REPORT 75-06

INTEGRATION OF SCHOOL BUS AND PUBLIC TRANSIT SERVICE

SUMMARY REPORT

PREPARED FOR
The Twin Cities Area Metropolitan Transit Commission

rton-Aschman Associates, Inc.

March, 1975

Low-Capital Alternatives for Urban Transportation

This report was prepared as part of a program on Low Capital Alternatives for Urban Transportation.

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MEMORANDUM

TO: Members of House Local and Urban Affairs Committee
Members of Senate Metropolitan and Urban Affairs Committee

FROM: Doug Kelm, Chairman

DATE: April 10, 1975

SUBJECT: Study of Integration of School Bus and Public Transit Service

In approving the Promotion of Car Pools Act (Chapter 574, Laws of 1974), the Minnesota Legislature directed the Metropolitan Transit Commission to "make a study of the integration of school bus transportation and bus service in the metropolitan area". The attached report, prepared for the MTC by Barton-Aschman Associates, Inc., summarizes this study and contains the recommendations developed from the research undertaken in this project.

This study was conducted under the general direction of the interagency project management board established to guide the broader project concerned with Low-Capital Alternatives for Urban Transportation. This board is made up of representatives from the Metropolitan Transit Commission, Minnesota Highway Department, Metropolitan Council, University of Minnesota, City of Minneapolis and City of St. Paul.

The study was intentionally broad in nature to obtain an overview of school bus operations as they relate to public transit operations in the metropolitan area, with recognition of the fact that additional studies of specific subjects or concepts might be required depending upon the findings, conclusions, and recommendations developed in the initial study.

The major recommendations developed in this study are summarized as follows:

1. Integration of school bus and public transit services should be dropped from consideration under normal economic and fuel availability conditions.

2. During a time of extremely limited fuel availability, work and school hours should be staggered and school busing policies altered, to make a substantial portion of the school bus fleet available for public transportation purposes.

3. Since certain portions of the school bus fleet are available during some off-peak hours, the MTC should act as a catalyst among the school districts, social service agencies, private school bus operators, and those persons desiring specialized transportation services which might be provided through use of school buses.

The Metropolitan Transit Commission concurs with the findings and recommendations of the consultant on the study of integration of school bus transportation and bus service in the metropolitan area. No additional study of this subject is planned at the present time.

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enclosure

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1. INTRODUCTION

In view of substantial and increasing demands upon transportation facilities within the Metropolitan Area, the monetary constraints to the provision of new facilities to accommodate current demands and expected future increases in this demand, and the sizable investment in existing transportation facilities, greater attention is being directed toward the more efficient utilization of existing transportation facilities. In this spirit, the 1974 Session of the Minnesota Legislature, all too well aware of the increased capital demands for transportation facilities and the limitations to providing such funding, enacted the Metropolitan Transportation-Promotion of Car Pools Act.* The Act, in addition to directing the Metropolitan Transit Commission to promote the use of car pools and employer vans, also directed that the Metropolitan Transit Commission study the more efficient use of other "low capital" systems and procedures to make more efficient utilization of existing systems. Included in the investigation requirements were studies of parking facilities, staggered work scheduling, utilization of exclusive freeway ramps, integration of school bus transportation and bus service in the Metropolitan Area, and ways in which private taxi service could be better coordinated with the operation of other forms of transportation within the Metropolitan Area.

In response to this direction the Metropolitan Transit Commission, in cooperation with the Minnesota Highway Department, the Metropolitan Council, the Cities of Minneapolis and St. Paul and the University of Minnesota, has undertaken the Low Capital Alternatives for Urban Transportation Study. This study has as its basic objective the following:

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*Chapter 574,473A.21 - 473A.28

"To estimate the effectiveness of various low capital cost techniques, procedures and regulatory actions in reducing traffic congestion on streets and highways; peak hour traffic volumes; and total vehicle miles traveled; and to assemble data as a basis for development of a continuing program to implement those alternatives to be of greatest potential value."

The Low Capital Alternatives Study provides a coordinated framework based upon a set of goals and objectives consistent with the direction of the Legislature's emphasis upon energy conservation and the reduction of traffic congestion within which a number of studies addressing the possibilities of more efficient utilization of existing transportation systems are to be conducted. These studies include:

1. Research on existing applications of low capital alternatives.
2. Review of existing traffic movement and travel in the Twin Cities Area.
3. Implementation of car pooling and van programs.
4. Analysis of working hours and potential for use of staggered work hours.
5. Parking policies.
6. Major activity center circulation.
7. Coordination of taxi service.
8. Integration of school bus transportation and bus service.

This document describes the investigation conducted within the framework of the Low Capital Alternatives Study as to the integration of school bus transportation and bus service in the Twin Cities Metropolitan Transit Taxing District where transit service is currently provided by the Metropolitan Transit Commission. Throughout this study, this area will be referred to as the Study Area.

INTEGRATION OF SCHOOL BUS AND PUBLIC TRANSIT SERVICE STUDY

In view of the complexity of each of the areas of study and substantial resources which would be required to investigate indepth each of the above mentioned areas of study, it was decided that the major emphasis of this initial investigation of low capital urban transportation alternatives was to be an overview with the major objectives being the identification of those procedures, systems, etc., which appear to have sufficient merit for further, more detailed, study and perhaps, implementation. Procedures not clearly illustrating future potential would, thus, be discarded in the process before considerable resources were expended in their behalf. It was felt that this would be the most efficient approach to the investigation of a very broad area of study. As such, the objective of the school bus study was to identify, in an overview fashion, potentials and opportunities for better coordination of school bus service with other forms of transportation for more detailed study and consideration at a later date. The study process, as a result, relied primarily upon available published information and heavily upon discussions with school bus operators and staff members of the Metropolitan Transit Commission.

