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Date August 9, 1972

THE COMPARATIVE COST OF CONTRACT BUS TRANSPORTATION TO PUBLIC-OWNED BUS TRANSPORTATION IN SCHOOL DISTRICT NO. 1, GREAT FALLS, MONTANA

by

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TABLE OF CONTENTS

Page

LIST OF TABLES. . . . . .

ABSTRACT. . . . . .

Chapter

I. INTRODUCTION 1

Statement of the Problem 1

Purpose. 2

General Question 3

Procedures 3

Limitations 4

Definition of Terms 4

Summary. 5

II. REVIEW OF LITERATURE 7

Introduction 7

Establishing a Transportation System 7

Contract Transportation. 8

Public-owned Transportation. 11

Summary 18

III. PROCEDURES 20

Introduction 20

Investigation Design 20

Method of Collecting Data 22

Chapter		Page
	Contract Bus Transportation Costs.	22
	Public-Owned Transportation Costs.	23
	Summary	28
IV.	ANALYSIS OF THE DATA	29
	Introduction	29
	Contract Transportation	29
	Public-Owned Transportation	31
	Cost Difference	42
	Summary	42
V.	CONCLUSIONS AND RECOMMENDATIONS	43
	Introduction.	43
	Conclusions	43
	Recommendations	45
	Summary	47
LITERATURE CITED	. . . . .	48

LIST OF TABLES

Table		Page
1.	Contract Bus Transportation Cost	30
2.	Public-Owned Bus Transportation Cost	31
3.	Salaries and Related Expenditures.	33
4.	Parts	35
5.	Tires, Tubes and Chains.	36
6.	Petroleum Products	38
7.	Miscellaneous Operating Expenses	39
8.	Insurance	39
9.	Bus Depreciation	41

ABSTRACT

The purpose of this study was to compare the cost of the contract bus transportation program which was employed, to a hypothetical public-owned bus transportation program in School District No. 1, Great Falls, Montana. The transportation programs will be limited to home to school transporting of students. The programs will be equal in the number and type of buses used, routes traveled, number of students transported, and the same drivers employed.

The cost of the contract bus transportation program was established from School District No. 1 financial records covering the 1971-72 school year. The public-owned bus transportation program was hypothetically constructed in order to compare programs that were alike. The data to establish the hypothetical program was obtained from School District No. 1 administrative and supervisory personnel, union officials, a former bus contractor, and sales representatives of oil, tire and vehicle parts companies. The cost of the hypothetical public-owned transportation program was then established and compared to the contract transportation cost to establish the difference between the two programs.

The contract bus transportation program cost $443,865 and the public owned bus transportation program cost $493,914. The difference in cost of the two programs was $50,049.

The writer concluded that the contract program cost less than the school district could have provided for itself. As long as the contract program is providing transportation that meets the requirements established by the school district, the contract program should be retained.

It was recommended by the writer that more studies of the cost of bus transportation programs be conducted on schools of various sizes. The cost of converting from one type of program to the other should also be studied. Criteria to establish the quality of bus transportation programs should be established so that even more accurate comparisons can be performed.

Chapter I

INTRODUCTION

Today the financing of School District No. 1 in Great Falls, Montana, so as to provide a quality education for its children, is a large problem facing its citizens. It is therefore essential that the citizens of the district have the best educational system their money can provide. This means that each program must operate as economically as possible.

The total school budget for School District No. 1 during the 1971-72 school year was $18,292,036.36. Of this total, $551,043.05 was budgeted for transporting children to the various schools in the district (School District No. 1, 1972). This is a large amount of money and should be spent very judiciously.

Statement of the Problem

There are two main types of school bus transportation programs available for the district to use, contract and public-owned. School District No. 1 has had contract bus transportation programs since they began busing in 1936. During two school years, 1941-42 and 1942-43, the district owned two buses to supplement the contracted bus

transportation, but the maintenance and operation of the owned buses was contracted. So the district has never really had a public-owned transportation system.

The problem of this study was to compare the cost of the contract bus transportation program to a hypothetical public-owned bus transportation program in School District No. 1, Great Falls, Montana, during the 1971-72 school year.

Purpose

According to Isenberg (1963), there are four desired objectives in a school transportation program. The first objective is safety, or the elimination of avoidable hazards. Second is efficiency, the combining of all effort effectively to insure a competent busing operation. Third is adequacy, or the degree to which the potentials of transportation contribute to the educational program. The final objective is economy, which implies that the lowest possible cost is realized within desirable standards.

The economy objective is of prime importance in this study. If the most economical method of transportation, within desirable standards is used, it may: cause money to be available for badly needed academic, vocational, or special education programs; provide more funds for

extracurricular or co-curricular activities, such as field trips, clubs, etc., that provide unique and needed educational experiences; or, reduce tax payments, saving money for the citizens of the district. Therefore, economic practices are very important in the transportation of children.

General Question

This study was conducted to answer the following question regarding the cost of bus transportation:

> What is the difference between the cost of contract vs. public-owned bus transportation in School District No. 1, Great Falls, Montana?

Procedures

In order to complete the stated objectives the following procedures was necessary:

1. Literature was reviewed to lend direction and guidance to the subsequent comparisons.

2. Accurate data was obtained from School District No. 1 administrative and supervisory personnel, union officials, a former bus contractor, and sales representatives of oil, tire, and vehicle parts companies. These individuals were knowledgeable in the various areas of desired data.

3. From the above acquired data, the cost of the contract bus transportation program was established, and a hypothetical public-owned bus transportation program was developed, encompassing all the responsibilities and expenses the district would have assumed.

