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**Evaluation of the Minneapolis
Ridesharing Commuter Services
Demonstration**

**Final Report
June 1980**

Service and Methods Demonstration Program



**U.S. DEPARTMENT OF TRANSPORTATION
Urban Mass Transportation Administration and
Research and Special Programs Administration
Transportation Systems Center**

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16. Abstract The Total Commuter Services Demonstration, popularly known as the Share-A-Ride program, was initiated by the Metropolitan Transit Commission in 1977 as a prototype "transportation brokerage" program designed to arrange alternatives to driving alone for commuters. The program promoted and coordinated services for carpooling, vanpooling, and bus commuting at selected employment sites in the Minneapolis-St. Paul area. Major elements of the program include: 1) intensive marketing efforts aimed at employers and employees at the selected sites, 2) matching services for carpool, vanpool, and bus information applicants, 3) follow-up assistance with carpool and vanpool formation, and 4) administration of a fleet of leased vans. A unique aspect of this demonstration was its focus on multi-employer work sites in non-downtown locations. The demonstration showed that these sites represent a potentially important market for ridesharing, although program success can be dependent upon a variety of critical site characteristics. It also demonstrated the difficulty of engaging participation from small firms. Share-A-Ride tested a number of new program features, including a variety of marketing strategies, a manual matching technique, a "telephone brokerage" technique to assist carpool applicants, and the use of private contractors for marketing and vanpool services. This evaluation should serve as a reference guide to other interested agencies, indicating the type and range of issues they may confront (and results they may expect) in establishing a ridesharing program.					
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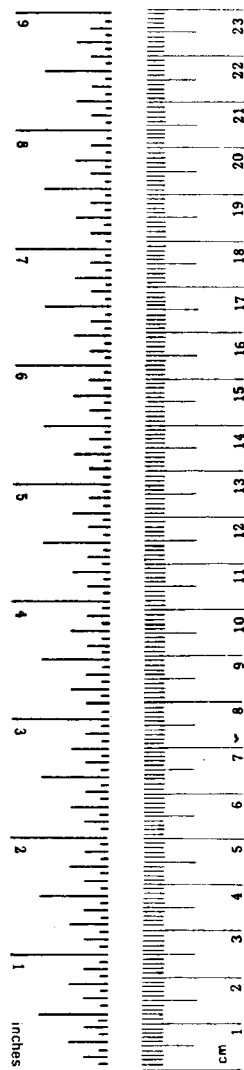
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

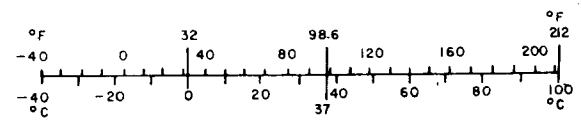
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ft	feet	30	centimeters	cm
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AREA				
in ²	square inches	6.5	square centimeters	cm ²
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fl oz	fluid ounces	30	milliliters	ml
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qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
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*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SD Catalog No. C13.10:286.



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000 m ²)	2.5	acres	
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³
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PREFACE

This document was prepared under Task Directive DOT-TSC-1405-7 as part of the Service and Methods Demonstration Program sponsored by the Urban Mass Transportation Administration's Office of Transportation Management and Demonstrations. This report presents the final evaluation of the operations and impacts of a ridesharing brokerage program aimed at multi-employer suburban work sites in the Minneapolis metropolitan area. In this demonstration, the Metropolitan Transit Commission coordinated a variety of brokerage functions designed to encourage increased ridership in high occupancy vehicles; the modes being promoted were carpooling, vanpooling, and bus. This evaluation report is based principally on the project events occurring during the first two operational years of the program: November 1977 through October 1979.

The principal authors of this report are Glen Weisbrod and Ellyn S. Eder. Some segments from the Interim Evaluation Report, authored by Len Sherman, are also incorporated into this document. Cambridge Systematics would like to give acknowledgement to the enthusiastic cooperation and assistance of the Share-A-Ride program staff during the course of the demonstration, particularly:

- Metropolitan Transit Commission: Judith Hollander and Robert Pearson of the MTC Special Services Office; Greg Westerbeck, Stephanie Butler and Cheryl Selinski from MTC's Area Office;
- Public Service Options, Inc.: Clarence Shallbetter, Randi Alcott and Steven Pederson;
- Van Pool Services, Inc.: Jeffrey Henning, Bettina Getz, Michael Kliber and Mary Humphrey.

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Among the Cambridge Systematics staff, William Byrne and Richard Nestle contributed to the analysis effort, James Wojno assisted with the data collection and the graphics production, and John Suhrbier provided comments on this report. Our appreciation goes to Susan Billings, Sarah Sly, Patricia Kinnear and Jeanne Roberts for the typing of this document.

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CHAPTER 1

EXECUTIVE SUMMARY

1.1 OVERVIEW OF THE DEMONSTRATION

The Total Commuter Services Demonstration, popularly known as the Share-A-Ride program, was a prototype "transportation brokerage" program designed to arrange alternatives to driving alone for commuters. As a brokerage program, it coordinated services for carpooling, vanpooling, and bus commuting to workers at selected employment sites in the Minneapolis-St. Paul area. Initiated by the Metropolitan Transit Commission in 1977, the project was part of the Urban Mass Transportation Administration's Service and Methods Demonstration program. The Share-A-Ride program has been designed to be a permanent, ongoing program, characterized by:

- intensive marketing efforts aimed at employers and employees at selected sites
- matching services for carpool, vanpool and bus information applicants
- follow-up assistance with carpool and vanpool formation
- administration of a fleet of leased vans

The primary purpose of the program was to increase work trip vehicle occupancy.

Initiation of the ridesharing program, under Service and Methods Demonstration funding, began in July 1977. Following initial employer contacts and a pre-implementation marketing survey, full operation of the

ridesharing program commenced in November 1977. During the first year, the Share-A-Ride program operated at three multi-employer sites in southern Hennepin County. Starting in October 1978, the program expanded to additional sites scattered throughout the Twin Cities metropolitan area. As of October 31, 1979, the Share-A-Ride program operated at 11 multi-employer sites, each with from 3,700 to 14,000 employees.

A unique aspect of this demonstration has been its focus on multi-employer work sites in non-downtown locations. This is in contrast to previous public ridesharing programs which have concentrated on large employers and central city areas. The multi-employer orientation of the program is important because it was designed to overcome the problem that only a limited number of large firms have sufficient scale for effective rideshare matching. The extent to which employees of small- and medium-size firms can be successfully incorporated into a ridesharing program is a major issue addressed in the demonstration. The focus on non-downtown locations is notable because non-downtown worksites are generally less conducive to ridesharing than downtown worksites, since they are characterized by plentiful free parking, a limited level of transit service, proximity to major freeways and little traffic congestion. The Twin Cities area is typical of many urban areas in the US in which the majority of the employment is widely dispersed throughout the metropolitan area outside of downtown.

Notable major features of the Share-A-Ride program operations were: (1) the reliance on intensive, "small group" employee presentation meetings; (2) the use of a manual matching system; (3) and the use of "telephone brokerage" as a personal follow-up for all matched carpool applicants.

The marketing strategy was characterized by an intensive effort involving personal contacts to employers and small-group presentation meetings for employees, when possible. The presentations were 30 to 40 minute meetings held during work hours, and involved a speaker, a slide/tape show and a question-and-answer period. The typical audience was 30 to 50 persons, although they occasionally were as small as two or as large as 500. Almost all of the participating firms had multiple presentation meetings; one firm had 46 meetings. Other marketing approaches, used when employee presentations were not possible, included employee surveys with attached applications and a variety of "passive marketing" strategies, including information booths, posters, newsletters, and brochures.

The manual system for carpool and vanpool matching was initially developed in response to early problems implementing a computer matching program. Manual matching was based on a system of sorting and filing applications by zip code and work start times. The manual system, after a series of refinements, was found to work sufficiently well that after a few months of not having a computer system on line, the decision was made to not implement the planned computer system at all. Manual matching was

thus utilized during the entire demonstration, although continued growth of the ridesharing program eventually necessitated implementation of computer matching after the end of the demonstration period.

The telephone brokerage technique was designed to encourage and assist matched carpool applicants to make contact with other persons on their match list. It was a response to the problem faced by other ridesharing programs that relatively few persons ever follow through to form carpools after they receive a "match list" of names of potential carpoolers. Initially, lunch-time carpool formation meetings were employed as the principal technique for organizing carpools among matched individuals. These meetings were characterized by high staff costs and low turnouts, and were replaced by the "telephone brokerage" technique early in the program. In addition to its function as a marketing tool serving to encourage and assist carpool formation among matched applicants, telephone brokerage also served as a data collection technique for measuring carpool formation and updating application information.

The Share-A-Ride program involved a decentralized organization, with the Metropolitan Transit Commission as the coordinator for the brokerage program and significant components of the program contracted to private agencies. Van Pool Services, a private "third-party provider," operated all aspects of the multi-employer vanpool program. Vans were leased by the third-party provider and made available to vanpool groups in return for fares collected by the drivers. Public Service Options, a local non-profit firm, played a significant role in implementing the program and

performed all initial marketing activities at each new multi-employer site. A separate MTC "Area Office" had responsibility for processing all applications for carpool matching and bus information, and for continuing (follow-on) marketing activities at each site.

This evaluation report describes program results through October 31, 1979. As of that date, after two years of program operation, 16,530 applications with carpool, vanpool and/or bus interest had been received from an employment base of 70,000 at eleven sites. A total of 1,234 former drive-alone applicants had become verified carpools as a result of the Share-A-Ride program. There were 62 Share-A-Ride vanpools in operation, including 26 based outside of the multi-employer demonstration sites. To date, a total of 903 persons had participated in vanpools, including 344 from off-site vanpools. (As of April 30, 1980, the program had continued to process applications from the eleven sites and had added downtown St. Paul as a twelfth site. The number of drive-alone applicants becoming verified carpools had increased to 2,269, and there were 104 operating vanpools.)

1.2 CONCLUSIONS AND RECOMMENDATIONS

Potential for Ridesharing

Over a two-year period, the Share-A-Ride program was successful in placing approximately 2,000 commuters into operating carpools and vanpools, out of an applicant pool of 16,000 and an employee base of 70,000. While this placement rate is higher than that achieved by some other ridesharing programs, overall impacts on mode split at the sites nevertheless fell short of the stated program goals. A principal reason

for the smaller-than-expected program impacts was that a multiplicity of different shift times, overtime, part-time employment and employees needing their cars during work hours affected a larger proportion of employees than was initially anticipated. These work-related conditions are typical of many multi-employer sites, and were found to occur more frequently at retail stores, hospitals, warehouses and sales/service firms than at manufacturing facilities and offices.

Surveys conducted at three of the sites revealed that over half of the employees either worked overtime or required the use of a car for work at least once a week. While the existence of these conditions did not preclude ridesharing, they did consistently reduce the likelihood of ridesharing. In general, restrictive work conditions, widely varying working hours, and the geographic dispersion of applicants limited the potential for carpool matching and were major reasons why no subscription bus groups and only a small number of vanpool groups were formed at any given site. In assessing the extent to which work hours and other work conditions represent barriers to ridesharing, it is important to consider the characteristics of existing commuting conditions and the perceived need for ridesharing services. These work-related factors might have represented less of a barrier to ridesharing had commuting conditions not been so favorable to driving alone. A variety of backup services, such as taxi vouchers or employer-provided loaner cars, might also help overcome some of these work-related barriers to ridesharing.

Marketing

The Share-A-Ride experience has demonstrated that a ridesharing program aimed at multi-employer sites is feasible and taps an important market for ridesharing, although small employers are difficult and expensive to organize. Efforts to obtain permission from each individual employer to solicit applications from their employees are costly. From the initial marketing experience, it became clear that small firms (i.e., under 100 employees) seldom cooperated with the ridesharing promotion and were the source of very few applications. Managers of small firms (particularly those with less than 25 employees) were often not office-bound and were difficult to reach, and they were usually reluctant to allow company time (or resources) for presentations or literature distribution. To some extent, this occurred because the small firms were typically sales or service businesses, with many of their employees not office-bound or working regular shifts. On a more fundamental basis, however, it should be noted that many of the program's selling points to employers (e.g., reduction in parking congestion, improved labor force access, employee relations and productivity, and community image) are not relevant for small firms. For almost all of these small firms, employee commuting was not considered an urgent concern, and there was no perceived need to reduce employee parking requirements. It was also felt that program participation would have little impact on employee relations (since they know all of their employees on a first-name basis), and small firms are seldom concerned with enhancing their community image.

In response to the difficulties of effectively reaching employees of small firms, marketing efforts in the second year were redirected to concentrate employee presentations and surveys on firms with 100 or more employees, with only passive marketing (brochure distribution) for the smaller firms. It was clear that very large (more than 1000 employee) firms played a crucial role in the success of the ridesharing program. One or two major employers accounted for the majority of the ridesharing applications at most of the sites, regardless of the level of marketing effort aimed at smaller firms. In addition, a large proportion of the carpools and the vanpools had all members working at a single firm, despite the multi-employer nature of the matching service. These findings do not undermine the value of multi-employer matching, but rather, they indicate the importance of large "anchor" firms at the employment sites and the challenge for marketing to smaller firms.

Another finding from the experience at eleven sites is that the size and geographic definition of site boundaries can also affect the extent of multi-employer pooling. Railroad tracks and expressways sometimes represented barriers to intra-site travel, discouraging multi-employer carpooling and vanpooling. Travel distances of one mile or more between firms had the same effect. Thus, a successful multi-employer site must encompass a well-defined and reasonably compact area, while still including a sufficient number of employees potentially eligible for rideshare matching. The minimum employment base for a successful site appeared to be around 4,000 persons.

The variation in program success among various sites indicates several lessons for identifying the most appropriate multi-employer sites for a ridesharing program:

1. The successful multi-employer site had over 4,000 total employees among firms with 100 or more employees each, and had at least one "anchor" firm employing over 1,000 employees.
2. Manufacturing facilities and office building complexes were generally more suited for ridesharing than retail stores, sales companies or warehouse districts.
3. Multi-employer work sites must have carefully defined boundaries within which there is an easily identifiable and reasonably compact cluster of firms. This requires that intra-site travel distances and the existence of barriers to intra-site access be taken into account.
4. Current travel conditions, including commuting distances, the extent of current ridesharing and bus usage, and the existence of road congestion, parking scarcity, and parking fees all should be considered in order to evaluate the market potential for additional ridesharing.

The employee marketing strategy adopted for the Share-A-Ride program stressed a "hard sell" approach. Small group employer meetings were the preferred approach because of their "personal" sales technique, opportunity for questions and answers, and a captive audience. When employers would not allow presentation meetings, an employee survey was usually attempted. Both marketing techniques represented ways to put application forms into the hands of as many employees as possible, and promptly collect the completed forms without waiting for the employees to mail them in. Employers were requested to require or at least encourage employee attendance at the meetings or response to the surveys. In practice, the level of response varied widely, ranging from 0 percent to 100 percent for both meetings and surveys. This "mandatory" approach

clearly led to a greater level of employee applications. However, the mandatory approach to an unknown extent also increased the proportion of applications by persons who were only marginally interested in ridesharing. While the marketing staff still considered these applications to be an important addition to the pool of potential carpoolers and vanpoolers, the matching and brokerage staff viewed them as downgrading the overall quality of the applications and subsequent match lists, resulting in a lower apparent matching success rate for the brokerage operations. There was no clear evidence that the matching and brokerage functions were actually affected by this problem; however, the tradeoff between quality and quantity of applications remains an issue in need of further analysis.

Passive marketing tools, particularly posters, newsletters and brochures, were used as the primary marketing techniques only for small firms and firms which refused to allow either presentation meetings or surveys. Exclusive use of passive marketing resulted in lower application rates than the active marketing techniques of meetings or surveys. Passive marketing may also serve a longer-run educational purpose, however.

The Share-A-Ride program demonstrated the potential for large employers to offer a variety of ridesharing incentives and donated services. Ridesharing incentives included vanpool fare subsidies (offered by two firms) and preferential parking for carpools and vanpools (offered by at least six firms). One firm offered the unique policy of

enforcing their preferential parking rules by levying substantial fines against the budget of the violator's department head. Another firm supplemented the Share-A-Ride marketing campaign by developing their own posters and by mailing letters to all employees who did not attend presentation meetings. The enthusiastic support and assistance of one major employer also contributed to the success of an "employer breakfast meeting" for all major employees at one of the sites. In addition, two firms performed their own carpool matching after receiving marketing assistance from Share-A-Ride; one of them opened its computerized carpool matching program to employees of other nearby firms. While these donated services were offered by a relatively small number of firms, their existence demonstrates that some employers can play an active role in supplementing ridesharing services.

Carpool Matching and Brokerage

Although Share-A-Ride has since shifted to computerized matching of applicants, the manual sorting and filing system was found to be a viable alternative to computerized matching for a limited number of employment sites. The carpool staff of two was capable of matching up to 800 applications per month in the absence of telephone brokerage, or 500 applications per month when telephone brokerage was also performed.

Telephone brokerage was one of the more unique aspects of this ridesharing demonstration. Under this system, follow-up calls were made to all matched carpool applicants. These telephone calls, made from two to eight weeks after the mailing of match lists, revealed that fewer than

15 percent of the people had contacted others on their match lists. Reasons for the failure of most matched applicants to make carpool arrangements were: (1) loss of interest in forming a carpool; (2) reluctance to contact strangers; (3) changes in information given on the application; and (4) no acceptable matches. For those who had lost interest or were reluctant to contact strangers, the telephone call served to remarket the program and encourage subsequent contact with others on their match lists. Three-way conference calls between the carpool coordinator and potential carpools were sometimes made to assist with the arrangement of carpools at the first few sites. (Lack of sufficient staff time prevented the continuance of conference calls as well as second and third follow-up calls at the later sites.)

In addition to its function as a marketing tool, telephone brokerage functioned as an application updating and data collection tool. For those who had changes in work schedule, workplace location or residence location, telephone brokerage calls served to update their applications so they could be rematched. Applicant claims that none of their matches were appropriate could be due to differences in schedule times, work locations or residence locations that were beyond the applicant's tolerance, or they could be due to the existence of carpool preferences which were not asked on the application. The latter problem could sometimes be resolved by noting additional preference information on the application and returning it to the file to be rematched. As a data collection tool, the telephone brokerage calls made it possible to verify

the number of applicants placed into carpools as a result of Share-A-Ride matching. They also served an important function of feedback on problems at some of the sites. These problems ranged from complaints of unacceptably long travel distances between firms, to restrictions for some employees on receiving telephone calls at work, particularly carpool brokerage calls and calls to arrange carpools).

The telephone brokerage technique helped the carpool program achieve a level of placement in which 20 percent of the matched drive-alone applicants (14 percent of all drive-alone applicants) became verified carpoolers. This is a higher placement rate than that typically achieved by carpool matching programs. Further analysis is still necessary to measure the unit costs of telephone brokerage and the marginal increase in carpool placement that is directly attributable to the technique. In addition, there remain several issues concerning the design and implementation of a telephone brokerage effort. These are: (1) the optimal number of follow-up telephone calls to be made; (2) selectivity criteria for concentrating the telephone calls on those market segments most likely to form carpools; (3) the extent of use of conference calls; and (4) the time delay between mailing match lists and conducting telephone brokerage.

Vanpool Operations

The use of a third-party provider to supply vans and administer the vanpool program facilitated multi-employer vanpooling, since it operated independently of employers and required no long-run investment cost or liabilities on the part of employers or employees.

After a slow start in the first year, the vanpool program exhibited a substantial improvement in the second year. Only six vanpools were operating as of October, 1978 (at the end of the first operating year), while 62 vanpools were in operation one year later. This improvement is attributable in part to an accelerated site expansion timetable in the second year, coupled with the addition of off-site employers into the vanpool program. It is nevertheless clear that there was an increase in vanpool interest from the rising gas prices and limited gasoline availability which occurred during the spring and summer of 1979. This increase in demand helped shift the vanpool program from the situation of excess vehicles on hand in 1978 to a vehicle shortage with van waiting lists for new vanpool groups in the second half of 1979.

Bus Promotion

Share-A-Ride initially promoted both regular bus and "custom bus" (subscription bus service) as an integral part of the ridesharing program. The custom bus option was subsequently dropped during the program's first year, as it became apparent that dispersion of work hours and residence locations, and the limited employment sizes of the sites, prevented the formation of any potential bus pool groups meeting the minimum size of 30 persons. In addition, it was concluded that custom bus would be no cheaper than vanpooling for most commuters. In general, it can be concluded that the potential for subscription bus routes serving areas outside of the central business districts is very limited.

Applications for information on regular bus service were referred to the MTC Transit Information Center, which sent out the appropriate bus route and schedule information given the work site and applicant's residence location. While regular bus promotion was an integral part of the ridesharing program, there were no measurable increases in bus ridership at the sites. The bus promotion's lack of impact on ridership levels can be related to the problems of dispersed residential locations and limited bus service available at non-downtown employment sites.

Organizational Issues

The decentralized organization of Share-A-Ride during the demonstration period featured separate offices and staffs for: (1) initial site marketing, (2) continued marketing and carpool matching and brokerage, (3) vanpool matching operations, and (4) central MTC management. While there are some advantages in flexibility and opportunities for public/private partnership from a decentralized organization, in this case a variety of difficulties arose from the lack of a central manager with the time and the power to coordinate responsibilities and work flow (and to mediate disagreements) on a day-to-day basis. These difficulties included: (1) coordination of timing and workload between new site marketing operations and the separate application matching operations for carpools and vanpools, (2) conflict of goal perspective between the marketing staff and the carpool matching/brokerage staff, and (3) confusion in the transition of employer contacts from the "initial marketing" team to the "continuing marketing"

team. In response to these problems, marketing, matching and brokerage operations were restructured and consolidated into a single office at the end of the demonstration period, with only the contract for a separate "third party" vanpool provider continued. The appropriate roles of the public and private sectors in promoting and operating ridesharing services has remained as a major issue in the Twin Cities.

Characteristics of Ridesharing Commuters: Survey Findings

Follow-up surveys of commuters at two of the sites revealed the following results:

1. Work-related constraints--The probability of an employee commuting to work by carpool, vanpool or bus diminished as the number of work-related restrictions (i.e., overtime, rotating shift and need for a car during the workday) increased, and as the frequency of these restrictions (in days per week) increased. On the other hand, there was little evidence that flexibility to adjust working hours significantly increased the probability of an employee ridesharing.
2. Size of Potential Employee Pool--The extent of carpooling was clearly dependent on the size of the potential carpooling pool at the employer and at the site. Carpooling was more frequent among employees at the larger firms and for those working in the largest work shifts at the site. Since the work shifts at the sites surveyed were very dispersed, these findings support the contention that work shift dispersal was a very real constraint on carpooling.
3. User Characteristics--On average, carpoolers and vanpoolers were more likely than drive-alone commuters to have production jobs and less likely to be in sales and service occupations. There were no other consistent differences across job types, nor were there significant age, income or sex differences between poolers and drive-alone commuters. Females were, however, more likely than males to be carpool passengers (with no driving involved) and bus riders. Bus riders tended to have lower incomes than all other mode groups. The most

important factor differentiating modal groups was home to work commuting distance. The average drive-alone commuter and bus rider at the surveyed suburban work sites lived 10 miles away, while the average carpooler lived 13 to 16 miles away, and the average vanpooler lived 27 miles away.