STUDY ORGANIZATION AND COMMUNITY INPUT

To manage and coordinate the study, a Project Management Board was formed composed of members of the Metropolitan Transit Commission, the Metropolitan Council, the Minnesota Highway Department, the University of Minnesota, and the Cities of Minneapolis and St. Paul. The Advisory Committee, formed for the entire Low Capital Alternatives Study, provided important local community expertise to the study. In addition the School Bus Operator's Forum, conducted as part of the Study and attended by representatives of the School Districts, private school bus operators and the Minnesota Department of Education, was a valuable source of information.


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2.
STUDY GOAL AND OBJECTIVES

The Citizens Advisory Committee developed a set of goals for the Low Capital Alternatives Study. The School Bus Study Goal relates the goal of the Legislature - the integration of school bus and Public Transit service - to the goals of the Low Capital Alternatives Study. Based on the Study Goal, specific objectives and criteria which should be considered in the accomplishment of the objectives were prepared to guide the study. The study goal and objectives are as follows:

GOAL:

To integrate school bus transportation and bus transportation in accord with the following goals of the Low Capital Alternatives Study:

1. Increase the effectiveness of the urban transportation systems in the Twin Cities Metropolitan Area.
2. Maximize the traffic-carrying capacity of the existing street and highway system through minimization of congestion.
3. Decrease the number of vehicles required to move people and goods in the area.
4. Minimize the use of limited energy resources in the movement of people.
5. Reduce the collective discharge of pollutants into the air from the motor vehicles operating within the area.
6. Achieve a level of urban mobility required for the social well-being and economic health of the entire Metropolitan Area.

OBJECTIVES AND CRITERIA:

1. To identify legal restrictions and institutional constraints to the utilization of school buses for general public transportation purposes.
   Criteria: - Physical constraints
   - Operational constraints
   - Labor restrictions

2. To identify operational attributes and suggest exclusive and complementary functions for school bus and public transit operations.
   Criteria: - Type of service required (Collection and Distribution, Line Haul)
   - Level of service desired
   - Coverage
   - Trip purpose suitability
   - Relative energy efficiency
   - Time of service
   - Market segment focus
   - Relative operational costs

3. To identify industry constraints to the implementation of new types of service.
   Criteria: - Revenue thresholds
   - Labor requirements
   - Equipment requirements

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3. CHARACTERISTICS OF SCHOOL BUS UTILIZATION

This chapter summarizes the highlights of the investigation and analysis conducted during the study.*

LAWS AND REGULATIONS AFFECTING SCHOOL BUS OPERATIONS

Federal Regulations

School bus transportation is a highly regulated service. School bus regulations stem from the U.S. Department of Transportation Highway Safety Program Standard No. 17 (as amended May 19, 1973) which is "designed to improve State programs for transporting pupils safely in urban and rural areas by setting requirements for proper safety equipment; maintenance of equipment; selection, training, and supervision of drivers and maintenance personnel; and administrative provisions in the field of pupil transportation." Federal Safety Standard No. 17 requires that all school buses be equipped as follows:

1. That the words "school bus" be printed on the front and rear of the vehicles with letters of not less than eight inches in height.
2. That school buses be painted the national school bus glossy yellow color.
3. That all school buses have the eight light warning signal system.
4. That all school buses be equipped with a system of mirrors that will give the seated driver a view of the roadway to each side of the bus and immediately in front of the front bumper.
5. That stop arms be required at the option of the State.

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*A more detailed description can be found in the set of working papers prepared for each study element and available from the Metropolitan Transit Commission.

In addition to the equipment requirements, Safety Standard No. 17 requires that there be a single state agency having primary administrative responsibility for pupil transportation and employing at least one full time professional to carry out the responsibilities for pupil transportation. Also, the state agency must develop an operating system for collecting and reporting information needed to improve the safety of school vehicle operations. The Department of Education is this designated agency in the State of Minnesota and has prepared a set of school bus rules of operation (Chapter 13 EDU 240-279).

In the case of buses that are operated by a privately or publicly owned transit system primarily for regular common carrier work but also for special school bus service, modifications to the Federal requirements are allowed as follows:

1. Buses need not be painted the school bus glossy yellow color.
2. Buses must be equipped with temporary signs when transporting children to and from school with the words "school bus" printed on them.
3. Buses need not be equipped with the required signal lamps when the buses are used in places where use of warning signals is prohibited.

School bus vehicles that are permanently coverted for other than school transportation uses must be painted in a color other than school bus yellow.

State Law

Considerable State legislation has been enacted pertaining to school bus transportation. The law defines who must be transported, the amount of state aid which can be applied to specific types of school transportation, the utilization of school buses for other than school transportation purposes, types of insurance to be provided, authority of school districts to operate and finance school buses, safety requirements and others. Those laws which have the most direct effect upon the integration of school buses and public transit vehicles include:

1. Safety equipment requirements (Minnesota Statutes 169.45; 169.65; 169.74 and Department of Education Regulations based on 169.45).

2. The requirement that bus transportation must be provided to and from school for students in the district who live two or more miles away from the school (Minnesota Statutes 129.39, Subdivision 1).
3. The law authorizing transportation aid to resident pupils who reside one mile or more from the public school they could attend (Minnesota Statutes 123.76 to 123.79).
4. The law permitting the school board of a district to rent or lease its school buses for any lawful reason as long as the renting or leasing does not interfere with the transportation of the students to and from school (Minnesota Statutes 123.18 and 123.39, Subdivision 8).