4. The total cost of this hypotetical situation was established.

5. The total cost of the contract bus transportation program, for the school year 1971-72, was compared to the total cost of the hypothetical public-owned bus transportation program.

Limitations

The following limitations are the ones that apply to this study:

1. The comparison of transportation programs was confined to School District No. 1, Great Falls, Montana.

2. The hypothetical public-owned bus transportation program met the same established standards the contract bus transportation program had to fulfill.

Definition of Terms

Certain terms used in this study are subject to

different meanings and interpretations. The following terms are therefore defined to give added meaning and significance to the study.

Contract bus - a school bus owned by an individual partnership, or corporation which is provided, operated, and maintained in accordance with a stipulated agreement with school authorities (Good, 1959).

Public owned bus - a vehicle owned by a school district, municipality, or other unit or governmental organization, and used for the transportation of pupils (Good, 1959).

Transportation cost - all money expended and obligations incurred for transportation during a given period; includes capital outlay, fixed charges, and all operating and administrative costs (Good, 1959).

Summary

It is essential that all programs of a school system provide desirable standards of operation as economically as possible. One of these programs is the school bus transportation program.

To determine the most economical method of transporting children in School District No. 1, Great Falls,

Montana, a comparison was made between the actual contract bus transportation cost for the school year 1971-72 and the cost of a hypothetical public-owned bus transportation program of equal desirable standards. The procedures and limitations used for this study provide the criteria for an accurate comparison of the two types of transportation programs that were available.

Chapter II

REVIEW OF LITERATURE

Introduction

The relative cost of public-owned and contract transportation programs have been one of the controversial points in the administration of school bus transportation. If there is a difference in cost due to the factor of ownership, it is a matter of great importance to boards of education, school administrators, and to the people of each district as a whole to know which system provides the more effective system (Pope, 1950).

A search of the literature was conducted concentrating on three topics relevant to the stated problem. The points reviewed were: (a) establishing a transportation system; (b) contract transportation; and (c) public-owned transportation for public schools.

Establishing a Transportation System

The authority of the trustees of any district to furnish transportation to eligible transportees is given to them by the revised Codes of Montana, Section 75-7008 (1947, Revised 1971). When transportation is furnished for

any eligible transportee, transportation must be provided for all eligible transportees of the district. The transportation can be either public-owned or contract according to Section 75-7011 (1947, Revised 1971), as long as all the legal requirements for either program are maintained.

With this authority, the school district could establish a transporation program in accordance with their transportation needs and capabilities for management and supervision. To do this would require a critical evaluation of numerous factors which will be identified in the remainder of the review of literature.

Contract Transportation

A review of numerous studies comparing contract transportation programs to public-owned transportation programs was conducted. Most of the emphasis of the comparisons centered on factors other than cost, such as supervision of employees, scheduling of bus routes, types of personnel that should be hired, how to achieve quality maintenance, and the importance of training programs (Featherstone, 1969). But the results of the cost comparison, in nearly every case, found that public-owned transportation is more economical than contract transportation. However,

Farnham G. Pope (1950) states in the Journal of Experimental Education that:

> Generally, these transportation-cost studies suffer five major limitations which in turn limit the accuracy of the cost comparisons made. (1) They frequently have failed to enumerate the items of cost included in total costs and appear at times to have overlooked certain of these costs, such as, depreciation costs of vehicles, building, tools and equipment; interest costs for financing bus and garage purchases; compensation insurance costs for bus transportation employees; and insurance costs for garage, and garage tools and equipment. The failure to enumerate such items makes it impossible for the reader to judge the thoroughness with which cost data have been secured. (2) Cost and expenditure often appear to have been used as synonymous terms. There is a significant difference between these terms that should be recognized. Cost is the monetary value of materials used or service rendered during an accounting period; while expenditure is the money paid out for materials or services during an accounting period whether such materials or services are used during that accounting period or not. A cost may or may not be an expenditure during an accounting period.... (3) They have failed to state what transportation service--home to school, total transportation including special trips, or other--the cost data represent. (4) It is questionable whether previous transportation-cost studies have compared costs for comparable district owned and contract systems of transportation. Generally, studies have compared average cost data for all district owned transportation without attemting to select for their comparisons schools that are as alike as possible in the number of pupils transported, the number of vehicles operated, the number of miles of daily route and in other factors known to affect the costs of transportation. It is recognized that transportation costs tend to be lower where large numbers are transported, when larger vehicles are used and, in unit costs considering mileage, where buses are operated a greater number of miles. Therefore, it is important

> in comparative cost studies that transportation systems as nearly alike as possible are compared. (5) They have not considered the quality of the service rendered in the transportation-cost comparisons made.

When these limitations are included in a transportation cost study it will ensure a more accurate comparison for contract transportation.

Proponents of contract transportation programs will argue for the contract services for the following reasons: (1) Contract operators pay a great number of taxes. Therefore, when a school district operates its own buses, the various governmental agencies (federal, state, and local) involved suffer a loss of revenue in proportion to the taxes which a private company would pay (Davis and Paradise, 1964), (2) Efficiency. Some contract operators are so efficient that the odds are against the districts' running a more efficient program of its own (Featherstone, 1969). The contract operators are efficiency experts in busing and trucking because of their knowledge of this business and the need to be competitive to remain in operation. Often they will use the same maintenance facilities and personnel for the contract bus transportation program and the other busing and trucking operations. This should reduce the maintenance costs of the contract operator.