4. Ridesharing Impacts--Two possible advantages of increased ridesharing are a reduction in aggregate auto usage and a reduction in auto ownership. While the survey showed that 95 percent of carpoolers were former drive-alone commuters, the impact of vanpooling was reduced by the fact that 65 percent of the vanpoolers were formerly carpoolers. Also, 6 to 8 percent of the carpoolers and vanpoolers were formerly bus riders. There was no evidence that carpoolers or vanpoolers reduced their auto ownership levels over the course of the demonstration.
5. Pooling Arrangements--While the Share-A-Ride program facilitated multi-employer carpooling, it is notable that one-third of all surveyed carpoolers were in carpools consisting of only family members, while most of the rest were in single-employer carpools. Many of the carpools existed in some form prior to the Share-A-Ride program, and fewer than 8 percent of the carpoolers reported that their carpools were formed or increased by Share-A-Ride. For vanpools, an important finding was that nearly half of the vanpoolers were picked up by their vanpool at a location other than their home. This suggests that park-and-ride locations may be important for vanpooling.

Mode Perceptions: Survey Findings

In general, all mode groups acknowledged driving alone to be the most dependable, fastest and most flexible mode of travel, while bus was acknowledged to be the safest and least costly mode. Few non-vanpoolers perceived any attribute superiority for vanpooling, suggesting a lack of familiarity with this mode. Regardless of site or mode group, surveyed respondents rated dependability and safety as the two most important modal choice attributes, followed by travel time and cost concerns. These importance ratings, however, give only limited insight into the

factors actually motivating mode choice decisions. Safety, for instance, was never offered as the main reason for any mode choice, presumably because no mode was viewed as unsafe. Furthermore, earlier market research indicates that the price and availability of fuel is a particularly important element of cost, and thus suggests that rising gasoline prices in the future might increase the relative importance of cost concerns as a mode choice factor.

Drive-alone commuters as well as current poolers recognized that there were cost savings on the order of several hundred dollars annually to be gained by pooling rather than driving alone. Drive-alone commuters, however, perceived these cost savings to be significantly less than both the cost savings advertised in promotional materials and the cost savings perceived by current carpoolers. In general, it can be concluded that cost savings was recognized as the major advantage of ridesharing, but was considered by most commuters as being outweighed by the dependability, speed and flexibility advantages of driving alone. These findings are consistent with the interpretation that cost savings alone currently yield only a limited perceived need for ridesharing in the face of plentiful parking, little congestion, and other commuting conditions that offer little or no disincentive to driving alone. Future changes in fuel prices could increase the importance of cost factors, and the provision of backup services could overcome some of the schedule inflexibility disadvantages of ridesharing. The extent to which these would increase the attractiveness of ridesharing as an alternative to driving alone is not known.

1.3 IMPLICATIONS FOR OTHER SETTINGS

The setting for the Minneapolis Ridesharing Demonstration was unique in several ways. First of all, the well-known vanpooling program at the 3M Company and the existence of vanpool programs at ten other area firms by 1977 had helped establish a legal environment already conducive to ridesharing and created a positive view of vanpooling among many area employers. In addition, the employment base in the Twin Cities area is dominated by the offices and manufacturing facilities of several high-technology, computer-oriented firms. The attitudes and cooperation of these major employers were systematically more conducive to ridesharing than those exhibited by some other types of employers, such as retail and warehousing firms. Thus, the mix of firms and employment types in a metropolitan area may affect employer attitudes toward ridesharing, as well as the "poolability" of the employment base.

The extent of employer cooperation and assistance with the promotion of ridesharing can be sensitive to the level of concern about gasoline supplies and the perceived need for ridesharing services. The dramatic gasoline price increases and supply shortages that occurred during the spring and summer of 1979 started a measurable increase in both the proportion of firms allowing employee presentation meetings and the number of requests for vanpool services from off-site firms.

Despite a few caveats to transferability of results, the Minneapolis Ridesharing Demonstration has yielded a number of major findings that should be applicable elsewhere. In particular, the demonstration program

showed that a comprehensive package of ridesharing services aimed at multi-employer sites can be feasible and can tap an important market for ridesharing. At the same time, the demonstration has helped identify the existence of difficulties in engaging participation from small firms, and the existence of various site characteristics critical to program success. Lessons learned from experimentation with several different marketing strategies, a manual matching technique, the development of the telephone brokerage approach and the use of contractors for marketing and vanpool services should all be applicable for the design and implementation of ridesharing programs elsewhere.

2. INTRODUCTION

2.1 DESCRIPTION OF THE DEMONSTRATION

In June 1977, following an earlier proposal by Public Service Options (a private organization), the Metropolitan Transit Commission initiated the Total Commuter Services demonstration project. This project, marketed only to commuters working at selected multi-employer sites, was designed as a comprehensive "transportation brokerage" program to coordinate four different ridesharing modes: carpooling, vanpooling, custom (subscription) bus service and regular scheduled bus service. (Custom bus was subsequently dropped from the promotion effort due to an insufficient market for it.)

The primary purpose of the program was to increase work trip vehicle occupancy at selected employment sites in the Twin Cities region. The project was part of the Service and Methods Demonstration Program, sponsored by the Urban Mass Transportation Administration's Office of Transportation Management and Demonstrations.

Publicized under the name of Share-A-Ride, the program consisted of:

- intensive marketing of the service to employees and employers;
- matching services for carpool, vanpool, and custom bus applicants;
- bus schedule information referral;
- follow-up assistance with carpool and vanpool formation;
- administration of a growing fleet of leased vans.

Key elements of this demonstration which differentiate it from previous ridesharing promotion efforts are:

- the simultaneous promotion of a wide range of ridesharing services, including carpools, vanpools and buses;
- the focus on multi-employer, non-downtown sites as the market for the program;
- the use of "telephone brokerage" to monitor results from the mailed lists of carpool matches and as a personal follow-up for all matched carpool applicants;
- sponsorship by a regional transit agency, also serving as the program coordinator and broker of carpools;
- the use of a private, non-profit organization for program design, implementation and marketing activities;
- the use of a private, third-party vanpool provider to operate the multi-employer vanpool program.

The demonstration involved eleven multi-employer sites outside the Central Business Districts of Minneapolis and St. Paul, each with from 3,700 to 14,000 employees.

2.2 PROGRAM OBJECTIVES

The Total Commuter Services demonstration addressed the Service and Methods Demonstration goals of increasing vehicle productivity and increasing transit coverage. The overall project objective was to develop and implement a coordinated and comprehensive ridesharing program in order to reduce heavy reliance on single-occupant automobile commuting. The demonstration tested the feasibility of using a transportation broker to promote and coordinate a variety of commuter services for employees at multi-employer sites.

Increasing dispersion of employment and population into suburban areas in the past 30 years has diminished the ability of conventional

transit to cost-effectively serve area commuting patterns. In the Twin Cities, for example, only 17 percent of the jobs are found in the two downtowns; more than 50 percent in the suburbs; and the remainder in the central cities outside the downtowns. This dispersed employment pattern cannot be cost-effectively or easily served by the traditional set of transit routes radiating from employment centers. With few (if any) centers comparable in size to the downtowns, it is not possible to operate many routes with full buses to serve the wide array of working hours. Not surprisingly, commuters to these non-downtown work locations, which have a low level of transit service, must rely almost exclusively on the automobile for their work travel. Over 90 percent of Twin Cities' area work trips have been by automobile, 80 percent by driving alone.

In recent years, increasing attention has been focused on measures to increase vehicle occupancy for the rapidly expanding number of suburban work trips. Ridesharing programs promoting carpooling, vanpooling, and subscription and regular bus services are an integral part of this effort. The benefits of ridesharing are varied and broadly distributed. To the commuter, ridesharing may offer an inexpensive, convenient alternative to driving alone, and may decrease travel costs. To the community, a successful ridesharing program has the potential of decreasing fuel consumption, air pollution, and traffic congestion and increasing the utilization of existing highway facilities, thereby reducing capital requirements. To employers, ridesharing programs may decrease the cost of providing parking facilities, free space for plant expansion and increase the area from which firms can attract employees.

Ridesharing programs are not new. They have individually proven themselves in a variety of situations. Each of the Share-A-Ride program elements--carpool, vanpool, and bus service--had previously been separately developed and offered by large employers and public agencies. Share-A-Ride was specifically developed in response to several issues which the Twin Cities area, like most other metropolitan areas, has faced:

1. Many companies, for a variety of reasons, such as lack of size or resources, have not been able to develop ridesharing programs.
2. Individual commuters who want to ride or share the driving have had nowhere to turn for assistance or information. If they worked for medium to small employers, there was insufficient scale to obtain matches at the residential end among fellow employees.
3. Efforts to implement ridesharing have been fragmented and uncoordinated.
4. There has been no mechanism or system to arrange for service delivery particularly for employees in multi-employer areas where large numbers of people are working in close proximity for different employers.
5. There has been no means to provide continuing support and administration after a program has been established.
6. There has been a lack of information on key implementation steps such as marketing research data, marketing communication approaches, use of third-party service providers, etc.

Share-A-Ride was to address the above issues. It was a demonstration designed to test a number of operational elements. The following sections outline the project organization and responsibilities, and the demonstration history.

2.3 ORGANIZATIONAL ROLES

The overall management, direction, and coordination of the demonstration was the responsibility of the Special Services office of the Metropolitan Transit Commission. Program planning and operations were divided among three separate offices: The MTC Area Field Office and two private contractors, Public Service Options and Van Pool Services.

Public Service Options (PSO), a private, non-profit firm under contract to MTC, initially proposed the program and was instrumental in developing the design of the demonstration. As the project "implementation team," PSO had responsibility for management and refinement of operational details of the project in its start-up phase, program assessment, planning program expansion, and initial marketing of the program to employers at each new site.

The MTC Area Office had responsibility for processing all applications for carpool matching and bus information, conducting "continuing marketing" at all sites (following the initial marketing by PSO), maintaining liaison with the MTC Transit Operating Division and various advisory committees, and managing continuing marketing at each site.

All aspects of vanpool operations were contracted to Van Pool Services, Inc. (VPS), a subsidiary of Chrysler Corporation. VPS assisted with marketing and had primary responsibility for processing vanpool applications, selecting and training drivers, and providing and maintaining vans. They collected all fees for the service directly from

the van driver/coordinators and were responsible for helping to maintain van occupancy at a minimum of nine passengers.

Two marketing firms were retained at different times to design, develop and produce promotion materials, including an audio visual presentation. There were also three advisory boards:

- a Project Advisory Board, comprised of representatives of various other public agencies and supportive organizations;
- an Employer Advisory Board, consisting of representatives from interested employers;
- an Employee Advisory Board, drawn from users of the ridesharing services.

2.4 DEMONSTRATION HISTORY

The direct catalyst for the establishment of the Share-A-Ride program was a 1975 study and proposal for a ridesharing program, prepared by Public Service Options. That report led to the subsequent application by the MTC for federal funding of a two phased program of research and then demonstration, and the continued role of Public Service Options in the design and implementation of the program.¹

Phase I of the ridesharing project, which began in July 1976 and was completed in April 1977, involved a study to define and package the ridesharing services, design an operational program, and examine the problems which hinder implementation. The activities performed by Public Service Options under contract to the MTC included: an economic analysis of alternative ridesharing services; an analysis of unresolved legal

¹See Sections 3.1 and 3.2 for a background description of the institutional setting, legislative initiatives and previous ridesharing promotion efforts in the area.

issues relating to multi-employer vanpooling (with assistance from the MTC legal counsel); identification and analysis of prospective multi-employer sites in southern Hennepin County (where the MTC was performing a route ridership study); solicitation of interest from possible vendors for a third-party vanpool service; research on attitudes of commuters toward ridesharing services (from a market research survey by Marketing Decisions, Inc.); preparation of initial marketing materials and a marketing plan (with Carmichael-Lynch, Inc.--the MTC's advertising agency); and recommendations on the design of a possible demonstration. UMTA Title 9 funds supported this research activity. A Marketing Plan, Operations Manual and Final Report were the products of this work. The Service and Methods Demonstration plan called for the establishment of the ridesharing program at three multi-employer sites in its first year, with possible later expansion to an unspecified number of additional employment sites.

Phase II, begun in July 1977, involved the actual establishment of ridesharing services funded by the UMTA Service and Methods Demonstration program and Federal Aid Urban Systems. An MTC Area Office was established, the third-party vanpool provider was selected from among four bidders, and initial employer contacts were made to determine the level of interest and to secure cooperation for marketing to employees. Starting in September and October 1977, a pre-implementation marketing survey was distributed to employees of the major firms at the first site. A major purpose of this survey was to collect data on work trip travel patterns and work shifts to estimate the potential number of "poolable" employees.

Full operation of the ridesharing program, including marketing to employees and collecting applications, commenced in November 1977. During the following year, the Share-A-Ride program operated at the original three sites in southern Hennepin County. Starting in October 1978, the program expanded to additional multi-employer sites in non-downtown areas scattered throughout the Twin Cities metropolitan area. As of October 31, 1979, marketing operations had been completed for eight of these expansion sites. Carpool and vanpool matching, however, were still incomplete for the last two sites.

This report describes and evaluates the operations of the Share-A-Ride program for the two-year period from November 1, 1977 through October 31, 1979.¹ This period may be interpreted as the first two operational years of the ridesharing program, even though the program was officially initiated some time prior to November 1977.

2.5 ORGANIZATION OF THE REPORT

This ridesharing demonstration took place within the context of a unique background for ridesharing that existed in the Twin Cities. The area had a strong history of previous vanpooling and carpooling programs, and most legal and institutional barriers to expanded ridesharing services had previously been cleared. In addition, the demonstration program took place before and after a period of limited gasoline availability. Chapter 3 sets the Share-A-Ride program within the context of these institutional, legal, and exogeneous timing issues. The complex organization of the program, particularly the use of a third-party

¹Later events are briefly described in Section 3.6.3.

vanpool provider and a separate organization for planning, assessment and marketing, is then described in detail and examined in relation to alternative organizational models.

The setting of the ridesharing program at selected multi-employer non-downtown sites is described and analyzed in detail in Chapter 4. Each of the eleven employment sites that was involved in the Share-A-Ride program as of October 1979 is described in terms of geographic location, mix of employment and commuting conditions. The characteristics of the program sites are important for evaluating program results in general and specific inter-site differences in those results. Accordingly, the site selection process is examined and lessons learned from the Share-A-Ride program experience at the different sites are synthesized in order to better identify the factors that define a successful ridesharing site.

Chapters 5 through 8 examine various aspects of the program operations and measure the results associated with each. These program aspects are: marketing (Chapter 5), carpool brokerage (Chapter 6), vanpool brokerage and operations (Chapter 7) and bus information services (Chapter 8). The program marketing and brokerage functions are addressed separately to distinguish between the sales effort aimed at developing commuters' interests in ridesharing and the brokerage effort aimed at assisting individuals in becoming ridesharers. The brokerage assistance efforts for the three travel modes are addressed individually because the three functions were performed separately and had their own unique issues, problems and results.

The collection of data about factors affecting ridesharing behavior of commuters was a major element of this demonstration evaluation. Several commuter surveys were conducted over the course of the demonstration. Chapter 9 is devoted to an analysis of the survey findings, with particular emphasis on the importance of work-related constraints to ridesharing, commuter perceptions of the different modes and the characteristics of carpool and vanpool arrangements.

Program results and conclusions are addressed in Chapters 10 and 11. Chapter 10 summarizes results of the ridesharing program in terms of participation rates, mode shifts and associated benefit measures. Program costs and their relation to program results are also described there. Chapter 11 then summarizes major findings from the two-year operation of the Share-A-Ride program.

CHAPTER 3

THE INSTITUTIONAL, LEGAL, AND ORGANIZATIONAL SETTING

The Share-A-Ride Demonstration must be evaluated within the context of the demonstration timing and the unique background for ridesharing that existed in the Twin Cities. There was a history of previous regionwide carpooling programs, and numerous employer-based vanpooling programs had previously made the Twin Cities area an early vanpooling leader of the nation. This vanpooling history, pioneered by the 3-M Company of St. Paul, had led to a legal setting already conducive to the multi-employer vanpool program. The organizational setup of the overall ridesharing program was itself determined by a number of institutional factors, including labor laws, attitudes of the transit drivers union, interests of the Metropolitan Transit Commission, and the role of a nonprofit organization in initiating interest in a ridesharing demonstration program. This chapter summarizes the background of previous ridesharing programs in the area and the legal issues faced in setting up the program, and briefly discusses the timing of the demonstration relative to the changing gasoline supply situation. The program organization is then examined in depth, within the context of alternative organizational models.

3.1 PREVIOUS RIDESHARING PROMOTION EFFORTS IN THE TWIN CITIES AREA¹

The Share-A-Ride program had the initial advantage that there was a strong history of previous carpooling and vanpooling programs in the area. Several employers in the Twin Cities area have long supported efforts to promote ridesharing. It is particularly notable that vanpooling was already established in the area.

The vanpool concept was itself originated at the 3-M Company in St. Paul in 1973. As of late 1976, when the Share-A-Ride program was initiated, there were already eleven employer-sponsored vanpool programs in operation in the Twin Cities area. In addition to 3-M Commute-A-Van (then with 77 vans),² employee vanpool programs in operation at that time were: Cenex (Farmers Union Central Exchange, 22 vans), General Mills (18 vans), Honeywell (4 vans), Control Data Corporation (4 vans), Prudential Insurance (3 vans), Blue Cross/Blue Shield (3 vans), Farmers Union Grain Terminal Association (2 vans), Richfield Bank (1 van), National Car Rental (1 van), and Minnesota Mutual Insurance (1 van). In addition, employee vanpool programs were in the process of being initiated by the American Automobile Association (1 van), Cargill Company (3 vans), and the State of Minnesota (6 vans).

¹Information in this section comes largely from Public Service Operations: Final Report (1977).

²The 3-M program now has over 125 vans.

There had been several regionwide carpool matching efforts preceeding the Share-A-Ride program. The first organized effort to bring carpooling to the attention to employers throughout the area began in 1973 when the Minnesota Highway Department made a matching program available to employers. The Minneapolis American Automobile Association prepared a promotional packet and hosted a meeting for representative of business and industry. Over 150 employers of 500 or more employees attended the meeting. The program resulted in 24,000 applications from 76 firms.

The largest single effort to promote carpooling occurred at the time of the 1974 gasoline shortage. The State Highway Department, Governor's Office, and the Emergency Energy Committee organized a general areawide carpool promotion campaign. Carpool request forms went to three-fourths of a million homes with their telephone bills. An advertising campaign followed with radio and TV announcements and full-page ads in the daily and weekly papers. The program generated 21,000 applicants dispersed throughout the seven county region, although only 6,000 received carpool matches and just 114 new carpool groups were confirmed. Two other carpool promotion programs were sponsored by downtown business associations. The Minneapolis Downtown Council organized a carpool program involving 15 firms in 1974. Shortly thereafter, the St. Paul Chamber of Commerce sponsored an employer-based carpooling program. The St. Paul program generated 1,500 applications from 12,500 employees in 11 nearby firms, with the results that 1,275 persons received matches and 540 persons went on to form new carpools.

Another approach to attracting persons to ridesharing was conducted by the Minnesota Highway Department as a follow-up to the I-35W ramp metering and preferential access demonstration in 1975. On I-35W, it was noted that 60 percent of the traffic crossing a congested bridge over the Minnesota River did not go toward downtown north of Country Road 62 into Minneapolis. To reduce congestion on the route, steps were taken to encourage drivers of single-occupant autos to carpool by identifying them from a license plate deck and providing them with names of persons similarly entering the freeway in Burnsville south of the river and exiting in Bloomington north of the river. License plates were matched for entrance and exit, the names of owners obtained, and notice given to them of other drivers who presumably lived and worked close by. No data on the effectiveness of this program are available. Preferential freeway access for high-occupancy vehicles has continued as a permanent feature on I-35W.

3.2 INSTITUTIONAL SETTING: HISTORY, LEGISLATIVE INITIATIVES AND BARRIERS

Policy support for ridesharing programs had already existed in a number of federal, state, and local policy statements. At the national level, support of carpool and vanpool activities was established by the 1974 Emergency Highway Act, and broadened by the Federal Highway Act of 1976 and the Energy Tax Act of 1978. The Federal Energy Administration (now the Department of Energy) had been supporting the concept by encouraging ridesharing as an integral part of statewide energy planning.

Local and state policy support for ridesharing programs was provided by the Minnesota Legislature, the Governor's Office, the Minnesota Energy Agency, the Minnesota Pollution Control Agency, the Minnesota Highway Department, the Metropolitan Council, the Citizens League and the Minneapolis and St. Paul Chambers of Commerce. The Minnesota Legislature (Section 473.421 of the MTC law) had in 1974 charged MTC with ridesharing responsibility:

"The MTC shall promote the use of carpools and employer vans in the Metropolitan area. The Commission's goal shall be to provide employers and employees with incentives to achieve by January 1, 1980, in the Metropolitan Area between 6 AM and 9 AM an increase in the proportion of persons riding rather than driving ... to 50 percent."

In 1974, Public Service Options, Inc. (PSO) was organized as a joint venture of the Citizens League and the Upper Midwest Council. A non-profit organization, its purpose was "to develop new options in the delivery of public services", particularly the concept of brokerage to private sector vendors for the purchase of services. Building upon a number of earlier transportation evaluation reports by the Citizens League, PSO began in 1975 to evaluate ridesharing alternatives, examining the development of vanpool programs in the Twin Cities area and the economics of services with and without paid drivers. A 1975 report, "Shared Ride Services-A Major Opportunity", suggested that a market existed for a package of community services, especially in multi-employer locations, if a number of legal obstacles could be overcome and a sponsor for the program could be found.

While PSO was distributing the report and discussing the possibility of a firm or organization to deliver these services, the MTC Transit Planning and Development Office approached PSO with interest in becoming a program sponsor. PSO and the MTC entered into discussion and PSO prepared a proposal for research that led to the demonstration. (These documents are listed in Appendix C.)

Following PSO's analysis of legal obstacles to vanpooling and the interest of the Minnesota Energy Agency, Mn/DOT and other agencies in supporting vanpooling, Commuter Van legislation (Chapter 233) was passed by the Minnesota Legislature in 1976. This legislation exempted commuter vans from Public Service Commission regulation and modified the regulatory, insurance, liability, and tax structures to facilitate van operation. This clarification paved the way for future van programs.

One of the legal and institutional barriers that remained before the demonstration program could become operational concerned the employment relationship between van drivers and the third party van provider. Under traditional common law principles, the van driver could be interpreted as acting within the scope of employment for the provider while driving a commuter van. This would render the van provider liable for the driver's actions and negligence, and could place their relationship within the jurisdiction of both state and federal Fair Labor Standards Acts (FLSA, containing minimum wage and overtime regulations), as well as the state Worker's Compensation and Unemployment Compensation laws.