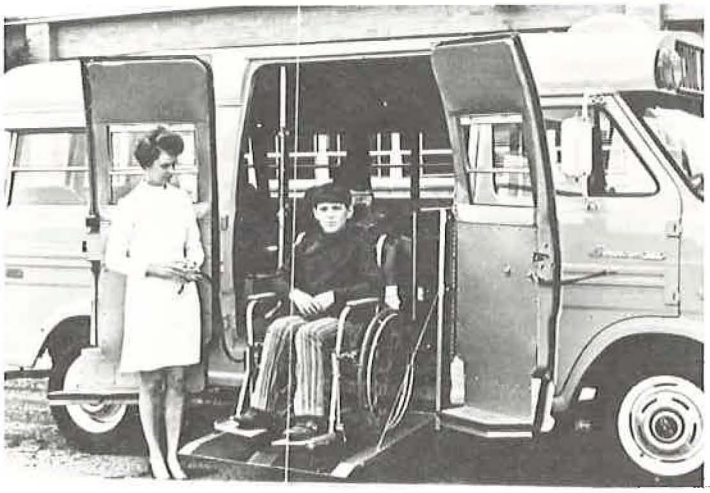
SCHOOL DISTRICT POLICIES AND REGULATIONS

A sample survey of school districts within the Study Area indicated that, in general, school boards have no written policies preventing the use of school buses for public transit purposes when not needed for the transporting of school children. In general, however, unwritten policies are to avoid such uses since, in many cases, school buses are deemed needed for extra curricular activity transportation and for early dismissals during certain times of the year.

PROVISION OF SCHOOL BUS SERVICE

State law requires that students living over two miles from the school they attend must be furnished with school transportation and allows for the reimbursement of a major portion of the transportation cost of all students to whom transportation is provided that live one mile or further from the school that they must attend. Within the one mile radius school districts also, by policy, provide transportation to the younger, kindergarten and elementary, school children. The minimum radius beyond which school districts furnish this additional transportation varies by grade. Transportation is usually furnished to kindergarten children who live one-half mile or more from school; however, in some school districts all kindergarten children are transported.

Lower elementary children, grades 1-3 are usually transported if they live one-half mile or more from school. Older elementary, junior and senior high transportation is usually provided for students living beyond one mile from the school they attend. While most students board the school buses at designated stop locations in some cases kindergarten transportation is a door-to-door service. In addition to these regular services, special education student needs are also accommodated with transportation furnished in all cases to the physically and mentally handicapped.



School bus transportation as required by State law is provided by the school districts in one of the following manners:

1. By school district-owned buses.
2. By privately-owned buses under contract to the school district.
3. By combination of school district-owned and privately-owned school buses.
4. By Metropolitan Transit Commission school special buses in combination with publicly-owned and/or privately-owned school buses.

Of the 44 school districts within the Twin Cities Metropolitan Taxing District, 27 rely upon privately-owned buses, 7 utilize school district-owned buses, and 8 school districts utilize a combination of privately-owned and school district-owned buses. The manner in which each school district provides transportation is illustrated in Figure 1. In addition to the utilization of school bus vehicles--in Minneapolis, privately-owned and publicly-owned, and in St. Paul, privately-owned--the Minneapolis and St. Paul school districts rely upon special Metropolitan Transit Commission buses for some of their school transportation needs.

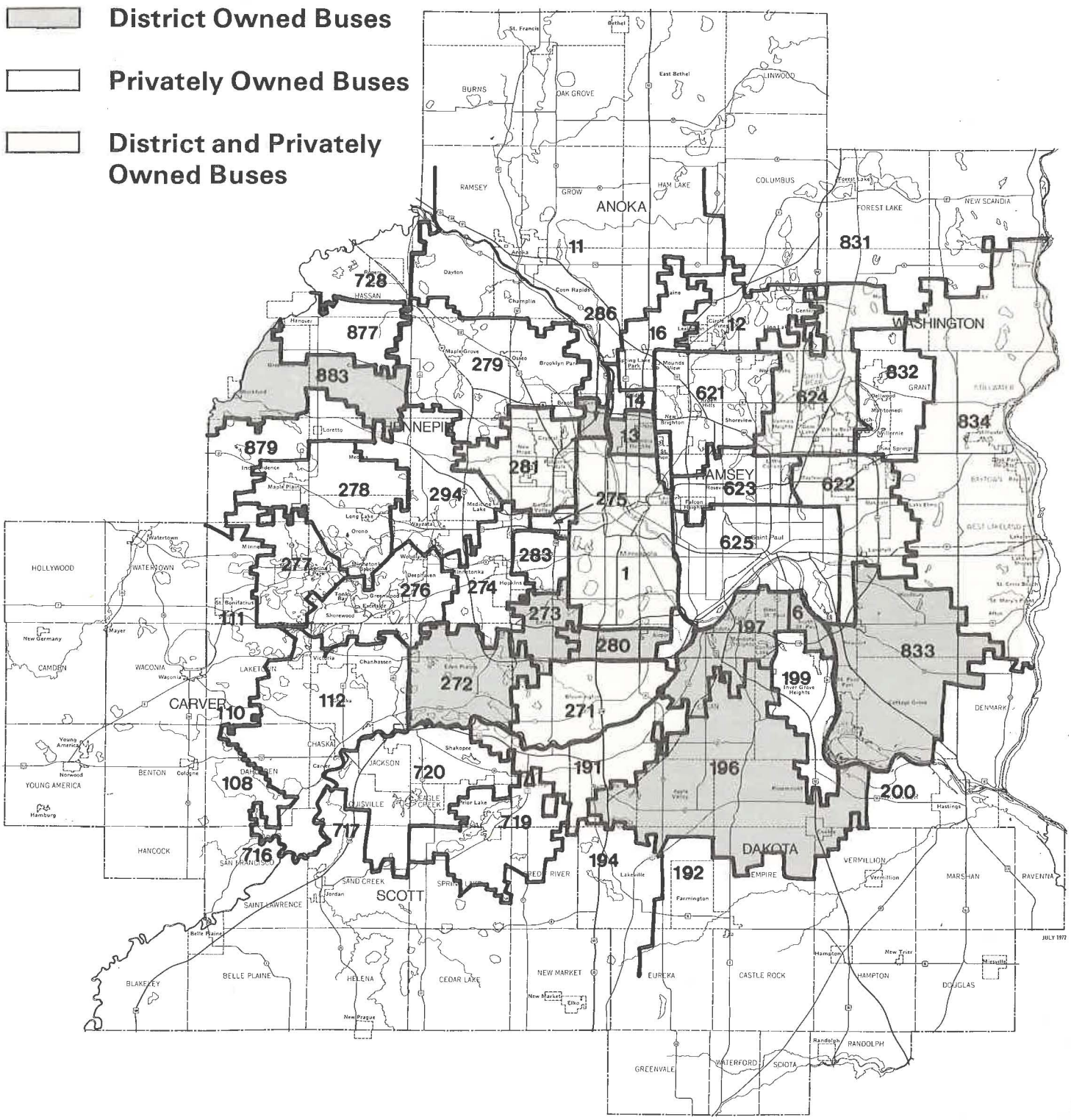
Private bus companies, currently under contract to school districts in the Study Area and those school districts which provide some or all of their own buses, are identified in Table 1. Decisions as to school district ownership or utilization of private contractors are based upon economic arguments which vary depending upon each school district's situation.