Another argument for contract transportation is that a contract operator may be a sales representative for a bus manufacturer. This enables him to purchase the vehicles and parts at a lower cost than a school district could acquire comparable equipment. This would have a significant effect on the contract cost of a large transportation program.

Secton 75-7204 of the Revised Codes of Montana (1947, Revised 1971) established the legal authority for an added expense to school districts when operating a transportation program. It states:

> Retirement fund. The trustees of any district employing personnel who are members of the teachers retirement system or the public employees retirement system shall establish a retirement fund for the purpose of budgeting and paying the employer's contributions to such retirement systems.

This is an expense that the contractor would not have, thus helping him to keep his expenses down.

Public-owned Transportation

The general trend in school transportation has been toward public-owned bus transportation. As stated earlier, in nearly every case that was studied, it was found that public-owned transportation was more economical than contract transportation. These comparisons would have more

significant results if all the expenses of a contract transportation program were included. Often the comparison was limited to the cost of the contract between the school district and the private company or corporation. Other costs of a contract transportation program must be included to increase the accuracy of the comparison.

Frequently forgotten was the cost of the Transportation Coordinator and his staff that were employed by the district. They were responsible for drawing up the specifications for contracts, advertising for bids, establishing bus routes, coordinating changes in routes, and numerous other responsibilities. Associated with this office are such expenses as postage, stationary, utilities, office equipment, etc.

School districts may also have special transportation costs that were not contracted. Examples of this would include transportation of the handicapped; individual transportation costs, where it is more economical to pay an individual to transport children to a scheduled bus stop or school (Revised Codes of Montana, 1947, Revised 1971); and, expenditures in lieu of transportation (Revised Codes of Montana, 1947, Revised 1971). School districts also make payments to other school districts for transportation of

pupils which are not included in a contract.

Advocates for public-owned transportation have more economic arguments for their program than the contract transportation proponents had. Randall Davis (1964) gives us two of the arguments:

> 1. The contractor must and should make a profit. The percentage of profit made, or to which he is entitled, depends upon the amount of equipment operated, his investment, etc. That a contractor must make a fair profit cannot be overemphasized. If he is losing money he will attempt to stint on maintenance, equipment and personnel rather than absorb losses.

Featherston (1969) reinforces this by stating: "The board may be able to employ an efficient manager for the program for less than the private operator charges for his management talents."

> 2. The contractor may pay the following taxes not imposed upon the district:
>
> a. Federal excise tax on buses and approximately 40% of their repair costs;
> b. Federal fuel tax on either gasoline or diesel fuel;
> c. Motor vehicle license taxes and weight fees;
> d. Motor vehicle registration fees;
> e. Property taxes on facilities used for mechanical maintenance, office, etc.;
> f. Federal and state corporate income tax;
> g. Other state and local taxes.
>
> The amounts in certain of these taxes will vary depending upon the state, city and county in which the contractor operates. However, it is estimated

that the minimum would be in excess of 10 percent and could be higher in some areas.

Federal excise taxes alone will require a contractor to pay 10 percent more for the buses he purchases and for approximately 90 percent of the repair parts used.

Political subdivisions, such as school districts, are expempted from taxes in order to reduce the cost of government. This means a loss of revenue for government services, but, according to Featherston (1969): "In this instance the school district saves much more than it can possibly lose."

One of the major expense areas is maintenance and repair. In order to have a safe transportation program, an excellent preventive maintenance and repair program are essential. This type of program has to be based on organization of facilities and personnel. Safety is the prime objective in such a program. Another factor is economy (Morphet, Johns and Reller, 1967).

According to Jack M. Jones (1967), Director of Buildings, Grounds, and Transportation, Penn-Harris-Madison School Corporation, Mishkawaka, Indiana, they have experienced savings in the following areas:

1. Arrangements were made with our suppliers for fleet prices. Savings up to 60 percent have been realized.

2. We do quantity buying of parts most in demand.
3. Major repairs are now completed by our mechanics, in many cases, at half the previous cost.
4. Suppliers are now interested in our business, thus, delivery service is a priority for us.
5. We have discovered quality merchandise through experience.
6. A preventive maintenance program is now pinpointing problems before they become major in time and costs.

These are some of the most obvious economic factors experienced in his shop. Many of these carry over to other areas of the maintenance program and affect the whole transportation program.

The Revised Codes of Montana, Section 75-7011 (1947, Revised 1971), establishes the requirements for the types and limits of insurance school districts must have. It states:

> Whenever a bus is owned and operated by a district or the bus is operated by a private party under a contract but no condition of such contract requires the private party to carry liability insurance, the trustees shall carry automobile bodily injury and liability insurance in an amount not less than ten thousand dollars ($10,000) per person and one hundred thousand dollars ($100,000.00) for each accident for each bus operated by or under contract with the district.

So with either method of transportation it is the absolute responsibility of the district to provide the necessary insurance (American School Board Journal, 1970). In this time of large jury awards the insurance should have

limits that are significantly higher than the minimum limits required by Montana law. To begin with, a decision against a school district without adequate insurance could effectively eliminate the educational program provided by the district until such time as funds are made available to pay off a judgement (Humpal, 1964).

There are three other major types of insurance to be considered in relation to pupil transportation; property damage, collision, and fire and theft (Grieder, Pierce, and Rosenstengel, 1966). It is also advisable to acquire insurance covering the maintenance and bus storage areas for liability, fire, and theft protection.

In order to facilitate the purchase of replacement buses, Section 75-7024 of the Revised Codes of Montana (1947, Revised 1971) authorizes the school district to establish a bus depreciation reserve. This budget may be included in the districts' transportation budget. The amount added to it each year cannot exceed twenty percent (20%) of the original cost of the equipment. The money is to be used only for replacement equipment. This law provides school districts the opportunity to have funds available for the orderly replacement of vehicles. If used properly, this will alleviate some maintenance problems and provide for

safer transportation.

