50¢) per mile, per month, for all miles, or major fraction thereof, in excess of thirty (30) miles, one (1) way.

6. The State Transportation Director, with the approval of the State Board of Education, may allow an additional amount per mile per month for travel over gravel or dirt roads, one (1) way, the amount to be based upon the class of gravel or dirt roads over which any route is established, but not to exceed Three dollars (\$3.00) per mile, per month. Provided, however, nothing herein shall be interpreted to mean that bus routes may be established for lesser distances than one and one-half miles one (1) way. Nothing herein contained shall be held to prevent the payment of additional amounts for transportation out of county maintenance or direct charge funds as may be provided by law.

The following is a list of the names of the persons who have been appointed to the various positions in the Department of the Interior, and who have been sworn in as such.

1. The following is a list of the names of the persons who have been appointed to the various positions in the Department of the Interior, and who have been sworn in as such.

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5. The following is a list of the names of the persons who have been appointed to the various positions in the Department of the Interior, and who have been sworn in as such.

7. There is hereby created a contingent fund of three hundred thousand dollars (\$300,000) to pay additional cost of transportation over approved bus routes in each county, but not to exceed the percentage which the total state revenue to the county for school purposes bear to ninety per cent (90%) of the amount of the five (5) mill school maintenance levy on the assessed valuation of property within the county. This fund to be administered by the State Transportation Director with the approval of the State Board of Education and the State School Budget Auditor.¹⁵

The schedule used during the year 1959-60 for additional allowances for travel over gravel or dirt roads mentioned in "6" above was: good gravel, \$1.00; fair gravel, \$1.50; rough gravel, \$2.50; improved dirt, \$1.50; unimproved dirt, \$2.25; very rough dirt, \$3.00.¹⁶

This schedule was recommended by the State Director of Transportation and approved by the State Board of Education. The State Director of Transportation views it as arbitrary and not altogether satisfactory.¹⁷

In the calculation of allocations to local districts the dollars and cents in the formula are multiplied by the appropriate figures from the bus route report, and the sum of the products is known to the State Director of Transportation as a distribution figure. At this stage the distribution figure is actually converted from dollars into distribution points. The sum of the distribution figures for each route in a district is divided by the total

¹⁵New Mexico Laws, 1941, A Compilation, Sec. 55-634.

¹⁶Figures supplied by the office of the State Director of Transportation, Santa Fe, New Mexico.

¹⁷Interview with J. T. Reece, New Mexico State Director of Transportation, March 31, 1961, Santa Fe, New Mexico.

7. There is hereby created a contingent fund of three hundred thousand dollars (\$300,000) to pay additional cost of transportation over approved bus routes in each county, but not to exceed the percentage which the total state revenue to the county for school purposes bear to ninety per cent (90%) of the amount of the five (5) mill school maintenance levy on the assessed valuation of property within the county. This fund to be administered by the State Transportation Director with the approval of the State Board of Education and the State School Budget Auditor.

The schedule used during the year 1957-58 for additional allowances for travel over gravel or dirt roads maintained in "B" group was:

Good gravel, \$1.00; fair gravel, \$1.50; rough gravel, \$2.50; improved dirt, \$1.50; unimproved dirt, \$2.25; very rough dirt, \$3.00.

This schedule was recommended by the State Director of Transportation and approved by the State Board of Education. The State Director of Transportation views it as arbitrary and not altogether satisfactory.

In the calculation of allocations to local districts the dollars and cents in the formula are multiplied by the appropriate figures from the bus route report, and the sum of the products is known to the State Director of Transportation as a distribution figure. At this stage the distribution figure is actually converted from dollars into distribution points. The sum of the distribution figures for each route in a district is divided by the total

¹⁵New Mexico Laws, 1951, A Compilation, Sec. 25-54.
¹⁶Figures supplied by the office of the State Director of Transportation, Santa Fe, New Mexico.
¹⁷Interview with L. I. Ransom, New Mexico State Director of Transportation, March 11, 1961, Santa Fe, New Mexico.

distribution figure for the state to obtain a percentage of the total amount of state support to be allocated by formula. The total support to be allocated by formula is multiplied by the percentage to which each district is entitled. An equation illustrating this process can be written to read:

$$M R_m + P R_p + C = D$$

When:

M = number of miles one way on route

R_m = appropriate rate per mile

P = number of legally transported pupils

R_p = appropriate rate per pupil

C = capacity of bus allowance

D = distribution figure

A second equation is then necessary to arrive at the per cent of total state formula allocation to which each district is entitled:

$$\frac{D}{S D} = \% TD$$

When:

D = summation of all route distribution figures within the district

S D = total distribution figures for all routes in the state

TD = total state funds approved for allocation by formula

The total of state funds approved for allocation by formula is multiplied by the per cent of TD to determine the formula distribution for each district.

The amount of funds available for allocation for pupil transportation is determined by totaling the approved budgets of all districts for transportation purposes. The total allocation for the state is limited to not more than 20 per cent of the public school equalization fund for the fiscal year. It is interesting to note that in the year 1960-61 transportation budgets accounted for 10.02 per cent of the Public School Equalization Fund, from which transportation funds are allocated. For all practical purposes, pupil transportation is 100 per cent state supported in New Mexico. The significance of these facts is discussed later in this chapter.

IV. EVALUATION OF THE FORMULA

In order to present an evaluation in as nearly objective manner as possible, the state support formula for pupil transportation has been subjected to an overall evaluation as to the adequacy of its features in relation to the criteria selected. Each criterion is restated, followed by statements indicating the presence of strengths or weaknesses in the formula within the scope of the criterion. Analyses of weaknesses and strengths follow the complete evaluation.

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1. The pupil transportation support formula should reflect the acceptance of responsibility by the state for the full measured cost of safe transportation for all pupils who need it.

An explanation and an interpretation of Criterion One have been introduced earlier in this chapter. When a state supports 100 per cent of the cost of pupil transportation, as New Mexico does, there can be no doubt that the philosophy of the state coincides with the idea expressed in this criterion. Legal limitations have been set which dictate that no more than 20 per cent of the equalization fund may be used to support transportation. In 1960-1961, the per cent of the equalization fund used for this purpose was 10.02. There appears to be little probability that the legal limit will be reached in the near future.

The method of apportioning transportation funds to districts assures that a transportation budget that appears to be within reason for each district will be completely state supported. The \$300,000 contingent fund provides extra assurance to offset any unusual circumstances which arise to upset the approved budget. The evasiveness of "full measured cost" presents somewhat of a problem. However, the formula reflects the acceptance of responsibility on the part of the state for all needed pupil transportation.

2. The pupil transportation support formula should encourage efficiency and discourage extravagance in local transportation management.

The formula leaves much to be desired when evaluated by this criterion. The very fact that it meets the requirements of Criterion One causes some difficulty here. Indeed, the liberality of the support formula in the initial allocation and the possibility of supplementary funds being available when the initial allocation is insufficient does not speak well for the formula. The penalty for extravagance does not appear to be sufficient to insure the strongest effort in the direction of good management.

3. The pupil transportation support formula should be based on an objective formula, excluding judgment of officials in charge of apportionment of funds.

The phrase "the approval of the State Transportation Director," or its equivalent, appears many times in the laws governing pupil transportation in New Mexico.¹⁸ The frequency of the word "approval" indicates strongly the lack of objectivity in the formula. The placement of so much responsibility for subjective judgment upon one person is difficult, if not impossible, to justify. The formula itself does not exhibit adequate objectivity. Numerical values used as a part of the formula appear to have had their origin in subjective judgment. This feature is covered more fully in the analysis.

¹⁸State of New Mexico Public School Code, 1953, Compiled from New Mexico Statutes, 1953, Annotated (Santa Fe Department of Public Instruction, 1954), Secs. 73-19-2, 73-7-7, 73-7-36.

The formula leaves much to be desired when evaluated by this criterion. The very fact that it meets the requirements of Criterion One causes some difficulty here. Indeed, the liberality of the support formula in the initial allocation and the possibility of supplementary funds being available when the initial allocation is insufficient does not speak well for the formula. The penalty for extravagance does not appear to be sufficient to insure the strongest effort in the direction of good management.

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The phrase "the approval of the State Transportation Board" or its equivalent, appears many times in the laws governing pupil transportation in New Mexico.¹⁸ The frequency of the word "approval" indicates strongly the lack of objectivity in the formula. The placement of so much responsibility for subjective judgment upon one person is difficult, if not impossible, to justify. The formula itself does not exhibit adequate objectivity. Numerical values used as a part of the formula appear to have had their origin in subjective judgment. This feature is covered more fully in the analysis.

¹⁸State of New Mexico Public School Code, 1917, Compiled from New Mexico Statutes, 1917, Annotated (State Department of Public Instruction, 1928), Secs. 12-1-1, 12-1-2, 12-1-3.

4. The pupil transportation support formula should be based on an equitable formula which takes into consideration all substantial variations in necessary transportation costs resulting from factors beyond the control of local boards.

The words "substantial variations" and "equitable" do not serve to objectify the allocation of support funds. They present only the theoretical basis for this allocation. Research has established the relative importance of those factors within the control of local boards and those factors beyond the control of local boards. Morphet has emphasized that density of transported population, with corrections if necessary for road conditions, is probably the best factor to use in determining transportation cost.¹⁹

Density of transported population includes the factors of: (1) number of pupils transported, and (2) length of routes as they are included in the New Mexico formula. Road conditions are a part of the formula, which is in harmony with the criterion. Road conditions are judged by authorities to be beyond the control of the local board. However, size of bus as a factor for determining cost is considered to be unsatisfactory because this factor is subject to local administrative manipulation.

5. The pupil transportation support formula should be a part of a comprehensive foundation program in education financed by an equitable taxing system.

¹⁹Morphet, op. cit., p. 177.

4. The pupil transportation support formula should be based on an equitable formula which takes into consideration all substantial variables in the necessary transportation costs resulting from factors beyond the control of local boards.

The words "substantial variables" and "equitable" do not serve to objectify the allocation of support funds. They concern only the theoretical basis for this allocation. Research has established the relative importance of those factors within the control of local boards and those factors beyond the control of local boards. Research has established that density of transported population, with correction if necessary for road conditions, is probably the best factor to use in determining transportation

costs.

Density of transported population includes the factors of: (1) number of pupils transported, and (2) length of routes as they are included in the bus routes formula. Road conditions are a part of the formula, which is in harmony with the situation. Road conditions are judged by authorities to be beyond the control of the local board. However, that it is a factor for determining costs is considered to be unsatisfactory because this factor is subject to local administrative manipulation.

5. The pupil transportation support formula should be a part of a comprehensive transportation program in each system financed by an equitable taxing system.

According to the accepted use of the term "foundation program," the pupil transportation support formula is inadequate when judged by Criterion Five. Authorities in school finance classify the system of allocation of state funds to local districts in New Mexico as the "flat grant" type of system. Funds are allocated on a per pupil basis, without regard for ability or willingness of the local districts to exert financial effort to support the schools.

The equitability of the tax system which finances the support of schools in New Mexico is an area that in itself deserves a great deal of study. No attempt is made in this study to evaluate the tax system in the light of equitability.

V. ANALYSIS OF TRENDS AND TENDENCIES CONNECTED WITH THE SUPPORT FORMULA

The persons most directly connected with finance of pupil transportation in New Mexico are: (1) the State Director of Transportation, (2) the local district superintendent, and (3) the bus contractor; local directors of transportation, directors of special services, shop foremen, and mechanics are not considered because of their lesser responsibilities within the financial area of transportation.

As a preface to the discussion and analysis of the support formula, the following hypothetical positions may provide some

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1. ANALYSIS OF THE
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insight into the possibilities for influences of pressures to develop into trends.

State Director of Transportation. The State Director of Transportation has held this position since the authorization of the office. This office was organized in 1937 to administer the pupil transportation system of the state. The rapid growth of school transportation in New Mexico and a concern for efficient administration of the large sums set aside for the task prompted the origination of the office.

The present transportation director probably has a more complete knowledge of road conditions, transportation barriers, and transportation needs for the state as a whole than any other person. Instances of political maneuvering may have been observed by the transportation director, and may have lead to the assumption that a certain amount of such activity is inevitable, regardless of the support formula structure. Such an assumption could lead to a development of a tolerance for some amount of local district level maneuvering.

The director has seen other local boards and administrators work cooperatively and conscientiously to improve pupil transportation service, while keeping costs at a minimum. A great deal of satisfaction probably has come to the director as a result of watching the pupil transportation system of the state develop into a large operation, a safe and rapid means of making schools accessible

insight into the possibilities for further development
developing these factors.

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to students. Standards for buses and drivers are high. Awards of merit have been received by the state for excellence in the transportation system on several occasions.

A keen sense of pride in the quality of the transportation system surely has been one of the consolations of the position. The director has been criticized occasionally for being dictatorial in his administration of the program. Although many attempts have been made by him to delegate responsibility and authority to local boards for decisions affecting local transportation, a large proportion of these attempts probably has resulted in disappointment to the director of transportation, some boards having refused the responsibility or having misused the authority.

The overall orientation of the director is that economy is important in the area of pupil transportation, but by no means is economy to be placed above safety, comfort and general quality of the total program. Undoubtedly he feels that experienced and satisfactory contractors should be protected from being underbid because: (1) they have a sizable investment in equipment that would be useless for another purpose, and (2) most of the contractors and their drivers are already informed on school transportation problems, safety and first aid. He may see some of the clamor for re-letting bus contracts by bid at regular intervals as a threat to the quality of the transportation program which has been built up over a period of years.

The School Superintendent. As the local district superintendent views the transportation system, he occasionally sees instances where duplication of service occurs in that two buses are being used where one would suffice. He sees another instance where a smaller bus would be more economical. He acquiesces to the awarding of contracts to friends or relatives of board members, and to other conditions which his administrative sense tells him are undesirable. Although he generally is annoyed by these manipulations, his position is stronger if he chooses to ignore or defend the acts of the board. The amount of saving that could be effected by the superintendent and for which his district would receive direct benefits does not justify the effort or risk involved in taking a strong stand for his convictions. Sometimes the superintendent is caught in a position of having to plead or debate with the State Transportation Director for funds which he feels cannot be justified on the basis of need. However, since his primary loyalty lies with his employing district, he somewhat reluctantly participates in the scramble for state funds.