SCHOOL BUS UTILIZATION CHARACTERISTICS

Following is a summary of pertinent school bus utilization characteristics as identified from available data.

Ridership

Actual average daily school bus ridership data is not available in published form. Available data as to the number of students eligible for transportation reimbursement is available from the Minnesota Department of Education. This data indicates that during the 1973-74 school year there was a total of 212,980 students who were eligible for school bus transportation in the 44 school districts within the Twin Cities Metropolitan Transit Taxing District. Observations of existing school bus operations indicate that actual ridership becomes progressively lower than the number of eligible students as the school grade increases. On the other hand, since many school districts transport non-eligible students, this deficit between eligible ridership and actual ridership might be absorbed by the non-eligible students being transported. Thus actual total ridership might be closely approximated by the eligible ridership data.



1.
SCHOOL BUS OWNERSHIP BY SCHOOL DISTRICT

TABLE 1
INVENTORY OF SCHOOL BUS OPERATORS WITHIN THE TWIN CITIES METROPOLITAN TRANSIT TAXING DISTRICT, NOVEMBER, 1974

Private Companies Under Contract to School Districts

Bus Company	Address	School District
Bloomington Bus Co.	210 W. 79th St., Bloomington	271
DeVeau Bus Co.	14900 Margaret Place, Minnetonka	274, 276
Medicine Lake Bus Co.	9625 36th Ave. N., Medicine Lake	1, 295,284, 281
Hanus Bus Co.	4500 Tonkawood Rd., Minnetonka	276, 284
Rettinger Bus Co.	Long Lake, Maple Plain	278
Osseo-Brooklyn School Bus Co.	3506 Wooddale Ave., St. L. Park	283
Wayzata Bus Co.	1400 E. Wayzata Blvd.	284
Rehbein Transit Inc.	6152 Hodgson Road, Circle Pines	19, 642
Spring Lake Park Bus Co.	9015 N.E. Radisson Rd., Blaine	1, 13, 16
Fridley Bus Service Inc.	6473 University Ave. N.E., Fridley	14
Columbia Transit Corp.	1102 N. Snelling Ave., St. Paul	1, 621,623,625,282
St. Paul & Suburban Bus Co.	2880 Stillwater Rd., St. Paul	622, 625, 832, 834
Safeway Bus Co.	1050-9th Ave. S., So. St. Paul	6, 625
Priebe Bus Co.	7655 E. Concord Blvd., Inver Grove Hghts.	199
Minn. Body & Equipment Co.	3400 W. Hwy. 13, Burnsville	191
Marshall Bus Co.	617-6th St., Farmington	192
Smitty's Bus Co.	20011 Holyoke, Lakeville	194
Mattson Bus Co.	N.E. 1st St., Buffalo	877
Stahlke Bus Co.	Delano	879

School Districts Which Own School Buses

School District	Address
Special 1 - Mpls.	1001-2nd Ave. North, Minneapolis (garage location)
Special 6 - So. St. Paul	8th Ave.N. & 2nd St.
13	1400-49th Ave. N.E., Columbia Heights
191	600 E. Hwy. 13, Burnsville
*196	14445 Diamond Path W., Rosemount
*197	2813 Hwy. 55, Eagan
271	1900 W. 94th St., Bloomington
*272	8025 School Road, Eden Prairie
*273	5220 Eden Ave., Edina
*280	71st & Pleasant, Richfield
281	4124 Winnetka, New Hope
*286	65th & Humboldt, Brooklyn Center
622	2710 E. 13th Ave., North St. Paul
624	1025 Division, White Bear Lake
*833	900 Third, St. Paul Park
834	606 N. Main, Stillwater
*883	Bridge & Ash St., Rockford