When new buses are purchased, the school district will be able to pay cash, if there are sufficient funds in the bus depreciation reserve. If sufficient funds are not available, Section 75-7011 of the Revised Codes of Montana (1947, Revised 1971) allows for the purchase of such school buses under an installment contract which is to be completely executed within three years from the date of purchase. This is significant when it comes to calculating an accurate transportation cost.

The specifications for new buses should meet all local, state, and federal standards, and the recommendations of the National Safety Council. The specifications should also take into consideration the specific job for the given locality, (climate, terraine, quality of roads and streets, and drivers), because this will provide the proper equipment for that particular situation (American School Board Journal, 1970). Sometimes more money spent on the initial investment will pay off by having greater longevity and less maintenance.

The drivers selected to drive these buses should be selected for potential contributions to the fleet safety record and performance. Few occupations more urgently need

a safety attitude. Mental and physical capabilities should be commensurate with job responsibilities and duties (American School Board Journal, 1970).

The training program producing the safe driving skills should cover the entire range of the driver's responsibilities and relationships.

> Preservice training should develop the necessary knowledge and skills for safe and efficient operation before the driver ever is permitted to transport pupils. Inservice training programs should prevent the development of bad driving habits and provide information and instruction on new equipment, changes in laws, regulations, policies and procedures (American School Board Journal, 1970).

This type of safety program will add some expenditures to the transportation budget, but will markedly increase the safety of the transportation program and decrease costs in the long run. This type of program gains the respect and support of the whole community.

Summary

Davis and Paradise (1964) provide an appropriate summary to the problem of which type of transportation program to operate.

> Should a district own and operate its own buses or contract for the service? The answer to this question can be best obtained by the district after deciding

upon the extent and quality of the service which it requires to meet its particular needs, surveying the area for availability of competent private operators, and analyzing the relative costs of furnishing this important service by both methods in accordance with common criteria.

Chapter III

PROCEDURES

Introduction

Chapter one raised a question about the cost of transporting students to school. The problem of this study was to compare the cost of a contract bus transportation program to a public-owned bus transportation program in School District No. 1, Great Falls, Montana. This was an investigative study which attempted to arrive at an accurate cost comparison of the two transportation programs. This chapter explains the design and detailed procedures by which the study was investigated.

Investigation Design

The study determined the difference in the cost of the contrasting types of transportation programs available to School District No. 1, Great Falls, Montana. Data was accumulated from numerous sources, total costs of the transportation programs established from the data, and a comparison made of the total costs to determine the difference.

To insure an accurate comparison of the two programs, the public-owned bus transportation program that was hypothetically constructed had the following items equivalent

to the contract transportation program that provided the service to the school district during the 1971-72 school year: (a) The same number of vehicles were operated, (b) the vehicles were the same make, model (capacity), and age, (c) the buses traveled the same routes; therefore, the distances traveled were the same, (d) the same drivers were considered to be employed, (e) an identical number of students were transported, and (f) the pupil transportation provided was limited to home to school service.

It was assumed that the school district had a vehicle maintenance and storage area. Therefore, there was no expenditure for construction of these facilities. It was also assumed that the school district owned all the buses, except for the vehicles that were purchased within the last three years, by the contractors. The reason three years was selected was because the Revised Codes of Montana allows for purchase of school buses under an installment contract which will be executed within three years from the date of purchase. This may be the cause of some interest and capital outlay expenditures. It was assumed also that all personnel (dispatcher, secretarial, drivers, and maintenance) were hired. Therefore, no additional expense was incurred for hiring them.

Method of Collecting Data

Contract Bus Transportation Costs

The largest cost item gathered was the cost of the actual contract for bus transportation that was furnished. This cost was obtained from the 1971-72 Elementary and High School Budget Control Statement, June 1972, for School District No. 1, under Part II--Transportation, Expenditure 2-200.

Expenditure 2-300 of the school statement, which is reimbursement to parents in lieu of the costs of transportation of pupils to school (Individual Transportation) was another cost item. The Retirement of Prior Year's Warrants (Expenditure 2-400) and the Contingency Item (Expenditure 2-500) were two more cost items taken from the school statements.

The Transportation Supervisor's salary, secretarial salary and salary related expenses such as Social Security, Retirement, Industrial Accident and Group Insurance are all included in Expenditure 2-100. Expenditure 2-137 covers items related to the supervisor's performance of his responsibility and includes auto expense, mobile phone,

travel expense, advertising, bus numbers, office expense and supplies.

Through a personal interview with Mr. Jerry O'Reilley, Transportation Supervisor, and Mr. Karl Erickson, Assistant Superintendent of Finance, employees of School Distrct No. 1, it was determined if there were any items of cost that were part of the transportation program, which were not included in the above costs. Items that were mentioned by Farnham G. Pope on pages seven and eight of this study were searched for and included.

The total of the above costs established an accurate cost of the contract transportation program provided during the 1971-72 school year.