At other times, the superintendent feels that his requests are justified, and in such cases, resents the authority and the arbitrary position of the state official who must refuse or reduce funds or services. Generally, the main concern of the superintendent is that pupils are transported on schedule and with a minimum of interference with his numerous other responsibilities, permitting

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endent views the transportation system, he occasionally uses instances where duplication of service occurs in that two buses are being used where one would suffice. He sees another instance where a smaller bus would be more economical. He recognizes the saving of cost to friends or relatives of board members, and to other conditions which his administrative sense tells him are undesirable. Although he generally is annoyed by these things, his position is stronger if he chooses to ignore or defend the acts of the board. The sense of saving cost could be effected by the superintendent and for which his district would receive direct benefits does not justify the effort or risk involved in taking a strong stand for his convictions. Sometimes the superintendent is caught in a position of having to place or debate with the State Transportation Director for funds which he feels cannot be justified on the basis of need. However, since his primary loyalty lies with his employing district, he somewhat reluctantly participates in the scramble for state funds. At other times, the superintendent feels that his requests are justified, and in such cases, reserves the authority and the arbitrary position of the state official who may refuse or refuse funds or services. Generally, the main concern of the superintendent is that public are transported on schedules and with a minimum of interference with the numerous other responsibilities, pertaining

him to devote a maximum of time to other pressing work.

The Contractor. Although the bus transportation contractor feels a certain amount of loyalty and obligation to his school district, he has a rationale of his own that guides his actions. His initial investment in equipment is high, and since his first contract was obtained by bid, his profits will probably not be great. He considers himself an entre preneur. He must have a return on his investment in addition to the bus replacement cost. He must have some compensation for his managerial ability, plus reasonable wages for the time he spends actually driving the bus. Some contractors have been known to have no means of support other than one route contract. When this situation exists, it is not difficult for the contractor, who is hard put to make ends meet, to put his interests above those of other aspects of the school which are in competition with him for school funds. He begins to view with alarm the salaries of teachers who, according to his rationale, have a lesser capital investment than does he. Besides, teachers do not have to pay depreciation and operating expenses from their salaries, and teachers always get home earlier in the afternoon than do bus drivers. (Deliberate exaggeration is used here by the writer for the illustration of a point.)

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Contractors generally feel a great deal of loyalty to the State Director of Transportation. They look to him for protection from underbidding or cancellation of contracts without just cause.

VI. INCENTIVE TO ECONOMY

An attempt is made in this section of the study to present and to analyze certain patterns or tendencies that may be a result of the structure of the support formula. The manner in which the funds are provided by law and, in some instances, the lack of full provision by law for channeling of funds budgeted and not expended, are also influential in the development of these trends and tendencies.

Funds for state support of pupil transportation in New Mexico are allocated from the Public School Equalization Fund. Regardless of the amount of this fund approved for transportation, the remainder of the fund is distributed to the districts on the basis of "flat grants" according to the average daily attendance in each district. This method of allocation of support to transportation is in line with Criterion One of the evaluation section of this chapter, in that the state supports 100 per cent of the transportation program. However, this method has serious implications in the area of incentive toward economy. Since that amount of money remaining in the equalization fund after deductions for transportation is distributed on the basis of average daily

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attendance, it is apparent that whatever can be saved in the area of transportation through economy measures also remains to be distributed.²⁰ The proportion that a district receives of this remaining amount is the proportion that the district's average daily attendance bears to the total average daily attendance of the state.

Based on average daily attendance figures for the year 1958-59, of every four dollars in the public school equalization fund not budgeted for transportation, the largest school district in the state would receive approximately one dollar through the average daily attendance distribution. The smallest unit in the state, on the other extreme, would receive through distribution on the basis of average daily attendance, one dollar of every \$1,635 not budgeted for transportation.

In other words, for every \$1,635, the smallest district spends for transportation, it is penalized one dollar from its average daily attendance distribution. Appropriate figures to indicate the incentive to economy for any district in the state can be obtained by simply dividing the total average daily attendance of the state by the average daily attendance of the district. (See Table I.)

The incentive to economize is a minute part of the support formula for pupil transportation as it now stands. The result of this is that arbitrary decisions based upon the judgment and

²⁰State of New Mexico Public School Code, op. cit., Sec. 73-7-35.

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Based on average daily attendance figures for the year 1958-59, of every four dollars in the public school apportionment fund not budgeted for transportation, the largest school district in the state would receive approximately one dollar through the average daily attendance distribution. The smallest unit in the state, on the other extreme, would receive through distribution on the basis of average daily attendance, one dollar of every \$1,635 not budgeted for transportation.

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TABLE I

FRACTIONS OF TOTAL NEW MEXICO A.D.A. OF
REPRESENTATIVE DISTRICTS

Based on 1958-1959 Attendance Figures

District A.D.A.	Fraction of Total State A.D.A.	A.D.A. Range	Number of Districts In Range
138*	1/1635	Under 500	31
500	1/451	501 - 1,000	20
1,000	1/225	1,001 - 2,500	23
2,500	1/90	2,501 - 5,000	8
10,000	1/23	5,001 - 10,000	9
54,000**	1/4	Over 10,000	1

A.D.A. = Average Daily Attendance

* Smallest A.D.A. in any administrative unit in the state.

** Largest A.D.A. in any administrative unit in the state.

TABLE I

FRACTIONS OF TOTAL NEW MEXICO A.D.A. BY

REPRESENTATIVE DISTRICTS

Based on 1948-1952 Attendance Figures

Number of Representative Districts	A.D.A. Range	Fraction of Total State A.D.A.	Number of A.D.A.
31	Under 500	1/155	135
20	501 - 1,000	1/51	500
23	1,001 - 2,500	1/55	1,000
8	2,501 - 5,000	1/30	2,500
2	5,001 - 10,000	1/23	10,000
1	Over 10,000	1/1	21,000

A.D.A. = Average Daily Attendance

* Smallest A.D.A. in any representative unit in the state.

** Largest A.D.A. in any representative unit in the state.

experience of the State Director of Transportation become magnified in importance as he deals with school districts with low average daily attendance. The small exception to this incentive to economy pattern is that, if a district fails to spend all its transportation budget for one year, the money is left with the district to be used in making the budget for the following year.

There is no legal provision for leaving this balance for the next year. It is simply a method the state officials have used to offset a part of the lack of incentive to economy in the present method of distribution. Under present budgeting practices, this small incentive appears to be relatively ineffective in promoting economy for the state as a whole.

Since incentive to economize is lacking in the formula itself, much depends upon the attitude and philosophy of the local board and superintendent as to how much effort will be expended to effect economies in transportation. Obviously, the range throughout the state would be great. In some instances, there may develop controversies over the spending of transportation funds because of the subjectivity involved in meeting additional transportation support needs of a district when the first allocation is insufficient. A portion of the \$300,000 contingent fund is held in reserve for emergencies. While this appears to be a necessary procedure, it probably influences upward the number of "emergencies" occurring.

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VII. INEQUITIES IN THE FORMULA

A comparison of routes within one district disclosed the fact that considerable differences can exist between the amounts of reimbursement received for a similar amount of service, depending upon circumstances. For example, a sixty-passenger bus traveling seventeen miles one way and transporting a total of sixty-seven pupils was eligible for one hundred sixty-three distribution points. Another sixty-passenger bus traveling a total of fifteen miles one way, making three trips of five miles each and transporting one hundred sixty-three pupils, was eligible for two hundred forty-eight distribution points.²¹

The difference of eighty-five in distribution points, when converted into dollars to be allocated, approximates \$1,760 per year. The bus making three trips transported an average load of double the other bus, traveled fewer miles, and was eligible for \$9.79 per day more in allocation. This figure represents more than \$.67 per mile per day one way above the bus hauling sixty-seven pupils. Certainly, encouragement needs to be given to use a bus for more than one trip, but the additional expense of a loaded bus over the expense of a half-loaded bus obviously could not be as much as allowed by the formula. This is an extreme

²¹Routes selected from district coded "B" in Table II, page 70.

VII. LIMITATIONS IN THE FORMULA

A comparison of routes which are directly connected the fact that considerable differences can exist between the amount of reimbursement received for a similar amount of service, depending upon circumstances. For example, a sixty-passenger bus traveling seventeen miles one way and transporting a total of sixty-seven pupils was eligible for one hundred fifty-three dollars. Another sixty-passenger bus traveling a total of fifteen miles one way, making three trips of five miles each and transporting one hundred sixty-three pupils, was eligible for two hundred forty-eight distribution points.²¹

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²¹ Routes selected from district coded "B" in Table II, page 70.

example, deliberately chosen by the writer, to illustrate the inequities that are possible within the use of the present formula. It should be noted that, when applied to districts rather than to routes, the formula becomes more equitable, as do all such formulas. The larger the amount of transportation service being supported in one operation, the more equitable treatment the formula guarantees. Under the formula, districts having transportation situations in which buses cannot be used for more than one trip may be severely penalized by this formula, or may give the appearance that their business management of transportation is poor.

The New Mexico support formula makes use of density of transported population, although this factor is divided into number of miles traveled and number of pupils hauled in the New Mexico formula. It does, however, include support based upon bus capacity. While it obviously costs more to operate a large bus than to operate a small bus, authorities believe that bus capacity should not be used as a factor in determining support for transportation, because this factor is subject to local administrative manipulation.²²

The numerical values attached to the factors used in the present formula are admittedly not infallible, and the difficulty

²²Johns, op. cit., p. 48.

example, deliberately chosen by the writer, to illustrate the limitations that are possible within the use of the present formula. It should be noted that, when applied to distances rather than to routes, the formula becomes more equitable, as do all such formulas. The larger the amount of transportation service being supported in one operation, the more equitable treatment the formula guarantees. Under the formula, distances having transportation situations in which cases cannot be used for more than one trip may be severely penalized by this formula, or may give the appearance that their business management of transportation is poor.

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The numerical values attached to the factors used in the present formula are admittedly not inflexible, and the difficulty

in accurately predicting the cost of transportation in each district has been a powerful influence leading to the establishment of the \$300,000 contingent fund to be administered by the director of transportation. The contingent fund was identified earlier in this chapter.

When transportation is contracted to individuals or fleet operators, the cost for a given year is more nearly fixed than with district-owned transportation. A transportation contractor agrees to a certain price for a certain amount of service extending over one or more school years. All directly concerned with the contract know what the terms of the contract are. When district-owned operations are considered, there are the possibilities of expending more or less than the amount budgeted for transportation. Subjectivity, then, is more prevalent in appropriations for district-owned buses.

An advantage of the contracting of pupil transportation is that each individual contractor is responsible for the sound and businesslike management of his operation. In such cases, no records on costs other than the contract price need to be kept by the district. In the case of district-owned buses, accurate cost records covering the operation and maintenance of each bus should be kept separately. Among other reasons for accurate cost accounting is the need to discourage the misuse of funds, equipment, gasoline, oil and other materials connected with the use of

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should be kept separately. Among other reasons for accurate cost
accounting is the need to discourage the misuse of funds, equip-
ment, gasoline, oil and other materials connected with the use of

buses. Strict control is necessary and the question arises as to whether this control should be enforced by the district or by the state officials. If it is enforced at the state level, implications for including provisions for this control come into the structure of the transportation support formula. Experience proves that if cost accounting control is not required by the state, it is not adequately enforced at the local level. Problems encountered in the collection of data for this study support this statement. Table II summarizes this situation. The Atomic Energy Commission-owned buses at Los Alamos probably represent the best in cost records, with some public schools rating "very good" in this respect. Others have no method of determining what costs should be attached to each bus.

VIII. LOCAL INITIATIVE AND LOCAL CONTROL

Criterion Five, which suggests that the transportation support program should be a part of a comprehensive foundation program, points to conditions directly related to and influential upon possibilities for methods of allocating support to pupil transportation in New Mexico. In order to achieve the equitability which is recommended for the entire state support of education, taxation must be distributed among all districts according to their ability to pay taxes, and a minimum foundation program must be guaranteed each district by the state provided that the district

TABLE II

SUMMARY OF COST DATA REPORTED BY DISTRICTS

OPERATING SCHOOL-OWNED BUSES 1959-1960

Districts Owning Buses	Code Letter for District	Number of Buses Owned	Districts Reporting	Districts Reporting Sufficient Data	Average Age of Buses	Districts Carry- ing Collision & Comprehensive Insurance	Districts Opera- ting Bus Maintenance Shops
Belen	A	5	X	X	4	X	
Bernalillo	B	17	X	X	4	X	X
Capitan	C	6	X		6		X
Central	D	12	X		3		X
Clovis	E	1	X		9		X
Des Moines	F	1	X	X	2	X	
Dexter	G	1	X	X	5	X	
Farmington	H	1	X	X	5		
Ft. Sumner	I	2	X	X	6		
Grants	J	21	X		4	X	X
Jemez Springs	K	2	X	X	3	X	
Los Alamos	L	6*	X	X	2		X*

TABLE II

(Continued)

Districts Owning Buses	Code Letter for District	Number of Buses Owned	Districts Reporting Sufficient Data	Average Age of Buses	Districts Carry- ing Collision & Comprehensive Insurance	Districts Opera- ting Bus Maintenance Shops
Lovington	M	1	X	2	X	X
Ruidoso	N	2	X	3	X	
Socorro	O	2	X	2	X	
Springer	P	2	X	5.5		
Tucumcari	Q	12	X	4	X	X
Tularosa	R	4	X	4		
Vaughn	S	1	X	9		
Cuba		3		5		
Hatch		2		5		
Los Lunas		6		**		
Truth or Consequences		2		6		

* Buses owned and maintained by the Atomic Energy Commission and operated by the Los Alamos district.

** Information not available.

has taxed itself up to a specified point. The connection here is that the State of New Mexico has a legal maximum upon certain taxes which can be collected within a district.²³ The legal limit on the tax rate on assessed valuation of a district places some districts in a position of being unable to absorb, through local taxes, any penalty imposed by factors or combinations of factors. If the formula for allocation of transportation support were applied on a strictly objective basis as it presently exists, exclusive of the contingent fund, there is probability that in some districts the allocation would not meet the transportation needs. Funds from local tax sources would not support a great deficit in the transportation account. The situation, then, has been one in which the state has accepted the responsibility for the entire amount of transportation and has had no recourse through which to provide penalty for extravagance or to provide reward for economy.

While local initiative is restricted by law, local control remains a strong aspiration of the boards of education and the patrons of the individual districts. The issue becomes one of the compatibility or incompatibility of completely state-supported programs and local control of expenditure of funds. The statement by Burke which was included at the beginning of this chapter seems

²³State of New Mexico Public School Code, op. cit., 73-7-21.

quite appropriate here.

. . . If it (a state) is going to retain a decentralized structure, it should direct much more attention toward strengthening the local structure, improving its functioning and management, increasing its fiscal powers, and removing the causes of unsatisfactory budgeting procedures and operations than upon adopting and enforcing state minimum requirements. Failure to put more stress upon freeing local initiative than upon financial equalization can result only in a centralized system. This can happen without abolishing local units through restricting local budgetary freedom and fiscal powers. If the latter happens, the result is worse than complete centralization, because the expensive overhead of local government is retained without the advantages that come from local responsibility for the character and success of the operations.²⁴

The practice in the State of New Mexico has been traditionally one of treating symptoms rather than treating causes within the financing of the pupil transportation system. The subjective judgment of the State Director of Transportation has been the main restricting force in the prevention of overspending in the transportation of pupils.