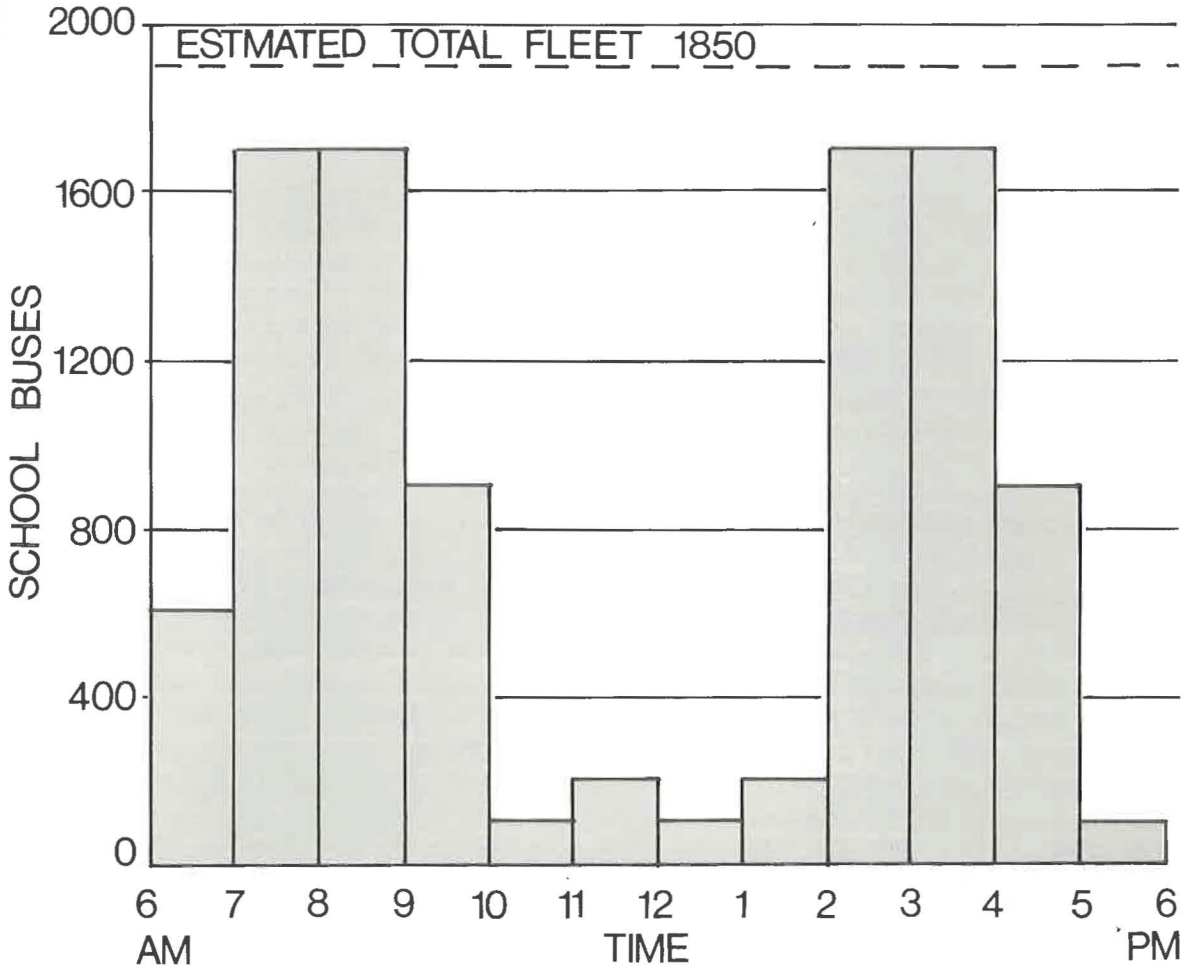
*Districts owning all of their own buses.
Source: Data compiled from the Minnesota Department of Education

Hours of Operation

Regular school bus hours of operation vary considerably depending upon the school district and upon the school type, i.e., elementary, junior high school, high school. Many of the school districts stagger the opening and closing times of the schools to permit greater utilization of school buses. In general, school buses are used two hours in the morning, between the hours of 7:00 and 9:00 A.M.; two hours at noon, between the hours of 11:00 A.M. and 1:00 P.M.; and two hours in the afternoon between the hours of 2:00 and 4:00 P.M. In addition, most of the school districts provide later activity buses after the regular hours 2:00 to 4:00 P.M. time period, and supply buses throughout the day for various extra-curricular activities.

Fleet Size and Utilization

It is estimated that there are about 1,850 school buses in the Twin Cities Area Metropolitan Transit Taxing District. Of these, it is estimated that 1,700 buses are utilized daily during the peak hours of transportation as illustrated in Figure 2. Most of the buses utilized accommodate between 60 and 78 passengers, however, some smaller buses, in the 34-48 and 54 passenger size, are used as well as a few in the 16 passenger category. Special education children are often transported in vans or in the smaller 16 passenger buses.



2.
ESTIMATE OF DAILY SCHOOL BUS UTILIZATION

Routes

School bus routes, in accord with Federal Highway Safety Program Standard No. 17, are designed to avoid pickups on heavily traveled roadways and to avoid hazardous locations. Thus, school buses operate primarily on residential streets. All of the school bus routes are focused on the school providing a many-to-one type of transportation service. To a large degree, dead-head time is minimized due to the fact that school bus garages are located within the major areas served.

Operating Procedures

In the words of one private school bus operator who provides school buses to a metropolitan school district, "Our first consideration is safety." All school districts are required to have a program for instructing pupils as to the proper manner of utilization of the behavior on school buses. In addition, many school districts and private operators have intensive training programs as to the safe operation of school buses. Some private operators require much more stringent operating procedures than would be required under State motor vehicle operating laws. The better school districts and private operators take care to provide periodic checks as to the competency of their drivers.

An excellent example of "stringent" bus driver regulations and cooperation of a school district with a private operator, is that of District 283, St. Louis Park. On December 6, 1974, the consultant, in addition to interviewing the operator (Park Bus Company), rode the school bus through the morning run. The buses were clean and the driver courteous, demonstrating close relationships with the children. In addition, certain safety standards developed by the bus company in cooperation with the school district were observed. All children must stand in a single line at the bus stop and do not advance toward the school bus until the bus is at a full stop and the door opens. Drivers are instructed to stop not closer than 10 to 15 feet to this line. All children board, take seats as they enter and leave in a similar manner. They are required to face the front at all times. Discipline problems are minimized by a reporting system of offenders which has the full cooperation of the school district. After four offenses, the pupil is no longer permitted to ride the school bus during the remainder of the year. In operating their buses, school bus drivers are required to slow to a five mile per hour speed when entering and leaving the school grounds on the way to or from their stop. As a result of these regulations and rules, this particular company has an excellent safety record, not having had a fatality in 30 years. The observance of this operation emphasizes the basic industry contention that providing school transportation is a highly specialized service, if done properly and having as its objective the safety of the student. While no doubt the operational procedures vary somewhat from school district to school district, as does student conduct on the buses, operational procedures emphasize the specialized service demanded of school bus operations by Federal and State Safety requirements.

DRIVER SUPPLY

School bus driving is not a full time job. School bus drivers are either part time employees or are employed by the school district for custodial or maintenance purposes during the time they are not driving the school buses.