Public-Owned Transportation Costs

The construction of the hypothetical program was within the assumed limits mentioned previously in this chapter. The first item of cost according to the Transportation Fund in the School Budget, was salaries, Expenditure 2-110. To determine what the salaries paid were, two factors factors had to be considered: (1) the number of personnel and their postion, and (2) the hourly and monthly wages or annual salary of each of these personnel. The

number of personnel needed and their positions was determined by personally interviewing Mr. O'Reilley. The wages or salaries paid the personnel were established by interviewing the Secretary-Treasurer of Teamsters Union Local No. 45 (bus drivers), the Business Representative of the International Association of Machinists No. 1046 (mechanics), and Mr. Donald Edwards, Personnel Director for School District No. 1 (supervisor, dispatcher, and clerical). Contributions the school district must make to the State Retirement Funds were in accordance with Section 75-7204, Revised Codes of Montana.

Social Security contributions (school district's share) were in accordance with Federal Regulations and Group Health Insurance rates were included within School District No. 1 policy. Employee's Compensation insurance (Industrial Accident) premium payments were also included in Expenditure 2-110. This was based upon the estimated wages the employees of the school district received. Since these estimates of wages were not exact, the premium error was adjusted in the next preimum payment. Therefore, the employer's compensation insurance costs were secured by applying the rates to the actual wages paid the employees during the 1971-72 school year. From the established

personnel, hourly wages and salaries, state and federal law requirements, and district policy, an accurate salaries cost was achieved.

Expenditure 2-137 was next on the Transportation Fund. This item was entitled "Maintenance and Operation." It included tire and tube replacements, labor costs for bus repairs, repair parts, anti-freeze, and other bus maintenance and operating expenses, including gas and oil.

The writer determined by interview: (a) tire mileage, (b) tube mileage, (c) gas mileage, (d) oil consumption, (e) grease used, (f) anti-freeze consumption, (g) frequency and type of parts (mechanical) replaced, and (h) amount of body, radiator, and glass work completed. This data was used along with the cost of the items to achieve the cost for the total mileage driven by the buses in the program.

Insurance and other expenses, Expenditure 2-159, of the Transportation Fund included the premium payments for liability insurance, automobile bodily injury, property damage, collision, and fire and theft. This was obtained by personally interviewing Mr. Erickson and Mr. Jacobson. Mr. Jacobson was a bus contractor with School District No. 1 during the 1971-72 school year. He owned the Thomas Bus Agency and was owner and manager of Jacobson's Automotive

Supplies. The School District required the contractors to have specified coverages when the contract program was employed. The school district will assume the same coverages in this hypothetical situation.

Insurance coverage for the maintenance building and storage area was computed on the basis of cost-per-thousand dollar valuation. All school buildings are insured in this manner in School District No. 1. The cost rate was obtained by interviewing Mr. Erickson. Mr. Richard A. Benson, Sales Representative of Talcott Tank and Building Company determined the estimated value of the supposed building used for maintenance and storage. The valuation was multiplied by the rate to determine this cost to the district.

Expenditures for bus replacment are recorded in the Bus Depreciation Fund, Form-4, to the extent that Bus Depreciation Reserve money was expended for bus replacement. The original cost of the replacement buses was determined by personally interviewing Mr. Jacobson. If adequate funds were not available, then the costs were calculated as purchasing them under a three year installment contract. Interest rates at the time of the purchase were used for calculating the expense of the interest on the contract. The interest expense was included in Expenditure 2-163 of

the school budget.

Individual transportation costs (Expenditure 2-300) were obtained from the Elementary and High School Budget Control Statement, June 1971.

The cost for the Retirement of Prior Year's Warrants (Expenditure 2-400) was based on when and how many buses were purchased and the availability of funds designated for that purpose. The amount expended by the district to meet transportation obligations for pupils not residing in the district when the budget was adopted in June (Contingency Item--Expenditure 2-500) was determined in accordance with Section 75-7020 of the Revised Codes of Montana.

The original cost to the school district of the buses was obtained by interviewing Mr. Jacobson. These original cost figures were used along with the limitations of Section 75-7011 of the Revised Codes of Montana to determine the Bus Depreciation Reserve Fund. This was a very necessary item for the establishment of reserve funds to be used for future purchasing of new buses.

The total of the above costs have an accurate cost of the public-owned transportation program. The hypothetically constructed cost was for the 1971-72 school year.

Method of Organizing Data

Cost statements with appropriate itemization, taken from the state school budget, were used to present the various costs of the opposing bus transportation programs. The statements presented the cost of each transportation program. These cost figures were then used for the final comparison of the contracting transportation program.

Method of Computing Data

All the computations were made on the calculator or adding machine, whichever was appropriate. They were all double checked by the same procedure.

Summary

Various sources of data and computational methods were used to acquire an accurate cost for contract and public owned transportation programs. The accurate costs of the two programs were compared. The comparison determined what difference there was in the cost of equal programs of bus transportation for School District No. 1, Great Falls, Montana.

Chapter IV

ANALYSIS OF THE DATA

Introduction

In this chapter the cost of the contracting programs of bus transportation available to School District No. 1, Great Falls, Montana were determined. After the cost was established for each program (contract and public-owned), a comparison was made as stated in the problem of this study on page two.

Contract Transportation

The cost of the contracted bus transportation program for the school year 1971-72 is found in Table 1, Contract Bus Transportation Cost, page 30.

Mr. O'Reilley and Mr. Erickson were interviewed about any additional costs that should be considered part of the contract bus transportation cost, but not included in the expenditure items listed in Table 1, page 30. The only cost found would have been utility (gas and electric) and telephone expenses for the Transportation Supervisor's small office. Since the office is small and part of a larger building housing other offices and warehouse area, it was

virtually impossible to determine an accurate utility cost. The telephone expense is also virtually impossible to determine because it is an extension of a central telephone system and no records of long distance phone calls by office are kept. However, it was felt by Mr. O'Reilley and Mr. Erickson that the expense would not have a significant effect on the total contract transportation cost. Therefore, no estimate was established for the utility and telephone items and they are not included in the total cost of this method of transportation.