The state laws were not considered to be a serious problem for the vanpool program, in part because the 1976 Minnesota commuter van legislation states that "van drivers are independent contractors, notwithstanding any law to the contrary." The interpretation of the federal Fair Labor Standards Act (FLSA) was less clear. One of the provisions of federal law excludes normal travel to and from work from the hours covered by the minimum wage requirements. In addition, an opinion of the Wage and Hour Administration (WH 317) of the U.S. Department of Labor had exempted employer-sponsored vanpool programs from the overtime provisions of the Act, thus further suggesting that the FLSA requirements do not apply to the relationship between vanpoolers and their primary employer. At the time, there was no clear precedent for a third-party vanpool provider, to determine whether van drivers would be considered employees of the van provider under FLSA. It was therefore necessary to obtain, with assistance from the Minnesota Energy Agency and the U.S. Department of Transportation, an interpretation from the U.S. Department of Labor specifically exempting the vanpool program from the minimum wage provisions of FLSA legislation.

Another potential barrier was approval of the program in accordance with the provisions of Section 13(c) of the Urban Mass Transportation Act (49 U.S.C., Section 1601 et seq., 1976), which requires certification by the US Department of Labor (DOL) that fair and equitable arrangements have been made to protect the interests of affected transit employees against a worsening of their employment positions as a result of the

federally-funded program. Final approval of the UMTA Service and Methods Demonstration funds thus required approval from the DOL, which in practice turned to the Amalgamated Transit Union national office for their opinion that the ridesharing program would not be detrimental to demand for existing bus services. This approval was obtained, although the union local did register some objections to the vanpooling element of the program and the specific selection of South Central Minneapolis as one of the three demonstration sites.¹ These local union objections were even more seriously lodged after 13c approval was obtained just prior to the MTC letter of bids for a vanpool operator. Ultimately, several factors helped reduce transit union objections to the ridesharing program. Unlike the parallel commuter brokerage program in Knoxville, the Minneapolis program featured bus promotion as an integral program element from the very beginning. The demonstration sites were all outside of the central business district of the Twin Cities. Also, loss of bus ridership was not a serious concern, since bus patronage was increasing, overcrowding was already becoming a problem and there were capital outlay limitations to MTC bus fleet expansion at the time.

3.3 TIMING OF THE DEMONSTRATION

The ridesharing demonstration spanned the period of gasoline shortages in the spring and summer of 1979. The first operational year of the Share-A-Ride program (November 1977 through October 1978) took

¹As described in Chapter 4, the South Central Minneapolis site had a high level of existing bus service relative to the other initial sites.

place in an environment of relatively stable gasoline prices and sufficient availability. During this period, gasoline prices (for leaded regular) were in the vicinity of 50 cents per gallon, with no large price increases or lines at stations experienced since the Arab oil embargo of 1974. The second year of the ridesharing program began with consistent increases in fuel prices, as gasoline rose from around 55 cents per gallon to 80 cents per gallon by March 1979. The fuel supply situation became most serious for Twin cities area motorists during April through June 1979, as they experienced rapidly increasing gasoline prices, shortened station hours and lines at open filling stations. Lines at stations diminished and finally ceased in July 1979, as supplies increased. The price of gasoline at that time was up to 97 cents per gallon.

The experience of gasoline shortages starting in April 1979 heightened concern about fuel availability and prices, and had noticeable impacts on the Share-A-Ride program. As is noted in subsequent chapters, employer cooperation for employee presentations was noticeably greater for the sites marketed to during or after April 1979. Requests for vanpool services from non-site firms also increased at that time. Thus, timing may have contributed to the greater success of the Share-A-Ride program in its second year, in addition to the clear impact of various marketing changes made during the course of the demonstration. A further analysis of effects of the 1979 "energy crisis" is presented in Fong (1979).

3.4 DESCRIPTION OF ADMINISTRATIVE STRUCTURE

3.4.1 Overview

The Share-A-Ride demonstration was conceptually designed with the organizational approach of one umbrella agency to coordinate marketing and transportation services performed by various organizations. The service delivery system was centered around the concept of an Area Field Office to perform the functions of a local transportation Coordinator, responsible for the continuing marketing, operation and coordination of ridesharing services in a subregion of the metropolitan area. In a metropolitan-wide program, there would be multiple Area Field Offices. A separate "implementation team" would perform initial marketing in each sub-region and set up each of the Area Offices. The concept was designed to allow the development of ridesharing services on an incremental, area by area basis, and to provide a framework for private sector involvement in service delivery. This organization approach was followed as the pattern for the Share-A-Ride program, although the concept of multiple Area Offices was not put into practice.

The organizational structure of the Share-A-Ride program during the two years of the demonstration funding is summarized in Figure 3-1. The overall management, direction and coordination of the demonstration was the responsibility of the Metropolitan Transit Commission (MTC), with headquarters in downtown St. Paul. Program operations were divided among three organizations: the MTC Area Office, Public Service Options and Van Pool Services. All three had offices located near each other in the

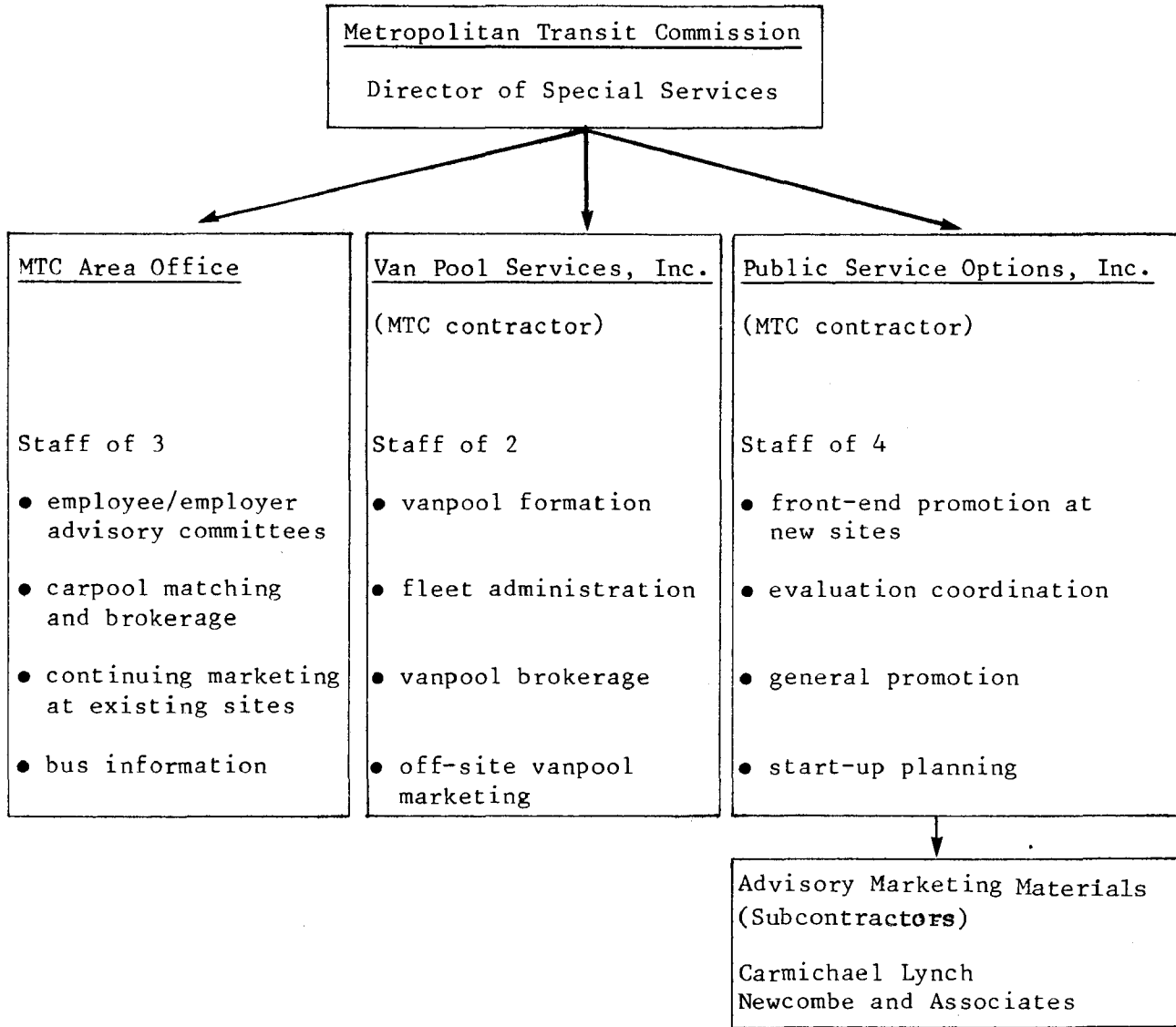


FIGURE 3-1

Organization of Responsibilities

Pentagon Office Park in the suburb of Edina. This was the location of the first program site, and was within seven miles of the locations of the other two original demonstration sites, which were all located in southern Hennepin County.

The MTC Area office was internally staffed by the MTC, while Public Service Options and Van Pool Services were private firms under contract to MTC. The Area Office had primary responsibility for matching carpool applications, providing bus information, and continuing marketing (after the initial marketing) at each site, as well as maintaining liaison with the MTC Transit Operating Division and various advisory committees. Public Service Options, Inc. (PSO), a non-profit firm, was responsible for management of the project start-up and continued to be responsible for new site planning, initial marketing and marketing assessment at each site during the two-year demonstration period. The vanpool component of the program, including applicant matching and vehicle operations, was the responsibility of Van Pool Services, Inc. (VPS), a subsidiary of Chrysler Corporation.

Carmichael-Lynch, a marketing consultant, was initially retained by PSO to assist in the design, development and production of promotional materials under the direction of the project staff. This firm was replaced by Newcombe and Associates in April 1978, approximately six months into the project.

There were also three advisory boards set up. These were:

- A Project Advisory Board, comprised of representatives of the sponsoring public agencies and other supportive organizations, to review, advise, and assist with the program coordination. Members included representatives solicited from the Minnesota Department of Transportation, Hennepin County, Metropolitan Council, Transportation Advisory Board, municipalities containing the demonstration sites and business associations. This group met infrequently.
- An Employer Advisory Board at each of the original three demonstration sites, consisting of representatives from interested participating employers, to disseminate information between employers and advise the MTC on program effectiveness and evaluation.
- An Employee Advisory Committee, drawn from users of each of the services, to advise the MTC on service quality and effectiveness.

3.4.2 Organization Naming

The organizational name was a confusing aspect of the ridesharing program. The official MTC program name was the Total Commuter Services (TCS) Demonstration. As a result of market research conducted prior to the demonstration, it was originally to be marketing under the name Commuter Club. During the final planning stages, the program's name was changed to Share-A-Ride. It is that name which is used to refer to the program in this report.

The overall organizational entity responsible for delivery of carpool, vanpool and bus promotion services was named Commuter Services. This was to be the umbrella label for what was actually three organizations: Public Service Options, the MTC Area Office, and Van Pool Services. In fact, Public Service Options performed marketing activities under the name of Share-A-Ride, while only the Area Office adopted the

name MTC/Commuter Services for common use. To avoid confusion over whether "Commuter Services" refers to the overall program or to just the Area Office, that name is avoided in this report, and the overall program administration is referred to as Share-A-Ride. This label is also consistent with the restructuring of the program in its third year, in which administration of the program was centralized under the name of MTC/Share-A-Ride.

3.4.3 Detailed Descriptions of Organizational Responsibilities

The relative roles played by the MTC headquarters, Public Service Options, the MTC Area Office, and Van Pool Services are each described in greater detail below.

The Metropolitan Transit Commission was the federal funding grantee.¹ The person charged with ultimate responsibility for the administration of the Share-A-Ride program was the director of Special Services at the MTC. The office of Special Services was organized as a section within the Transit Development Department, and was located at MTC headquarters in downtown St. Paul. In addition to administering the Share-A-Ride commuter program, the office of Special Services had primary responsibility for the Metro Mobility program of elderly and handicapped transportation services (including a shared-ride taxi demonstration program) and a dial-a-ride program for suburban areas facing transit service cutbacks. Approximately 20 percent of the MTC Project Manager's time was devoted to Share-A-Ride project administration and direction,

¹See Chapter 10 for a breakdown of funding sources.

including supervision of the MTC Area Office, administration of contracts with Public Service Options and Van Pool Services, and liaison with UMTA, FHWA, regional and state agencies.

The MTC Project Manager and the office of Special Services did not play any role in the day-to-day operations of the Share-A-Ride program because of their geographic isolation from the rest of the Share-A-Ride staff (all located 15 miles away at Pentagon Park) and because of the load of responsibility for other programs of the Special Services office.

Public Service Options, Inc. (PSO) was the catalyst for the establishment of the Share-A-Ride program. Following its 1975 report, "Shared Ride Services-A Major Opportunity", PSO conducted the UMTA funded research for the MTC which was the basis for the application by the MTC for federal funding of the ridesharing demonstration program.

Public Service Options, as a private consultant contractor to the MTC, was designated as the "start-up team" for the demonstration, with responsibility for the initial implementation of the demonstration at the original three sites. After the initial program start-up, PSO continued to have primary responsibility for initial marketing, results assessment and long-range expansion planning during the two-year demonstration period. With a staff of four, its responsibilities were:

Initial Program Startup

1. overall project management during the start-up phase
2. selection of a vanpool provider
3. establishment of an Area Office for the MTC, providing direction for it "during the start-up phase"

Program Marketing

4. development of marketing materials (in conjunction with a marketing consultant)
5. initial marketing to employers at each new site
6. initial marketing to employees at each new site
7. overall public relations for the program

Planning and Evaluation

8. Assessment of marketing and carpool/vanpool results
9. coordination of program evaluation data collection (for the evaluation contractor)
10. identification of major employers and sites for possible future program expansion throughout the metropolitan area.

The site selection process performed by PSO is discussed in Chapter 4 and the marketing task performed by PSO is examined further in Chapter 5.

The staff during the two-year demonstration period consisted of:

- | | |
|---------------------|---|
| Project Manager: | responsible for management of office and marketing activities, site expansion planning, and performed employer marketing to large firms |
| Marketing Director: | responsible for primary contact with firms, development of marketing materials, and marketing to employers and employees |
| Analyst: | responsible for data collection and analysis, assisted with employer and employee marketing efforts |
| Secretary: | typing and clerical functions. |

The MTC Area Office, as an MTC activity, was originally designed to work with the start-up team (PSO) in initiating the program and then "assume continuing program management after the program is initially implemented."¹ Like PSO, the MTC Area Office was located

¹Operations Manual, Total Commuter Service Demonstration, prepared by Public Service Options, March 1977.

at Pentagon Park in Edina. The concept behind the original establishment of the Area Office and its location chosen was that it would (in conjunction with a van provider) perform the function of a "local ridesharing coordinator," located nearby the work sites being marketed to, and responsible for providing personalized service in arranging options for driving alone for work trips. As a commuter transportation broker, these services would include matching applicants for carpools and vanpools, and providing information on available bus service. Operationally, PSO continued to perform all initial marketing at the sites, while the Area Office was responsible for responding to application requests for carpool matching and bus information, and for all subsequent "continuing marketing" at the sites. With a staff of three, the major responsibilities of the Area Office were:

Activities in the First Year Only

1. Assistance to PSO in the initial marketing to small employers

Ongoing Activities

3. all carpool brokerage, including matching applicants and conducting follow-up telephone brokerage
4. obtaining information on regular bus service for applicants requesting it
5. all continuing marketing, promotion and publicity at existing sites (after initial marketing), and program expansion to areas immediately surrounding existing sites
6. liaison with the Project Advisory Board, Employer Advisory Board and Employee Advisory Committee.

The carpool brokerage activities of the Area Office are examined in detail in Chapter 6, while continuing brokerage is discussed in Chapter 5.

The staff during the two-year demonstration period consisted of:

- Area Office Manager: responsible for coordination of all office activities, supervision of the carpool matching and brokerage activities, liaison with PSO and VPS, and continuing marketing at sites
- Carpool Coordinator: responsible for manual carpool matching and telephone brokerage
- Secretary: typing and clerical functions, and assistance in carpool matching.

Van Pool Service Inc. (VPS), a wholly-owned subsidiary of Chrysler Corporation, had responsibilities for all aspects of the vanpooling program under contract to the MTC. Although incorporated as a profit-making firm, VPS agreed early in the program to operate on a not-for-profit basis for the Share-A-Ride demonstration, in order to lower fares and thus encourage vanpool ridership. VPS now has operations in several other locations across the country. The office was located near to PSO and the MTC Area Office in Pentagon Park.

VPS had a staff of just two persons during the two-year demonstration period, a Manager and a Vanpool Coordinator, who together jointly handled all aspects of the vanpool program. Their responsibilities were:

1. working with PSO in marketing vanpooling as part of the Share-A-Ride program at each site
2. processing all vanpool applications, including matching applications and organizing vanpool groups

3. acquisition and maintenance of vehicles (leased from a local dealer)
4. operation of the vanpools, including driver selection and training, assistance to drivers in obtaining a Class B license, provision of insurance, setting rules and fares, and collecting fares from the drivers.

In addition, VPS was given permission by MTC to independently market the vanpool program outside of the Share-A-Ride employment sites. Originally a response to excess vans on hand, the MTC authorized VPS to implement up to ten off-site vanpools in April 1978 and up to 25 off-site vanpools in December 1978. Chapter 7 of this report discusses the vanpool program and examines the issue of off-site vanpool expansion.

3.5 ALTERNATIVE VANPOOL DELIVERY MODELS

The organizational and operational structure of the Share-A-Ride vanpool program distinguished it from most other vanpool programs in operation across the country. Unlike most other vanpool programs, it has been managed by a private "third party" provider rather than by an employer or a public agency. Also, the vans were neither rented, leased, nor sold to the vanpool drivers, nor were they purchased by the vanpool agency. Rather, the vehicles were leased by the vanpool provider and supplied directly to vanpool groups in exchange for passenger fares. This section examines the advantages and disadvantages of this arrangement relative to alternative vanpool delivery models.

There are several possible models of vanpool service delivery that could apply for a multi-employer vanpool program. These represent various combinations of program management and vehicle responsibility options. They are:

Program Management

1. direct operation by the transit agency or other public agency
2. third party provider--An independent vanpool management company is contracted to operate the vanpool program on a turnkey basis. After initial startup, fares may cover all program costs, or there can be subsidy of administrative costs.
3. employer programs--Large individual employers operate the vanpool programs for their own employees and for the employees of nearby smaller firms. There can be financial support to reimburse administrative and other expenses, or subsidies just for vans where employees of other companies participate.

Vehicle and Operations Responsibility

- A. Vehicles are purchased or leased by the provider agency and made available to vanpool groups in return for a set fare paid by all passengers. The volunteer driver has a free work trip, personal use of the van at a mileage charge, and may share in the fare income above the minimum number of riders.
- B. Vans are leased or sold to individuals who agree to drive others to work. As an "independent contractor", the individual driver may be free to set his/her own fares and operating procedures but would be responsible for certifying insurance coverage and maintaining the vehicle.

Program Management Alternatives

The issue of contracting for services versus providing them in-house arises repeatedly for public agencies such as the MTC. The Norfolk, (Virginia) and the Golden Gate (San Francisco) vanpool demonstration programs, as well as the Minneapolis ridesharing demonstration, were all funded directly to a local transit agency. The other two agencies chose to operate the vanpool program directly. Direct operation of the vanpool

program by the MTC was never seriously considered, however, for two key reasons. First of all, direct operation by the transit agency would require an additional investment in staff and offices, plus significant administrative effort involved in acquiring and maintaining a van fleet. At least as important a concern was that the ownership or leasing of vans by the MTC for use by volunteer drivers would represent a visible competition to the services performed by the union-driven transit buses. As such, it would likely be more difficult to obtain approval of the program by the transit union local, as required for funding by Section 13(c) legislation, and could make the vans more directly liable to negotiations with the union relative to their maintenance, driver arrangements and areas served.

Operation of vanpool programs by single employers was the earliest type of vanpool program and had previously existed with a number of employers in the Twin Cities area (as described in Section 3.1). Each of these employer-based programs, however, was open only to employees of the single firm. While it is possible for a single firm at a multi-employer site to open its program to employees of other nearby firms, this would require that at least one of the employers at each site make a significant financial and managerial commitment to operate the program. This might not be possible at all sites and thus could not be relied upon as the exclusive model for program expansion. This arrangement could also have expanded liability insurance implications and even minimum wage law implications that would make it far more complicated than the typical single-employer vanpool program.

The third party provider model was considered to have the strongest implementation and operational advantages of the three program management options. Since it operates independent of employers, it presents no additional liabilities or costs to employers nor does it necessarily even require cooperation of all employers in order to establish multi-employer vanpools. In this sense, it operates much like carpooling. As the program grows, one vanpool provider can thus develop a program that does not vary between sites and can realize the potential administrative and insurance cost savings from a large scale operation. As a private organization, the third party provider can have the flexibility to make independent decisions regarding staffing, office operations, vehicle acquisition and maintenance agreements. It is not clear whether a third party provider necessarily offers staffing allocation or administrative cost advantages over a direct transit agency operation, but it clearly gives the vanpool program some element of independence from pressures of political and bureaucratic decision-making concerning vehicle fleet acquisition and operations. The concept of a multi-employer vanpool program operated by a "third party" organization is becoming increasingly popular nationwide.¹

¹In addition to the Minneapolis Share-A-Ride vanpool program operated by Van Pool Services, other third party vanpool programs now include (among others) Los Angeles' Commuter Computer Vanpool, San Francisco's Rides for Bay Area Commuters, Baltimore's VANGO and Boston's CARAVAN.

Vehicle Responsibility Alternatives

Some vanpool programs encourage the transition of drivers to become independent owner-operators (as in the case of Knoxville Commuter Pool), or shift drivers to lease the vans from another organization (as in the case of Golden Gate Vanpool). Still other vanpool programs (e.g. Baltimore's VANGO) lease the vans to the drivers from the outset. All of these policies have the effect of relieving the vanpool program management from the increasing administrative work of maintaining a growing vehicle fleet. There are a variety of disadvantages to these approaches, however. They require finding sufficient persons willing to lease or buy the vans and assume the financial responsibility of obtaining insurance and operating the pools. As the drivers become independent contractors, the vanpool program office becomes limited in its control over the quality of service provided. Besides the quality control advantages of a vanpool provider maintaining control over the vehicles, there is also a tax advantage for a corporation rather than individuals to purchase or lease the vans. In particular, an organization can amortize the purchased van just as it would any item of plant or equipment, and also claim an investment tax credit (Maxwell and McIntyre, 1979). The amortization procedure is also valid in the case of capital leases (Financial Accounting Standards Board, 1976).

3.6 ORGANIZATIONAL ISSUES ENCOUNTERED DURING THE DEMONSTRATION

Organizational difficulties were a problem for the Share-A-Ride demonstration program. The primary problem was that the program operations were divided among three separate organizations with no clear lines of authority for coordination between them. With separate organizations handling initial marketing (PSO), carpool brokerage and continuing marketing (MTC Area Office), and the vanpool program (VPS), interfacing between these organizations became an issue. Cooperation between all three organizations was important for the development of promotional materials, and coordination between the marketing schedule and the carpool and vanpool brokerage schedules was needed in order to facilitate the prompt processing of applications. Neither the part-time position of MTC Project Manager (filled by two different persons over the course of the demonstration) nor the existence of weekly review sessions involving all three agencies was sufficient to eliminate inter-organization differences, which often revolved around the relative priorities of each organization.