²⁴Burke, loc. cit.

Please refer to page 100

... It is a fact that the
business community, in general, is not
aware of the fact that the business
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CHAPTER IV

COMPARISON OF NEW MEXICO TRANSPORTATION SUPPORT FORMULA WITH SUPPORT FORMULAS OF OTHER STATES

I. INTRODUCTION

The comparison of the New Mexico pupil transportation support formula with support formulas of other states appears to be one way in which a goal can be established with regard to anticipated modifications in the New Mexico formula. In the comparison (Chapter III) of the New Mexico formula with the criteria derived from authoritative literature, the formula was considered as to how it measured up to each of the criteria. It must be remembered, however, that the formula which fully meets the conditions of all the criteria is to be considered the ideal. Actually, no state has attained or effected an ideal pupil transportation formula, and according to authorities previously quoted, the possibility of reaching the ideal is remote. For this reason, it appears advisable to accept for purposes of comparison those state formulas which have been mentioned by authorities in pupil transportation to be among the best presently in use.

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Research has had an effect on state policy and practice in transportation. Florida (1931), Alabama (1935), Ohio (1937), Oklahoma (1937), and West Virginia (1939) introduced more refined methods of calculating transportation allowances within the foundation program.¹

In response to letters requesting information pertaining to the support programs of the five above-mentioned states, replies and information were received from Florida, Ohio, Oklahoma, and West Virginia. Therefore, these four states were used in this study as a basis for comparison of the New Mexico pupil transportation support formula with the better support formulas presently in use. A summary of the support formulas of the four states selected for comparison follows.

Florida. The legally transported pupil in Florida is one living over two miles from the nearest appropriate school. Exceptions to this regulation are made for physically handicapped pupils.

Transportation need for purposes of apportioning state support is measured in units, which are based upon: (1) average daily attendance of transported pupils for the preceding year, (2) land area served by bus routes, and (3) transportation of physically handicapped pupils. One unit is allowed for each eighty transported pupils in average daily attendance for the preceding

¹Arvid J. Burke, Financing Public Schools in the United States, (New York: Harper and Brothers, 1957), p. 622.

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David L. Barker, Financing Public Schools in the United States (New York: Harper and Brothers, 1931), p. 622.

year. One unit is allowed for each fifty-six land sections of school transportation area. Each land section which is wholly or partially within one and one-half miles of the regular route traveled by a school bus having a combined passenger seating capacity in excess of eighteen linear feet, and each land section traversed by a regular route by a school bus of smaller capacity are counted in calculating the transportation area. The state board may allow a unit for less than fifty-six land sections served, but shall not allow units for less than forty-eight land sections. The number of transportation units allowed for any county for area served must not exceed two and one-half times the number of units allowed for transportation based on number of pupils transported. One unit may be allowed for each bus used exclusively to transport ten or more physically handicapped pupils.

All fractional parts of units upon the above basis receive proportionate shares of units. The total number of transportation units allowed each county is multiplied by \$1,250 and the product is included in the minimum foundation for transportation. At the discretion of the state board, the value of a unit may be reduced to no less than \$1,000.

Counties may not use state funds to purchase equipment at prices exceeding those that the State Department of Education determines to be the lowest prices obtainable. Also, counties spending

year. One unit is allowed for each fifty-six and one-half
school transportation area. Each unit is equal to thirty
or partially within one and one-half miles of the regular route
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capacity in excess of eighteen (18), and each unit is equal
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number of units allowed for transportation based on number of
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All fractional parts of units shall be rounded to the nearest
proportional share of units. The total number of transportation
units allowed each county is limited by \$1,250 and the amount
is included in the minimum foundation for transportation. At the
discretion of the state board, the value of a unit may be reduced
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or proposing to spend for transportation in excess of 115 per cent of the minimum foundation transportation funds must submit detailed proposals for expenditures to the state board for review.

The operation of a bus of small capacity in Florida would qualify for state support as follows: Each land section traversed by the bus is counted when determining the land area served by the bus. If the bus traverses twenty-one land sections, it will receive twenty-one parts of whatever figure the state board sets as a unit in land area for the district. If the state board allows a unit for fifty-four land sections, the fraction will be $21/54$ of a unit for area served. If the average daily attendance of pupils riding the bus the preceding year was fourteen, the route will receive credit for $14/80$ of a transportation unit. The value of a unit (\$1,250) is multiplied by these fractions to determine the dollar amount credited to the district for the operation of the bus. The amount is included in a minimum foundation program, and little further control is exercised by the state unless the amount the district spends or proposes to spend for transportation exceeds the state support by 15 per cent or more.

The operation of a minimum foundation program such as is used in Florida provides that all districts must tax their local wealth up to a certain point to be eligible for state support to schools. Once a district has taxed its local wealth up to this point, it may, at the discretion of the district, choose to increase

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detailed proposals for expenditures to the state board for review.
The operation of a bus of small capacity in Florida would
qualify for state support as follows: Each land section traversed
by the bus is counted when determining the land area served by the
bus. If the bus traverses twenty-one land sections, it will
receive twenty-one parts of whatever figure the state board sets
as a unit in land area for the district. If the state board allows
a unit for fifty-four land sections, the fraction will be $\frac{21}{54}$ of
a unit for area served. If the average daily attendance of pupils
riding the bus the preceding year was fourteen, the route will
receive credits for $14 \times \frac{21}{54}$ of a transportation unit. The value of
a unit (\$1,250) is multiplied by these fractions to determine the
dollar amount credited to the district for the operation of the
bus. The amount is included in a minimum foundation program, and
little further control is exercised by the state unless the amount
the district spends or proposes to spend for transportation exceeds
the state support by 15 per cent or more.
The operation of a minimum foundation program such as is
used in Florida provides that all districts must tax their local
wealth up to a certain point to be eligible for state support to
schools. Once a district has taxed the local wealth up to this
point, it may, at the discretion of the district, choose to increase

its tax burden further to provide more than the minimum foundation program.

Ohio. Factors used in determining the amount of state support to be apportioned to districts in Ohio are: (1) number of legally transported (more than $1\frac{1}{2}$ miles) pupils, (2) total miles traveled by each bus, and (3) road classifications. Districts are reimbursed \$14 per legally transported pupil, and road classification reimbursements range from \$22 per mile for class A roads to \$28 per mile for class D roads. Road classifications are determined by relative percentages of different types of roads. The state reimburses the district for the amount provided by the formula or for the actual cost of the transportation, whichever is the lesser. Table III depicts all factors and amounts of reimbursement for Ohio.

The state requires a complete accounting for all transportation expenses to show operating cost per bus. The transportation support program is a part of a foundation program. The fact that the support of pupil transportation is a part of the foundation program could well be responsible for the elimination of some of the original ten factors that were used in the Ohio formula. When the local district contributes to the transportation support program, incentive tends to bring managerial practices within limits that minimize their effect upon transportation costs.

its tax burden further to provide more than the minimum foundation program.

Ohio. Factors used in determining the amount of state support to be apportioned to districts in Ohio are: (1) number of legally transported (more than 1 1/2 miles) pupils, (2) total miles traveled by each bus, and (3) road classifications. Districts are reimbursed \$11 per legally transported pupil, and road classifications reimbursement range from \$22 per mile for class A roads to \$38 per mile for class D roads. Road classifications are determined by relative percentages of different types of roads. The same reimbursement the district for the amount provided by the formula or for the actual cost of the transportation, whichever is the lesser. Table III depicts all factors and amounts of reimbursement for

Ohio.

The state requires a complete accounting for all transportation expenses to show operating cost per bus. The transportation support program is a part of a foundation program. The fact that the support of pupil transportation is a part of the foundation program could well be responsible for the elimination of some of the original ten factors that were used in the Ohio formula. When the local district contributes to the transportation support program, incentive tends to bring managerial practices within limits that minimize their effect upon transportation costs.

TABLE III

PUPIL TRANSPORTATION FORMULA FOR OHIO

Road Condition	Road Classification*			
	A	B	C	D
Gravel	0-39%	40-59%	60-79%	80-100%
Gravel, rolling hills, severe hills	0-29%	30-39%	50-59%	70-79%
Severe hills	0-19%	20-29%	40-49%	60-69%
Amount of State Sup- port per mile for road conditions	\$22	\$24	\$26	\$28
Amount of State Sup- port per eligible pupil transported	\$14	\$14	\$14	\$14

*Road classification is determined by per cent
of each road condition.

TABLE III

PUPIL TRANSITION FROM GRADE 1 TO GRADE 2

Total		Boys		Girls	
Number	Percentage	Number	Percentage	Number	Percentage
Gravel	0-392	10-304	10-304	0-392	0-392
Gravel, rolling hills	0-392	10-304	10-304	0-392	0-392
Severe hills	0-392	10-304	10-304	0-392	0-392
Severe hills	0-392	10-304	10-304	0-392	0-392
Amount of State help					
per cent of total					
road construction					
Amount of State help					
per cent of total					
road construction					
Amount of State help					
per cent of total					
road construction					

Oklahoma. In Oklahoma a legally transported pupil is a pupil transported more than one and one-half miles to school, and the pupil must live outside the corporate limits of the town or city where his school is located. Any district having more than forty square miles of area and maintaining a central school may provide pupil transportation with the approval of the state board. The state board determines transportation area boundaries, routes, minimum specifications for equipment, and maximum prices allowed to be paid for equipment.

A special feature of the Oklahoma plan is the special transportation revolving fund which allows districts to lease buses from the state with an option to buy the bus, applying any rental already paid to the purchase price.

In the support formula are combined the factors of area served, which depends upon the topography of the land surrounding a route, and the average daily haul for the next preceding year to derive a density figure. The total area served is calculated by including the total area within two miles of the regular approved route within the transportation area; and for routes on winding, hilly, or mountainous roads, the total area within two and one-half miles of the route is included. The average daily haul for the next preceding year is divided by the total area served for the same period to determine the density figure. Density figures from .30 to 8.00 or more receive graduated per capita allowances from

Oklahoma. In Oklahoma a legally transported pupil is a pupil transported more than one and one-half miles to school, and the pupil must live outside the corporate limits of the town or city where his school is located. Any district having more than forty square miles of area and maintaining a central school may provide pupil transportation with the approval of the state board. The state board determines transportation fees, distances, routes, minimum specifications for equipment, and maximum prices allowed to be paid for equipment.

A special feature of the Oklahoma plan is the special transportation involving funds which allows districts to lease buses from the state with an option to buy the bus, applying any rental already paid to the purchase price.

In the support formula are included the factors of area served, which depends upon the topography of the land surrounding a route, and the average daily haul for the next preceding year to derive a density figure. The total area served is calculated by including the total area within two miles of the regular approved route within the transportation area; and for routes on winding, hilly, or mountainous roads, the total area within two and one-half miles of the route is included. The average daily haul for the next preceding year is divided by the total area served for the same period to determine the density figure. Density figures from .30 to .80 or more receive guaranteed per capita allowances from

\$76 down to \$15.

A correction or "K" figure is determined by dividing the cost of transportation in the district for the past six years by the minimum program for transportation for the same period as calculated by the state board of education. This "K" figure may not exceed 1.25.

The actual amount of state support each district receives is the average number of pupils legally transported daily multiplied by the per capita allowance which is appropriate for the density figure of the district, and this product is multiplied by the district correction figure. Using the same figures that were used in the Florida example, the support to a district for the operation of a route may be figured as follows. The area served is 21 land sections. The average daily attendance of pupils hauled the next preceding year is 14. The average daily haul divided by the area served yields a density figure of .667. The per capita allowance for this density is \$55, according to the schedule of per capita allowances.²

If a district's total costs for transportation for the past six years were \$150,000, and if the amounts calculated by

²The School Finance and Transportation Laws, 1959-61, Bulletin No. 145-K (Oklahoma City: Oklahoma State Board of Education, Finance Division, 1961), p. 38.

\$75 down to \$15.

A correction or "K" figure is determined by dividing the cost of transportation in the district for the past six years by the minimum program for transportation for the same period as calculated by the state board of education. This "K" figure may not exceed 1.25.

The actual amount of state support each district receives is the average number of pupils legally transported daily multiplied by the per capita allowance which is appropriate for the density figure of the district, and this product is multiplied by the district correction figure. Using the same figures that were used in the Florida example, the support to a district for the operation of a route may be figured as follows. The area served is 21 land sections. The average daily attendance of pupils is 14. The average daily pupil divided by the area served yields a density figure of .67. The per capita allowance for this density is \$22, according to the schedule of per capita allowances.²

If a district's total cost for transportation for the past six years were \$150,000, and if the amount calculated by

²The School Finance and Transportation Law, 1959-60, Bulletin No. 115-1 (Alabama Law, Alabama State Board of Education, Finance Division, 1961), p. 30.

formula for the same six years totaled \$130,000, the correction figure would be 1.15. This figure is multiplied by the total allowance according to per capita to determine the actual state support.

Adjustments for unusual circumstances may be obtained by districts where special provisions apply to the district. In districts having a density figure of less than .40, the state may allow the calculated or actual cost, whichever is less. Any money not spent for transportation after standards have been met is available to be spent for another part of the educational program.

West Virginia. Pupil transportation support funds in West Virginia are apportioned as part of the foundation program. Data from the third month of the current year are used to compute allocations for the next fiscal year. In the calculation of the amount of support, the total number of pupils scheduled to ride buses is divided by the total length in miles one way of all regularly scheduled routes. The average number of transported pupils per mile one way is then multiplied by the annual per pupil allowance which is written into the law. The scale for annual per pupil allowance ranges from \$41 for an average of 2.59 and less pupils per mile to \$20.40 for an average of 6.40 or more pupils per mile. For a bus traveling a one-way-route distance of 20 miles and transporting 60 pupils, the average number of transported pupils

per mile one way is 3.0. This average is identical to the linear density used by some other formulas. The number of pupils transported (60) is multiplied by the appropriate annual allowance per pupil, \$35.40 in the West Virginia scale, to determine the allocation for one route. Districts operating as county units would not receive allocations by individual bus routes. Time would be saved by computing for an entire county at one time.

Whenever it appears to the satisfaction of the board that average transportation costs per pupil in the state have increased or decreased five per cent or more as compared with the scale of annual transportation allowance per pupil used in computing the foundation program for the previous year, the board may recompute the scale to determine justifiable increases or decreases in such allowances.

In West Virginia, the state also reimburses each county for payment to pupils in lieu of transportation and for funds expended by the county for public transportation for pupils. In these cases, the average statewide cost per pupil is the amount reimbursed.