COSTS OF SCHOOL BUS SERVICE

Based upon the data obtained from the Department of Education for the 1973-74 school year, costs per eligible student vary by school district between $47 and $120. Capital costs vary considerably on an annual basis but are often minimal. Initial outlays for a school bus operation vary with respect to options, degree of comfort, size, desires, etc. As such, it is difficult to identify the initial investment required for a school bus operation with a great degree of accuracy. However, as an example of the type of initial outlay required, a 1973 Mounds View Public Schools Independent School District 621, report* established the capital cost of a district-owned 80 bus fleet, including buildings, equipment, etc., at $1,215,400.

UTILIZATION OF PUBLIC TRANSIT VEHICLES FOR SCHOOL TRIPS

Approximately 25,000 school trips are made daily on MTC buses. Of these 25,000, approximately 5,700 trips are made on school specials while the remaining approximately 19,000 trips are made on regularly scheduled public transit buses. Data obtained from the Metropolitan Transit Commission, and displayed in Table 2, identifies the ridership by route and the particular MTC garage at which the buses are based. Private, suburban transit operators interviewed identified only a few student riders or did not maintain such data. Most of the existing public transit routes utilized heavily for school trips are located almost entirely within the two central cities of Minneapolis and St. Paul. This is as might be expected, since, in the higher-density central cities, the route spacing is closer and there is a greater chance that transit routes will pass or come closer to existing schools and/or patrons' residences.

*Independent School District 621, "Transportation Study," April 17, 1973, p. 9.

TABLE 2
STUDENT RIDERSHIP ON MTC BUSES

Route #	Nicollet Garage	Snelling Garage	Northside Garage	Totals
Nicollet				
4	489		201	
5	773		1,264	
6	913			
9	682			
17	495			
18	881		575	
19	392		182	
20	279			
21	276			
22	631			
23	255			
30 (School Specials)	586		510	
	6,652		2,732	9,384
Snelling				
3		863		
4		931		
5		505		
6		115		
7		588		
8		282		
9		411		
10		221		
11		219		
12		702		
14		1,049		
16		753	129	
21		1,447		
30 (School Specials)		4,640		
		12,726	129	12,855
Northside				
1			115	
3			84	
7			291	
8			459	
10			485	
12			119	
14			421	
			1,938	1,938
Totals	6,652	12,726	4,799	24,177

NOTE: Any routes carrying $\leq$ 80 students not shown
Includes all routes GRAND TOTAL 25,000
Source: Metropolitan Transit Commission

School special routes are operated as branches of regular transit routes and primarly serve the Minneapolis and St. Paul school districts. Since the school specials are operated as regular transit routes, theoretically any person, student or adult may board these buses along their route.

SCHOOL BUS OPERATORS' FORUM

On November 25, 1974, a public forum was conducted to identify ways in which school bus transportation and bus transit service could be better integrated in the Twin Cities Transit Taxing District. Thirty-one persons attended of which 22 represented school districts and nine, private school bus operators. The following is a listing of the major items discussed at the forum:

1. Independent school bus operators were quite concerned that the MTC had designs upon their businesses. School district representatives, however, did not seem to have such concerns.

2. A number of constraints to the utilization of school buses during "off-peak" times were mentioned by the school bus operators. These included extra-curricular activities, including athletic events and field trips, and the need for the buses at times of early dismissal.

3. If private operators were to utilize their school buses for public transportation purposes, in addition to their school bus operations, to the degree that their employees were required to work eight-hour days, the operators felt that their labor costs, which currently are lower than those of the MTC, would increase accordingly to the same level as that of the MTC. Thus, the full utilization of school buses, in the long run, would offer little, if any, labor cost savings. The end result could even be an increase in transportation costs to the school districts. School district personnel identified the fact that expansion of their services to include public transportation would no doubt require their transportation

staff to be increased and, hence, would result in increased administrative costs. Many of the private operators suspect that any kind of coordinating role by the government would be a move toward increased unionization and, hence, higher costs.

4. Many of the operators stated that MTC buses were not equipped with the safety devices required of school buses for the transporting of school children. Items mentioned not included on MTC buses were stop arms, flashing lights, and required mirrors.

5. School bus operators collectively suggested that the adult school bus public transportation riding market be carefully identified. They questioned whether many adults would want to ride school buses for public transportation purposes due to the generally lower comfort level offered as compared to transit vehicles and other modes of transportation.

6. School districts are generally not interested in leasing their buses for public transportation purposes.

In summary, it appeared that since school transportation is a relatively safe operation from the standpoint of demand and marketing, the school bus operators were not too interested in venturing into the more risky public transportation business.


SCHOOL BUS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4.
POTENTIALS FOR THE INTEGRATION OF SCHOOL BUS AND PUBLIC TRANSIT SERVICE

Possibilities for the integration of school bus and public transit service were initially identified for investigation during the course of the study. The greatest potentials for further integration of school bus and public transit services appeared to be in the suburban portion of the Metropolitan Area. These potentials, a summary of the analysis conducted and the evaluation of the potentials in accord with the goals of the study, are described below. As part of the analysis, three school districts - 197, Burnsville; 281, Robbinsdale; and 833 Cottage Grove - were selected as representative of suburban school districts throughout the Metropolitan Area, and hence, were analyzed in greater detail. The findings of these analyses were essentially similar in each school district. That district having the most potential (although also very limited) - School District 281, Robbinsdale - has been used for illustrative purposes in this report.

The Minneapolis and St. Paul school districts currently are served by special MTC buses in addition to regular school buses. Potentials for increased integration of these services must largely stem from more detailed economic and MTC bus scheduling analysis.

POTENTIAL FOR FURTHER INTEGRATION OF SCHOOL BUS AND PUBLIC TRANSIT SERVICES TO PERMIT REDUCTION IN THE NUMBER OF BUSES REQUIRED FOR EXCLUSIVE SCHOOL BUS SERVICE AND TO PROVIDE FOR MORE EFFICIENT USE OF PUBLIC TRANSIT VEHICLES THROUGH AN INCREASE IN THE DAILY HOURS OF OPERATION

Due to the different emphasis in terms of type of service provided, focus of that service, and special equipment needs, the potential for the integration of school bus fleets with MTC buses is not very great.