3.6.1 Inter-Organization Coordination Difficulties

Continuity between new site marketing (by PSO) and carpool matching/brokerage (by the MTC Area Office) was a problem during the entire two-year demonstration period. Several times in the program's second year, the carpool brokerage staff had difficulty processing application cards as fast as the marketing staff was able to generate them. As a result, there were sometimes considerable delays before

carpool applicants received a match list or other reply to their application. (This problem is described in more detail in Chapter 6.) A similar problem of delays in processing applications occurred for the vanpool (VPS) staff late in the second year (see Chapter 7). The problem may be partially attributable to staffing levels in the carpool brokerage office (Area Office) and the vanpool office (VPS) that were insufficient to keep up with the more rapid scheduling of site marketing in the second year of the program.¹ Three multi-employer sites were included in the program's first operational year, and eight new sites were added in the second year. While there were three persons available for conducting marketing to new firms, there were just two persons to manually perform all carpool matching and telephone brokerage. Similarly, the vanpool staff of two became increasingly hard pressed to process the flow of incoming applications while simultaneously putting into service and maintaining a rapidly growing vehicle fleet. Since there was only limited sharing of staff between organizations, it was not possible for the marketing staff to assist the carpool brokerage effort during the period between marketing campaigns at successive sites.

The separation between marketing and carpool application processing tasks highlighted the different goal perspectives and concerns of the two staffs. At issue was the conflict between a marketing objective of

¹Although there were proposals to hire additional professional staff, staffing levels were only occasionally supplemented with temporary employees as a short-term response to overload situations.

maximizing the number and rate of applications and a brokerage objective of maximizing the carpool placement rate of applicants. One item of disagreement between the marketing and carpool brokerage staffs was whether the intensive marketing approach had the effect of exacerbating the brokerage workload problem and decreasing the quality of applications by bringing in more "marginal" applicants (those not strongly interested in ridesharing). (See Chapter 5 for a discussion of marketing intensity.) Ideally, it is neither desirable to waste effort collecting and processing applications from those not really interested in ridesharing, nor is it desirable to limit applications to the small segment of persons already enthusiastic about ridesharing. Identifying the appropriate intermediate policy requires a trade-off analysis of program objectives and cost-effectiveness goals. The issue was not resolved during the demonstration.

Another problem concerned the transition from "initial marketing" by PSO to "continuing marketing" by the MTC Area Office. The fact that different organizations independently handled initial and subsequent marketing was confusing to some employers, leaving them unsure of whom to contact regarding ridesharing during the transition period. This separation of marketing tasks was itself an outgrowth of the distinction between the start-up team (PSO) and the local ridesharing coordinator (Area Office).

In general terms, there were also differences which arose over what a "demonstration" was, what constituted success and how this would be determined. Each of the organizations viewed these questions differently. At the outset, there was an attitude that the purpose of the program was to suggest a variety of marketing, matching and monitoring approaches, to test them and to assess their results. As the program moved into the second year, productivity and cost effectiveness also became major objectives. Partially as a response to those concerns, marketing was accelerated and increasingly focused on larger employers to increase the number of applicants and resulting carpoolers and vanpoolers while holding project costs constant. This emphasis on expansion, combined with unanticipated work on developing the carpool matching system, limited time available for ongoing marketing and recontacting firms by the Area Office.

3.6.2 Reasons for Coordination Difficulties

The lack of a central manager for day-to-day operations prevented any solution to the above inter-organization coordination problems and related interpersonal conflict. Some of the coordination difficulties were related to conflict over program priorities by each office and disagreement over the intended distribution of management responsibilities between the start-up team (PSO) and the MTC Area Office. The operations plan called for PSO to manage the overall ridesharing program in its initial stages, after which responsibility would shift to the MTC Area Office. The "initial" period was variously

interpreted to encompass either the entire two years of the Service and Methods Demonstration grant, or just involve the first few months of program implementation. This difference continued in the second year, when the MTC approved project continuation as a demonstration. There was agreement only that the MTC Special Services Manager had overall program responsibility, leaving the authority for day-to-day coordination undesignated. As a result, there was no agreement on management responsibility between PSO and the Area Office, and both organizations continued throughout the two years to produce largely parallel progress reports which both summarized the carpool matching, brokerage and ongoing marketing activities.

During the program's first year, it was already apparent that there was a need for a field Project Coordinator with clearly defined lines of authority to make administrative decisions concerning both marketing and brokerage operations. Early in the second year, a decision was made to move PSO, the Area Office and VPS into one combined Share-A-Ride office suite, in hopes of improving communication and permitting easier movement of applications between the carpool and vanpool brokerage activities. This office space consolidation never took place due to uncertainty at the time over future program expansion plans and the unresolved question about authority and responsibility. One alternative proposal was to divide all marketing and carpool brokerage responsibilities between PSO and the Area Office on a geographic rather than a functional bias. This proposal was also not adopted.

3.6.3 Epilogue: Alternative Organizational Arrangements

Both PSO and the MTC staff recognized that the existing organizational arrangement was not working well. During the summer of 1979, three alternatives were considered for the program's third year:

1. consolidation of marketing and carpool brokerage operations within the MTC, under the control of a full-time Share-A-Ride Project Manager and located at MTC headquarters in St. Paul,
2. consolidation of marketing and brokerage operations through a private vendor of ridesharing services, under contract to the MTC,
3. continuation of the current organization, splitting operations between a private contractor for marketing and an MTC office for carpool brokerage.

Alternatives to the continued use of the third party vanpool provider were not considered, as this element of the program organization was satisfactory.

Consolidation of the marketing and carpool operations in the MTC had several potential advantages over the previous situation, since it could:

1. improve access to central decision-making.
2. open the program staff to the additional experience of other MTC staff resources for financial expertise, personnel management and interviews, public relations, contracting, art and marketing assistance.
3. allow integration of the ridesharing promotion with other transit promotion programs, such as discount monthly bus passes, in order to better promote a comprehensive "family of transportation services".

On the negative side, the consolidation within MTC and location of the program at MTC headquarters was seen as having the potential to:

1. increase conflict with the transit union and transit promotion interests within the MTC, potentially leading to pressures to limit carpooling and vanpooling marketing where they represent competition for bus ridership.
2. decrease visibility of the ridesharing program and its objectives in an organization whose primary interest was the delivery of transit bus service.
3. decrease program autonomy and flexibility for independent decision-making regarding staffing, operating policy decisions and marketing strategy.

Another issue was whether a private organization, as opposed to a public agency, could potentially establish a better rapport with private employers for marketing ridesharing services. This issue was not resolved.

The consolidation of marketing and carpool brokerage operations within the MTC was initially approved in September 1979 and fully implemented by the end of February 1980. During that period, the MTC Area Office staff and Van Pool Services moved to the MTC Headquarters at the American Center Building in St. Paul. The name "MTC/Share-A-Ride" was adopted for the ridesharing organization. A day-to-day Manager for Share-A-Ride was finally hired, and an MTC marketing staff for ridesharing was hired.

The role of private sector organizations has remained an issue for the Share-A-Ride program. The contract to Van Pool Services to operate the vanpool program has been continued for the program's third year. In addition, the MTC considered but rejected the alternative of contracting out to a private vendor to perform marketing and rideshare matching services. Late in 1979, PSO announced that the St. Paul Companies had

formed a subsidiary--Ridesharing, Inc., which subsequently submitted a proposal to the MTC to handle the entire ridesharing program on a for-profit basis under contract to the MTC. This proposal was rejected by the MTC Commissioners following an MTC staff analysis which stated that they could achieve the same results at a lower cost. By April 1980, however, the governor of Minnesota stated that expansion of the ridesharing program should "Mobilize all of the resources...both in the private and public sector," and requested that responsibility for ridesharing in the Twin Cities area be split on a geographic basis between the MTC and Mn/DOT, which would designate a contractor to perform ridesharing services in its territory.¹

Another alternative is to increase the role of employers to perform their own marketing and matching operations. As unsolicited requests for ridesharing assistance from various area companies exceeded program capacity in the second year, a plan was initiated to hold rideshare training workshops for interested employers who could not be quickly served by the Share-A-Ride marketing and carpool matching operations. The idea of holding seminars grew from the increasing number of employer requests following the gasoline supply shortage and price increases in the summer of 1979. When told there was no time in the Share-A-Ride marketing or matching schedules to include them, some companies offered

¹The plan gave MTC responsibility for St. Paul, southern Hennepin County and the eastern suburban areas, while the Mn/DOT contractor would have responsibility for Minneapolis and the western and northern suburban areas (refer to Figure 4.1 in Chapter 4).

to do their own carpool matching.¹ The Share-A-Ride staff felt that by holding seminars to discuss the program and instruct employers in its various aspects, each of these companies would be helped while making the most efficient use of available staff time. Although a plan was developed, seminars did not take place during the first two years of the Share-A-Ride program.

While the seminar approach may be cost-effective to the public transit agency, it has the potential disadvantages of traditional employer-based carpool programs:

1. loss of quality control on marketing and matching
2. reduced ability to determine actual outcomes of the program (due to less consistent recordkeeping), and
3. possible loss of new multi-employer carpoolers, if nearby companies do not share applicant records.

The seminar approach was thus viewed as a temporary response to excess demand for ridesharing services, rather than a permanent program option.

¹Northwestern Bell Telephone in Plymouth and Univac in Eagan both performed their own carpool matching after marketing assistance from Share-A-Ride. Univac had been performing carpool matching even before the Share-A-Ride program, however.

CHAPTER 4

DEMONSTRATION SITE SETTINGS AND SITE SELECTION CRITERIA

4.1 THE SUBURBAN MULTI-EMPLOYER CONTEXT OF THE DEMONSTRATION

One of the demonstration objectives was to determine the market for ridesharing in different multi-employer sites, to identify problems associated with each of them and to work on resolving them. Two features distinguish this demonstration from most previous ridesharing programs: the multi-employer context and the choice of locations outside the central business district. Both have important implications for the feasibility of encouraging significant additional ridesharing.

While the focus on multi-employer sites does have the advantage of increasing the size of the potential poolable population, it also raises the problem of conflicting shifts, varying overtime requirements, and intra-site pickup and dropoff distances. Marketing the ridesharing service is operationally much more difficult in a highly fragmented multi-employer complex. While several other ridesharing brokerages have recently operated with relative success in multi-employer contexts (for example, the Knoxville Commuter Pool and Los Angeles Commuter Computer Vanpool), these projects have served CBD markets as part of a region-wide focus.

The focus of this demonstration exclusively on sites outside the CBD has significant impacts on the viability of the ridesharing brokerage. Relative to successful ridesharing incentive programs in downtown areas, where congestion and parking costs are natural disincentives to

drive alone commuting, conditions at all of the selected sites are generally favorable to solo drivers. Parking is generally free and readily available, local street access within the sites is generally good, and most of the sites are located near freeways. There have been previous examples of successful ridesharing incentive programs operating out of non-CBD locations, but these for the most part have been single-employer initiatives. The most noted example here is the 3M vanpooling program which currently operates over 125 vans serving the 3M headquarters in Maplewood, a suburb five miles east of St. Paul's CBD.

The non-downtown focus of this demonstration is of particular importance because the Twin Cities is one of many typical metropolitan areas with a highly decentralized employment base. Just 17 percent of the 800,000 area jobs are located within the downtowns of Minneapolis and St. Paul, while the remaining employment is dispersed among other parts of the two central cities (37 percent of employment) and suburban locations (46 percent of employment). No single location outside of the downtowns accounts for more than 2 percent of total area-wide employment. Partially as a result of this decentralized employment, a 1970 area-wide survey found that just 15 percent of all work trips involved carpooling, and 8 percent were by bus (Metropolitan Council, 1974).

Three multi-employer suburban sites were selected for the demonstration in the first year, and eight more were added in the second year. These eleven sites are in many ways typical of the range of employment sites found in metropolitan areas outside the downtowns.

Nevertheless, these sites have significant differences in terms of their employment composition, activities of the work force, number and size of employers, physical layout, commuting conditions, and location. All of these site differences can affect the viability of a ridesharing brokerage program. The following sections describe the process for selecting sites, summarizes characteristics of each of the Share-A-Ride sites, and then discusses the common characteristics of successful sites.

4.2 THE SITE SELECTION PROCESS

The identification of prospective multi-firm employment sites was the responsibility of Public Service Options. The choice of sites actually adopted for the Share-A-Ride marketing and brokerage efforts was subject to approval of the MTC Commissioners. In 1977, during the planning stages of the program, PSO conducted a study of multi-employer centers in southern Hennepin County (the southwestern portion of the metropolitan area) for the purpose of choosing the original demonstration sites. Of nineteen employment centers identified from employment and land-use maps,¹ four were considered to meet the criteria for a successful site. These four sites did comprise the original three demonstration sites and the first expansion site. The expansion sites were chosen from a list of 74 multi-employer sites identified in May 1978 from the full metropolitan area, excluding the downtowns of Minneapolis and St. Paul.

¹Areas which were solely retail and small industrial areas were excluded.

The initial criteria for site selection were:

1. sufficient scale to ensure matches at the residential end--a minimum of 2,000 employees in the site.
2. concentration of employment in a one-half mile radius and reasonable circulation between firms to facilitate collection and distribution for carpools and vanpools.
3. two or more "anchor" employers of 250 or more to ensure a quick start-up with minimum marketing costs.
4. work times and employment characteristics: sufficient employees not on part-time status, frequent overtime or rotating shifts so as to still meet the above criteria for total employment and anchor firm employment.
5. initial interest of the large employers.

4.3 SITE DESCRIPTIONS

The geographic location of the eleven multi-employer marketing sites are shown in Figure 4.1. A summary of each site's employment level, firm size distribution and major category of activity is presented in Table 4-1, along with the dates when the sites were added to the Share-A-Ride program. It should be noted that the sites ranged in size from 3,700 to 14,000 employees, from over 300 firms to under 10 firms, and included offices, manufacturing, and sales activities. These eleven sites together account for over 70,000 employees, representing 9 percent of the total metropolitan area employment. It should also be noted that of the five area employers of over 10,000 persons, the Share-A-Ride program sites included various facilities of three of them (Honeywell, Control Data Corporation and Sperry-Univac). Another major

KEY

1. Pentagon Park
2. S. C. Minneapolis
3. Central Bloomington
4. East Bloomington
5. Arden Hills
6. N. E. Minneapolis
7. Golden Valley
8. Eagan
9. Plymouth
10. St. Louis Park
11. Fort Snelling

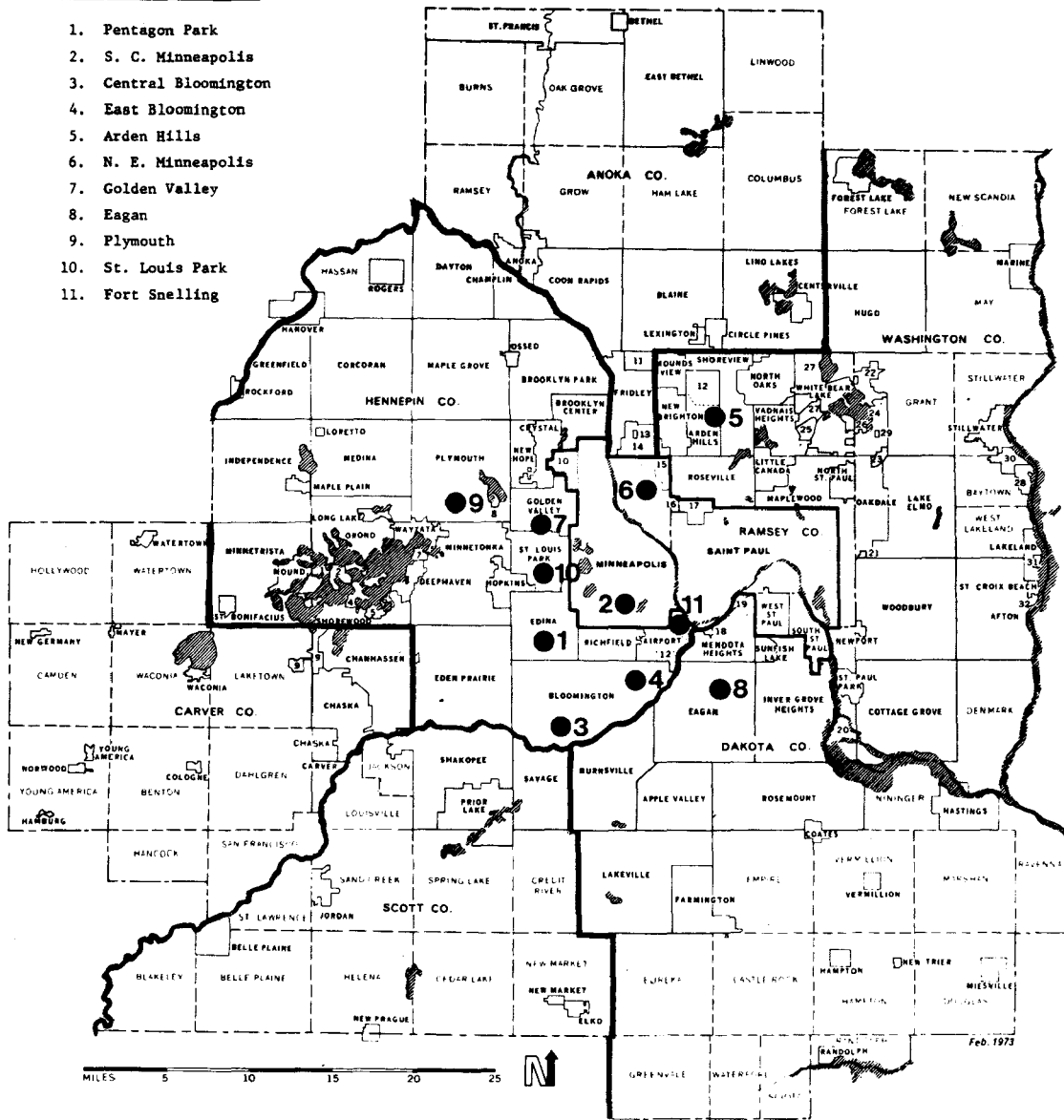


FIGURE 4-1

Location of Share-A-Ride Sites

TABLE 4-1

Summary of Site Characteristics and Marketing Dates

Site	Total Employment	Number of Firms by Employment Size			Type of Activities	Period of Initial Employee Marketing
		Over 1000	100-1000	Under 100		
Pentagon Park	7,572	1	10	291	manufacturing, office park	11/77- 6/78
S.C. Minneapolis	8,677	3	7	6	hospitals, sales, office	12/77- 6/78
Gen. Bloomington	4,463	0	12	138	manufacturing, warehouse	4/78- 7/78
E. Bloomington	5,869	1	6	14*	sales, office	10/78
Arden Hills	4,900	2	2	1	manufacturing	11/78
N.E. Minneapolis	14,027	3	20	45	manufacturing, warehouse	12/78- 3/79
Golden Valley	5,816	2	5	5	manufacturing offices	2/79- 4/79
Eagan	4,858	2	3	6	office	4/79- 5/79
Plymouth	5,685	1	11	58	warehouse/ office park	5/79- 8/79
St. Louis Park	3,729	1	2	60	manufacturing, office park	7/79- 8/79
Ft. Snelling	4,289	1	4	14	government offices	9/79
TOTAL:	69,885	17	82	638		

*In addition, there are approximately 200 small firms in the adjacent Metro Office Park, who were invited to participate.

employer, 3M Company, ran its own independent vanpool program. The remaining major employer, Dayton-Hudson, is a department store chain with retail stores outside the sites, although its warehouse was included in one of the Share-A-Ride sites.

The remainder of this section (4.3) contains summary descriptions of each multi-employer site, for those interested in further detail on the site settings. Findings about the site characteristics which affect ridesharing potential are then discussed in Section 4.4.

4.3.1 Pentagon Park/Normandale

The first site for the Share-A-Ride program is a general office and manufacturing complex located on the border of Bloomington and Edina, nine miles south of the Minneapolis CBD. The site is bounded by I-494, Normandale Boulevard (SR 100), 75th Street, and France Avenue. Most of the firms are located in Pentagon Park, a 19-building, 60-acre office park.

Total employment of approximately 7,572 is divided over more than 300 firms, over two-thirds of which employ fewer than 10 persons. A single large firm, Control Data Corporation's Magnetic Peripherals Inc. (MPI), accounts for 2,500 employees in a single plant. A number of the smaller establishments are involved in wholesale sales or service activities requiring personnel to work varying hours, have a car available, and spend a significant amount of time away from their home office. The grantee made a pre-demonstration estimate of 30 percent of the area's employment to be involved in this type of activity and thus determined the number of ridesharing eligible employees at Pentagon Park to be approximately 5,300.

In fact, the preliminary travel survey, conducted at the time of initial site marketing, indicated that 54 percent of site employees either have an overtime restriction or need a car during the day at least once a week. In addition, a multiplicity of different work hour shifts at the different firms (and at MPI) meant that only 20 percent of site employees had work start and end times within 30 minutes of the largest shift. (More site survey data is shown in Chapter 9.)

Transit service to the area is poor, not atypical given its suburban location--nine miles from the CBD. Four MTC routes serve the area, with 24 to 30 minute headways on the three local routes to the site and one run service on the single (express) Freeway Flyer accessing the area.

Local street circulation around Pentagon Park is somewhat congested during peak hours as only two arterial entrances serve the site from SR 100 and France Avenue. However, access road congestion tends to be of short duration, immediately following the major afternoon peak departure times.

At the beginning of the marketing effort, a preliminary travel survey was distributed to all employees of major employers at the site, and was completed by 2,377 persons. Analyses based on a sample of these surveys showed the initial commuting mode shares to be 18 percent carpool or drop-off, 3 percent bus, and 78 percent drive-alone. The dominance of automobile commuting in general and driving alone in particular may be attributable to the proximity of the worksite to the interstate beltway (I-494), an abundance of free parking, poor transit service and a multiplicity of employers and work hours. An aerial photo of the layout of Pentagon Park is shown in Figure 4.2.



FIGURE 4.2
Pentagon Park

4.3.2 South Central Minneapolis

This area, bounded by I-35W, 24th Street, Elliot Avenue, and Lake Street, is located two miles south of downtown Minneapolis. Total employment of 8,677 is provided by 16 firms. Major employers in the area (with 500 to 2,000 employees) include Honeywell headquarters, Sears catalogue and retail facilities, and four hospitals. Unlike Pentagon Park, where there were nearly 300 small (under 100 employees) firms, the South Central Minneapolis had only six such small firms. There are, however, two major factors that were recognized early as limitations to ridesharing. The first is the three-shift, seven-days-per-week schedule operated by the hospitals, whose personnel generally work rotating shifts and rotate among shifts to a significant degree. Also limiting the number of carpool-eligible employees is the highly seasonal employment pattern at Sears, along with a large number of part-time personnel at the retail outlet. The number of ridesharing eligible employees at this site was estimated to be 6,650.

There are some natural advantages for ridesharing in the area. Relative to Pentagon Park, workers in South Central Minneapolis experience some local street congestion and some lack adequate parking. Unlike Pentagon Park, however, existing bus service is relatively good, particularly from suburban population centers south of the site and from the Minneapolis CBD. Four local bus routes provide direct transit service through the demonstration site and 5 to 12 minute headways. Three of these routes radiate from downtown Minneapolis and the fourth route provides crosstown service, offering one-transfer service to a

large portion of the metropolitan area. In addition to the local services, 26 "Freeway Flyer" express bus runs serve the area along the I-35W corridor with connections to the Lake Street bus and Honeywell Shuttle routes, which provide circulation within the South Central area. Based on the preliminary travel survey, the initial mode shares for area employees (in late 1978) was 17 percent carpool or drop-off, 15 percent bus and 62 percent drive-alone.