It appears that the most serious fault of the West Virginia law is that it allows reimbursement for pupils scheduled to ride buses. Perhaps the actual cost per pupil transported could be influenced by picking up large numbers of pupils near schools, rather than limiting transportation to pupils who live greater

per mile one way is 3.0. This average is identical to the linear density used by some other formulas. The number of pupils transported (50) is multiplied by the appropriate pupil allowance per pupil, \$35.40 in the West Virginia scale, to determine the allowance for one route. Districts receiving as many routes would not receive allocations by individual bus routes. This would be saved by computing for an entire county at one time.

Whenever it appears to the satisfaction of the board that average transportation costs per pupil in the state have increased or decreased five per cent or more as compared with the scale of annual transportation allowance per pupil used by computing the transportation program for the previous year, the board may recommend the scale to determine justifiable increases or decreases in such allowance.

In West Virginia, the state also reimburses each county for payment to pupils in lieu of transportation and for tuition expended by the county for public transportation for pupils. In these cases, the average statewide cost per pupil is the amount reimbursed.

It appears that the most serious fault of the West Virginia law is that it allows reimbursement for pupils enrolled in schools. Perhaps the actual cost per pupil transported could be influenced by picking up large numbers of pupils near schools, rather than limiting transportation to pupils who drive greater

distances from the school. However, by increasing the average number of pupils per mile, the per capita reimbursement per pupil would be decreased according to the sliding scale. The weakness of the law lies in the fact that pupils in the area near the school can be used to claim transportation support. Certainly, this policy differs from formulas which establish one and one-half or two miles as the minimum legal transporting distance.

II. COMMON AND UNIQUE CHARACTERISTICS OF THE SUPPORT FORMULAS OF FLORIDA, OHIO, OKLAHOMA, AND WEST VIRGINIA

Certain qualities or characteristics are found to be common to all or most of the state support formulas reviewed above. Other characteristics are found to be unique to one formula. The frequency with which a characteristic is found in the four state formulas does not necessarily indicate the degree of the desirability of such a characteristic in all formulas. Characteristics of formulas must be judged in the light of whether they are conducive to satisfactory and efficient pupil transportation.

Some of the characteristics of these formulas have been determined to be good and effective in practical use. Most of these good characteristics are merely ways in which states are attempting to fulfill the requirements of the criteria listed in Chapter III.

1. All of the formulas reviewed use density of transported population as the major factor in

distance from the school. However, by increasing the average number of pupils per mile, the per capita transportation per pupil would be decreased according to the riding school. The weakness of the law lies in the fact that pupils in the area near the school can be used to obtain transportation support. Certainly, this policy differs from formulas which establish one and one-half or two miles as the minimum legal transportation distance.

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Some of the characteristics of these formulas have been determined to be good and effective in practical use. Most of these good characteristics are merely ways in which states are attempting to fulfill the requirements of the orders listed in

Chapter III.

1. All of the formulas reviewed use density as transportation population as the major factor in

allocation of support. Two formulas use density per square mile, and two use linear density.

2. All of the formulas reviewed are a part of a foundation program.
3. Three plans have a minimum distance which determines allocations for transportation of legally transported pupils.
4. Two formulas allow for differences in topography or condition of roads.
5. The correction figure used in the Oklahoma formula is not present in any other formula.
6. Strict accounting for expenditures in transportation is a part of three of the support formulas.

III. THE NEW MEXICO SUPPORT FORMULA COMPARED

In order to facilitate the discussion dealing with the formula for pupil transportation support in New Mexico and support formulas for other states, those formulas selected from other states are referred to as "other states." The comparison is made by pointing out differences between the formulas and calling attention to possible effects of these differences.

The New Mexico formula is based upon: (1) the number of pupils transported, (2) the number of miles of routes, and (3) the conditions of the roads traveled by the routes. The formula also

includes an allowance based upon the size of the bus used, in addition to a graduated scale for payment according to the number of pupils hauled per bus. Florida has also provided for a differential in bus size for purposes of calculating land area served.

It appears that where bus size is left to the discretion of the local board of education, or proper incentive is not provided to encourage economy, local administrative manipulation may enable a district to collect more state support, depending upon the size of buses used. This would be especially true in states furnishing 100 per cent support to transportation. In New Mexico, if smaller buses are used, more support per student can be collected from the state. Also, the use of smaller buses requires the employment of more drivers or contractors. This possibility for an expanded payroll at state expense presents opportunities for the politically aspiring school official to collect support from the state and to redistribute the benefits within his community. Here is emphasized the ever-present danger of local decision-making at the expense of the state. In the New Mexico formula, there is a differential of \$25.00 between buses, depending on size, whether the larger bus is used to capacity or not.³

The factors of number of pupils and number of miles are the

³State of New Mexico Public School Code, 1953, Compiled from New Mexico Statutes, 1953, Annotated, (Santa Fe Department of Public Instruction, 1954), Sec. 73-7-36.

equivalent of the density measures in other states in that other states have combined pupils and miles into one factor known as density. No determination has been made of the likeness of the effect of these density factors in the apportionment of funds.

Assuming the operation of a sixty-passenger bus on a thirty-mile route, transporting fifty-five pupils, further breakdown of the route in number of miles of each type of road is necessary before computation can be made for allocation. If ten miles are pavement, ten miles rough gravel, and ten miles improved dirt roads, the distribution figure for the route can be derived as follows: \$50 allowed for bus capacity, \$2 per pupil for pupils twenty-one through forty, and \$1 per pupil for pupils in excess of forty, would total \$105.

Two dollars and fifty cents per mile for the first fifteen miles, \$1.25 per mile for the next fifteen miles would total \$56.25. Under the additional allowance provision, no extra compensation would be allowed for miles on pavement, but rough gravel roads traveled would receive \$2.50 per mile and improved dirt roads traveled would receive \$1.50 per mile, adding \$25 and \$15 to the figures of \$105 for bus capacity and pupils, and \$56.25 for regular per mile payment. The total distribution for this route would be \$201.25.

The derivation of this figure, although expressed in the act in terms of dollars and cents per month, is actually used as

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a point system, having nothing to do with either dollars or per month until it is reconverted into dollars and cents through further computation. The \$201.25, or distribution figure, yields an allocation for the local district depending upon the per cent it is of the total of distribution figures for all routes in the state, and depending further upon the amount of funds set aside to support the entire transportation program in New Mexico.

The allocation of state support to pupil transportation in New Mexico is quite difficult to interpret from the statutes. This difficulty of interpretation raises the question of whether school officials in local districts are adequately informed about the allocation methods and procedures. Errors made by school officials in completing the required transportation report forms is further cause for concern.

The New Mexico formula stands alone against the other state formulas with respect to being a part of a foundation program. This fact is considered to be the most glaring fault of the New Mexico support formula. The blame cannot justly be placed upon the originators of the formula. However, the shortcoming is still there.

The rural district with the low assessed valuation is the district most likely to spend a higher percentage of all its available funds for transportation. These small units generally are spending more money per capita on transportation alone than

a point where, under the law, the State is not

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they can spend per capita from local funds for all purposes. Legal limits upon local property taxes will not allow some districts to produce as much in local revenue as is being spent for pupil transportation alone. Those thirty-one administrative units with average daily attendances below 500, in 1959-60, spent an average of \$57.52 per capita from local sources and an average of \$93.84 per capita on transportation.⁴ Obviously, these schools cannot absorb a substantial portion of transportation costs with funds from local sources. The district having the most extreme situation in this respect was Mora, which spent \$5.49 per capita from local funds and spent \$62.38 per capita for transportation. A penalty of 8.8 per cent of this district's transportation expenditures would have equaled 100 per cent of its available local funds.

The New Mexico formula compares favorably with the other state formulas in minimum distance for legally transported pupils. The 1.5 mile minimum appears to be a reasonable distance. Although no support is given for transporting pupils under this limit, several schools do haul pupils below this limit. In reality, the state actually absorbs the cost of this transportation along with the cost of transporting the legally transported pupils if the district can perform this additional service and stay within its formula allocation.

The New Mexico formula allows for differences in topography

⁴Public School Finance Division, Statistics, Fiscal Year 1959-60, (Santa Fe: New Mexico Department of Finance and Administration, n.d.), p. 10.

and road conditions. Mention is made in the formula of road conditions only, but difference in topography is reflected in road conditions. Allowances for different road conditions are arbitrary, and little is known of the accuracy with which the allowances compensate for differing conditions. Amounts presently allowed for roads other than pavement are: good gravel, \$1.00; fair gravel, \$1.50; rough gravel, \$2.50; improved dirt, \$1.50; unimproved dirt, \$2.25; very rough dirt, \$3.00. These amounts are listed in the formula as dollar amounts, but are converted to distribution points. For each point, approximately \$2.31 was allocated in 1959-1960.

The contingent fund in the New Mexico formula has a purpose similar to that of the correction factor in the Oklahoma formula. Both are intended to provide additional funds when the allocation by formula does not meet the cost of transportation. The correction factor in the Oklahoma formula is much more objective than the contingent fund administration in New Mexico, in that the costs for the past six years are used in Oklahoma to determine the correction, while the contingent fund is "to pay additional cost of transportation over approved bus routes in each county" and is "to be administered by the State Transportation Director."⁵

⁵State of New Mexico Public School Code, loc. cit.

While strict accounting for transportation funds is required in three of the other state formulas, no accounting is required by the formula proper in New Mexico. Once the funds are allocated, the law requires the approval of budgets by state agencies.⁶ Law also requires periodic auditing of district accounting records. However, local auditors are generally used, and the State Director of Transportation has little control over the details of transportation fund expenditures.

⁶Ibid., 73-7-7.

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CHAPTER V

THE SPARSITY FACTOR AND COSTS

I. COLLECTION OF DATA

The transportation cost data used as a basis for this study were derived from cost records of certain New Mexico school districts which owned conveyances and operated them on regular routes transporting pupils to and from school. In the year 1959-1960, the year to which this study was limited, twenty-three school districts in New Mexico owned and operated a total of one-hundred-twelve buses, ranging in seating capacity from eight to sixty-six. Questionnaires seeking information on costs of maintaining and operating each bus were sent to each school which owned and operated buses.

Of the twenty-three districts receiving questionnaires, replies were returned by nineteen. Four of the schools reporting stated that no records were kept during the year by which the cost of operation for each bus could be ascertained. Indications are that some other districts had records from which the information requested was not readily obtainable, and that considerable extra effort was required on the part of persons in charge of records to compile the information requested. Also, such practices as using school-owned buses for transporting pupils other than on

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regular routes, while being excellent managerial practices, hinder the measurement of actual cost of pupil transportation to and from school. Records kept by districts ranged from the legal minimum to accurate cumulative records. One district maintains a cumulative cost record which accounts for all expense per bus for the life of the bus.

A total of fifty-four routes were used in determining cost conditions. It should be emphasized that this number, when considered in view of the various conditions represented, does not constitute sufficient basis for hard and fast conclusions about costs of operation. The period of time (1959-1960) included in the study, the wide range of road conditions represented, the range in seating capacity of buses, and difference in managerial practices used, all partially explain the substantial deviations from the mean cost per pupil. A full discussion of this problem is given later in this chapter.

II. ROUTE COST DATA

Depreciation of Buses. For purposes of this study, buses were depreciated 10 per cent per year based upon the original purchase price of the bus. This basis was arbitrarily determined after a study of some depreciation practices in use.

The Atomic Energy Commission, which owns the school-operated buses at Los Alamos, has a policy of replacing its buses at the end

of eight years' service, or at 80,000 miles, whichever occurs first.¹ The Normandy School District, St. Louis, Missouri, depreciates its buses at the rate of 10 per cent per year. Assistant Superintendent H. C. Bleckschmidt states, "We find, however, that the majority of our buses last longer than the customary ten years."² Belknap sees the depreciation of school buses as more a matter of years than of miles.³

The average age of the district-owned buses in New Mexico is four years. It appears that, on the average, buses are being replaced at the end of eight years of service. The arbitrary assumption in this study was that buses could be used nine years, and would, at the end of this period, be worth approximately 10 per cent of the original cost when sold or traded. On this basis, 10 per cent of the original cost was included in costs for the year 1959-1960.

Salaries of Drivers. Drivers' salaries were included as they were reported to the State Director of Transportation by each district superintendent. Salaries reported ranged from \$675 to

¹Interview with Paul Goodfellow, Business Manager, Los Alamos Schools, April 4, 1961.

²H. C. Bleckschmidt, personal letter to the writer, January 16, 1961.

³Burton H. Belknap, The School Bus, (Philadelphia: Educational Publishers, Inc., 1950), p. 158.

\$2,100 for the year. It was not determined by this study how many, if any, duties other than actual operation of buses are being performed by drivers. There is the possibility that salary of drivers may cover some custodial or other duties.

Insurance Costs. Premiums paid for insurance against liability arising from bodily injury, property damage, or medical expense were included as a part of the cost of maintaining buses. All districts owning buses carried liability insurance. Ten of the districts reporting carried collision and comprehensive insurance on their buses. Because this type of insurance for buses is not recognized by authorities as necessary, and because its purchase was not unanimous among districts, its cost was excluded from the costs of operation for purposes of this study.

Total Cost of Route. The costs of gasoline and oil, lubrication, parts, labor, tires, and some miscellaneous costs were included within the category of cost of operation. These costs of operation for each bus were combined with the salary of driver, depreciation, and insurance premium cost to determine total cost of each route. Storage and interest on investment were not considered as a part of the cost.

For statistical analysis, routes were divided into two groups. All routes having 70 per cent or more of the roads on the route paved were classified as the AB routes. All routes with less than 70 per cent of roads paved were classified as CD routes.

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The AB group was comprised of twenty-two routes. The CD group had thirty-two routes.

Length of route one way was used as a basis for establishing linear density. The linear density for each route was established by dividing the number of pupils transported by the bus by the number of miles one way on the route. The resulting number is a combination of pupils transported and distance into one factor.

The cost per pupil transported for each route was determined by dividing the total cost of the route for the year by the number of pupils transported. This figure was the cost per pupil per year. The number of pupils who rode the bus was used to figure the linear density. Although those pupils living within a distance of one and one-half miles of school are not counted under the present support plan, it can be assumed that the cost of their transportation is a part of the total cost of transportation. It was felt that the inclusion of these pupils would render a more accurate picture of per pupil cost than would be rendered if they were excluded. It is readily conceded that the cost per pupil will be distorted or greatly influenced according to the percentage of these "non-legally transported" pupils who ride any bus, when the general aim is to establish a reasonable cost per pupil for transporting "legally transported" pupils.