Table 1

Contract Bus Transportation Cost

Transportation	Expenditure Item	High School	Elementary	Total
Salaries	2-110	$ 4,911	$ 10,121	$15,032
Supervisor's Trans. and Office Exp.	2-137	742	1,068	1,810
Contract Bus Transportation	2-200	164,958	261,390	426,348
Individual Transportation	2-300	396	279	675
Retirement of Prior Year's Warrants	2-400	-	-	-
Contingency Item	2-500	-	-	-
Totals		$171,007	$272,858	$443,865

Public-Owned Transportation

To determine the cost of the hypothetically constructed public-owned bus transportation program, data from various sources was used. The total cost for the program is found in Table 2, below.

Table 2

Public-Owned Bus Transportation

Transportation	Expenditure Item	Cost
Salaries	2-100	$286,665.00
Maintenance and Operation	2-137	66,379.00
Insurance and Other Expenses	2-159	21,055.00
Bus Replacement	2-163	-
Individual Transportation	2-300	675.00
Retirement of Prior Year's Warrants	2-400	-
Contingency Item	2-500	-
Bus Depreciation Reserve Fund, Form 4	-	111,140.00
Total		$493,914.00

Expenditure 2-100 includes salaries, hourly wages, social security contributions, workmen's compensation (Industrial Accident) expenditures, and group health insurance expenditures for the personnel that Mr. O'Reilley considered essential to provide a hypothetical public owned bus transportation program. The data is presented in Table 3, page 33, Salaries and Related Expenditures.

The salaries for the supervisor, dispatcher, and secretary were obtained from Mr. Edwards. Mr. James Murr, Business Representative of the Association of Machinists and Aerospace Workers, No. 1046, furnished the data pertaining to the hourly wages of the mechanics, and Mr. I. J. McCormack, Secretary-Treasurer of the Teamsters Union Local No. 45 provided information pertinent to establishing the bus drivers hourly wages. The data necessary for determining the school district expenditures for social security, workmen's compensation and health insurance was obtained from Mr. Erickson, and the retirement expenditures were included at the rates established in the Revised Codes of Montana.

The expenditure for bus drivers hourly wages, retirement, and the health insurance are significant additions to the cost of the public owned program over what the

Table 3

Salaries and Related Expenditures

Personnel	Position	Salary	Wages (Hours or Month	Hours/ Month	Wages	Security	Retirement	Workmen's Compensation	Health Insurance	Total
Tansportation Supervisor	1	$18,000.00			$18,000.00	$ 406.00	$ 828.00	$ 270.00	$ 267.00	$19,771.00
Dispatcher	1	9,000.00			9,000	406.00	414.00	135.00	267.00	10,222.00
Secretary	1		$362.00 mo.	12	4,344	226.00	200.00	65.00	267.00	5,102.00
Bus Drivers	64		3.51 hr.	46,592 hrs.	163,598	8,407.00	7,525.00	2,454.00	8,544.00	190,528.00
Mechanics (Journeyman)	4	7/1/71-4/30/72 @	4.55 hr.	7,095 hrs.	32,282	2,042.00	1,806.00	589.00	1,068.00	44,767.00
		5/1/72-6/30/72 @	4.70 hr.	1,485 hrs.	6,980					
Mechanics (Apprentice)	1	75% of $4.55 =	3.41 hr.	760 hrs.	2,592	391.00	346.00	113.00	267.00	8,629.00
		80% of 4.55 =	3.64 hr.	1,000 hrs.	3,640					
		85% of 4.00 =	4.00 hr.	320 hrs.	1,280					
Mechanics (Helpers)	1	7/1/71-9/30/71 @	2.20 hr.	520 hrs.	1,144	345.00	305.00	99.00	267.00	7,646.00
		10/1/71-3/31/72 @	2.40 hr.	1,040 hrs.	2,496					
		4/1/72-6/30/72 @	2.55 hr.	520 hrs.	1,326					
		Cold Weather Help	2.60 hr.	640 hrs.	1,664					
Totals	73	$27,000.00			$248,346	12,223.00	$11,424.00	$ 3,725.00	$10,947.00	$286,665.00

contractor paid. The following people, Mr. McCormack, Mr. O'Reilley, Mr. Erickson, and Mr. Jacobson, concurred that the hourly wages of the bus drivers would be the same as the hourly wages the truck drivers for School District No. 1 received, which was $3.51 per hour, and group health insurance would be provided in full or part depending on the status of the employee. Public Employees Retirement Benefits are required by the Revised Codes of Montana.

Table 4, page 35, Parts, presents the data received from Mr. Jacobson on the frequency of parts replacement, costs of parts, and cost of radiator and body work completed by specialists in these areas.

Tire and tube mileage was obtained from Mr. Jacobson. This information along with cost data from Mr. Jerry Noble at Andy's Incorporated (Good Year Tire Dealer), Great Falls, Montana, is presented in Table 5, page 36, Tires, Tubes, and Chains. The Good Year Tire and Rubber Company prices were used for all tire and tube calculations. The prices are the Net State Prices that are applicable to State, County, Municipal governments and School Districts. Mr. Jacobson's data on chain life and cost were used to determine this cost.