4.3.3 Central Bloomington

The third of the original three demonstration sites is a relatively small area characterized by twelve medium-sized (100 to 600 employees) manufacturing firms and 150 small (under 1000 employees) firms predominantly engaged in sales, manufacturing and distribution/warehouse activities. It is located west of I-35W, 11 miles south of the Minneapolis CBD. There are no large firms and the total employment base (4,500) is smaller than all of the other sites except for Fort Snelling. While a tight parking situation could encourage interest in ridesharing, overtime and a multiplicity of working hours among the numerous small firms limited the estimated number of ridesharing eligible employees to 3,250. Transit service is limited to three commuter express buses and one local service commuter bus, each serving the area once each morning and afternoon. Results of the Preliminary Travel Survey at the four largest employers indicated that 19 percent of employees were carpooling and 2 percent were bus riders.

4.3.4 East Bloomington

This was the first extension site beyond the initial three demonstration sites. It is a geographically large suburban site bounded by I-494, 24th Avenue and 34th Avenue, located directly south of the Minneapolis-St. Paul airport and eight miles south of the Minneapolis CBD. It consists of CDC world headquarters (with 3,500 employees), five medium-sized (100 to 500 employees) firms and 14 small sales office firms in the Appletree Square development, all located south of I-494. In addition, there is Republic Airlines headquarters (with 630 employees) physically separated from the rest of the site by I-494 and also with its own different set of working hours. Adjoining the main site area is Metro Office Park, a series of multi-employer buildings housing nearly 200 predominantly small firms. These firms were not subject to any direct marketing effort, but were given brochures and were invited to join the Share-A-Ride program. The area is accessible by three MTC bus routes offering 10 to 30 minute headways and a fourth MTC bus route offering one express bus each morning and afternoon.

4.3.5 Arden Hills/Arsenal

This is a small site of predominantly manufacturing activity bordered by Hamline Avenue, County Road F and SR51 at the border of Arden Hills and Shoreview, nine miles north of St. Paul. This was the first site outside of Hennepin County. The principal site location consists of CDC with 2,200 employees and three firms with 100 to 600 employees. In addition, there are offices of Mutual Services (with 1,200 employees) located one mile away from the main site and a

Honeywell production plant (with 1,600 employees) located 1.5 miles (in the opposite direction) from the main site. Survey responses at Honeywell, however, showed that there were 30 different sets of working hours and that 40 percent of the employees there worked overtime at least three days a week. The physical separation of Honeywell from the main site and its different working hours led to the matching of Honeywell applications separately from those of the other site firms. Only one bus route served the area, linking it to central St. Paul.

4.3.6 Northeast Minneapolis

The largest of the sites marketed during the first two years of the program is a manufacturing, office and warehouse district in the city of Minneapolis, at the border with Roseville and Lauderdale, about three miles northeast of the CBD. There are three large firms--Univac with 4,200 employees, Honeywell with 2,500 employees and Pacal Steel with 1,000 employees. In addition, there are 22 more firms with over 100 employees and 45 small firms. Ridesharing eligible employment population was estimated to be 80 percent of the 14,027 total employees, although Univac had a carpool matching program before the Share-A-Ride program.

While the large employment at Northeast Minneapolis brings a greater mass of potential applicants for carpool and vanpool matching than any other site, there are several factors limiting its ridesharing potential. The most important factor is the physical dispersal of the firms with resulting long distances between them. In addition, physical barriers, such as a highway dividing the site, helped define subsites

within the greater site area. Transit service to the area is better than at many of the other sites, with six MTC bus routes, five of which have over 15 to 30 minute headways. On the basis of the follow-up travel survey, it is estimated that 30 percent of site employers were already commuting by carpool and 4 percent by bus before the Share-A-Ride program.

4.3.7 Golden Valley

This site is a manufacturing and office park section near the intersection of SR55 and SR18, near the border of Golden Valley and Plymouth, seven miles west of the Minneapolis CBD. It consists of three large employees--Honeywell (3,100 employees), Pako (1,200 employees) and Tennant Company (675 employees), plus nine smaller firms. There is a moderately large employment base (5,800) and ample free parking.

Reducing the success of ridesharing promotion at this site is the wide extent of overtime at the three large manufacturing plants, and the fact that the street layout and railroad tracks both represent barriers to accessibility within the site. This latter problem is compounded by the fact that the largest employer at the site is located 1.5 miles from the other major firms. An additional factor affecting the potential for ridesharing at Golden Valley was that the prior level of ridesharing was higher than at most other sites. The preliminary travel survey indicated that 30 percent of Honeywell employees and 20 percent of Tennant employees were already carpooling.

4.3.8 Eagan

This area is composed of two geographic employment centers, located slightly more than one mile apart in a suburban setting seven miles south of St. Paul in Dakota County. It consists of two large offices--Sperry Univac (3,000 employees) and Blue Cross/Blue Shield (1,150 employees)--plus nine smaller firms. This site was unique in that it represented an extension of an ongoing carpool matching program at Univac, which accounts for 62 percent of the total site employment. The normal Share-A-Ride program marketing effort was conducted, but subsequent matching of carpool and vanpool applications (for all site firms) was performed by Univac using their own computer matching program, with referral only of vanpool applications to Share-A-Ride. This site was not originally planned, but marketing and vanpool services were provided at the request of the two major employers, which account for 85 percent of the total site employment and accounted for 98 percent of total site applications.

4.3.9 Plymouth

This employment site (Minneapolis Industrial Park) is a small, geographically concentrated manufacturing and office park. It is bounded by I-494, SR55 and Highway 6, located ten miles west of Minneapolis. It consists of three large firms--Litton (1,200 employees), CDC offices (820 employees) and Carlson Company offices (600 employees)--and 65 smaller firms. There is a moderately large employment base of 5,700 and ample free parking.

The employment base and mixture of employment types at Plymouth are similar to those at Golden Valley, but Plymouth has several advantages over that site for ridesharing. In contrast to Golden Valley, work shifts are very compatible at Plymouth. There are only two basic work shift times among the firms, plus flex-time for several firms. Also, the compact layout of the site allows easy access between firms, thus encouraging multi-employer carpooling. Another factor encouraging ridesharing is that the Share-A-Ride marketing in Plymouth started during the period of gasoline shortages in the Spring of 1979. This factor was most likely an important contribution to the increased employee interest in ridesharing shown at this site.

4.3.10 St. Louis Park

This is a manufacturing and office site located in the southwest quadrant of US 12 and the Belt Line Highway (SR 100), four miles west of the Minneapolis CBD. It consists of a Honeywell manufacturing facility (2,000 employees), offices of Gambles (600 employees) and Travelers' Express (180 employees), plus 60 smaller office firms all located in the Gamble Center Office complex and the Parkdale office complex.

4.3.11 Fort Snelling

This is a federal government office center adjacent to the Minneapolis-St. Paul airport. It is composed of three building complexes situated within one-half mile of each other. These are the Veterans Medical Center (1,900 employees), the Federal Building (housing the Veterans Administration Center with 790 employees, the US Postal Data Center with 500 employees, plus seven other agencies) and the

Bureau of Mines building (210 employees) with other agency employees in small buildings scattered throughout the site. The timing of initial Share-A-Ride marketing to Fort Snelling was advantageous for promoting ridesharing in that it occurred during the heart of the 1979 gasoline shortage, at a time when federal employees also anticipated an executive order regarding fees for the use of parking facilities. Unfortunately for carpool and vanpool matching, the largest employer (Veterans Administration) shortly thereafter shifted to "compressed time," with each employee working nine days every two weeks on a rotating schedule. This diminished the ability of many VA employees to form carpools or vanpools with other site employees. An initial site survey indicated that 21 percent of responding commuters carpooled and 11 percent were bus riders.

4.4 IMPORTANT SITE CHARACTERISTICS FOR RIDESHARING POTENTIAL

The experiences of marketing the Share-A-Ride program to eleven multi-employer sites during the two-year demonstration period indicated that a number of crucial site characteristics were important determinants of ridesharing program success. These findings are discussed below.

4.4.1 Work Hours and Occupational Characteristics--limit the ridesharing potential more than initial estimates suggested. A multiplicity of different shift times, overtime, part-time employment and employees needing their cars during work hours can reduce the size of potentially poolable groups more than indicated by a simple analysis of work hours at the major employers. Restrictive work conditions and the

dispersion of working hours, together with the geographic dispersion of applicants, is a major reason why no custom bus groups and only a very limited number of vanpool groups could be formed at any of the sites.

Dispersed working hours was a major reason for the disappointing results of marketing and carpool brokerage at several of the sites, despite efforts aimed at screening the sites for such problems. As described in the preceding site summaries, rotating shifts at the hospitals and part-time employment at the major retailer (Sears) both significantly reduced the success of marketing and brokerage at South Central Minneapolis. Similarly, overtime and dispersed work shifts among the employers at Central Bloomington and Arden Hills, staggered work shifts at Arden Hills and a rotating compressed work week at Ft. Snelling all contributed to the somewhat disappointing outcomes at those sites.

Aside from work hours, restrictive work conditions (i.e., overtime requirements and/or business use of a car) emerged as important factors limiting the potential for ridesharing. As is shown in Chapter 9, the Preliminary Travel Surveys conducted at Pentagon Park and South Central Minneapolis indicated that over 50 percent of the workers at each site either worked overtime or required the use of a car for work at least once a week. While these conditions do not preclude ridesharing, analysis of the Preliminary Travel Surveys (Chapter 9) showed that carpooling rates were systematically lower for workers with occasional work restrictions than for workers with no unusual job requirements. Moreover, it should be noted that occasional overtime requirements and/or need for a car for business will virtually preclude the likelihood of a

worker joining a vanpool unless some form of backup transportation is made available. These work constraints similarly discourage bus commuting when there is very limited service.

4.4.2 The Size and Activity Type of a Firm--are critical factors in determining ridesharing potential. As discussed in the chapter on program marketing (Chapter 5), it has been consistently found in this demonstration program that small firms (under 100 employees) contribute little to the ridesharing potential of a site. In fact, the successful sites all had at least one firm with over 1,000 employees that in itself generated at least 400 ridesharing applications. The only site that lacked any such large employer was Central Bloomington, and that site generated significantly fewer applications (both in absolute terms and as a proportion of total employment) than any of the other sites.

Table 4-2 lists the largest employers at each site and shows the relative contributions of these firms to total site employment and total applications received. In most of the sites, the one or two largest firms accounted for the majority of applications. This was true not only at the second-year sites, where marketing efforts for small firms were reduced in scope, but also at the first-year sites, where there was significant marketing aimed at smaller firms.

Among the major site employees, it is notable that the names Honeywell, Control Data Corporation, and Univac each occur several times. These three firms were indeed three of the five largest employers in the Twin Cities metropolitan area. The Honeywell, Control Data, and Univac facilities include both office and production plants. In general, these two types of activities were found to be most conducive for ridesharing.

TABLE 4-2

Role of the Largest Employers in each Site(as of October 31, 1979)

Site	Large Employer	Number of Employees at Large Employer	Percent of Total Site Employment at Large Employer	Percent of Total Site Applications from Large Employer
Pentagon Park	Magnetic Peripherals (CDC)	2,500	33%	79%*
S. C. Minneapolis	Honeywell	2,000	23	80*
Gen. Bloomington	Donaldson Warehouse	600	13	39
E. Bloomington	Control Data (CDC)	3,467	59	71
Arden Hills	Control Data (CDC)	2,200	45	55
	Honeywell	1,600	33	33
N.E. Minneapolis	Honeywell	2,500	18	24
	Univac	4,200	30	45
Golden Valley	Honeywell	3,100	53	64
Eagan	Univac	3,000	62	81
	Blue Cross/Blue Shield	1,150	23	28
Plymouth	Litton	1,200	21	18
	CDC	820	14	25
St. Louis Park	Honeywell	2,000	54	68
Ft. Snelling	VA Center	1,236	28	NA

* Increased by new hire marketing at Magnetic Peripherals in Pentagon Park and resurvey at Honeywell in S.C. Minneapolis.

The experience at South Central Minneapolis indicated that both retail stores and hospitals are poor markets for ridesharing, due in part to restrictions involving overtime, rotating work shifts, and part-time employment. Warehousing businesses, as found predominantly in Central Bloomington, exhibited disappointing results for the ridesharing program for similar reasons. Sales and service businesses, as found in Pentagon Park, were not conducive to ridesharing because of the frequent need of employees to use their own cars during the working day, besides the fact that such small firms were generally not enthusiastic about participation in the ridesharing program.

4.4.3 The Distribution of Commute Distances--is a third facet of site conditions affecting ridesharing formation. Relative to the average commute distance of current vanpoolers and carpoolers, it is clear that a significant segment of the drive-alone commuters at some sites do not live far enough from work for ridesharing to present a competitive alternative. For example, of vanpoolers from all sites responding to the follow-up survey, the median one-way commute distance was 23 miles, while median commute distance for carpoolers at the three sites surveyed was 10 miles.¹ As discussed in Chapter 9, survey data for the South Central Minneapolis site indicate that less than 2 percent of the drive-alone commuters live further than 20 miles from work, and only 18 percent commute from distances in excess of 10 miles. Corresponding commute distance figures for Pentagon Park and Northeast Minneapolis indicate a larger but still limited market for ridesharing.

¹This data is based on the Preliminary Travel Survey for South Central Minneapolis and the Follow-up Employee Survey for Pentagon Park and Northeast Minneapolis.

4.4.4 Physical Characteristics--such as railroad tracks and expressways, can play an important role in defining the boundaries of a site or as internal barriers dividing a site into subsites. Complaints about difficult internal accessibility between site firms emerged as an important issue for some sites. The large geographic area of the Northeast Minneapolis site, together with the presence of an expressway and railroad tracks dividing the site, caused some carpool applicants to reject persons on their match lists because they considered the travelling distance between their workplaces to be excessive.

The spatial isolation of one employer from the rest of the site firms occurred at several of the sites. At East Bloomington, Republic Airlines was on an opposite side of the freeway from the rest of the site. At Golden Valley and Arden Hills, distances of one mile or more separated a major employer from the cluster of other firms. In the case of the Arden Hills site, the isolation of Honeywell from the rest of the site was judged to be great enough to justify completely separate carpool matching for its employees.

4.4.5 Conclusions

The varied success of the Share-A-Ride program at eleven sites indicates several lessons for identifying the most appropriate multiemployer sites for a ridesharing program:

1. The successful multi-employer site had over 4,000 total employees among firms with 100 or more employees each, and had at least one "anchor" firm employing over 1,000 employees
2. Manufacturing facilities and office building complexes were generally more suited for ridesharing than retail stores, sales companies or warehouse districts.

3. Multi-employer work sites must have carefully defined boundaries within which there is an easily identifiable and reasonably compact cluster of firms. This requires that intra-site travel distances and the existence of barriers to intra-site access be taken into account.
4. Current travel conditions, including commuting distances, the extent of current ridesharing and bus usage, and the existence of road congestion, parking scarcity, and parking fees all should be considered in order to evaluate the market potential for additional ridesharing.



5.0 PROMOTION AND MARKETING ACTIVITIES

5.1 OVERVIEW OF MARKETING PROCESS

The overall marketing approach adopted for the Share-A-Ride program involved an intensive campaign with direct presentations to employers and employees when possible. The task of marketing the ridesharing program consisted of three elements:

1. Employer Marketing--the establishment of meetings with employers to discuss the program and solicit the cooperation of company management for presentations, literature distribution or other forms of promotion to employees.
2. Employee Marketing--presentations at employee meetings, the distribution of surveys and of promotional material, in order to present the program and ridesharing concept to employees and encourage applications from interested parties.
3. Continuing Marketing--ongoing promotion efforts, periodic resurveys and presentations to new employees at the larger firms, in order to continue applications over time and keep records up to date at existing sites.

There were no area-wide promotion activities as the demonstration program was limited in coverage to selected employment sites.

The initial employer and employee marketing was performed by Public Service Options (PSO), while continuing marketing was the responsibility of the MTC Area office. The subsequent process of matching individuals and contacting them for carpool formation and vanpool formation is classified as "brokerage", as differentiated from "marketing", and is discussed in Chapters 6 and 7. This chapter focuses on strategies adopted for employer and employee marketing, and measures of marketing success.

5.2 EMPLOYER MARKETING AND RESPONSES

The cooperation of employers emerged as a critical element of the ridesharing promotion effort. Marketing to employees at the sites had to be preceded by employer marketing, to gain employer permission and support for employee meetings, surveys, and/or literature distribution. The program, in effect first had to be "sold" to company managers whose reasons for participation are entirely different from the motivations of individual workers. Specifically, the aspects of employer support requested for the Share-A-Ride program included:

- allowing a travel survey of employees (at the first three sites only)
- assisting in ridesharing promotion through posters, displays and internal publications
- providing a cover letter for the employee brochure
- arranging for employees to attend a Share-A-Ride information session during work hours
- making information about Share-A-Ride available to new employees at orientation sessions
- appointing a company representative to help promote ridesharing in the firm
- providing for parking incentives, financial discounts, and/or subsidies for ridesharing employees
- allowing ridesharers to adjust their working hours, if necessary to fit in with carpool and vanpool schedules

Marketing to employers consisted of the distribution of literature and direct contact with representatives of the management of each firm in the sites. The employer marketing tools included a pamphlet explaining the program, a flip chart presentation, a periodic newsletter mailed to employers, and a letter from the Governor to small and intermediate size firms. With large employers of 75 or more, a member of the PSO marketing staff would attempt to personally meet with the top officer or a designated representative from each firm. The key points for selling the ridesharing program to employers, to elicit their cooperation, were:

- a reduction in parking congestion and/or parking expenses
- recruiting advantages of a broadened labor market
- a reduction in absenteeism and tardiness
- stronger employer/employee relationships
- a more productive work force (through higher morale)
- a better community image

The broader impact of ridesharing on reducing traffic congestion, reducing air pollution and conserving energy resources were also suggested as positive community impacts that are strengthened through company participation.

5.2.1 Cooperation for Marketing to Employees

The success of the Share-A-Ride's marketing approach depended heavily on their ability to contact a large proportion of the firms in each demonstration site and to secure the cooperation of these firms' managements in allowing time for employee presentations or surveys.

Indeed, in cases where management's cooperation was never secured, some employees nonetheless joined pools, although effective marketing in these instances was clearly hampered. This was especially a problem if cooperation was not forthcoming from the larger firms in a site (as occurred in Central Bloomington).

The original goal for market coverage adopted in the fall of 1978 for the first three demonstration sites was to secure the cooperation of 80 percent of the firms at each site. It became evident from the early marketing efforts that this goal was not reachable due to a broad negative response on the part of smaller firms and the large amount of time required for small employer marketing relative to the few employee responses. A few efforts were made to assemble a number of small employers together for a group presentation in order to economize on the time that would be spent in meeting with them individually, and to promote some competition for successful program participation. However, these presentations were dropped due to poor attendance. The marketing coverage goal was therefore revised to be 80 percent of the employees at each site. This shift in emphasis was adopted in May 1978, and drastically reduced subsequent personalized marketing time devoted to small employers. In its place, increased emphasis was placed on directly reaching small firm employees using a variety of indirect marketing tools that did not require the direct support of the employers (e.g., posters, literature distribution or direct mail to employers with materials for their employees).

While the employer marketing approach to enlist the employer's active support and cooperation was relatively successful in reaching the employees of large firms, most managers of smaller firms (particularly those with less than 25 employees) were extremely reluctant to allow company time for presentations or apparently even to cooperate in distributing brochures and surveys. The most prevalent reason given by firms for refusal to cooperate with the program marketing effort was that few company employees were office-bound or worked regular shifts, or that their employees did not have a commuting problem. In many cases, it was difficult to even make contact with managers of small firms. They, themselves, were frequently not office-bound, and they often refused to return calls or respond to materials left in the office for them (brochures, posters, introductory letters, etc.). The inability to contact employees through their firms' management was most serious at the first site, Pentagon Park, where the median employment for the 302 firms is 5.

In retrospect, the lack of interest is not overly surprising. Many of the employer benefit "selling points" cited earlier in this section are not relevant for small firms. For almost all of the small firms, commuting (principally driving) was not considered an urgent concern. There was no perceived need to reduce employee parking requirements, as adequate parking was typically provided as part of their office lease. It was also felt by such firms that participation would have little impact on employee relations (since they know all of their employees on a

first name basis), and small firms are seldom concerned with enhancing their community relations. In addition, the small firms were frequently sales or service offices where many employees were out travelling during the day in their own expense-paid cars, and thus not eligible candidates for ridesharing. The general lack of incentive for ridesharing by smaller firms also applies to retail stores, which often employ many part-time employees.

Employer resistance to the concept of mandatory presentation meetings for employees was sometimes a problem for the marketing effort in the first year. Many employers were hesitant to interfere with the normal workday to hold the meeting(s) and even more hesitant to pressure employees to attend, especially if they did not have mandatory meetings for other purposes. In such cases, the outcome ranged from consent to voluntary attendance meetings with varying degrees of effort to promote them, to outright refusal to allow employee meetings. In response to the problem of eliciting employer cooperation for presentation meetings, an alternate employee marketing strategy using surveys when employers would not agree to meetings was used beginning in November 1978 (see description and analysis in Section 5.2).¹ Within the context of

¹This new approach of marketing through employee interest surveys was different from the Preliminary Travel Surveys conducted for market assessment purposes only at the first three sites during November 1977-June 1978. While interest surveys were not initiated until the fifth site, a constraint to utilizing this approach at the first three sites was that it was felt unwise to follow the travel survey with an interest survey.

employer marketing, the most important aspect of the survey approach is that it clearly requires far less cost, time and effort on the part of employers than does the arrangements necessary for scheduling employee meetings. While there was still considerable variation among the firms in the level of support for collecting surveys, the existence of the survey approach as an option made possible a higher degree of firm cooperation and significantly fewer initial firm refusals than was the case when the employee meeting approach was the single principal employee marketing method requested of the employers.

The dramatic gasoline price increases and national supply shortages of April and May 1979 brought a noticeable shift in employer attitudes towards ridesharing in general, and the direct presentation approach in particular. Firms previously unwilling to allow employee presentations were now more receptive to them. As a result, the presentation approach was reinstated, although the marketing strategy had evolved to a more flexible employer marketing format that requested firms to choose either employee presentations or surveys as the means of marketing to employees.

As a supplement and introduction to marketing the program to firms, employer breakfast meetings were organized for the Central Bloomington and Plymouth sites. These were single meetings for all of the medium and large employers at those sites, and were designed to introduce the program to the employers and initiate the marketing effort at those sites. This approach has the potential advantage that the early enthusiasm of one or two firms at a site can be transmitted to the rest

of the firms. However, the Central Bloomington breakfast meeting, sponsored by the Bloomington Chamber of Commerce and held in May 1978, was not a great success. The 30 largest firms in the area were invited, but only 9 attended. This breakfast meeting concept was not tried again until May 1979, when Control Data Corporation offered its enthusiastic support to coordinate marketing to the approximately 20 largest firms in the Plymouth (Minneapolis Industrial Park) site. This meeting, sponsored by Share-A-Ride/PSO, was attended by representatives of 15 firms and led to the immediate cooperation of 10 of the firms for either mandatory employee presentation meetings or mandatory surveys.