Statistical Analysis. For the twenty-two routes in the AB classification, linear density ranged from 1.29 (B13) to 16.30

(L2), with a mean of 8.18. Cost per pupil ranged from \$16.88 (B3) to \$73.17 (B5), with a mean of \$35.30. Table IV lists linear density and cost per pupil transported for all AB routes. Correlation between linear density and cost per pupil was $-.56$. Standard deviations were 4.48 for linear density and 15.87 for cost per pupil.

In the AB group, where no route had more than 30 per cent of its mileage unpaved, and a large majority of the routes were 100 per cent paved, the substantial deviation from the mean cost per pupil appears to be more than would ordinarily be expected under such nearly uniform conditions. The fact that figures from only one year were used leaves open the possibility of unusually large expenditures for emergency repairs on a particular bus during the year, these expenditures being reflected in a deviation from the mean cost. Likewise, any extravagance or extremely economical operation is reflected in a greater standard deviation. In studying Table V, it can be noted that when a linear density of 17.00 is used to predict cost per pupil, the standard deviation almost equals the predicted cost per pupil.

Evident in the analysis of data is the importance of managerial factors in cost of operation of buses. There is indication that a higher correlation, and, therefore, a closer prediction of reasonable cost would be possible if correlations included only those costs connected with the actual operation and maintenance of buses, excluding salary, depreciation, insurance, and other more nearly fixed charges.

CONFIDENTIAL

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and [Illegible text]

between [Illegible text]

ations [Illegible text]

of the [Illegible text]

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per [Illegible text]

under [Illegible text]

only [Illegible text]

large [Illegible text]

the [Illegible text]

the [Illegible text]

operation [Illegible text]

staying [Illegible text]

17.00 [Illegible text]

about [Illegible text]

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TABLE IV

CLASSIFICATION AB ROUTES, LINEAR DENSITY,
AND COST PER PUPIL
NEW MEXICO - 1959-1960

Route	Linear Density	Cost Per Pupil
A1	4.36	\$ 47.60
A3	5.86	23.58
B2	8.50	23.90
B3	6.10	16.88
B4	5.30	34.62
B5	1.92	73.17
B6	4.00	29.24
B8	10.86	13.67
B9	10.40	22.70
B13	1.29	52.04
B17	11.10	17.50
K1	3.13	60.72
K2	16.00	47.07
H1	10.90	40.77
L1	8.00	29.87
L2	16.30	29.95
L3	12.30	29.05

TABLE IV
(Continued)

Route	Linear Density	Cost Per Pupil
L4	9.75	\$ 29.20
L5	15.66	24.91
L6	9.00	33.52
ML	9.00	21.96
OL	1.30	64.67

TABLE V

PREDICTIONS OF PER PUPIL PER YEAR COST FOR
ROUTES TRAVELING ROADS IN CLASSIFICATION AB

Linear Density	Predicted Cost Per Pupil
1.00	\$ 49.51
2.00	47.54
3.00	45.55
4.00	43.58
5.00	41.60
6.00	39.61
7.00	37.60

100

COMPANY

Route	
1	1.00
2	2.00
3	3.00
4	4.00
5	5.00

TABLE

TABLE

Table	
1.00	1.00
2.00	2.00
3.00	3.00
4.00	4.00
5.00	5.00
6.00	6.00
7.00	7.00

TABLE V
(Continued)

Linear Density	Predicted Cost Per Pupil
8.00	\$ 35.66
9.00	33.68
10.00	31.70
11.00	29.72
12.00	27.74
13.00	25.76
14.00	23.78
15.00	21.80
16.00	19.96
17.00	17.84

Several of these managerial factors, which are largely within at least partial control of the board of education, serve to lower the correlation between linear density and cost per transported pupil.

In the CD group of routes, there was greater variety of road conditions than in the AB group. The CD group included routes having 100 per cent non-paved roads as well as some with up to 70 per cent paved roads. The standard deviation for the

COLLEGE

1910-1911

1911-1912

1912-1913

1913-1914

1914-1915

1915-1916

1916-1917

1917-1918

1918-1919

1919-1920

1920-1921

1921-1922

1922-1923

1923-1924

1924-1925

1925-1926

1926-1927

1927-1928

1928-1929

1929-1930

1930-1931

1931-1932

1932-1933

1933-1934

1934-1935

1935-1936

1936-1937

cost per pupil variable was considerably greater than that for the AB group.

In the CD group, the lowest linear density was .40, with a corresponding cost per pupil of \$114.00. The highest cost per pupil (\$162.00) was on a route having a linear density of .86. The highest linear density (19.00) was accompanied by a cost per pupil of \$20.61. The lowest cost per pupil (\$18.33) was on a route having a linear density of 12.10. See Table VII.

With the high cost per pupil at \$162.00, the low at \$18.33, the mean at 57.31, and the standard deviation at 32.59, it does not appear likely that accurate predictions can be made on the basis of this grouping of routes.

Eleven routes were selected from among the CD group to conform to specific limits as to linear density and road conditions. Selections were limited to two districts that appeared to be using good managerial practices, and which also had routes within the conditions specified. See Table VI.

This group was classified the D routes. All routes in the D group had 60 per cent or more of the roads of gravel or dirt. Linear density ranged from .91 to 2.66. The coefficient of correlation between linear density and cost per pupil in this selected group was $-.88$, the highest of the three groupings. Mean linear density was 1.69, and standard deviation for this variable was .627. Mean cost per pupil for the D group was \$51.79, and standard

cost per pupil variable was considered greater than that for

the AB group.

In the CD group, the linear density was .40 pupils

a corresponding cost per pupil of \$11.00. The highest cost per

pupil (\$10.00) was on a route having a linear density of .40.

The highest linear density (.40) was accompanied by a cost per

pupil of \$10.00. The lowest cost per pupil (\$10.00) was on a

route having a linear density of .40. (See Table VII.)

With the high cost per pupil at \$10.00, the low at \$10.00,

the mean at \$10.00, and the standard deviation at \$10.00, it does not

appear likely that accurate predictions can be made on the basis of

this grouping of routes.

Eleven routes were selected from among the CD group for

analysis to provide data as to linear density and road condi-

tions. Selections were limited to the routes that appeared

to be having good managerial potential, and which also had routes

within the coefficient specified. See Table VI.

This group was classified into B routes. All routes in the

B group had 60 per cent or more of the route of gravel or dirt.

Linear density ranged from .21 to .40. The coefficient of correlation

between linear density and cost per pupil in this selected

group was -.86, the highest of the three groupings. These linear

density was 1.05, and standard deviation for this variable was

.027. Mean cost per pupil for the B group was \$11.77, and standard

TABLE VI
CLASSIFICATION D ROUTES, LINEAR DENSITY,
AND COST PER PUPIL

1959-1960

Route*	Linear Density	Cost Per Pupil
B11 ₁	2.66	\$ 54.87
Q2	1.92	46.09
Q3	1.26	62.51
Q4	1.76	48.10
Q6	.91	62.00
Q7	1.69	44.63
Q8	2.66	44.06
Q9	.91	62.13
Q10	1.03	57.24
Q11	2.36	44.79
Q12	1.41	43.39

*These routes were selected to conform to specific limitations as to linear density and road conditions. All routes in this table were 60 per cent or more gravel and dirt roads. Districts operating these routes were arbitrarily selected because of apparent good managerial practices in use.

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TABLE VII

CLASSIFICATION CD ROUTES, LINEAR DENSITY,
AND COST PER PUPIL
NEW MEXICO - 1959-1960

Route	Linear Density	Cost Per Pupil
A2	10.30	\$ 25.33
A4	5.36	39.42
A5	14.20	35.12
B1	6.44	32.69
B7	12.10	18.33
B10	2.66	44.07
B11	2.60	48.59
B12	1.29	51.08
B14	2.66	54.81
B15	2.66	46.32
B16	2.93	45.00
F1	.40	114.00
G1	5.00	39.08
I1	19.00	20.61
I2	1.06	107.00
N1	2.41	76.75
N2	1.06	63.46

CLASSIFICATION OF FORESTS, - LANDS, - AND WATERS

NEW MEXICO - 1957-1958

Forest	Land	Water
AS	10.70	10.70
AL	2.50	2.50
AF	11.30	11.30
AI	0.50	0.50
AV	12.10	12.10
ALO	1.50	1.50
ALI	2.00	2.00
ALS	1.50	1.50
ALP	2.50	2.50
ALS	2.50	2.50
ALS	2.50	2.50
AT	1.50	1.50
AT	2.50	2.50
IL	12.00	12.00
IS	1.00	1.00
NI	2.50	2.50
NS	1.00	1.00

TABLE VII
(Continued)

Route	Linear Density	Cost Per Pupil
Q2	7.00	\$ 25.25
F1	.86	162.00
P2	.61	131.28
Q1	.71	65.93
Q2	1.92	46.09
Q3	1.26	62.51
Q4	1.76	48.10
Q5	.66	72.77
Q6	.91	62.00
Q7	1.69	44.63
Q8	2.66	44.06
Q9	.91	62.13
Q10	1.03	57.24
Q11	2.36	44.79
Q12	1.41	43.39

deviation here was 7.39. Standard error of the estimate of cost per pupil per year in this group was 4.28, indicating that 68 per cent of all predictions of cost per pupil per year for routes

within the specifications of this group would not miss the correct estimate by more than \$4.28. When dealing with a mean cost of \$51.79, the percentage of error would not be great. In this case, the standard error of estimate is 8 per cent of the mean cost per pupil.

III. PREDICTION OF REASONABLE COST

Through the use of the regression equation, a prediction can be made as to how much change in cost per pupil will accompany a given change in linear density. The accuracy of such a prediction depends upon the coefficient of correlation between the two variables. The higher the coefficient of correlation, the more accurately can cost per pupil be predicted from linear density. The regression equation is stated as follows:

$$\bar{Y} = r \frac{Y}{X} (X - MX) + MY$$

when

\bar{Y} = predicted cost per pupil

r = coefficient of correlation between linear density
and cost per transported pupil

X = linear density used to predict cost per transported
pupil

MX = mean linear density

MY = mean cost per transported pupil

within the specification of the first group, the first
 fact estimate by more than 10% of the total
 of 52.75, the percentage of error was 10% of the
 case, the standard error of estimate is 10% of the
 cost per pupil.

III. ANALYSIS OF VARIANCE
 The first step in the analysis of variance is to
 can be made as follows: the total variance can be
 a given change in linear regression. The total
 then depends upon the number of observations and the
 variables. The linear regression is the best
 estimate of the cost per pupil as a function of the
 The regression equation is given by the formula

$$Y = a + bX$$

where
 Y = predicted cost per pupil
 X = actual cost per pupil
 a = constant
 b = coefficient of correlation
 X = linear distance from the origin
 until
 Y = mean linear distance
 X = mean linear distance

Predictions of cost are made by substituting the linear density for which a prediction is desired, and substituting the other appropriate values into the equation. For example, prediction for a linear density of 1.00 was made for Table V by substituting the following values into the formula:

$$X = 1.00$$

$$MX = 8.18$$

$$MY = \$35.30$$

$$r = -.56$$

$$x = 4.48$$

$$y = 15.87$$

Computation yielded a predicted cost per pupil of \$49.51.

Table V shows predicted costs for AB routes. Predictions for linear densities of 1.00 through 17.00 have been made. Indications are that road conditions in this case are uniform enough that fairly accurate predictions of reasonable cost can be made. No attempt was made to correlate salary of driver with any other factor. Salary would be expected to correspond to the amount of time required to drive a route. One exception to this would depend upon how much time was required for the driver to get from his home or place of other employment to the place where he began his bus driving duties. This can be classified as a managerial factor, and would vary according to the distance from school that the route begins, where the driver lives, etc. Another exception to

General and Special Agents
other agencies and individuals
for a period of six months

and for a period of six months

and for a period of six months

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the rule that driving time determines salary can be seen in the difference between local wage scales in different communities. The question might be raised here as to whether the state should accept the responsibility for these differences which are a part of managerial factors.

Under conditions which are varied as are those in the CD routes, predictions can be expected to be quite unreliable. It is evident that conditions need to be quite uniform and defined in order to predict reasonably accurate cost per pupil figures. The coefficient of correlation between linear density and cost per transported pupil in the CD group was $-.58$, but the standard deviation of the cost variable was 32.59 . The mean cost per pupil was $\$57.31$. Tables V and VIII show that when predicting cost per pupil for a linear density of 10.00 , the predicted cost is less for the CD routes than for the AB routes. This prediction is contrary to experience and common sense, both of which indicate that transportation over good roads is more economical than transportation over poor roads. An interesting fact to note is that three districts operate a total of twenty-three of the thirty-two routes in this CD group and of the twenty-three routes, only four of these routes have a cost per pupil which is above the mean. Also, eighteen of these twenty-three routes have linear densities below the mean. The influence of managerial factors in per pupil cost can readily be seen in the above observations. It is also

the first of these is the fact that the
difference between the two is not
The second is that the difference is not
account for the difference in the
of the two is not
United States
rather, it is a fact that the
is evident that the difference is not
in order to be able to do so
The coefficient of correlation is not
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was 55.5% and the difference is not
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TABLE VIII

PREDICTIONS OF PER PUPIL PER YEAR COST FOR
 ROUTES TRAVELING ROADS IN CLASSIFICATION CD

Linear Density	Predicted Cost Per Pupil
.50	\$ 71.64
1.00	69.46
2.00	65.09
3.00	60.72
4.00	56.35
5.00	51.98
6.00	47.61
7.00	43.24
8.00	38.87
9.00	34.50
10.00	30.13
11.00	25.76
12.00	21.39
13.00	17.02
14.00	12.67

Mean linear density of routes = 3.78.

Mean cost per pupil per year = \$57.31.

Coefficient of correlation between linear
 density and cost per pupil per year = -.58.

TABLE III

PERCENTAGE OF AIR IN THE TOTAL WEIGHT OF
ROUTES FROM ALBANY TO NEW YORK

Linear Density

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	4.75
5.00	5.00
5.25	5.25
5.50	5.50
5.75	5.75
6.00	6.00
6.25	6.25
6.50	6.50
6.75	6.75
7.00	7.00
7.25	7.25
7.50	7.50
7.75	7.75
8.00	8.00
8.25	8.25
8.50	8.50
8.75	8.75
9.00	9.00
9.25	9.25
9.50	9.50
9.75	9.75
10.00	10.00
10.25	10.25
10.50	10.50
10.75	10.75
11.00	11.00
11.25	11.25
11.50	11.50
11.75	11.75
12.00	12.00
12.25	12.25
12.50	12.50
12.75	12.75
13.00	13.00
13.25	13.25
13.50	13.50
13.75	13.75
14.00	14.00
14.25	14.25
14.50	14.50
14.75	14.75
15.00	15.00
15.25	15.25
15.50	15.50
15.75	15.75
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19.75	19.75
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97.25	97.25
97.50	97.50
97.75	97.75
98.00	98.00
98.25	98.25
98.50	98.50
98.75	98.75
99.00	99.00
99.25	99.25
99.50	99.50
99.75	99.75
100.00	100.00

Linear Density of Cable

From each end of the cable

Distance of the cable

From each end of the cable

Standard deviation of linear density = 4.32.