The following describes the analysis of the Robbinsdale School District as to the potential for integration of school bus fleets and MTC bus fleets.

Coincidence of Peak Vehicle Demand

Peak vehicle demands for each of the two services are identified below. As shown, the peak demands for public transit vehicles and for school buses coincide during the A.M. peak hours and coincide to a lesser degree in the P.M. peak hours. Further, it does not appear possible to stagger hours previous to or after these hours to make one or the other vehicle fleets available.

Peak Vehicle Demand Times

Public Transit	School Bus
6:30-9:00 A.M.	7:00-9:00 A.M.
	11:00 A.M.-12:30 P.M.
4:00-6:30 P.M.	2:15-4:30 P.M. and
	4:30-6:00 P.M. for late activity service

School Location

The major impediment to school service by regular public transit routes is the conflict between the school service and coverage needs and the general work trip-CBD orientation of the public transit lines. The public transit lines are, for the most part, oriented in a radial pattern toward the central business districts of the central cities. The school attendance areas, however, are situated around the school with the school tending to be the hub. As such, the transit lines within any single attendance area are not focused upon the school and generally offer only minimal coverage of the attendance area. Therefore, while no doubt there are some opportunities for eligible students in certain situations to ride public transit to school, the potential for significant utilization of public transit for school trips is not great in the suburban areas, where route coverage is coarser grained and where route orientation diverges significantly from school locations. In the higher density central city areas, where the transit route spacing becomes finer grained, tending to converge upon the central business districts, transit route coverage is better and there appears to be a greater possibility that a number of public transit routes will be located within a walking proximity of the schools. The potential for public transit serving school trip purposes thus appears to be greater in the central cities than in the suburban areas. Even in the central cities areas, the relative lack of crosstown service still places limitations upon the ability of public transit to serve that portion of the school attendance area located on an axis perpendicular to the CBD-oriented routes. Any major modifications to existing public transit routes to provide the coverage required to serve the school attendance areas would add considerable time to the routes and hence possibly adversely affect regular patronage. Since the existing transit routes do not adequately serve the school attendance areas, it would appear that the only way the MTC buses could be used to provide the level of service demanded by school bus operations is to operate exclusively as school buses.

Physical Design of Buses

Federal Highway Standard No. 17 and the State Legislature have set certain standards required of school bus vehicles for the safety of school children. These include the requirement for stop arms, the eight light warning system, the special school bus yellow color, and required mirrors to see in front of the bus. In addition, the Federal Standard has set forth certain operating requirements, which include that all children must be seated in the school bus and that school bus routes be designed to avoid hazardous situations. In short, the Legislature has instructed the school districts to provide a highly specialized, safety-conscious, service in the transportation of school children. Mass transit buses, it might be argued are safer than school buses due to their heavier construction; however, in addition to being designed to permit standees (not allowed on school buses), they do not project the safety image of the yellow school bus. Special consideration of school children is also demanded on the part of the school bus driver. While no doubt many MTC drivers are capable of this, driver emphasis, nevertheless, is not upon this type of service.

In terms of utilizing school buses for public transportation purposes, the major impediment is that of the physical design of the bus itself. The school bus is designed for the transportation of children - not for adult transportation. As such, it suffers in terms of comfort and, in some degree, image. For example, school bus aisle widths with conventional three-by-three seating are only about 12 inches wide, whereas in the urban transit bus they are 18 to 20 inches. The school bus seat is not as comfortable as the mass transit bus seat, nor is there as much room. In a school bus there is generally a 28 inch pitch from front to back separation of a seat, whereas in a mass transit bus there is 30 inches. As such, school buses generally offer inadequate leg room to the adult. Head room is also below adult standards in a school bus, although greater headroom is being provided in newer school bus designs. Most school bus headrooms range between 72 and 74 inches, whereas the transit bus headroom is approximately 80 inches. Step height of the school bus is approximately 14 inches, which compares favorably to the urban transit bus. In both cases, however, the step is difficult for the elderly or the disabled to negotiate. The school bus has only one door for entering and leaving the bus. In view of the relatively narrow aisles and the one door access arrangement, considerable difficulty and inconvenience could

be experienced by adult bus passengers in entering and leaving the bus. Since all students must be seated, school buses are usually not equipped with grab-rail stanchions. Grab-rail stanchions are important not only for standees but also with respect to aiding the elderly and the disabled to seats. Finally, the school bus yellow color, to some degree, has a negative impact upon the adult public transit rider.

Summary

While the physical design of the two vehicles and the different orientation of the services provided present considerable impediments to the integration of the two services, the major consideration is the fact that the two services' vehicle demand peaks generally coincide, with the exception of some portions of the afternoon school peak. On this basis, it would appear that there would be little potential to substantially increase the hours of operation of public transit vehicles and/or to provide additional public transit service using school buses by the integration of the two fleets.

REDUCTION IN THE COST OF SCHOOL BUS SERVICE THROUGH BETTER INTEGRATION OF PUBLIC TRANSIT OPERATIONS

In the Robbinsdale School District, the average cost per trip per student is 15¢, based upon the following assumptions: 1) a nine-month school year, 2) 20 days per month school operation, and 3) two trips per day. Student fares on public transit vehicles were, prior to January 30, 1975, 20¢ and now are free during off-peak hours. It would appear that school transportation is more economical to provide using school buses than using public transit vehicles operating on fixed routes. Even in school districts where the cost per student trip is up to 30¢ per trip, school bus costs compare quite favorably with the actual costs of public transit operation.