The greater success of the employer marketing meeting in Plymouth may be attributable to a variety of factors. First, the Plymouth site is a modern and compact office park, whereas the Central Bloomington site is an older warehousing area with less defined boundaries, more small employers and probably less of a sense of common interests between the employers. The Plymouth meeting also occurred at a height of concern about gasoline supplies and prices, whereas the Central Bloomington meeting occurred one year earlier. In addition, a CDC representative who had knowledge of the CDC experience with Share-A-Ride spoke at the Plymouth breakfast and encouraged other firms to follow the recommended promotion format.

An additional employer marketing method is publicity in local business newsletters and publications. This was particularly useful as a means of increasing knowledge of and interest in the program by employers

outside of the existing program sites. For example, an article in the newsletter of the Minnesota Association of Commerce and Industry (around September 1978) generated a substantial number of calls and letters from off-site employers. As the program expands from a small number of localized sites to more region-wide coverage, general awareness of the program by employers throughout the metropolitan area will become increasingly important.

The number of firms that agreed to cooperate with active marketing (i.e., employee meetings and surveys) and the proportion of site employees reached by these marketing techniques are shown in Table 5-2 and 5-4, and discussed in Section 5.3.

5.2.2 Ridesharing Incentives Offered and Donated Services

In addition to simply securing employer cooperation for marketing the ridesharing program to employees, the Share-A-Ride staff asked employers to demonstrate their support by offering financial incentives and preferential parking for vanpools and carpools. A limited amount of vanpool subsidy did come from a couple of the larger employers. Free parking was not an issue at any of the non-downtown sites, although preferential parking locations were an issue at some of the larger firms.

Two firms subsidized vanpool fares for a time: CDC's Magnetic Peripherals Inc. (MPI) at Pentagon Park and Honeywell at South Central Minneapolis. A vanpool program had existed at MPI prior to Share-A-Ride, and at its peak had five company-subsidized vanpools. Two vanpools were still in operation at the beginning of the demonstration. MPI had been operating its vanpool program at a substantial deficit for some time and was about to raise the rates when the Share-A-Ride program began.

Share-A-Ride vanpool rates were substantially higher than the previous MPI van rates, and although MPI did subsidize part of the difference, their vanpoolers ultimately chose to abandon vanpool commuting. Honeywell in S.C. Minneapolis subsidized vanpool fares for its employees, in the amount of \$10 per month for the first three months and \$5 per month for the next three months. They also gave preferential parking for vans in the Honeywell parking ramp (garage), and allowed vanpoolers flexibility in working hours to meet vanpool schedule constraints.

Preferential parking for registered carpools of three or more persons and for vanpools were offered by a number of firms, including CDC/MPI in Pentagon Park, Honeywell at Golden Valley, Sears and Honeywell at S.C. Minneapolis, and B. Dalton and Century at Central Bloomington. Later in the second year, CDC Headquarters at E. Bloomington set aside a whole parking lot for high occupancy vehicles and initiated fines for violations. For each violation, \$500 or more would be deducted from the budget of the violator's department head. The level of the fines was later raised substantially. The extent of enforcement is not known, however.

A number of firms donated significant labor time. Most notable was Univac in Eagan, which opened its own computer carpool matching process to all other interested area firms. While the Share-A-Ride staff performed normal marketing at that site, Univac took over the subsequent tasks of matching carpool applicants from all area firms and sending out match lists. Honeywell in S.C. Minneapolis went beyond mere cooperation with employee presentation marketing by designing their own ridesharing posters and mailing letters to all employees who did not attend the

presentations. Honeywell also designated one person to be Twin Cities Area Ridesharing Coordinator, to oversee Share-A-Ride activities at all Honeywell facilities and to designate a local ridesharing coordinator for each facility.

The experience of Burlington Northern (BN), although it was an off-site employer, illustrates the mixed attitude of some employers toward support for ridesharing. Burlington Northern initially requested vanpool assistance from Van Pool Services (VPS), and enthusiastically supported the promotion effort. Although VPS matched applications, BN donated labor to distribute promotion materials, collect surveys, and organize vanpool formation meetings. As a result, 10 vanpools were formed, the most formed from any single firm. However, the resulting vanpools were assigned parking spaces in the regular BN employee lot, one mile from the downtown St. Paul workplace. Some BN vanpools purchased more convenient parking at their own expense. One vanpool subsequently disbanded when five BN employees were denied a request for 15 minute flex-time.

5.3 EMPLOYEE MARKETING AND RESPONSES

The objective of employee marketing is to encourage the employees at each site to use one of the shared-ride modes for commuting to work, and to fill out applications for carpool matching, for the vanpool program, and/or for bus information. The chief aspects of ridesharing that were promoted as advantages over driving alone to work were:

- substantial savings in commuting costs
- reduced wear and tear on personal cars
- sharing the burden of winter driving conditions
- a more sociable and relaxing ride to work

The principle methods for "active marketing" to employees were:

- multi-media presentations held at the workplace
- an employee travel survey that included Share-A-Ride interest questions

The additional "passive marketing" tools included:

- information booths in employer cafeterias
- posters at workplaces
- leafletting parked cars
- letters from employers to employees
- signs on vans
- the Share-A-Ride newsletter
- ads in suburban community newspapers

There was no radio, television, billboard, or newspaper mass marketing of the program (other than several news releases), since the program coverage was limited to selected multi-employer worksites.

Table 5-1 presents the distribution of Share-A-Ride applications by marketing source, and shows that the active marketing methods generally accounted for over 70 percent of all carpool, vanpool and bus interest applications. Changes in active marketing strategy over time, the relative roles of the passive marketing techniques and the sporadic nature of continuing and new-hire marketing are each discussed in this and the following section.

All of the marketing techniques used were intended to promote carpooling, vanpooling and bus use. Examining all Share-A-Ride

TABLE 5-1

Share-A-Ride Applications (Carpool, Vanpool and Bus Interest)
by Source by Month

Month	Total Applications	% of Applications by Source					Principle Sites ¹
		Active Marketing		Passive & Continuing Marketing			
		Presentations	Surveys	Mail-in ²	Misc. ³	New Hires	
11/77-10/78	3780	87%	0%	12%	1%	0%	PP, SCM, CB, EB
11/78	930	39	36	24	1	0	AH
12/78	743	58	0	34	2	6	NEM
1/79	744	27	46	19	2	7	NEM
2/79	488	0	71	15	3	11	NEM
3/79	744	0	76	6	9	10	GV
4/79	253	0	34	11	14	42	NEM, PP
5/79	1403	40	26	18	7	9	GV, PLY
6/79	1662	11	70	6	7	7	EAG ⁴ , PLY
7/79	1166	22	54	9	9	6	SCM, PLY
8/79	1784	30	59	5	5	2	SLP
9/79	1303	76	0	22	1	1	FTS
10/79	1276	79	1	15	3	2	DSP

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¹ Key to sites:

PP = Pentagon Park
 CB = Central Bloomington
 NEM = Northeast Minneapolis
 EAG = Eagan
 PLY = Plymouth
 FTS = Ft. Snelling

SCM = South Central Minneapolis
 EB = East Bloomington
 AH = Arden Hills
 GV = Golden Valley
 SLP = St. Louis Park
 DSP = Downtown St. Paul

² Application forms distributed through employers and returned by mail³ Includes response from information booth, call-in, newsletter, flyers and poster tear-offs⁴ Only vanpool applications

application cards regardless of their source shows that 62 percent of the cards checked interest in carpool matching, 66 percent checked interest in vanpool matching and 35 percent requested bus information.¹ There was, of course, a very high overlap between carpool and vanpool applicants.

The remainder of this section focuses on the level of utilization and importance of each of the specific active and passive marketing tools as a means of promoting the ridesharing program. The emphasis of the overall marketing strategy on the cost savings advantage of ridesharing is discussed in terms of consumer response in Section 5.5.

5.3.1 Active Marketing

Employee surveys and presentations were the two techniques for actively marketing the ridesharing program to workers. Both of these techniques were designed to put an application form into the hands of most or all of the employees of a firm, within a context in which the employee is thinking about his/her commuting alternatives. Both techniques were found to be useful mainly for large firms. Firms with 200 or more employees generally cooperated with either presentations or a survey, and frequently had a majority of their employees attend the presentations or return the surveys. The techniques were considered to be of marginal value for medium-sized firms (with 100 to 200 employees), since many did not support presentations or cooperate with distributing surveys. Firms

¹Based on applications received for the period from November 1, 1978 through October 31, 1979. Custom bus was previously eliminated as a service promoted.

with less than 100 employees nearly always failed to follow through with active marketing, and these techniques were not even suggested for those types of firms after the experience of the first three demonstration sites.

Table 5-2 shows the proportion of employees at each site reached by active marketing and its relationship to the distribution of firm sizes. In general, the sites with a large number of small firms tended to have lower proportions of employees reached by active marketing.

Presentation Meetings--Employee presentation meetings lasting 30-40 minutes occurred during work hours, and typically consisted of an introduction by a firm representative, a general description of the program and a seven-minute slide/tape show stressing the advantages of ridesharing with testimonials from program participants. This was followed by a further explanation of the services (particularly vanpool) and time for questions and answers. The "personal" sales technique and the slide show were both designed for medium-sized audiences of around 30 to 50 persons, although the turnout was sometimes as small as 2 or 3 persons and meetings were occasionally planned for as many as 500. Overall, the average meeting attendance for the initial marketing at 39 firms in the first four sites was 22.5. Most firms had several presentations. The usual number of presentations per firm was directly proportional to the firm size. For instance, smaller firms with 100 to 300 employees usually had 3 to 16 presentations, while one of the largest firms, CDC Magnetic Peripherals at Pentagon Park (with 2,500 employees), had 46 presentations for the initial marketing.

TABLE 5-2

Distribution of Firm Size and Extent of Active Marketing by Site

Site	Number of Firms by Employment Size		% of Total Site Employees in Firms with Active Marketing
	Over 100	Under 100	
Pentagon Park	11	291	52%
SC Minneapolis	10	6	85
Gen. Bloomington	12	138	35
NE Bloomington	7	14	84
Arden Hills	4	1	100
NE Minneapolis	23	45	73
Golden valley	7	5	87
Eagan	5	6	87
Plymouth	12	58	73
St. Louis Park	3	60	75
Ft Snelling	5	14	100

Employer attitudes were critical to the success of presentation meetings. Even among larger firms (i.e., those with 200 or more employees), the level of cooperation ranged from enthusiastic to discouraging. Among firms that agreed to allow employee information sessions, some highly publicized the event through their own posters and in-house newsletters, while others did no promotion of the event. The results were attendance levels that ranged from 100 percent of the company employees to less than 1 percent. Neither employment type, firm size nor differences between sites accounted for the variation in presentation attendance. For example, while almost identical employer marketing approaches were used at Pentagon Park for three insurance firms each employing 120-160 persons, the attendance rates at the three firms ranged from 25 to 90 percent of employees eligible for ridesharing (based on their work hours and vehicle requirements during work hours). This suggests that attendance of presentations is largely a function of the extent of personal commitment to ridesharing promotion on the part of the firm management, and the organizational ability of the company coordinator.

Presentation meetings were the preferred marketing method, since they assured a captive audience for the sales pitch and tended to result in higher application rates than other marketing methods. This format also made it possible to collect a large number of application forms in a short period of time. The proportion of attendees that returned response cards indicating whether or not they were interested in being matched for carpools, vanpools, or bus information was in the range of 50 to 70

percent for most of the sites (see Table 5-3). It is estimated that between 10 and 20 percent of these response cards indicated no interest in any of the Share-A-Ride services.

Presentation meetings, while producing the greatest application response, are clearly the most time and cost-intensive method of marketing. In addition to interrupting the normal workday of employees, the meetings involve a considerable element of prior preparation on the part of the marketing staff for negotiations and setup, plus a considerable time investment for the marketing staff to conduct the series of intensive, half-hour presentations offered to small audiences.

A key issue encountered during the demonstration concerned the relative advantages of "mandatory" meetings compared to voluntary meetings. ("Mandatory" here refers to situations in which employer pressure was exerted so that a majority of the employees attended the meetings.) It is clear that mandatory meetings significantly increase the total number of applications for carpool and vanpool matching. However, the added attendance at mandatory meetings by employees that are either not interested in the Share-A-Ride program or are only marginally interested raises total marketing costs to the extent that more meetings are needed. In addition, while it increases the total number of response cards received, the mandatory approach also raises the proportion with no interest indicated. On the one hand, this can be useful for providing a more complete picture of interest or lack of interest in the service. The more important question, however, is the effectiveness of the

TABLE 5-3

Presentation Meeting Attendance and Response by Site

Site	Total Firms With Meetings	Total Meetings	Total Attendance	% of Attendees Returning Cards ¹ (Incl. No Interest)
Pentagon Park	23	77	2395	54%
SC Minneapolis	7	97	1664	47%
Cen. Bloomington	5	25 ²	683 ²	63% ²
E. Bloomington	6	73	1366	58%
Arden Hills	4	9 ³	921 ³	37% ³
NE Minneapolis	4	31	1028	62%
Golden Valley	1	NA	85	53%
Plymouth	9	31 ⁴	1399 ⁴	58% ⁴
St. Louis Park	2	7	522	93%
Ft. Snelling	19	53	1419	77%

¹ includes only cards returned at the meetings

² based on three of the five firms

³ based on three of the four firms

⁴ based on eight of the nine firms

NA Not available

mandatory meetings approach for increasing the number of new carpoolers (or vanpoolers). From the point of view of some of the marketing staff, this intensive or "hard sell" approach was justified insofar as the key to the overall success of the Share-A-Ride promotion is viewed as the extent to which ridesharing can be "sold" to those who are marginally interested or not previously interested in participating. A larger application base could also improve the quality of matches resulting. On the other hand, the carpool matching and brokerage staff felt that the addition of applications by those only marginally interested in carpooling or vanpooling had the effects of lowering the quality of the subsequent group matches while increasing the load of cards to be processed. Quick loss of interest on the part of carpool applicants was a very real problem for the carpool brokerage effort, although the extent to which this was due to the marketing approach rather than to delays in receiving match lists is not known. This issue of lost interest applicants is discussed in Chapter 6.

Employee Surveys--Employee surveys were generally considered to be the alternative form of active employee marketing when direct presentations were not possible. The surveys were brief, single page questionnaires that asked for the respondent's name and address, work schedule information, current mode to work, and whether or not the respondent was interested in carpooling, vanpooling and/or receiving bus service information (See Appendix A). As with the presentation meetings, surveys were a means to put application forms into the hands of as many

employees as possible, and promptly collect the completed forms without waiting for the employee to mail them in. The surveys were distributed with a letter from company management outlining the services offered. This approach lacked much of the educational and sales elements contained in the presentation meeting approach. The surveys did, however, have the potential advantage for marketing analysis that they asked about current travel mode choice, and these results were usually tabulated and noted in letters to employers.

Employee surveys require far less preparation or marketing cost than do presentations. As with presentations, however, the success of the employee survey approach depends critically on employer support. After an employer was given the survey forms to distribute, there was no way to know whether a resulting poor or zero response was due to lack of distribution effort on the part of the employer, lack of collection effort on the part of the employer, or lack of interest on the part of the employees. Some firms, particularly those in the medium-sized range (100 to 1,000 employees), agreed to distribute surveys but did not collect any completed forms. Illustrative of the variation in survey return rates among firms is the 85 percent survey return rate at the large Honeywell plant in Arden Hills in contrast to the mere 17 percent survey return rate at the large Honeywell facility in Northeast Minneapolis.

The frequently poor results of distribution and collection of surveys on the part of otherwise cooperative employers required numerous call-backs by the marketing staff to prod them for a greater return. The

corresponding delays in receiving completed surveys meant delays in the matching process and occasionally necessitated two or more separate waves of matching at a given site. The marketing staff therefore pushed employers for "mandatory" surveys when the firm agreed to employee surveys rather than meetings. Mandatory surveys, like mandatory meetings, resulted in both more interest responses than a voluntary approach and a greater proportion of no-interest responses.¹ The variation in "no-interest" surveys returned can be illustrated by the previously referenced example of the two large Honeywell facilities at Arden Hills and Northeast Minneapolis. At the Arden Hills facility where 85 percent of the employees returned forms, just 29 percent of the respondents expressed interest in any of the Share-A-Ride services. In direct contrast is the response at the Northeast Minneapolis facility, where only 17 percent of the employees returned forms, but a much higher 84 percent of the respondents expressed interest in the Share-A-Ride program.²

Mandatory surveys had the benefit of providing better information on baseline modal split. However, the mandatory survey approach, like mandatory presentations to an unknown extent also increased the proportion of applications by persons who were only marginally interested in

¹"No interest" survey responses were not difficult to filter out in application processing, and could potentially be useful for their additional travel data.

²Overall, the proportion of all employees returning interest applications was higher at the Arden Hills facility (25 percent) than at the N.E. Minneapolis facility (14 percent).

ridesharing. While the marketing staff still considered these applications to be an important addition to the pool of potential carpoolers and vanpoolers, the matching and brokerage staff viewed them as downgrading the overall quality of the applications and subsequent match lists, resulting in a lower apparent matching success rate for the brokerage operations. The fact that the marketing and brokerage staffs each retained contradictory objectives was a direct result of the organizational separation between marketing and matching functions, as was discussed in Chapter 3.

Comparison of Success from Meeting and Survey Approaches--Overall success of the ridesharing program, measured in terms of new ridesharers added, can be a function of both the marketing effort and the follow-up brokerage and information services provided. One measure of marketing effectiveness is the resulting rate of applications. Table 5-4 shows the extent of employee meetings and surveys at each site, and the total rate of applications to date from firms marketed by each of the two approaches. Although the differences are not striking, at each site the firms marketed by employee meetings have had a rate of applications somewhat greater than that for firms marketed by employee surveys. This suggests that the more intensive meetings approach may have a greater potential for generating applications than the survey approach. The relative usefulness of the meetings and survey approaches cannot be evaluated independently of employer cooperation, however. The survey approach was generally adopted for those firms that declined employee presentations and were frequently less supportive of the promotion effort than firms that cooperated with presentations.

TABLE 5-4

Comparison of Results from Firms with Meetings and Surveys, by Site

Site	Firms with Meetings			Firms with Survey Marketing		
	No. of Firms	Employees	Applications As % of Employees ¹	No. of Firms	Employees	Applications As % of Employees ¹
Pentagon Park	23	3902	63% ²	0	--	--
SC Minneapolis	7	7379	22%	0	--	--
Gen. Bloomington	5	1570	24%	0	--	--
E. Bloomington	6	4497	24%	0	--	--
Arden Hills	3	3300	27%	1	1600	21%
NE Minneapolis	4	5650	16%	14	4610	15%
Golden Valley	1	110	50%	3	4975	19%
Eagan	0	--	--	5	4228	35%
Plymouth	9	2700	37%	3	1500	21%
St. Louis Park	2	780	54%	1	2000	52%
Ft. Snelling	19	4289	26%	0	--	--

¹Includes all applications received through October 31, 1979 regardless of source

²This was 37 percent as of July 31, 1978, before weekly new hire meetings were initiated.

5.3.1 Passive Marketing

Passive marketing refers to the use of information booths, pamphlets, posters and newsletters to promote the Share-A-Ride program. The increased emphasis on such indirect marketing approaches stemmed initially from the difficulty in securing small firm participation in the first two sites (Pentagon Park and S.C. Minneapolis) and both small and large firm participation in the demonstration's third site--Central Bloomington. Basically, although group presentations and employee surveys represent the most effective means of marketing the Share-A-Ride program, it was recognized that in many instances indirect marketing is the only way to reach potential ridesharers. As the demonstration proceeded, the marketing staff became somewhat more flexible in selecting an appropriate marketing technique, even though results from passive types of marketing were less effective. While at the program's inception they would exclusively try to establish an agreement to hold group presentations, now, upon sensing management reluctance, they attempt to persuade management to accept less "demanding" types of marketing: survey marketing, or if that is not acceptable, the passive approach. Following the early decision to de-emphasize "active" marketing to small firms, many small firms were never requested to organize employee presentations. In the following pages, each of the passive marketing techniques is briefly described and the effectiveness of the entire passive marketing effort is evaluated.

Information Booths involved a member of the Share-A-Ride marketing staff stationed at a table with an easel display, poster and application forms in a firm's cafeteria during lunchtime. This approach was tried principally during the first year at larger firms where employee meetings were not possible or practical. It was also used on occasion during the second year in conjunction with surveys, to give employees an opportunity to pick up more information. Information booths were used at two hospitals with rotating working hours in South Central Minneapolis, a medium-sized firm (Federal Stamping) in Central Bloomington, a medium-sized firm (Xerox) in East Bloomington, and at the large Honeywell plant in St. Louis Park. Employee response was very poor in each case, as few employees ever approached the information booth. For example, after two days at one hospital and one day at the other hospital in S.C. Minneapolis, there had been 62 requests for information and 43 application cards submitted, out of a total employment of 2,700.

The Newsletter for Employees was published bi-monthly from February, 1978 through January, 1979, and resurrected as a quarterly publication in June, 1979. It was written by the MTC Area Office staff and contained stories about successful new carpools and vanpools, information about the services offered by the Share-A-Ride program, and ads for vanpool groups seeking additional riders. Some issues of the earlier version also included ads for carpools and an application form for the program. The earlier (bi-monthly) editions were given to employers for distribution to each individual employee at the demonstration sites. To reduce printing

and distribution costs, the newer (quarterly) editions were poster sheets placed on the bulletin boards of the larger employers and directly mailed to smaller employers. The newsletters were clearly not effective in directly generating applications, although they did serve an educational function in spreading awareness of the program, carpooling tips and information about the MTC monthly bus pass program. With rapid program expansion and increasing newsletter distribution costs, the future of the newsletter is questionable. An example of the employee newsletter is shown in Appendix A, exhibit 5.

Brochures were distributed as a supplement to active marketing at large firms and as the primary means of passive marketing to employees at small firms and firms where active marketing was not possible. There were three types of brochures:

- a Share-A-Ride brochure explaining each of the services offered by Commuter Services and the savings possible by using these services (with an attached application in the revised version);
- a vanpool brochure, explaining the operations of the vanpool program (This was produced by Van Pool Services and also used for off-site vanpool marketing);
- special bus information brochures prepared specifically for each site (These were prepared for four of the first five sites).

Examples of these brochures are shown in Appendix A, exhibits 1 through 4.

Both the Share-A-Ride brochure and the Vanpool brochure underwent substantial revision during the first two years of the program.

Nevertheless, the main theme of the Share-A-Ride brochure was always that very significant savings (initially \$425, later \$575) were possible by switching from driving alone to ridesharing. The usefulness of the marketing strategy focusing on cost savings is evaluated in the discussion of consumer perceptions and behavior in Section 9.6.

Picture Posters emphasizing themes of cost savings, congestion relief and winter driving hassles were placed at building entrances early in the program. These posters were considered to be ineffective in transmitting the advantages of ridesharing. No large posters were used for the second year of the program, although revised large posters are being reinstated for large employers during year three.