Standard deviation of cost per pupil = 32.59.

Standard error of the estimate of cost
per pupil = 8.37.

interesting to note that the three districts operating the twenty-three routes had some of the better cost accounting methods in use with their buses.

There is reason to believe that certain routes could be arbitrarily selected from those included in the CD group, on a basis of uniformity of road condition and good managerial practice, and that these selected routes might provide a better basis for predicting reasonable cost than the entire CD group. In this study the CD group included too many various conditions to be of any real value in making predictions of reasonable cost.

Predictions of cost based upon the selected routes in road classification D are given in Table IX. These predictions of cost per pupil are generally lower than predictions based upon other groups. Presumably, good managerial practices have effected a more realistic actual cost on these routes.

Standard deviation of sample means
Standard deviation of total cost
Standard error of the estimate of cost
per pupil = \$3.37

interesting to note that the three selected routes had some of the better cost performance records in the group with fairly good results.

There is reason to believe that the results of the analysis are not entirely representative of the entire group of routes. The routes were selected from those analyzed in the study on the basis of uniformity of road conditions and good economic conditions. and that these selected routes may provide a better picture of predicting reasonable cost than the entire group. The study of the group included too many routes which were not in any way in better financial condition. Predictions of cost based on the results of the analysis in the classification D are given in Table 1. These results are more per pupil and generally lower than previous results. Groups. Presumably, good financial results are indicated by more realistic actual cost on these routes.

TABLE IX

PREDICTIONS OF PER PUPIL PER YEAR COST FOR
 ROUTES WITHIN ROAD CLASSIFICATION D*

Linear Density	Predicted Cost Per Pupil
.25	\$ 66.10
.50	63.57
.75	60.92
1.00	58.94
1.25	56.35
1.50	52.72
1.75	51.17
2.00	48.58
2.25	45.98
2.50	42.78
2.75	40.18
3.00	37.59

Mean linear density of routes = 1.69.

Mean cost per pupil per year = \$51.79.

Coefficient of correlation between
 linear density and cost per pupil per
 year = -.88.

TABLE 1

PREDICTION OF THE YEAR 1968
 ROUTES WITHIN ROAD DISTRICT NO. 1

Linear Density	
1.25	
1.50	
1.75	
2.00	
2.25	
2.50	
2.75	
3.00	
3.25	
3.50	
3.75	
4.00	
4.25	
4.50	
4.75	
5.00	
5.25	
5.50	
5.75	
6.00	
6.25	
6.50	
6.75	
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7.75	
8.00	
8.25	
8.50	
8.75	
9.00	
9.25	
9.50	
9.75	
10.00	

Mean linear density of routes = 4.50
 Mean cost per mile = \$1.50
 Coefficient of correlation = 0.88
 Linear density and cost per mile
 Year = 1968

Standard deviation of linear density = .627.

Standard deviation of cost per pupil = 7.39.

Standard error of the estimate of cost
per pupil = 4.28.

*Routes used for making the above predictions were
arbitrarily selected from two districts only.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The problem in this study was comprised of three parts:

(1) to analyze critically the pupil transportation support formula for the State of New Mexico, comparing it to standards of excellence derived from the work of authorities in the fields of school finance and transportation; (2) to compare the New Mexico pupil transportation formula with other state formulas in an attempt to determine what improvements in the New Mexico formula might be effected through the benefit of practical experience; and (3) to analyze statistically available cost data on school-owned buses operating on regular routes, and to make predictions of reasonable costs through the use of the coefficient of correlation and the regression equation.

I. SUMMARY

Importance of Transportation. Pupil transportation is the largest supplementary service that the public schools perform. It has developed in connection with the consolidation and reorganization of districts, partially as a result of consolidation, and partially as a cause of consolidation. The transportation of pupils has been geared to developments in social, economic, and technological areas. All these concurrent developments have had

THE CHINESE ECONOMY

The Chinese economy is a complex one, with a long history of development.

(1) In the early years, the economy was largely based on agriculture.

For the first time, the government has taken steps to improve the economy.

Since then, the government has been working to improve the economy.

It has been a long process, but the government has made significant progress.

The government has been working to improve the economy for many years.

It has been a long process, but the government has made significant progress.

The government has been working to improve the economy for many years.

It has been a long process, but the government has made significant progress.

The government has been working to improve the economy for many years.

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The government has been working to improve the economy for many years.

It has been a long process, but the government has made significant progress.

an accelerating effect upon one another, resulting in a very high standard in all areas.

Measurement of Need for Pupil Transportation. The measurement of need for pupil transportation has been the most pressing problem with the most elusive solution throughout the history of state support for transportation. Some authorities in the field have supported the contention that the state should support the entire cost of transporting pupils to school. They have advocated the completely objective measurement of transportation need, and have insisted that this objective measurement is equitable and within the realm of possibility.

On the other side of the question, some authorities have insisted that the objective measurement of need tends to ignore the social and educational role of pupil transportation. The problem becomes one of these questions: How can the most transportation be obtained from the funds being expended for it? How much economy is desirable at the expense of service?

Principles of Finance. There is also some conflict here between the theoretical and the practical. Authorities agree that when state laws require attendance of pupils, then the state is obligated to support the transportation necessary to make the schools accessible to the pupils. The principle of equality of educational opportunity suggests that no pupil or group of pupils

on article 1 of the Convention, which provides that the

State shall be liable

Responsibility of the State for the acts of its organs

It is a well established principle of international law that the

State is responsible for the acts of its organs

which are committed in the exercise of their functions

and which are attributable to the State

entire cost of the operation of the State

the responsibility of the State for the acts of its organs

have limited the scope of the responsibility of the State

within the limits of the Convention

in the event of a breach of the Convention, the State

incurs the responsibility of the State for the acts of its organs

the responsibility of the State for the acts of its organs

which are committed in the exercise of their functions

and which are attributable to the State

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the responsibility of the State for the acts of its organs

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within the limits of the Convention

in the event of a breach of the Convention, the State

incurs the responsibility of the State for the acts of its organs

the responsibility of the State for the acts of its organs

which are committed in the exercise of their functions

and which are attributable to the State

entire cost of the operation of the State

the responsibility of the State for the acts of its organs

have limited the scope of the responsibility of the State

be required to pay more for the same educational opportunity than any other pupil or group of pupils.

At the same time, authorities agree that the prevention of extravagance and the encouragement of economy in pupil transportation requires the placing of sufficient incentive in the method of allocation of funds to discourage extravagance. The placing of incentive toward economy requires the removal of the method of allocation from completely equitable distribution of the burden. When one is rewarded, inevitably, another has been penalized.

The New Mexico Transportation Support Formula. The support formula for New Mexico has served to build a high quality transportation program for the public schools of the State. State support has been for the entire cost of pupil transportation. The act containing the state support formula places much of the responsibility for arbitrary administrative decisions in the hands of the State Director of Transportation. The formula itself lacks provisions for incentives toward economy at the district level. As a result, continuing demands are made upon the State Director of Transportation by local boards for increases in transportation allocations.

New Mexico and Other State Formulas. With respect to promotion of a quality transportation program, the New Mexico formula

be required to be made in the case of a person who is

any other person who is not a member of the family

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compares favorably with the best formulas in use. However, the other state formulas have provisions which tend more to limit extravagance or unnecessary expenditures than does the New Mexico formula. The formula permits a maximum of leeway on the part of the State Director of Transportation in the administration of the funds. The control of support funds by the director ends with the allocation of funds. No close inspection of how funds are expended is made. This is contrary to the pattern in other states.

The Sparsity Factor. A total of fifty-five routes on which district-owned buses were operated were divided into two groups according to road conditions. Linear density was obtained for each route by dividing the number of pupils hauled by the number of miles of route one way. The total cost of each route for the year 1959-1960 was divided by the number of pupils hauled to get the cost per pupil. Correlations were run between linear density and cost per pupil for each road condition group. The coefficient of correlation for the AB group was $-.56$, and for the CD group, $-.58$.

Predictions of reasonable cost per pupil appear to be fairly reliable for the AB group because of the somewhat uniform operating conditions. Predictions for the CD group appear to be of little value because of the extreme range in actual cost per pupil and the large standard deviation. According to the standard

CHAPTER 1. THE HISTORY OF THE UNITED STATES

SECTION 1. THE EARLY PERIOD

SECTION 2. THE PERIOD OF DISCOVERY

SECTION 3. THE PERIOD OF SETTLEMENT

SECTION 4. THE PERIOD OF DEVELOPMENT

SECTION 5. THE PERIOD OF MODERNIZATION

SECTION 6. THE PERIOD OF REFORM

SECTION 7. THE PERIOD OF PROGRESS

SECTION 8. THE PERIOD OF CONSERVATION

SECTION 9. THE PERIOD OF RECONSTRUCTION

SECTION 10. THE PERIOD OF MODERNIZATION

SECTION 11. THE PERIOD OF REFORM

SECTION 12. THE PERIOD OF PROGRESS

SECTION 13. THE PERIOD OF CONSERVATION

SECTION 14. THE PERIOD OF RECONSTRUCTION

SECTION 15. THE PERIOD OF MODERNIZATION

SECTION 16. THE PERIOD OF REFORM

SECTION 17. THE PERIOD OF PROGRESS

SECTION 18. THE PERIOD OF CONSERVATION

SECTION 19. THE PERIOD OF RECONSTRUCTION

SECTION 20. THE PERIOD OF MODERNIZATION

SECTION 21. THE PERIOD OF REFORM

SECTION 22. THE PERIOD OF PROGRESS

SECTION 23. THE PERIOD OF CONSERVATION

SECTION 24. THE PERIOD OF RECONSTRUCTION

SECTION 25. THE PERIOD OF MODERNIZATION

error of the estimate, 68 per cent of the predictions for the AB group costs per pupil would not miss the right cost more than \$4.18. For the CD group, 68 per cent of the predictions for cost per pupil would not miss the right cost more than \$6.37.

The analysis of data from routes in selected districts gives the appearance that, although several classifications of road conditions might be necessary, these conditions might be closely enough defined that a reasonable cost could be established for most conditions found in New Mexico. For the selected districts, the coefficient of correlation between linear density and cost per pupil was $-.88$; the mean linear density was 1.69 ; mean cost per pupil per year was \$51.79; the standard deviation of the cost per pupil was 7.39 ; and the standard error of the estimate of cost per pupil was 4.28 . In other words, of every one hundred predictions for cost per pupil made under these conditions, sixty-eight would be within \$4.28 of the actual cost.

II. CONCLUSIONS

Some of the conclusions drawn as a result of this study are based upon statistical analyses of factual data, some upon a philosophical point of view, and still others are based upon a combination of statistical analyses and a philosophical point of view. No claim has been made that personal bias has been kept out of the conclusions of the study. It is hoped, however, that

error of the estimate, 68 per cent of the predicted cost was within
 group costs per pupil would not have been right cost more than
 \$1.10. For the 95 per cent of the predicted cost was within
 per pupil would not have been right cost more than \$1.10.
 The analysis of data from 1950 in selected districts
 given the appearance that, although several classifications of
 road conditions might be necessary, these conditions might be
 closely enough defined that a reasonable cost could be estimated
 for most conditions found in New Mexico. For the selected districts,
 the coefficient of correlation between linear density and cost per
 pupil was -0.85 ; the mean linear density was 1.09 miles cost per
 pupil per year was $\$21.75$; the standard deviation of the cost per
 pupil was 7.35 ; and the standard error of the estimate of cost
 per pupil was 1.15 . In other words, of every one hundred predic-
 tions for cost per pupil made under these conditions, eighty-eight
 would be within 68 per cent of the actual cost.

IV. CONCLUSIONS

Some of the conclusions drawn as a result of this study
 are based upon statistical analysis of actual data, some upon a
 philosophical point of view, and still others are based upon a
 combination of statistical analysis and a philosophical point of
 view. No claim has been made that personnel data has been left
 out of the combination of the study. It is hoped, however, that

personal bias has had a minimum of influence upon those conclusions that should not be subject to the influence of the personal philosophy of the writer. Conclusions of the study are as follows:

1. The accounting for transportation funds by districts to the state board of education is not required to the extent that would make possible a complete statistical analysis of costs for school bus routes now operated by districts using school-owned buses.
2. Complete state support of pupil transportation and local control of expenditure of transportation funds are incompatible. Some limitation must be placed upon the allocation of support to districts, and adequate incentive to economy must be a part of the system of allocation of funds.
3. The present support formula provides very little incentive for each district to accept its full share of responsibility for economical operation of the transportation program. Subjective provisions and procedures encourage attempts by local districts to increase transportation budgets. The ability of some districts to transport more pupils than those for which support is actually received from the state, without expending more funds than those received from the state, while some districts do not expend such funds, is an indication of alternate possibilities. Either the formula

person. This has been a common practice for some time. It is not only a matter of convenience but also of safety. The person who is responsible for the safety of the person who is being transported should be the one who is responsible for the person who is being transported. This is a common practice for some time.

1. The person who is responsible for the safety of the person who is being transported should be the one who is responsible for the person who is being transported. This is a common practice for some time. It is not only a matter of convenience but also of safety. The person who is responsible for the safety of the person who is being transported should be the one who is responsible for the person who is being transported. This is a common practice for some time.

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for allocation of state support failed to predict correctly the cost of transportation in some districts, or some managerial practices are in use in some districts which should be employed in all districts.

4. So many factors that affect the cost of pupil transportation are subject to administrative manipulation that a method must be found for placing the responsibility for the outcome of the program with the local district, or the state must assume complete control of the entire program, if the proper balance between transportation service, equitable state support, and economy is to be achieved.
5. The pupil transportation support program of New Mexico cannot reach a satisfactory level of economy and equitable allocation of state support to districts until such time as the allocations for transportation become a part of a foundation program designed to allow leeway for local initiative to operate in all districts.
6. The prediction of reasonable costs per pupil based upon linear density of transported population and road conditions is possible for some conditions of operation in the state. Prediction of costs for all conditions is not possible due to the fact that not all operating conditions are represented by available

data to enable valid analyses to be made.

IV. RECOMMENDATIONS

1. It is recommended that, as a stop-gap measure, a strict accounting for transportation expenditures for all district-owned buses be required by the State Board of Education. It is believed that this accounting will tend to stabilize expenditures at a more realistic level and will also supply data for analyses more complete than those done in this study. The accounting procedure should be simple, yet complete. The procedure and long-range purposes of the accounting should be made clear to school officials charged with the accounting, lest the officials tend to revert to the contracting of transportation as a means of escaping the duties attached to the accounting.