FEASIBILITY OF COMBINING SCHOOL BUS FLEETS AND OPERATIONS INCLUDING COMMON PURCHASING OF EQUIPMENT AND FUEL

A new school bus costs in the range of $10,000-$15,000 depending upon the options selected, and has an average life of seven years. A mass transit coach costs between $50,000-$60,000, and has many more years of useful life. The relatively low average life of seven years for a school bus, as compared

to a mass transit vehicle life of about 15 years, is not actually a negative factor. Because the initial outlay for a school bus is relatively low and the average vehicle depreciation life is shorter than mass transit vehicles, school bus fleets can be adjusted more readily than can mass transit fleets. Thus, a school district would not be committed to the significantly large capital outlay of a mass transit vehicle, nor be committed to the maintenance of a fleet size for the length of time it would take to depreciate a mass transit bus. If, on the other hand, the MTC purchased public transit vehicles for school bus purposes, it would be committed to a fleet that could not be adjusted as quickly as the school bus fleet.

Since mass transit buses utilize diesel fuel and school buses utilize gasoline, the integration of the fleets would appear to be of little value with respect to the common purchasing of fuel. The common purchasing of fuel and equipment for all school districts by the MTC does, in theory, appear to have considerable merit in lowering the costs of school transportation. However, in actual practice the school bus manufacturers are presently very competitive and it is extremely doubtful whether significant savings could be realized in the joint purchasing of school buses. Similarly, availability presently is the biggest factor in fuel obtainment, and as such it is doubtful whether joint purchasing would result in any significant savings.

POTENTIAL FOR INCREASED USE OF SCHOOL BUSES FOR GENERAL TRANSIT DURING THE OFF-PEAK HOURS

While there theoretically are a large number of school buses available during the off-peak hours for public transit use, it should also be pointed out that there are also a large number of unused mass transit buses during the off-peak hours. In addition, even though the entire school bus fleet is not utilized for regular runs during the off-peak hours, there are a considerable number of school buses utilized for field trips, athletic events, etc. In addition, due to early dismissal policies (which could, of course, be changed), entire school bus fleets are often needed on certain days during the "off-peak" hours. A major deterrent to the utilization of school buses for off-peak hour transit is the relative lack of comfort offered to adults by school buses due to the unique design.

Driver availability is another consideration, since in many school districts the school bus drivers are utilized as custodians or maintenance persons in various schools during the off-peak hours. If private operators were to provide full eight hour a day drivers, the labor costs would escalate to those of the MTC, thereby making school transportation service more expensive.

THE EFFECT OF DECLINING ENROLLMENTS IN SOME SCHOOL DISTRICTS ON THE EFFICIENT USE OF SCHOOL BUSES

The decline of enrollment is a dalayed-action type of situation, depending upon the percentage of students being transported. For example, a school district might lose 500 students but only 250 as far as transportation is concerned. In the case of the Robbinsdale School District, a gradual transition has been encountered. The Robbinsdale District peaked a few years ago in the high elementary grades. This school population peak is now moving through the junior high and into the senior high schools. As the peak moves

into the junior and senior high schools, the attendance areas get larger, the distances greater, and hence a greater demand for the utilization of buses. At the same time, as the decline is identified, the bus replacement schedule can be adjusted accordingly.

It appears, then, that while declining enrollments do have an effect upon the demand for buses at the peak hours, the low depreciation life of the school buses enables school districts to adjust accordingly to such situations. In addition, while in some cases the enrollment is decreasing, the demand for buses is increasing for extra-curricular activities and field trips.


SCHOOL BUS

5. RECOMMENDATIONS

The following recommendations have resulted from the study:

1. *In view of the relatively specialized services performed by school buses, the considerably different focii of public transportation and school bus operations, and the concurrent peak vehicle demands upon both fleets, it is recommended that the integration of the two services be dropped from consideration under normal economic and fuel availability situations.*

   The study has identified the overall lack of uniformity in service emphasis between the two transportation services, based upon focus of route and level of service provided. School buses provide a very specialized transportation service quite efficiently. The utilization of existing fixed-route fixed-schedule public transit buses to serve large numbers of school children, in addition to not providing this service well in terms of coverage and focus, would no doubt adversely influence adult patronage both because of the extra time that would be required to provide better service to the school and/or due to the noise volume and/or conduct of the students. In addition, mass transit vehicles are not equipped with the specialized safety equipment required of school buses by the State Legislature, nor are the drivers oriented to providing specialized school bus service.

2. *During a time of extremely limited fuel availability, it is recommended that school hours be staggered or school bus transportation policies changed such that a substantial portion of the school bus fleet would be available for public transportation purposes.*

During a time of fuel emergency, the 1,850 school bus fleet could be made available to provide public transportation provided school hours were changed dramatically to free this fleet for such purposes and/or, if need be, school transportation policies were modified such that only very young children and children located in extremely hazardous situations would be transported. The greatest impediment to the utilization of school buses in a time of fuel emergency, thus, is the generally concurrent peak hours of commuter transportation and school transportation.

3. *To enable an annual determination of school bus trips for overall transportation planning purposes, it is recommended that the school districts be required to submit selected monthly actual ridership totals to the Minnesota Department of Education.*

It would be useful to obtain a general idea of the actual number of students being transported by school buses on a daily basis for overall transportation planning purposes, particularly with regard to analysis of the goal of increased vehicle occupancy. At this time, only the number of students eligible to be transported is transmitted to the Minnesota Department of Education.

4. *Under some situations, it does appear that certain portions of the school bus fleet are not utilized during some off-peak hours and that there is some potential for the utilization of these buses, primarily for specialized transportation such as for the elderly, the low income, and other segments of the population. It is, therefore, recommended that, as these needs are brought to the surface, the MTC act as the catalyst among the school districts, public social service agencies, private operators and those persons desiring transportation services to initiate the desired services.*

It appears that certain specialized transportation services are needed during off-peak hours for certain segments of the population which could be provided by school buses. School Districts are not, by their nature, concerned with this segment of transportation, and most private operators, due to economic constraints, are not able to either determine this market or market their services. Since the MTC is visible as the central public transportation service agency, it is therefore suggested that, as these needs are identified, either by request or through particular studies conducted by the MTC, the MTC serve as the catalyst to determine the extent of service, the general overall economic feasibility, and secure the proper private contractors to provide such services, if the services are deemed in the public interest.

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Integration of school bus
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