Flyers, placed on the windshields of parked cars at the employment site, were also used to reach employees of smaller firms, and when poster or pamphlet distribution was not possible. While flyers are a quick and inexpensive technique, it was felt that brochures were better read and created less of a litter problem. Flyers were distributed only at Pentagon Park, as a temporary measure while new brochures were being produced, and at Central Bloomington, where several firms refused to allow posters or pamphlet distribution.

Newspaper Ads were another source of promotion. During the first year, classified ads were placed in seven suburban and small-town newspapers that covered the residential end of several vanpools. Ads with testimonials from program users were placed in several local community papers and in the Freeway News distributed in Pentagon Park. In addition, individual vanpool and carpool groups seeking additional riders were encouraged to utilize the free carpool listing section in the Minneapolis Star and Tribune and St. Paul Pioneer Press. All carpool applicants receiving "no match" carpool letters received copies of the Tribune ad for free listing. Since the Share-A-Ride program was not region-wide, mass marketing through the metropolitan newspapers was not desirable.

Vans on Display were a means of generating interest in vanpooling. A van with display signs mounted on its sides would be placed in the parking lot of target firms during a promotion. This, together with the large sticker on the back of all vans, prominently advertised the Van Pool Services telephone number and generated many telephone inquiries. The display van technique was clearly less effective during the winter, when pausing in the parking lot is less comfortable.

The Effectiveness of Indirect Marketing Applications generated as a result of passive marketing were received through the mail. Approximately 15 percent of all applications were mail-in applications, but two-thirds of these were turned in by employees of firms at the tail end of an active marketing campaign. The remaining mail-in applications can be attributed to ongoing marketing promotions as well as indirect marketing techniques.

The indirect marketing tools were generally not effective in reaching employees from firms that did not have group presentations or surveys. At Pentagon Park, for example, application cards were received from employees of only 48 of the 279 firms which did not hold marketing meetings. Among all of the sites, only 4 percent of the employees in firms without active marketing (presentation or surveys) returned cards, while 28 percent of the employees in firms with active marketing applied for ridesharing services. Although the proportion of "ridesharing eligible"¹ employees is lower for the smaller firms that did not sponsor presentations

¹In terms of non-office-bound employees, overtime requirements, business need for a car, etc.

or surveys, the return rate of cards from smaller firms should, nonetheless, have been higher if indirect marketing was as effective as the active marketing approach used for large firms. The firms without active marketing represented 37 percent of the eligible employment at all of the sites, but only 7 percent of those returning cards.

5.4 CONTINUING MARKETING

Continuing marketing at the employment sites is crucial to keeping the ridesharing program alive and active in the long run. Without new surveys and promotion efforts to update records and generate new applications, the carpool and vanpool match list information would gradually become obsolete as listed persons changed their residences, job situations and commuting arrangements. The task of continuing or ongoing marketing at the "mature" employment sites has had the dual goals of periodically remarketing the Share-A-Ride program to all site employees and performing initial marketing for new employees at the larger, expanding firms. This continuing marketing was the responsibility of the MTC Area Office, which also performed the carpool matching and brokerage operations, as distinguished from the initial marketing which was performed by the staff of PSO.

Remarketing consisted primarily of contacts with the larger employers to organize new promotional campaigns within a year after the initial marketing efforts at each site. These were essentially passive marketing efforts, consisting of the distribution of brochures, flyers, and posters,

a van on display and information booths. Two major remarketing campaigns of this type were performed in the second year of the largest firms at the first two sites. CDC Magnetic Peripherals in Pentagon Park, which had initial marketing in December 1977, had such a remarketing campaign during October 1978. Similarly, Honeywell in South Central Minneapolis, which had initial marketing in January 1978, had remarketing campaigns during November 1978. At a lower level of effort, Sears at S.C. Minneapolis distributed flyers with paychecks in March 1979, 14 months after the initial marketing. The passive remarketing promotion efforts appeared to yield a modest number of new applications--120 (6 percent of employees) from Honeywell and less than 50 (2 percent of employees) from Magnetic Peripherals, both of which were in addition to applications generated by new employee presentations (discussed below). While these small volumes of applications could not result in many new carpools or vanpools (or in much of an update for applications on file), the passive remarketing might be helpful in the long run as part of a general awareness campaign.

Periodic resurveys, although seldom performed, would logically be useful as a means of updating the carpool and vanpool matching files.

In July 1979, major new employee surveys were performed at the request of company management at Honeywell in S.C. Minneapolis and Home Insurance in Pentagon Park. The Honeywell resurvey yielded a total of 450 interest applications, representing 23 percent of employees. This suggests that a major surveying effort, as opposed to passive remarketing, may yield application results similar to those from initial marketing efforts, and could be useful as a means to keep files updated.

Presentations to new employees were also an important aspect of continuing marketing at expanding firms. Most notable was the effort at Magnetic Peripherals in Pentagon Park, where the MTC Area Office gave a 10-minute slide show presentation with a question-and-answer period every Monday morning to the approximately 30 weekly new employees as part of their 3-hour orientation session.¹ At several other firms, the company management conducted the presentations to new-hires themselves.²

Problems with Continuing Marketing

The extent of continuing marketing and its potential success suffered for three key reasons. The first reason was that different offices had responsibility for the initial marketing and the continuing marketing effort. Since Public Service Options performed initial marketing and the MTC Area Office performed continuing marketing, there was no continuity of staff for the transition between initial and ongoing marketing. The transition was often awkward for the MTC Area Office and confusing for the employers, as they were confronted with a different organization name taking over responsibility for ridesharing promotion activities.

The second problem for continuing marketing was that the personnel officials at a few firms were initially hesitant to cooperate with any further ridesharing promotion efforts, as they were afraid that it would

¹Operation of these presentations was shifted to the company management in November 1979.

²This includes CDC headquarters at East Bloomington, CDC at Arden Hills, Honeywell General Offices at S.C. Minneapolis and Honeywell at N.E. Minneapolis. Presentations at the CDC facilities included the Share-A-Ride slide show materials.

require the same amount of staff time and costs as their initial employee meetings or surveys. Actually, continuing marketing in most cases consisted entirely of passive marketing techniques and thus required much less effort on the part of employers. According to the MTC Area Office, this passive approach was adopted in part as a response to the large commitment initially required for more active marketing techniques and a reluctance to put forth that additional effort for what was perceived to be a low expected return.¹ Still, the intensive initial marketing effort, with its requests for mandatory employee meetings and surveys, may in some cases have made employer cooperation more difficult for continuing marketing.

The third problem for continuing marketing was that it suffered from insufficient staff time available. As discussed in Chapter 6, the MTC Area Office staff usually faced a backlog of new site applications to be matched and brokered, and had little time left for either continuing marketing or the processing of the additional applications it would have produced. Viewed another way, the MTC Area Office could still have initiated major remarketing campaigns and processed applications from resurveys conducted at all sites one year after initial marketing, but that would have left no time for processing applications from new

¹The low response from major remarketing campaigns (discussed previously) supports this expectation, although the later resurvey at Honeywell in S.C. Minneapolis suggests that remarketing using "active" marketing tools can produce higher response rates for major firms that are highly supportive of the effort.

expansion sites without additional staff. In the face of these tradeoffs and no additional staff, new site expansion took priority over the maintenance of previous sites. This became explicit when the decision was made during the fall of 1979 (after a continuing marketing plan was prepared), to postpone all continuing marketing activities so that the staff could concentrate on the major program expansion into downtown St. Paul.

5.5 FURTHER ANALYSIS OF OVERALL MARKETING STRATEGY EFFECTIVENESS

Previous sections of Chapter 5 have addressed several key issues concerning specific aspects of the marketing process and their effectiveness. These issues are:

- The relative effectiveness of marketing to large employers compared to small employers (see Sections 5.2 and 5.3, plus Section 4.3)
- The relative effectiveness of employee presentations, surveys and passive marketing techniques (see Section 5.3)
- The role of continuing marketing relative to new site promotions

This section, in contrast, examines the effectiveness of the overall marketing effort in light of results from an employee follow-up survey conducted near the end of the program's second year. Two major topics are addressed. First, the level of penetration of the promotional effort and the extent of consumer response to it is measured. Then, the major marketing themes, particularly the emphasis on cost savings in the ridesharing promotional materials, are discussed in relation to the attitudes and perceptions of the target audience.

5.5.1 Level of Marketing Penetration and Consumer Requests for Information

This subsection is based on results from the employee follow-up survey conducted at Pentagon Park approximately 1 1/2 years after initial marketing at the site, and at Northeast Minneapolis approximately 1/2 year after initial marketing at the site. The survey included in-depth interviews with 201 carpoolers, 401 drive-alone commuters and 99 bus riders at the two sites, and mail-back survey data from 241 current vanpoolers at all sites. Details about the administration of the survey and further results are presented in Chapter 9.

Marketing Penetration--Program Visibility

Table 5-5 shows the percentage of commuters at each site that said they had heard of "Share-A-Ride" or "Commuter Services," stratified by current mode of travel. At both sites, current carpoolers and bus riders were more likely than drive alone commuters to have heard of the program. Despite rather intensive marketing campaigns, it is notable that 43 percent of the drive alone commuters at Pentagon Park and 25 percent at Northeast Minneapolis had never even heard of the program. The lower program recognition at Pentagon Park is attributable to the greater extent of small firms at that site and the corresponding smaller proportion of total site employees subjected to active marketing techniques. In addition, there was a longer period of time between active marketing and the follow-up survey at Pentagon Park.

Persons who had heard of the Share-A-Ride program were asked by which means they had heard of it. Respondents were allowed to cite up to

TABLE 5-5

Percent of Employees that Recognized the Names
"Share-A-Ride" or "Commuter Services"

Current Mode	Pentagon Park	N.E. Minneapolis
Drive Alone	57%	75%
Carpool	84	77
Bus	58	84
TOTAL	75	77

three answers. The results are tabulated in Table 5-6, stratified by the firm size and marketing approach used at their place of employment. Overall, the most frequent responses were company presentations, brochures, posters and information booth displays. It is notable that the van on display was seldom mentioned as a promotional method. The differences by firm size and by marketing approach were similar, due to the strong correlation between large size firms and those that conducted active marketing. As would be expected, employees of large firms and firms with active marketing were more likely than the others to cite presentations, information displays, employee letters and company publicity campaigns as their information sources. On the other hand, employees of small firms and firms where there was at most only passive marketing were more likely than the others to cite brochures, posters, the newsletter, radio and newspapers as the method by which they heard about Share-A-Ride. In addition, some employees of firms with passive marketing did report that they learned about the program at company meetings.

Consumer Information Requests--Application Rates

After hearing about the Share-A-Ride program, the next step in consumer response would be to fill out an application requesting carpool matching assistance, vanpooling matching assistance or bus service information. Table 5-7 shows the percentage of site employees requesting bus information, carpool information and vanpool information. Among both current carpools and drive-alone commuters at both sites, the greatest

TABLE 5-6

Methods of Hearing About the Share-A-Ride Program,
by Firm Size and Marketing Level

Percentage of Employees Using Each Information Source					
Information Source	Smaller Firms (<100 emp.)	Larger Firms (<u>></u> 100 emp.)	Firms With Passive or No Marketing	Firms With Active Marketing	Offsite Vanpool
S-A-R brochure	25.5%	17.1%	23.4%	13.4%	2.3%
S-A-R newsletter	5.0	2.0	5.1	2.8	0.8
newspaper	8.8	4.9	7.3	3.6	4.5
poster/sign	22.5	10.5	28.5	9.2	5.3
radio	2.5	0.7	1.5	0.6	0.0
company publication	2.5	6.3	2.2	0.6	3.8
letter to employees	0.0	3.5	2.2	7.1	20.3
information display	10.0	14.3	3.6	13.3	5.3
presentation at work ¹	12.5	27.7	14.6	26.8	24.8
saw a van	2.5	2.7	2.9	2.3	6.8
vanpool driver	1.3	0.3	0.0	1.7	6.0
friend	6.3	6.4	8.0	6.9	18.0
(Total N)	(80)	(607)	(137)	(586)	(133)

5-38

¹ includes both presentations by the Share-A-Ride staff and announcements at company meetings

TABLE 5-7

Percentage Requesting Carpool Matching, Vanpool Matching
and Bus Information, by Current Mode

Current Mode	Pentagon Park				N.E. Minneapolis			
	% Request Carpool	% Request Vanpool	% Request Bus	% Request Any Service	% Request Carpool	% Request Vanpool	% Request Bus	% Request Any Service
Drive Alone	21.1	7.2	4.6	25.0	16.6	11.3	7.9	21.2
Carpool	22.1	14.0	7.0	27.9	23.7	14.5	10.5	26.3
Bus	27.6	10.3	27.6	37.9	9.8	14.6	4.9	22.0
All Employees ¹	21.6	8.7	5.6	26.3	18.5	12.5	8.6	22.8

5-39

¹Adjusted for oversampling of ridesharers and undersampling of drive alone commuters in the survey.

proportion (around 20 percent) requested carpool matching assistance, while a smaller percentage requested vanpool matching and even fewer requested bus information. Overall, adjusting for the oversampling of carpoolers and bus riders among the interviewees, the survey indicates that approximately 25 percent of the employees at both sites requested at least one of the services from the Share-A-Ride program.¹

The overall rate of applications by site is shown in Table 5-8. Of the 11 sites that had Share-A-Ride marketing in the program's first two years, the rate of applications ranges from 10 percent of the total site employment to 41 percent. This variation in the success of the marketing effort is attributable to a variety of factors, which have been previously addressed. These factors are:

- (1) The Distribution of Firm Sizes (see Tables 4-1, 4-2, and discussion in Sections 5.2 and 5.3). The lack of any large employer with over 1000 employees at Central Bloomington and the high proportions of total site employees in medium and small firms at Central Bloomington and N.E. Minneapolis both contributed to the low application rates at those sites. On the other hand, the dominance of the single large employer (representing over half of total site employment) at St. Louis Park and Eagan contributed to the higher application rates at those sites.

¹These application rates from the survey may be compared to the overall rate of applications among the 11 sites, where 16 percent of all site employees requested carpool assistance, 16 percent applied for vanpools, 5 percent requested bus information and 24 percent requested at least one of the services (as shown in Table 10-1). Differences between sites are attributable to site locations, levels of bus service and marketing timing, as summarized in Chapter 4, and marketing approaches used, as described in this chapter.

TABLE 5-8

Total Applications by Site
(as of October 31, 1979)

Site	Total Applications ¹	
	As % of Total Employment	Number
1. Pentagon Park	33% ²	2497 ²
2. S.C. Minneapolis	20	1717
3. Cen. Bloomington	10	434
4. E. Bloomington	26	1477
5. Arden Hills	19	911
6. N. E. Minneapolis	13	1780
7. Golden Valley	19	1083
8. Eagan	30	1473
9. Plymouth	24	1389
10. St. Louis Park	41	1521
11. Ft. Snelling	26	1134
Total	24	16530

¹Includes carpool, vanpool and bus.

²The Pentagon Park application rate is high due to a continuing stream of new employee applications from Magnetic Peripherals. As of October 31, 1978, 10 months after initial marketing, the number of applications was 1430, representing 19 percent of total employment.

- (2) Firm Cooperation for Mandatory Employee Presentations (see Tables 5-1 and 5-4, and discussion in Section 5.3). The gasoline shortage in the early summer of 1979 helped to increase employer interest in mandatory presentations rather than surveys or passive marketing. A high level of cooperation at the major firms at Eagan (without presentations) and the subsequent expansion sites of Plymouth, St. Louis Park and Fort Snelling (which did conduct presentations) helped increase the application rates at those sites.
- (3) The Extent of Continuing Marketing and the period of time since initial marketing began (see Table 4-1 and discussion in Section 5.4). For instance, the strong continuing marketing to new employees at Magnetic Peripherals in Pentagon Park has added approximately 1000 applications for that site in the second year of the program.
- (4) Prior Commuting Characteristics (discussed in Chapter 3). The higher use of the bus at S.C. Minneapolis (due to its inner location and short commute distances) and the large extent of ridesharing at Golden Valley prior to Share-A-Ride may have acted to hold down the application rates at those sites.

The overall success of the carpool and vanpool brokerage program depends heavily on a sufficient mass of applications for matching. In addition, a variety of other factors also affect the ability to put applicants into carpools and vanpools. These include compatibility of working hours, physical characteristics of the site and the level of effort for telephone brokerage. These issues are addressed in Chapter 6.

5.5.2 Marketing Themes

There can be a variety of reasons for commuters switching modes as a result of the ridesharing promotion and marketing program. There are, however, basically three possible marketing/brokerage factors that could induce a current drive alone commuter to switch to carpool or bus commuting:

1. There has been a latent interest in ridesharing all along. The commuter has simply been unable or unwilling to find a suitable carpool match or make the switch to bus. The ridesharing brokerage assists the commuter in finding a suitable match.
2. The ridesharing program offers a "new, improved" product. Although ridesharing per se has existed all along, the demonstration program makes vanpools available as a serious alternative, together with new ridesharing incentives such as preferential parking. These new features bring some drive alone commuters to switch to higher occupancy vehicles.
3. The commuter has perceptually underestimated the money, time and inconvenience costs of drive alone commuting. When confronted with the numerous ridesharing brochures, presentations, and posters noting these "hidden costs" of driving alone, the commuter decides to switch to ridesharing.

In examining these three motivations for switching modes in the context of this demonstration, it is likely that the first two have been less important than the third. Were the hypothesis of strong latent demand true, a high proportion of those commuters receiving a suitable list of potential ridesharers should have successfully formed or joined pools. That is, if the lack of a suitable pool were the only barrier to an otherwise strong desire to rideshare, the brokerage function should be highly successful in getting commuters together (assuming that the applicant receives a good match list). As it has turned out, just 13.6 percent of the drive alone commuters receiving a carpool match were

verified to have formed or joined a carpool. Thus, either people did not receive suitable matches in many cases, or more likely, there was only limited latent interest.¹

For the most part, the ridesharing options being promoted were also not new. Prior to the demonstration, over 15-20 percent of the demonstration site employees already commuted by carpool, and an equal or greater proportion used the bus at two of the sites (S.C. Minneapolis and N.E. Minneapolis). Several of the employers even had operating vanpools prior to the demonstration. While it may be argued that vanpooling represented a new service concept for most commuters, it has turned out that the proportion of employees for whom this service is an available option competitive with solo driving is relatively small.² Preferential parking for carpools and vanpools was also seldom a major issue, since driving conditions to the demonstration sites were already generally favorable, with abundant parking available in most cases. Since parking was usually free, the only economic advantage to ridesharing would be through the reduced vehicle operating costs. But in this regard, the ridesharing program did not offer any new savings over the operating cost reductions inherent to ridesharing. Consequently, the ridesharing modes were largely marketed on the basis of their existing merits.

¹The carpool placement rate achieved in this demonstration is, in fact, significantly better than that achieved in many other ridesharing programs. Issues affecting the carpool matching rate are discussed in more detail in Chapter 6.

²This is addressed through survey results in Chapter 9.

The third motivation for getting commuters to switch from drive alone commuting to a ridesharing alternative is based on the educational function of marketing. The hypothesis here is that if commuters understood the full personal consequences of their modal choice decision, many would switch to ridesharing. In particular, previous studies have argued that drive alone commuters substantially underestimate the "true" economic costs of auto driving. While bus, vanpool and even some carpooling arrangements involve out-of-pocket payments, drive alone commuters usually do not pay their operating costs on a per trip basis, and thus tend to ignore fixed costs in their mode choice decision. The fare for ridesharing modes on the other hand, is more "visible", and as such, can be considered more onerous.

Indeed, the dominant theme in the Share-A-Ride marketing materials, from presentations to brochures to vanside placards, was the potential cost savings of high occupancy vehicle commuting. The cover of a Share-A-Ride brochure and a placard posted on the side of vans on display both read, "For \$575 per year tax free, would you change the way you get to work?" All of the carpool promotion brochures similarly highlighted cost savings, with many containing a simplified worksheet calculation for commuters to determine their own potential benefits (see Table 5-9 and promotional literature in Appendix A, exhibits 2 and 3). Posters developed early in the program emphasized the cost savings from ridesharing, as well as the themes of congestion relief and reduction in winter driving hassles.

TABLE 5-9

Advertised Cost Savings from Carpooling and Vanpooling

A. Cost of Driving to Work

CAR SIZE	Operating Costs (per Mile)		Fixed Costs (per Mile)			TOTAL COST per Mile
	Maintenance Accessories Parts & Tires	Gas & Oil Including Taxes	Vehicle Cost Depreciation	Insurance	State Taxes Registration & Garage	
Standard	3.8¢	4.7¢	6.3¢	2.2¢	2.0	19.0¢
Intermediate	3.4	4.1	5.6	2.1	1.8	17.0
Compact	3.0	3.5	4.9	2.0	1.5	14.9
Subcompact	2.8	2.5	4.1	1.9	1.1	12.4

(Figures are adapted from "Rideshare and Save: A Cost Comparison," Federal Highway Administration, 1978.)

Table 5-9 (Continued)

B. Annual Cost Savings of Switching from Driving Alone to Carpooling and Vanpooling, as Stated in Brochures

Daily Round Trip Miles	Total Annual Cost Per Person ¹			Annual Cost Savings	
	Drive Alone	Carpool ²	Vanpool ³	Carpool ²	Vanpool ³
10	\$ 432	\$192	\$396	\$ 240	\$ 36
20	852	408	420	444	432
30	1284	588	444	696	840
40	1716	756	480	960	1236
50	2148	900	504	1248	1644
60	2568	1056	540	1512	2028

¹For an intermediate size car, assuming 250 commuting days per year.

²For a three-person carpool with equal sharing of the driving.

³The cost is based on the nine-passenger fare in effect from 11/77-10/78. The vanpool fares after 11/78 were lower, and the fares for 10 and 11 passenger vanpools (which were more prevalent in the second year) reduced costs even more, thus increasing vanpool savings. See Tables 7-2 for changes in the vanpool fare schedule over time.

In evaluating the appropriateness and effectiveness of the educational marketing effort, the two key issues are: (1) the correctness of the facts being advertised, and (2) the extent to which the promotional campaign did indeed address the main concerns of the target audience. The accuracy of the advertised cost savings (which were based on a Federal Highway Administration pamphlet) is open to some debate. In particular, they have been criticized as overestimating the true cost savings of ridesharing by attributing savings to individuals in the fixed costs of vehicle ownership (i.e., insurance, taxes, and depreciation) in proportion to their reductions in vehicle mileage (Sherman, 1978). In addition, the follow-up survey conducted at two sites found that commuter perceptions of the cost savings from carpooling and vanpooling were often significantly less than the advertised cost savings. These two issues are discussed in detail in Section 9.6 of this report. That section also examines responses from a pre-demonstration marketing survey and the employee follow-up survey concerning the relative importance of cost versus other attributes of travel modes as determinants of mode choice.

From both the pre-demonstration marketing studies and the follow-up survey, it can be concluded that ridesharing's most salient advantage over drive alone commuting, cost, was overshadowed by attributes such as convenience and dependability as a determinant of work trip mode choice by many of the commuters at multi-employer, non-downtown work sites in the Twin Cities. However, there will always be a segment of the public for whom commute costs are important, and it is from this group that ridesharing's market potential is greatest. This segment of the market may also increase if the cost of gasoline continues to increase relative

to both incomes and other elements of the cost of living. Nevertheless, from a marketing perspective, these comments suggest that other aspects of ridesharing should also be addressed in advertising campaigns, particularly those attributes most critical to travellers. For some of these features, such as speed, comfort and reliability, it is difficult to argue that ridesharing is superior to driving alone. On the other hand, ridesharing's possible advantages in winter weather conditions, its convenience for preferential parking, and its flexibility (for carpooling) can be noted in promotional materials.