Table 4

Parts

Item	Number Used Per Year		Cost Each	Cost Per Year
Alternator	10		$450.00	$4,500.00
Starter	20		25.00	500.00
Battery	15		50.00	750.00
Major Overhawl (Valves, Rings, etc.	3	1 1/2 - Pusher 1 1/2 - Conventional	800.00 300.00	1,650.00
Clutch	15		65.00	475.00
Transmission	1		200.00	200.00
Universal Joints	128		8.00	1,024.00
Bearing	64		28.00	1,852.00
Differential	1		200.00	200.00
Tune Up (Points, Plugs, Condenser, etc.	256		14.00	3,584.00
Heater Motors	50		16.00	800.00
Brake Lining	25		40.00	1,000.00
Light Bulbs	320		.40	128.00
Relay Switches	64		12.00	768.00
Radiators	-		-	400.00
Glass	-		-	3,000.00
Body Repair Work	-		-	2,700.00
Miscellaneous Items (Heater hose, clamps fuel filters, head lamps, tire repair, etc.	64		20.00	1,280.00
Total				$25,311.00

Table 5

Tires, Tubes, and Chains

Item	Size	Price	No. Replaced	Cost per Year
Tire	8:25 x 20	$57.98	34	$1,971.00
Tire	8:25 x 20	37.63	68	2,559.00
Tire	9:00 x 20	69.33	17	1,187.00
Tire	9:00 x 20	45.31	35	1,586.00
Tube	8:25 x 20	5.05	51	258.00
Tube	9:00 x 20	6.55	26	170.00
Chains	Both of the above	40.00	2	80.00
Total				$7,811.00

NOTE:

Miles per tire - 37,500 (Jacobson's average 35,000 to 40,000)
Total tire mileage (64 buses, 6 tires each) - 5,760,000 tire miles
Number of tires replaced each year - 154 tires
42 buses use 8:25 x 20 tires - 103 tires
1/3 front new tires - 34 tires
2/3 rear recapped tires - 68 tires
22 buses use 9:00 x 20 tires - 51 tires
1/3 front new tires - 17 tires
2/3 rear recapped tires - 35 tires
Miles per tube - 75,000
Total tube mileage (64 buses) - 5,760,000 miles
Number of tubes replaced - 77 tubes
22 buses use 9:00 x 20 tubes - 26 tubes
42 buses use 8:25 x 20 tubes - 51 tubes
Chain life - 10 years Number of chains - 18 pair

Petroleum product prices were obtained from Mr. Mike Jacobs, Sales Representative of Humble Oil Company. The amount of each product needed was based on data from Mr. Jacobson. All this data is presented in Table 6, Petroleum Products, page 38. The prices given are wholesale prices as near to a contract bid price as Mr. Jacobs could establish them. The prices include only the taxes that are applicable to this situation.

Table 7, Miscellaneous Operating Expenses, page 39 presents the building maintenance expenses, estimated by Mr. Ray Bearson, Assistant Supervisor of Maintenance, School District No. 1. The cost for utilities (water, sewage, gas, garbage) and the office expenses which the hypothetical program incurred were estimated by Mr. O'Reilley.

The sum of Tables 4, 5, 6, and 7 totals will establish Expenditure 2-137.

Expenditure 2-159 gives the cost of insurance for the Transporation Maintenance Building and the fleet of buses. Both of the costs were established from data furnished by the agent, via Mr. Erickson, representing the company holding School District No. 1's insurance policy. The data is presented in Table 8, Insurance, page 39.

Table 6

Petroleum Products

Product	Unit	Price	No. of Units	Cost
Gasoline	gal.	17.19¢	147.692	$25,406.00
Oil	gal.	.90¢	1,922	1,729.00
Grease	lb.	24.5¢	576	141.00
Anti Freeze	gal.	$1.24	96	117.00
Transmission Lubricant	lb.	21.25¢	412.5 (55 gal drum)	88.00
Wheel Bearing Grease	lb.	24.5¢	120 (120 lb. pail	29.00
Oil Filters	ea.	$2.10	576	1,209.00
Brake Fluid	drum (5 gal.)	$21.00	1	21.00
Total				$28,742.00

NOTE:

Above prices include taxes that are not refundable to the school district.

Gas mileage - 6.5 miles per gallon (Jacobson's averabe 6 to 7 mpg)
Miles traveled - 960,000 miles
Oil changed monthly (9 months) - 22 buses, 12 quarts
- 42 buses, 11 quarts
Oil added monthly (9 months) - 64 buses, 2 quarts
Oil filters changed monthly (9 months) - 64 buses, 1 ea.
Greased monthly - 1 lb per bus (64 buses)
Anti Freeze added constantly - average 1 1/2 gal. a year per bus (64 buses)
Transmission Fluid - replaced as needed, also brake fluid
Wheel Bearing grease - replaced as needed

Table 7

Miscellaneous Operating Expenses

Item	Amount
Maintenance, Building	$300.00
Utilites (Gas, Electric, Water, Sewage)	1,500.00
Office Expenses	2,715.00
Total	$4,515.00

Table 8

Insurance

Item	Amount
Bus Insurance	$20,000.00
Public Liability Insurance 250,000/1,000,000	
Property Damage Insurance 50,000	
Automobile Medical (each person) 1,000	
Collision ($250 deductible)	
Maintenance Building Insurance	
Fire, Comprehensive, and Liability .0211 x $50,000 (estimated value)	1,055.00
Total	$21,055.00

No interest for bus purchases was calculated because all but five of the buses were pruchased three years prior to the year covered by this study. The purchase of a bus has to be completed within three years according to the Revised Codes of Montana. That is the basis for its exclusion. With the buildup of the Depreciation Reserve Fund from the valuation of the new buses, the writer established that adequate cash would have been available to pay for the bus purchased in 1968 and the four buses purchased in 1969. No buses were purchased during the 1971-72 school year; therefore, no expenditures for item 2-163. With cash being paid for the buses and the maintenance and office facilities paid for no warrants were outstanding, leaving Expenditure 2-400 with no outlay.