2. It is recommended that the State Board of Education and state school officials weigh carefully the problem of state support versus local control of expenditures. The direction taken as a result of decisions in this area is critical to the public schools of New Mexico.

3. It is recommended that legislation be sought which will provide more local leeway in taxing power of school districts, thus enabling the state to shift to the local district the necessary portion of the responsibility for the most desirable outcome of the pupil transportation program.

ORIGINAL ARTICLES

THE EFFECT OF VITAMIN DEFICIENCY ON THE GROWTH OF THE RAT

BY DR. J. W. MCGEE, JR., AND DR. J. W. MCGEE, JR.

From the Department of Physiology, University of Illinois, Urbana, Illinois

Received for publication, June 1, 1941

Revised manuscript received, July 1, 1941

Published by the American Medical Association, 535 North Dearborn Street, Chicago, Ill.

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4. It is recommended that, until such time as a more objective allocation of funds can be accomplished, the transporting of pupils less than the minimum distance for legally transported pupils be discontinued except in cases where safety hazards are present. Although the cost of transporting pupils who live closer to school than the legal minimum is admittedly not great, obviously the state is supporting this transportation in some districts and is not doing so in other districts. When an objective allocation can be accomplished, it is recommended that, after the allocation has been made to the district on the basis of legally transported pupils, the transportation of pupils living less than the legal minimum distance from school be left to the discretion of the local district.

5. It is recommended that categories of road conditions be set up which will more nearly indicate uniformity of road conditions within a category, and that an official from the office of the State Director of Transportation be responsible for classification of roads. Presently, superintendents of schools certify the condition of roads on a route. Obviously, an unimproved dirt road in a mountainous area does not affect cost of operation to the same degree that an unimproved dirt road in a low rainfall area of the plains does.

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NEW
BOARD
COMMISSION

Recommendations for Further Study.

1. It is recommended that cost data for the routes included in the above suggested categories of road conditions be statistically analyzed, using methods similar to those used in this study to predict reasonable cost per pupil. It is further recommended that, when the standard error of the estimate of cost per pupil per year equals an amount not greater than 10 per cent of the predicted cost, allocations be made on the basis of predicted cost. These allocations should be made to a district as a part of the district's total state support, leaving any saving the district might effect to be spent on other aspects of the educational program, placing with the district the responsibility for extravagant practices used, or giving the district the advantage of any good managerial practices used.

2. It is recommended that a study be made of the actual wages received by bus drivers in different districts for the time spent driving buses. The differential in salary paid for apparently similar amounts of time spent driving buses appears to be more than a matter of the differences among economies of the several communities.

BIBLIOGRAPHY

BIBLIOGRAPHY

A. BOOKS

- Burke, Arvid J. Financing Public Schools in the United States. New York: Harper and Brothers, 1957.
- Burns, Robert L. Measurement of the Need for Transporting Pupils. New York: Teachers College, Columbia University, 1927.
- Cornell, Francis G., et al. Financing Education in Efficient School Districts. Urbana: Bureau of Research and Service, University of Illinois, 1949.
- Garrett, Henry E. Statistics in Psychology and Education. New York: Longmans, Green and Company, 1947.
- Johns, Roe L. State and Local Administration of School Administration. New York: Teachers College, Columbia University, 1928.
- Lambert, Asael C. School Transportation. Stanford, California, Stanford University Press, 1938.
- Landis, Paul H. Rural Life in Process. New York: McGraw-Hill Book Company, Inc., 1940.
- McLure, William P. The Effect of Population Sparsity on School Cost. New York: Teacher's College, Columbia University, 1942.
- McNemar, Quinn. Psychological Statistics. New York: John Wiley & Sons, Inc., 1955.
- Mort, Paul, Walter C. Reusser, and John W. Polley. Public School Finance. New York: McGraw-Hill Book Company, Inc., 1960.
- Mort, Paul. State Support for Public Schools. New York: Teacher's College, Columbia University, 1926.
- Mort, Paul. State Support for Public Education. Washington, D. C.; Council on Education through Bureau of Publications, Teacher's College, Columbia University, 1933.
- Noble, M. C. S., Jr. Pupil Transportation in the United States. Scranton, Pennsylvania: International Textbook Company, 1940.

Burns, David J. ...
New York

Burns, Robert J. ...
New York

Connelly, Thomas J. ...
New York

Garrett, John J. ...
New York

Johns, John A. ...
New York

Lambert, John A. ...
New York

Lewis, John J. ...
New York

Roberts, William J. ...
New York

Holmes, John J. ...
New York

Port, John J. ...
New York

Port, John J. ...
New York

Port, John J. ...
New York

Port, John J. ...
New York

Smith, T. Lynn. The Sociology of Rural Life. New York: Harper and Brothers, 1953.

B. PUBLICATIONS OF THE GOVERNMENT, LEARNED SOCIETIES
AND OTHER ORGANIZATIONS

Committee for Economic Development. Paying for Better Schools.
A Report prepared by The Committee, December, 1959.

Evans, Frank O. Factors Affecting the Cost of School Transportation in California. U. S. Bureau of Education Bulletin No. 29. Washington: Government Printing Office, 1930.

National Education Association. Pupil Transportation. Department of Rural Education, 1953 Yearbook. Washington: The Association, 1953. 21

Public School Finance Division. Statistics, Fiscal Year 1959-60. Santa Fe: New Mexico Department of Finance and Administration, n. d.

Recapitulation Sheet, 1959-60. Records of the State Director of Transportation, Santa Fe, New Mexico: Mimeographed.

Transportation Division, Handbook for Administrators on School Bus Administration. Santa Fe: State Department of Education, State of New Mexico, 1960.

Von Enchen, G. F. Climates of the United States: New Mexico. U. S. Department of Commerce Weather Bureau, Climatology of the United States, No. 60-29, Washington: Government Printing Office, December, 1959.

C. PERIODICALS

Amis, Otis C. "School Transportation Costs," Phi Delta Kappan, 23:171-172, December, 1940.

Dershimer, Richard A. "Delaware Examines the Question: A State Supported School System?", Overview, 1:54-55, April, 1960.

Hutchins, C. D. "Determining Costs of Pupil Transportation," The Nation's Schools, 25:35, May, 1940.

Smith, J. W. 1891
and others

Smith, J. W. 1891
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Smith, J. W. 1891
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Smith, J. W. 1891
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Smith, J. W. 1891
and others

Smith, J. W. 1891
and others

Johns, Roe L. "Determining Pupil Transportation Costs," The Nation's Schools, 43:48-49, February, 1949.

Costing, B. R. "Administering the Transportation Program," The Nation's Schools, 65:78-79, May, 1960.

Overview, 1:35, August, 1960.

D. ESSAYS AND ARTICLES IN COLLECTIONS

Ensminger, Douglas and Longmore T. Wilson. "Rural Trade Areas and Villages," in Rural Life in The United States. Alfred Knopf, 1955.

Holmstedt, R. W. "Fiscal Controls," in Problems and Issues in Public School Finance, National Conference of Professors of Educational Administration. New York: Teachers College, Columbia University, 1955.

Morphet, Edgar L. "Characteristics of State Support Programs," in Problems and Issues in Public School Finance, National Conference of Professors of Educational Administration. New York: Teachers College, Columbia University, 1952.

E. UNPUBLISHED MATERIALS

Flatham, Sue Ella. "A Problem in Curve Fitting." Unpublished Master's Thesis, University of Florida, Tallahassee, 1948.

Tate, N. G. "The Administration of Pupil Transportation in the Public Schools in New Mexico," Unpublished Doctoral Dissertation, The University of Southern California, Los Angeles, 1951.

F. NEWSPAPERS

United Press International Dispatch, Albuquerque Journal, March 27, 1961

APPENDIXES

APPENDIX A

NEW MEXICO LAWS GOVERNING STATE SUPPORT OF PUPIL TRANSPORTATION

I. SCHOOL BUS TRANSPORTATION BUDGET

The aggregate amount budgeted for school bus transportation in the maintenance budgets of any County shall not exceed 25 per cent of the total amount of such budgets.

The amount included in any direct charge budget for school bus transportation shall not exceed an amount equal to the proceeds of a 2-mill levy upon all taxable property in the district for which the budget was made, based upon the valuation thereof for the preceding year, except in districts where no schools are being held and in which there is school bus transportation, the levy may exceed said amount.

All amounts budgeted for school bus transportation shall be approved by the State Transportation Director. (State of New Mexico Public School Code, 1953, Compiled from New Mexico Statutes, 1953, Annotated (Santa Fe, Department of Public Instruction, 1954), Secs. 73-19--2, 73-7-7, 73-7-36.)

II. THE ALLOCATION OF STATE SUPPORT TO TRANSPORTATION

The extent to which each county may participate in the Public School Equalization fund for the purpose of paying school

APPENDIX A

NEW MEXICO STATE GOVERNMENT

OF PUBLIC TRANSPORTATION

I. SCHOOL BUS TRANSPORTATION

The aggregate amount budgeted for school bus transportation in the maintenance budget of any county shall not exceed 2% per cent of the total amount of such budget.

The amount included in any district change budget for school bus transportation shall not exceed an amount equal to the proceeds of a 2-mill levy upon all taxable property in the district for which the budget was made, based upon the valuation thereof for the preceding year, except in districts where no schools are being held and in which there is school bus transportation, the levy may exceed said amount.

All amounts budgeted for school bus transportation shall be approved by the State Transportation Director. (Section of New Mexico Public School Code, 1957, compiled from New Mexico Statutes, 1957, annotated (Santa Fe, Department of Public Instruction, 1957), Secs. 13-12-2, 13-17-7, 13-17-36.)

II. THE ALLOCATION OF STATE FUNDS

TO TRANSPORTATION

The extent to which each county may participate in the Public School Transportation Fund for the purpose of paying school

bus transportation costs in the several counties shall be determined by the following schedule, based upon the number of pupils transported each month, the miles transported, and the class of highways or roads over which the transportation routes are established:

1. \$25.00 for each separate school bus unit, per month, with a capacity of ten (10) children or less.
2. (a) Fifty Dollars (\$50.00) per school bus unit, per month, for buses having a capacity of more than ten (10) but less than twenty-one (21).
(b) Two dollars (\$2.00) per pupil, per month, for the next twenty (20) pupils.
(c) One dollar (\$1.00) per pupil per month, in excess of forty (40) pupils one way.
3. Two dollars and fifty cents (\$2.50) per mile, or major fraction thereof, per month, for the first fifteen miles one way.
4. One dollar and twenty-five cents (\$1.25) per mile, or major fraction thereof, per month, for the next fifteen (15) miles, one way.
5. Fifty cents (50¢) per mile, per month, for all miles, or major fraction thereof, in excess of thirty (30) miles, one way.

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The transportation of goods and materials is a vital part of the national economy. It is essential that the transportation system be able to handle the increasing volume of goods and materials being transported. The Department of Transportation is currently studying the problem of transportation and is seeking ways to improve the system.

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6. The State Transportation Director, with the approval of the State Board of Education, may allow an additional amount per mile per month for travel over gravel or dirt roads, one way, the amount to be based upon the class of gravel or dirt roads over which any route is established, but not to exceed three dollars (\$3.00) per mile, per month. Provided, however, nothing herein shall be interpreted to mean that bus routes may be established for lesser distances than three (3) miles one way. Nothing herein contained shall be held to prevent the payment of additional amounts for transportation out of county maintenance or direct funds as may be provided by law.
7. There is hereby created a contingent fund of three hundred thousand dollars (\$300,000.00) to pay additional cost of transportation over approved bus routes in each county, but not to exceed the percentage which the total State Revenue to the County for school purposes bears to ninety (90) per cent of the amount of the five (5) mill school maintenance levy on assessed valuation of property within the county. This fund to be administered by the State Transportation Director with the approval of the State Board of Education and the State Budget Auditor.

8. Public school boards of education, with the approval of the State Transportation Director and the Educational Budget Auditor, may set up a systematic program for the purchase of necessary transportation equipment, in lieu of contracted equipment, payable from the annual budget allocation for school transportation.

Not later than August 15 of each year, the governing authority of each school administrative unit maintaining one or more bus routes shall certify to the State Transportation Director, the number of routes approved as in this act (55-632-55-1802) provided to be operated by such unit during the coming school year, the number of miles to be traveled by each bus, the type of road to be traveled by each bus, the number of students known to be resident on each such route and who it is anticipated will use the same, the number of miles to be traveled daily by each of such students over each type of road on the bus route, said statement to be made on forms supplied by the State Transportation Director.

The State Transportation Director shall check all statements received, and if found to be supported by the records shall approve the same, or if not properly supported shall require additional information and proof, to the end that the amounts approved for each administrative unit shall include the total amount to

1. The Board of Directors of the Corporation

of the State of New York, do hereby certify

that the following is a true and correct copy

of the original of the same as the same

is now on file in the office of the

Secretary of the State of New York.

Witness my hand

and the seal of the State of New York, this

first day of January, 1900.

Attest: Secretary of the State of New York.

John A. Dix, Secretary of the State of New York.

Provided to be correct and true, the

year, the number of votes cast, the

of said to be true and correct, the

to be registered to receive the same, the

use the same, the number of votes, the

of said to be true and correct, the

appeared to be true and correct, the

tion Director.

The above statement is true and correct

made received, and it is hereby

agreed to, on the part of the

Chief of the Bureau of the

for said statement, and it is hereby

which such unit is entitled, computed as herein provided.

The State Transportation Director shall thereafter compute the total amount required for transportation for the ensuing year in the State of New Mexico, computed as herein provided, and shall determine the percentage of such total that the amount available for distribution under Section 20 hereof, and shall thereupon certify to the State Auditor the amount of such funds to be distributed to each administrative unit, and such amounts shall be so distributed until the following March 15.

Not later than February 15 of each year, the governing authority of each school administrative unit receiving any moneys for transportation as herein provided shall certify on forms provided by the State Transportation Director, the number of approved routes actually operated during the current school year, the type of road over which each bus actually traveled, the number of miles actually traveled daily by each bus over each type of road, and the number of children actually carried each day over each type of road, and said governing authority shall also certify on such forms the daily attendance of each pupil transported by bus. The State Transportation Director shall verify the reports and shall thereupon recompute the amount each administrative unit amount bears to the total moneys to be distributed. He shall then certify to the State Auditor the amount which each administrative unit shall thereafter receive, deducting from such amounts any

excess payments made under the prior distributions, and thereafter such distributions shall be made on such adjusted basis, until the full amount to which each administrative unit is entitled on the adjusted basis has been received.