Individual Transportation, Expenditure 2-300 would have been the same under the hypothetical program as it was with the contract program. So, the expenditure was taken from the Elementary and High School Budget Control Statements, and is the same amount as Expenditure 2-300 in Table 1, Contract Bus Transportation, page 30.

There were no expenditures from the Contingency Item, Expenditure 2-500, during the actual contract program. Mr. O'Reilley felt that the situation would have

been the same with a public owned program.

Mr. O'Reilley and Mr. Erickson felt that school District No. 1 would depreciate the buses at the maximum allowable rate according to the Revised Codes of Montana. Table 9, Bus Depreciation below, presents the necessary data received from Mr. Jacobson and Mr. O'Reilley, to determine this expenditure item.

Table 9

Bus Depreciation

Type	Number	Purchased	Cost New	Total Cost
73 passenger	22	1967	$12,500.00	$275,000.00
66 passenger	12	1967	7,800.00	93,600.00
66 passenger	4	1969	8,000.00	32,000.00
60 passenger	25	1967	7,500.00	187,500.00
60 passenger	1	1968	7,600.00	7,600.00
Total				$595,700.00

NOTE:
Five reserve buses were used buses over five years old and had been previously depreciated.

Maximum rate of depreciation - 20%

Depreciation - $119,140.00

Cost Difference

When the total cost of contract bus transportation $443,865.00 (Table 1, page 30) and public-owned bus transportation (hypothetically constructed), $493,914.00 (Table 2, page 31) are compared, it is found that there is $50,049.00 difference.

Summary

Table 1, Contract Bus Transportation Cost, page 30, and Table 2 Public Owned Transportation Cost, page 31, present the results of the collected data. The data from the contrasting types of bus transportation available to School District No. 1, Great Falls, Montana, were compared and the difference in cost was established as the question posed in the paper asked.

Chapter V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

In this chapter the results of the study are interpreted with respect to previous research done in this area. Suggestions for the use of the results and possibilities for further research are also given.

Conclusions

A comparison of the contract and public-owned bus transporation programs, to determine the difference in cost, showed that the public-owned program cost $493,914.00 and the contract program cost $443,865.00, a difference of $50,049.00.

From this study the writer has concluded that the contract program providing the bus transporation for students of School District No. 1, Great Falls, Montana cost less than what the school district could have provided for itself. So, keep the contract program as long as it meets all the established requirements.

The writer, in his review of related literature in Chapter 2 did not find any actual cost comparisons in

dollars and cents. The literature constantly referred to areas where one program should cost more or less than the other program.

The area of wages and associated benefits appeared to be the cause of the difference in the cost of the contrasting types of programs. Maintenance parts, tires, tubes, and petroleum products appear to be of lesser significance in causing the cost to differ from one program to the other.

In the public owned bus transportation program the wage paid the bus drivers was $3.51 an hour, compared to the maximum hourly wage paid by the contractors of $2.60 an hour. This is 91¢ an hour and for 46,592 hours, amounts to a $42,399.00 cost.

In the area of the supervisor, dispatcher, secretary and mechanics it is difficult to calculate an exact cost difference between the programs because the contractors themselves were performing the responsibilities of the various positions at different times and put in exceeding long hours at times. With the public-owned program the above mentioned employees would have to receive extra compensation for work put in beyond the normal work day or more personnel would have to be hired.

The benefits of retirement contributions and a health insurance program amounted to an expense of $22,371.00 that the public-owned program had and the contract program did not have.

The calcuable difference in wages and benefits amounts to $64,770.00, which does not include the greater expenditures for the supervisor, dispatcher, secretary and mechanics.

Recommendations

In reading the following recommendations keep in mind that the results of this study are applicable only to the bus transportation program that was studied.

Schools having bus transportation programs of similar size, union labor conditions, and available suppliers of material and services may find the results to a study of this type similar to the conclusions of this study. However, if any of the three factors vary from those of this study, it may have a significant effect on the results. More studies of the cost of bus transportation programs should be conducted on a variety of school sizes to see if there is some kind of pattern to the comparative cost of the contrasting types of bus transportation programs.

In this study it was assumed that the school district alread had their maintenance garage and storage area. If a school district does not have the necessary facilities to handle a bus transportation program, what would the cost of such facilities be? How would it affect the total cost of the transportation program? These are some questions that should be answered before a decision can be reached as to what type of program will be attempted. This would be necessary for any program comparison, irregardless of its size. Studies should be conducted to establish some ratio of cost or savings/per bus for converting from public-owned to contract or contract to public-owned busing.

A study should also be made to establish some criteria to evaluate the quality of bus transportation programs. This should include attitudinal as well as quantitative or qualitative data. This type of data would be the determining factor as to the type of transportation program that is desirable.

With studies of the above types available for school administrators or transportation personnel to use as guidelines, the evaluation and desirability of a specific program could be more easily determined.

Summary

The difference in cost between the public owned bus transportation program, $493,914.00, and the contract transportation program, $443,865.00, was $50,049.00. In this study the contract transportation was less expensive than the public-owned transportation.

Recommendations were made that more studies be made in various size school districts to determine the difference in cost between the contrasting bus transportation programs.

A study to determine the cost of converting from one type of program to the other was also recommended. For accurate comparison of the quality of transportation, a study was recommended to establish criteria to measure attitudinal, quantitative, and qualitative data.

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