Provided, however, that the aggregate of the payments to the several counties for school bus transportation, as herein provided, shall not exceed twenty per cent (20%) of the moneys available in the "State Public School Equalization Fund" for any fiscal year, and if said amount is not sufficient to pay the several counties on the basis of the above schedule, payments to each county shall be reduced proportionately. (State of New Mexico Public School Code, 1953, Compiled from New Mexico Statutes, 1953, Annotated (Santa Fe, Department of Public Instruction, 1954), Section 73-3-36.

APPENDIX B

TRANSPORTATION TRENDS FOR TEN-YEAR PERIOD 1950-1959

Year	Cost	% Total Budget State Wide	Pupils Trans- ported	Total ADA	% Trans. of ADA	No. of Units	Miles Traveled
1950-51	\$2,238,732	7.62	37,653	126,844	29.68	1,000	8,119,980
1951-52	2,431,297	7.54	39,587	129,471	30.51	1,021	7,855,840
1952-53	2,748,127	7.73	39,723	136,283	29.15	1,088	8,645,938
1953-54	2,856,438	7.17	41,369	144,935	28.54	1,109	8,010,414
1954-55	3,043,075	6.88	45,495	154,222	29.50	1,133	8,865,360
1955-56	3,242,122	6.72	47,900	160,526	29.84	1,158	9,144,720
1956-57	3,433,144	6.47	50,404	171,007	29.47	1,162	9,531,360
1957-58	3,929,711	6.64	58,138	181,072	32.11	1,244	10,527,120
1958-59	4,230,714	6.40	63,420	194,163	32.66	1,274	10,586,520
1959-60	4,472,212	6.08	69,675	200,868	34.69	1,343	10,597,200
1960-61	4,900,000	6.00	80,392	216,765	37.09	1,325	10,963,440

PERCENTAGE OF PUBLIC SCHOOL EQUALIZATION FUND USED FOR TRANSPORTATION

Year	Cost	Percent- age
1959-60	\$47,293,176.92	9.46
1960-61	48,893,371.00	10.02

All the above information mimeographed by New Mexico State
Department of Education, Transportation Division, Santa Fe, New
Mexico, 1961.

TRANSPORTATION TRUST FUND - 1960-61

Year	Cost	Wages	Transportation	Other	Total
1960-61	1,800,000	20,000	20,000	20,000	1,860,000
1959-60	1,700,000	20,000	20,000	20,000	1,760,000
1958-59	1,600,000	20,000	20,000	20,000	1,660,000
1957-58	1,500,000	20,000	20,000	20,000	1,560,000
1956-57	1,400,000	20,000	20,000	20,000	1,460,000
1955-56	1,300,000	20,000	20,000	20,000	1,360,000
1954-55	1,200,000	20,000	20,000	20,000	1,260,000
1953-54	1,100,000	20,000	20,000	20,000	1,160,000
1952-53	1,000,000	20,000	20,000	20,000	1,060,000
1951-52	900,000	20,000	20,000	20,000	960,000
1950-51	800,000	20,000	20,000	20,000	860,000

PERCENTAGE OF FUNDING SOURCE REVENUE

USED FOR TRUST FUND

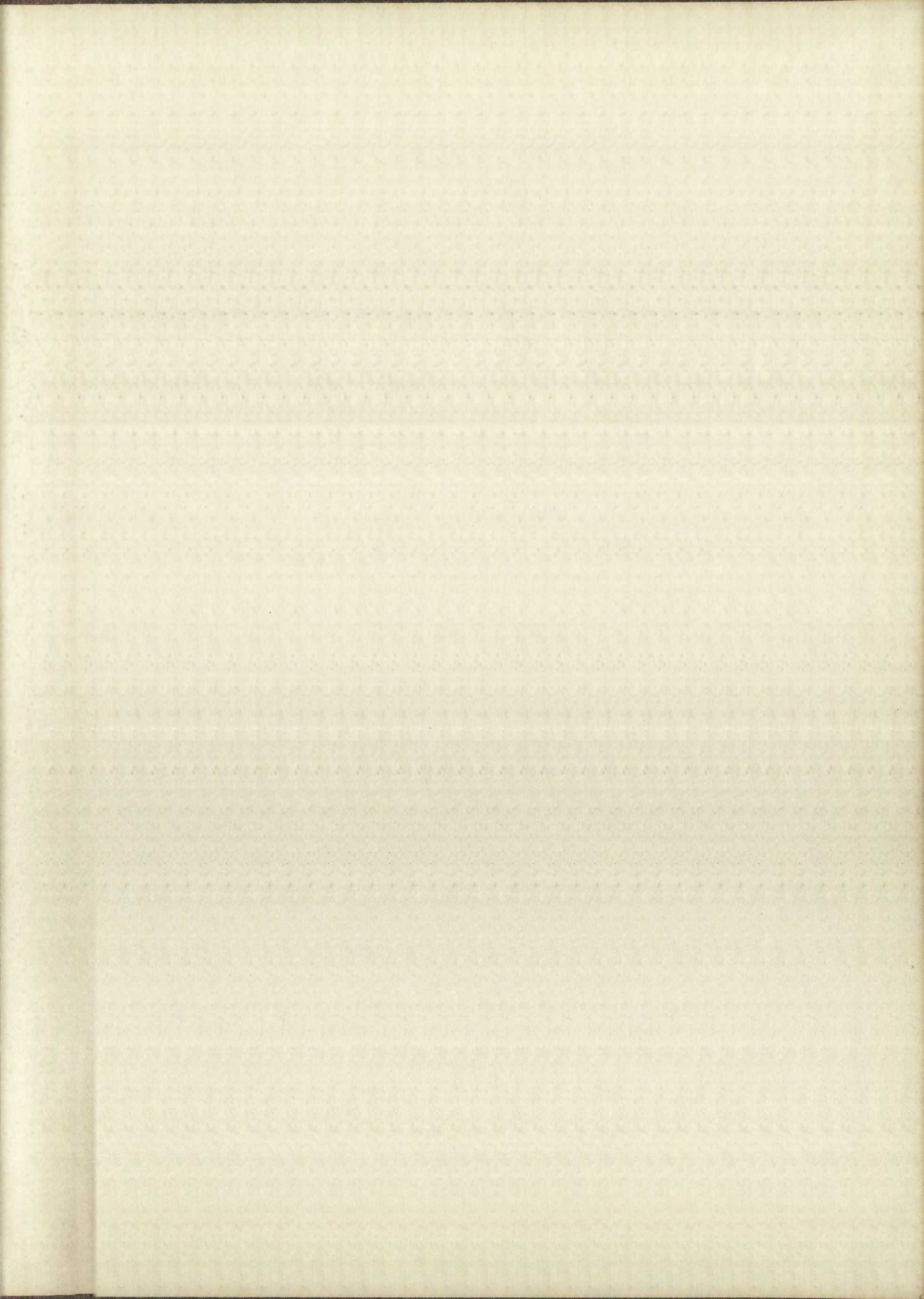
Year	Cost	Percentage
1959-60	\$1,700,000	9.1%
1960-61	\$1,800,000	9.3%

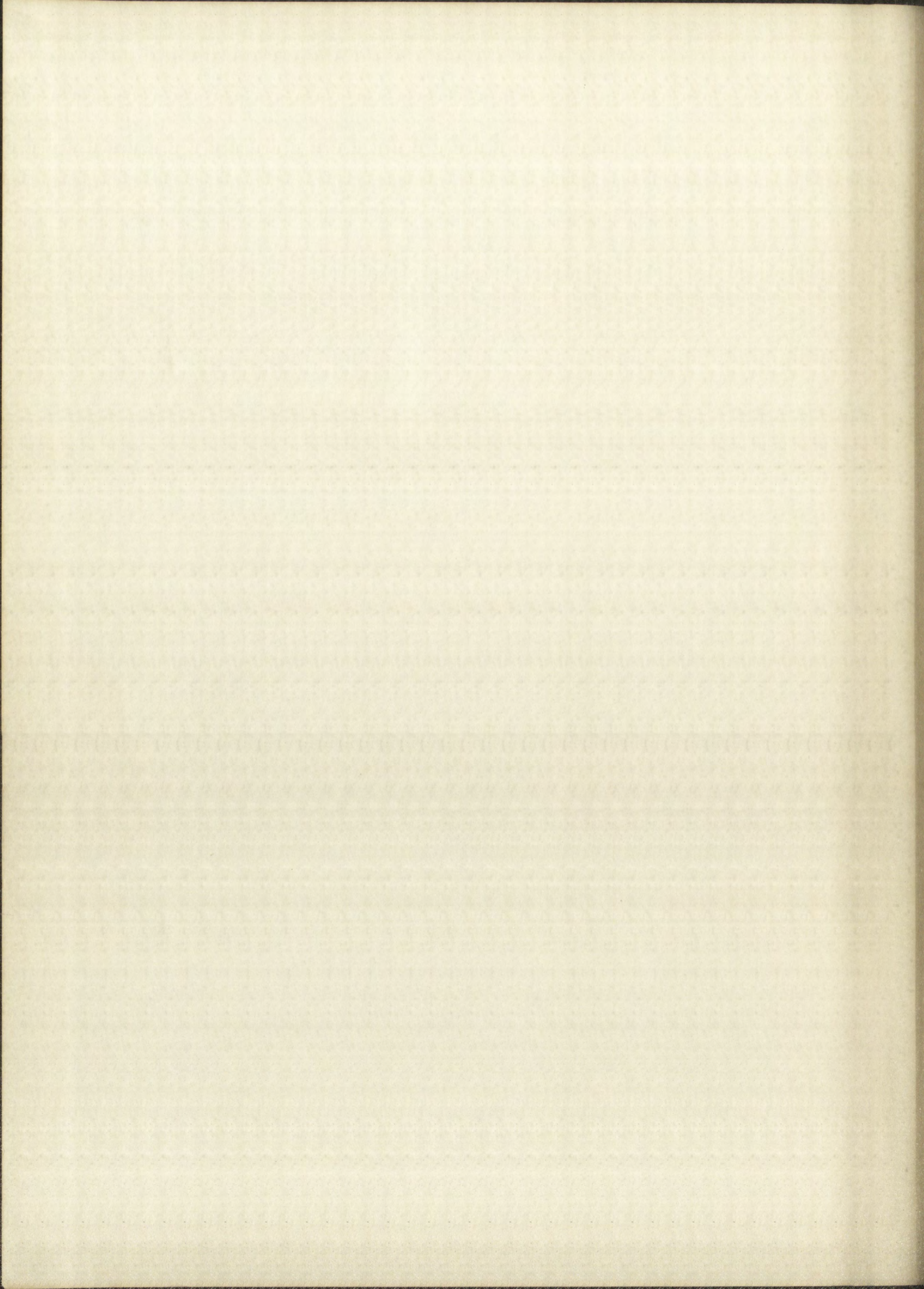
All the above figures are estimates and should not be used for official purposes. Department of Transportation, Bureau of Public Roads, Washington, D.C.

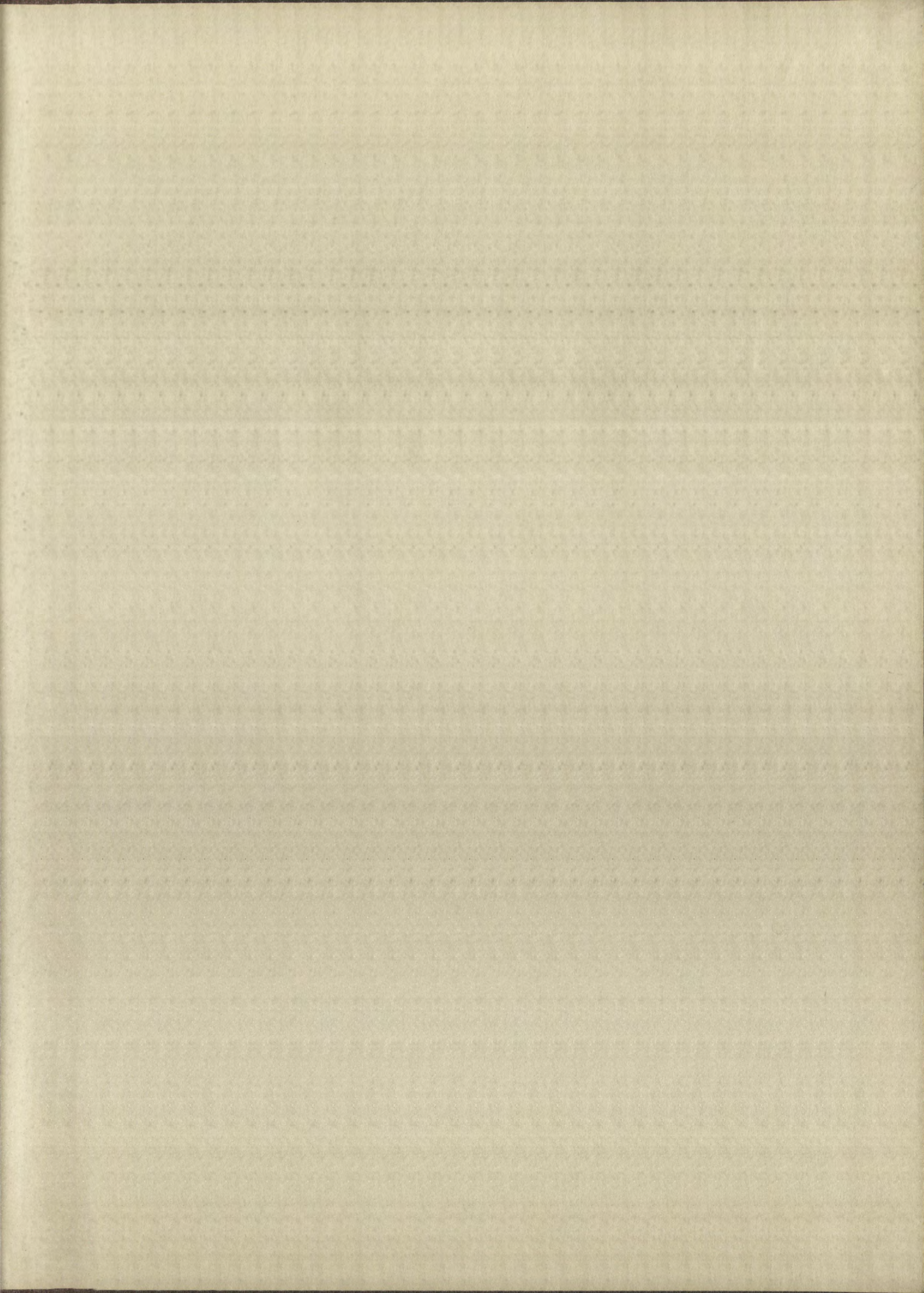
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JAN 12 RECD	NOV 17 1968
AUG 12 1962	
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JUL 1 1963	
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