The Share-A-Ride marketing campaign had keyed on some of those features in their marketing campaign. A seasonal "theme" poster stressing the advantages of ridesharing in winter driving conditions was utilized early in the program. One of the new brochures developed at the end of the program's second year did give some attention to the carpooling aspects of flexibility and convenience, as well as cost savings. A remaining issue is the extent to which emphasis should be given to some of these non-cost aspects of commuting in marketing presentations and brochures, and how these claims can be presented in a believable manner.

CHAPTER 6

CARPOOL BROKERAGE

6.1 OVERVIEW

After ridesharing applications are generated by the marketing effort, the primary task of the commuter broker is to place ridesharing applicants into pools and provide information on available bus service. In the Share-A-Ride program, all applications were initially sent to the MTC Area Office. Carpool and bus information applications were processed directly by the Area Office, while vanpool requests were sent to Van Pool Services. Applications with more than one ridesharing mode checked were copied and processed by each appropriate office. The carpool applications were subject to a two-part process: (1) applicants were matched and each sent a match list (or "no match" letter), and (2) matched applicants were recontacted through carpool formation meetings or "telephone brokerage" calls to assist them in forming carpool groups.

Carpool brokerage was one of the unique aspects of this ridesharing demonstration. Most carpool programs end when match lists have been mailed to applicants; in Minneapolis there was an attempt to contact matchees to see if carpools had been started, and if not, to help potential ridesharers get them started. The motivations for adding this last step were at the same time to get more carpools formed than otherwise would have been and to keep records on how successful the program was in getting people to rideshare.

In this chapter, the carpool matching, telephone brokerage and record updating processes are described in detail (Sections 6.1 - 6.4). Three major issues are then examined in detail (Section 6.5): (1) impacts of marketing operations on the matching and brokerage processes, (2) the effectiveness of telephone brokerage, and (3) the carpool placement success rate at various sites.

6.2 CARPOOL MATCHING

Before the demonstration began, it was anticipated that a computer sorting and matching system would be used for carpool applications. This never materialized (as explained in Section 6.2.2), and around January 1978, a manual matching system was implemented.

6.2.1 Description of Manual Matching Procedures

Despite the lack of computer assistance, the MTC Area Office developed an efficient method of manually matching carpool applicants. This system underwent a series of modifications over time. The matching system, as evolved by the program's second year, is described below, after which the system modifications made over time are briefly discussed.

Applications received by the office were photocopied onto correspondence sheets which were used for matching and for recording contacts with the applicant. For each multi-employer site, correspondence sheets were filed by zip code, and within each zip code, by start time. The original applications were filed alphabetically by applicant's name.

The matching procedure was based on the zip code folders. First, matches were sought within each zip code by comparing start and end times (a maximum 30-minute variance was accepted). Next, adjacent zip codes were checked for potential matches. Anytime a match was found, the names of matches were recorded on each applicant's correspondence sheet. Entire residence zip codes were matched at one time (for each work site).

Upon completion of matching, match letters or "no match available" letters were mailed to each applicant. These were prepared as form letters to save time; the name, address, home phone, work phone, and company name of potential ridesharers were typed on the match letter and the applicant was encouraged to contact each of these people. A carpool match letter form is shown in Appendix A, exhibit 10.

Due to a small number of applications at some worksites and in an effort to match as many applicants as possible, a somewhat liberal interpretation of carpool matches was adopted. A match was defined as two commuters residing in the same or adjacent zip code zones with work shifts differing by less than one-half hour, i.e., matches were based on a 15-minute flexibility for each applicant. The matching of applicants from adjoining zip codes presented no problem if they lived near each other. Indeed, two people matched this way might live closer than two people matched from the same zip code zone. Particularly in the outlying suburban areas, however, zip code zones can be quite large. Different start/end times may have presented even more of a problem, since not everyone is able to adjust their work hours. (The extent of flexible work hours is examined in Chapter 9.) Commuters could thus be sent

matches involving substantial circuitry (possibly even backtracking) and schedule delays. While a geocoding or location mapping system can potentially avoid some of the problems inherent in a matching system based on zip codes, such schemes were considered to be too time consuming for the manual matching system.

The matching criteria represented a deliberate attempt not to rigorously pre-screen potential ridesharers. Screening to limit match lists to more ideal matches was tried very early in the program, but was not found to produce better results. It was also very time consuming. In 1978, the decision was made to send out a larger number of matches even though some may be inconvenient rather than to attempt to pre-judge what constitutes a good match. In the latter case, the broker always runs the risk of arbitrarily withholding a match that might have formed. The only potential danger of this approach is that some commuters could get discouraged upon receiving an initial list of inconvenient matches and subsequently lose interest in the program. One of the functions of the telephone brokerage system, as discussed in the following section, has been to maintain commuters' interest in the ridesharing concept.

Modifications to the Manual Matching System--The manual matching system, as originally developed and operated until November 1978, differed from the above description by its use of a master list of applicants and map plotting methods. Use of a master list of applicants was an attempt to track the status of applicants as they moved through the matching, match list and telephone follow-up processes, and to provide information for various reports. The typing of a master list was

abandoned, largely because it was a very time-consuming clerical task. To substitute for this list, applications were photocopied and kept in two files--one by residence zip code and one alphabetically by applicant's name. This revision permitted match lists to be distributed more quickly and, increased the time available for the matching and brokerage of additional applications, at the expense of more precise record keeping on the status of applicants. The elimination of a master list was closely tied to a shift in emphasis from a "map-plotting" system to the previously-described "zip-code" matching method. Plotting all residence locations on a map was very labor-intensive and became impractical as the number of applications swelled.

By the end of the second year of the demonstration, there was another revision which re-incorporated a limited map plot for cases where there were insufficient number of persons in a zip code area, while still leaving the matching system based principally on zip-code sort. This change was motivated by a desire for greater matching accuracy and as a means of facilitating telephone brokerage conversations. The map-plot matches were potentially more accurate, since they eliminated the potentially large distance errors possible from wrong zip code assignment caused by uncertainty about the location of an address along a long street.

6.2.2 Experience with Computer Matching

At the beginning of the demonstration, there was an agreement with the Minnesota Department of Transportation (Mn/DOT) for the processing of preliminary travel surveys and ridesharing applications. Preliminary

surveys from Pentagon Park and South Central Minneapolis were tabulated by Mn/DOT. Concurrently with the receipt of the first ridesharing applications, however, Mn/DOT began to experience problems with its sorting/-matching program.¹ These problems, combined with the lengthy turn-around time at Mn/DOT, led to the implementation of a manual matching system. The manual system, originally consisting of typing a master list of applicants and plotting residences on a map, was intended to be interim until computer matching could be integrated into the system. The manual matching system worked sufficiently well, however, that after a few months of operating successfully without use of a computer system on line, the decision was made not to use the Mn/DOT program at all. While the use of a manual system meant that efficient matching could get underway without delay at each marketed site, it also had the long-run implication that as the volume of applications increased, less staff time would be available for brokerage and follow-up marketing.

During the second year of the demonstration, an inventory and evaluation was made of alternative computer matching programs. The MTC Area Office was very pleased with the operation and placement rate of the refined manual system. In fact, for a limited number of work sites, computerized matching was seen as not much more efficient than the manual

¹Turnaround time by Mn/DOT, which took longer than expected, was complicated by the accidental loss of the add-match computer program. A replacement was found, but there were further delays in agreeing to modify the program to reflect changes in the preliminary travel survey.

system. It was recognized, however, that the manual matching system had been operating near capacity and that future expansion of the ridesharing program would necessitate a system with the capacity to quickly match and type response letters for larger numbers of applicants. As of summer 1979, five computer matching programs had been considered: the University of Tennessee program for Knoxville, the University of Minnesota program, the Univac Carpool Matching Program, the Comsis Matching Program, and the Federal Highway Commuter Information System. Based on a comparison of cost, time frame for implementation and availability, the Federal Highway CIS program was selected for implementation.

The program code and source code for the CIS program were received in July 1979. After review by the Share-A-Ride staff, the program was tested with the hope of implementation during Year Three of the program (around January 1980). At the time of this writing, a ridesharing application form suitable for manual or computer processing and a standardized, one-half mile grid indexed map (for manual geocoding) of the Minneapolis-St. Paul region were being developed. Despite this progress towards computerized matching, the fact remains that throughout the original, two-year Service and Methods Demonstration period, all matching was performed manually.

6.2.3 Employer Self-Matching

A variation of the carpool brokerage system which was tried in the second year of the demonstration was to have employers take responsibility for carpool matching. The UNIVAC office, at the Eagan

site, had an on-going computer matching program for carpools and volunteered to include employees of two nearby companies. The survey they used was revised to include questions about vanpool interest. Thus, while the Eagan site was subjected to the normal Share-A-ride marketing campaign, the Area Office played no subsequent role in carpool matching or placement. (Only the list of vanpool applicants was sent to the Area Office.) Since there was no follow-up telephone brokerage or registration of carpools, no information on existing levels of carpooling or outcomes at that site are known.

6.3 CARPOOL FORMATION MEETING AND TELEPHONE BROKERAGE

A review of previous carpool programs in the Twin Cities and elsewhere led to the conclusion that only a small number of applicants acted to form carpools after receiving a list of matches. The match list, while useful, was not enough. At the outset of this demonstration, therefore, one objective was to provide a more personalized service that would help encourage people to get together.

The original intent was for applicants who lived near each other to attend lunch-time meetings to discuss carpool formation. Turnout for these meetings, held in the first three months of the program, was extremely poor and resulted in few operational carpools. The approach required a large time investment for arranging and conducting the meetings. Low attendance also caused problems in tracking applicants and maintaining files on their current status and interest in the program.

A second approach, "telephone brokerage", replaced carpool formation meetings in February 1978. Telephone calls, which were formerly just a

means to arrange the carpool formation meetings, now became the primary means of personal contact with matched applicants, serving to remarket the program to people unsure about their interest, to encourage people to contact others to make arrangements, and to determine if new matches were needed for any applicants.

Description of Telephone Brokerage--Telephone brokerage to applicants was initially scheduled for two weeks after a match letter was mailed out, but often occurred later. (This delay is discussed in Section 6.5). The specific objectives of these calls were: (1) to determine what action, if any, had been taken to form a pool, (2) to encourage applicants to contact others on their match lists, and (3) record the status of the applicant.¹ If applicants contacted other people on their match lists and formed carpools on their own, telephone brokerage (for the purpose of carpool formation) would be unnecessary. As it was, not many applicants formed carpools between the time they received match lists and the time telephone calls were made.² The five major reasons for this were:

1. differences in matchees' residence locations, work locations, start times, or end times were beyond the applicant's tolerance;
2. information on the application (e.g., work hours, schedule flexibility, place of employment or place of residence) no longer accurately reflected the applicant's situation;

¹Carpool applicants were listed as either in a carpool, waiting for an appropriate match (active), or not interested in carpooling (lost interest).

²It was estimated that fewer than 15 percent of workers who had received a matching letter had made a call to one or more potential poolers by the time of the first follow-up call.

3. the applicant had certain carpool criteria which were not asked on the application and which were not met by others on their match list (e.g., driving/riding arrangements, riding only with men or only with women);
4. matchees were reluctant to contact and make arrangements with strangers; and
5. the applicant was never really interested or had lost interest since completing the application.

During the telephone brokerage call, the reason for a carpool not being formed was determined and appropriate action taken. If an applicant's work situation had changed or the application did not accurately reflect personal carpooling criteria, new or additional information was noted and the application was returned to the files to be rematched.

If there were not problems with the matches and no carpool was formed, the objective of the telephone brokerage call was to encourage organization of the carpool. In some cases, reluctance by people to make the initial contact with a stranger was a legitimate problem. For the first few worksites, if this was the difficulty, a three-way conference call between the carpool coordinator and potential carpoolers was arranged. Lack of time prohibited the continuation of conference calling at the later sites.

A final reason for no carpool being formed was a loss of interest. With manual matching and processing of applications, several weeks typically elapsed between rideshare marketing and receipt of a match letter. During an employee presentation, the benefits of carpooling may have seemed great and the cost of applying small. When a match letter arrived, the memory of the ridesharing benefits may have faded. Thus, by

recontacting people and answering their questions, telephone brokerage represented an important extension and reinforcement of the overall ride-share marketing strategy.

When it was learned that a carpool had been formed, a carpool record was established. Active carpools (those seeking additional members) were always checked for a match with new carpool applicants. For at least one site, it was found to be easier to form new carpools than to add people to existing pools. Of course, the ability to place drive alone applicants into existing carpools depends upon the number of existing carpools that had applied for new members and the number of places available in those pools, relative to the sheer volume of current drive alone applicants.

Due to a sharply increased monthly volume of carpool applications starting in October 1978, the office staff were forced to choose between timely mailing of match letters and prompt follow-up telephone brokerage calls. Several reductions in the extent of telephone brokerage were subsequently made. One of the first changes was the elimination of second and third phone calls to matched applicants. The single phone call served the same primary purpose as that served by the first of multiple calls:

- a. as a marketing tool, to encourage the applicant to contact others on their match list, and
- b. as a data collection tool, to determine whether the applicant formed/joined a carpool, and to update other application information

Conference calls were also eliminated due to the same staff time constraints that prompted the elimination of follow-up calls.

Another change that occurred during the second year of the program was that all telephone calls were eliminated for applicants indicating they were in carpools seeking additional riders. The assumption was that, for record-keeping purposes, a change in their status could be learned from drive alone applicants added to their pools.

Brokerage calls were typically made to employees at work. One problem that first occurred with the Northeast Minneapolis site was that some employees (usually those on assembly lines) were not allowed to come to the phone during work hours. This situation was resolved through evening telephone brokerage to people at their homes and the addition of home phone numbers in match letters. It should be noted that it was the telephone brokerage process that uncovered this obstacle to carpool formation. If employees couldn't come to the phone for brokerage calls, then they probably couldn't call to make matches either. The ability of employees to access a telephone for carpool formation during work hours can be an important fact to check in initial employer marketing.

The effectiveness of the telephone brokerage technique is discussed in detail in Section 6.5.

6.4 POSTCARD REACTIVATION AND FOLLOW-UP BROKERAGE

At the end of the demonstration's first year, a follow-up was conducted for "lost interest" drive alone applicants and for carpools no longer actively seeking new members. This was performed for the Pentagon Park and Central Bloomington sites. The purpose was to reactivate some of those people and interest them in forming new or larger carpools. Increasing the number of active applications while skipping the initial

step of marketing could have been a very efficient way of expanding the critical mass for matching at these sites. In the end, there was no great increase in active cards because the results of the mail-back follow-up were dismal.

At the Pentagon Park site, 297 postcards were sent to drive alones and 423 were sent to carpoolers (see Table 6-1). Only 11 percent of the drive alones returned postcards, of which 15 persons were interested in being reactivated and 17 were not interested. Similarly, just 15 percent of the carpoolers returned postcards, of which 25 persons were interested in having additional people in their carpool and 40 were not.

Postcards were mailed only to drive alones in Central Bloomington. There were 13 of 73 (18 percent) returned, of which only one person indicated an interest in receiving a match. For all returned cards, corrections were made for changes in work hours, addresses, etc., and in the case of people still not interested, cards were returned to the no interest file.

Because this attempt to reactivate lost interest people was so unsuccessful, the MTC Area Office recommended that the technique of follow-up postcards not be used again. Three and one-half days of staff time produced only 41 positive responses from 793 postcards mailed out. Since this was not as efficient as new site marketing or "old" site continuous marketing as a means of generating new applicants, the idea was abandoned.

The stability of the applicant pool at each site over time is illustrated in Figure 6.1. At many of the sites, the number of active applicants declines noticeably a couple of months after initial marketing,

TABLE 6-1

Postcard Reactivation Results

Group	Interest Inquiry Cards Sent Out	Cards Returned	
		Interest	No Interest
Pentagon Park:			
Lost Interest Drive Alones	297	15	17
Lost Interest Carpoolers	423	25	40
Central Bloomington:			
Lost Interest Drive Alones	73	1	12

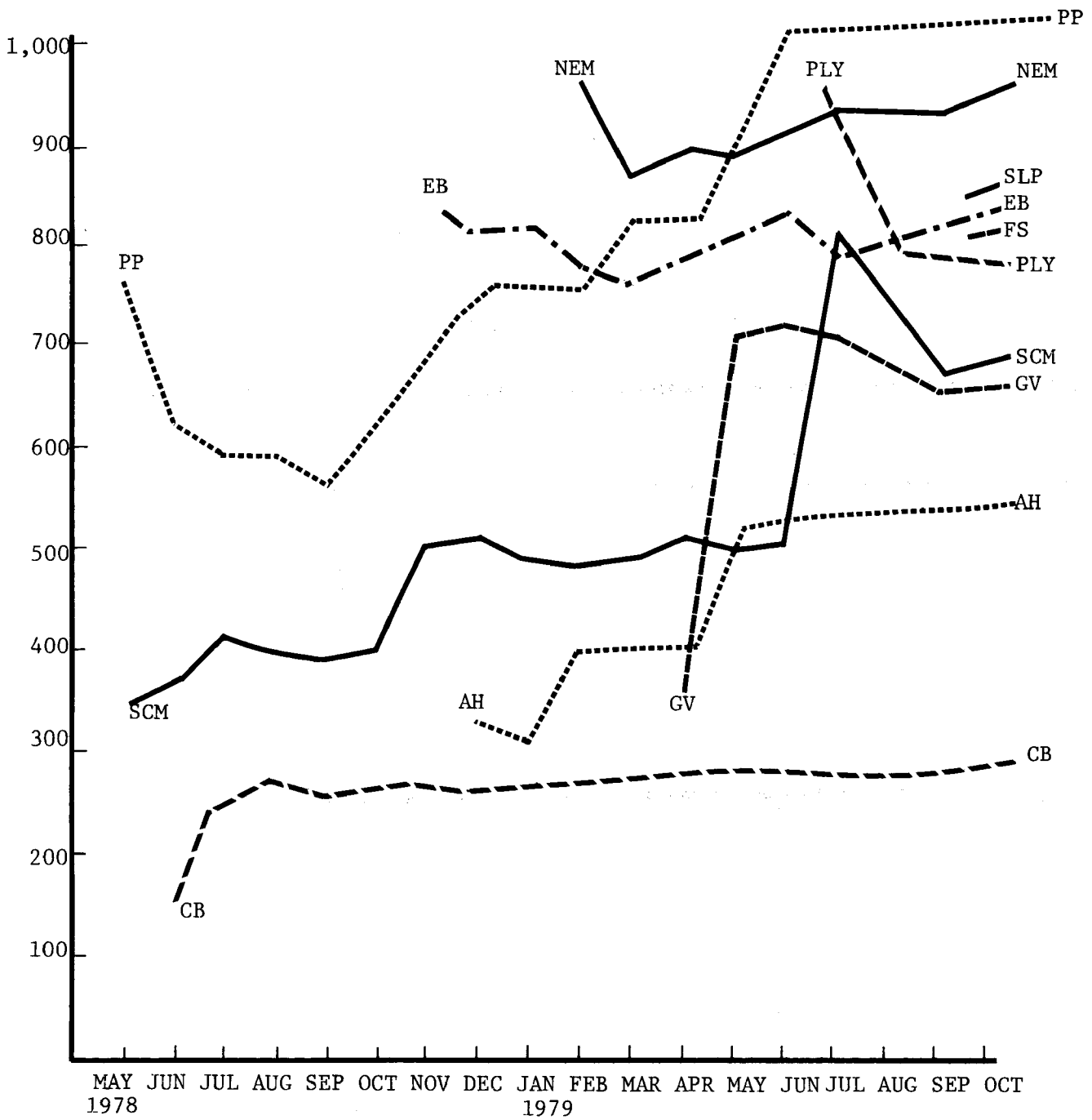


FIGURE 6.1

Total Active Carpool Applications on File by Site
 (includes drive-alone commuters and carpoolers still interested in receiving carpool matches)

SITE KEY: PP = Pentagon Park; SCM = South Central Minneapolis; CB = Central Bloomington; EB = East Bloomington; AH = Arden Hills; NEM = Northeast Minneapolis; GV = Golden Valley; PLY = Plymouth; SLP = St. Louis Park; FS = Fort Snelling

due to the process of telephone brokerage (which eliminates new carpoolers with no further interest in being matched and other "lost interest" applicants from the active file). The active applicant file subsequently increases at most of the sites due to continuing marketing activities and special marketing to new employees (particularly at Pentagon Park). (The sharp increase in S.C. Minneapolis applicants in July 1979 reflects a special re-survey there).

6.5 CARPOOL BROKERAGE ISSUES

The major issues concerning the Share-A-Ride carpool matching and brokerage effort were:

- the effect of marketing methods on the quality of matches and success rate of carpool formation;
- the usefulness of telephone brokerage as a marketing technique and as a data collection/updating device;
- the carpool placement success rate at the different sites.

These issues are part of a broader concern for the efficient and effective use of project resources. In some cases, the coordination between the separate organizations for marketing (Public Service Options) and brokerage (the MTC Area Office) contributed to both the occurrence and delay in resolution of the issues.

6.5.1 Marketing Effects on Matching and Brokerage

The separation of marketing and brokerage responsibilities between separate organizations contributed to problems concerning both the quality and the timing of applications. One issue, previously discussed in Ch. 5, concerned the effects of intensive hard-sell marketing strategies on the quality of applications. Mandatory attendance at

meetings occurred at various firms throughout the demonstration, although strong encouragement to submit an application was isolated to a few firms at the first demonstration sites. Nevertheless, there was a potential problem if a marginally interested person was placed in the brokerage system. There was no way to distinguish between applications of those who were very interested from those with mild interest or those who only applied because they thought they should. The inclusion of those with little or no interest in match lists could frustrate and discourage others who truly wished to form a carpool.¹

Periodic peaks in the rate of application submittal over time were the cause for some matching and brokerage backlogs. With two people to perform manual matching and conduct telephone brokerage, the MTC Area Office estimated that approximately 500 applications could be processed per month on a continuing basis.² This includes applications from new sites and continuing applications from old sites. Applications from

¹The tradeoff between maximizing the number of applicants and the "quality" of applicants was also observed in the Knoxville program. Surveys of matchlist recipients there revealed that aggressive attempts to encourage application rates among employees early in the program resulted in a significantly higher proportion of persons with no real intention to carpool (Juster et al., 1979).

²The Area Office staff consisted of an Office Manager, Carpool Coordinator and Secretary, of whom the latter two contributed to the matching and brokerage effort. Almost all of the actual matching and telephone brokerage was performed by the Carpool Coordinator, while the Secretary contributed by preparing cards for matching and maintaining file records, in addition to other tasks such as sending out requested transit information and receptionist duties.

continuing marketing and complete resurveys of "old" sites continued to increase as the program expanded, accounting for 100-200 applications per month by the second half of the second year. The growth in continuing ("old site") applications and applications from new site marketing contributed to application processing backlogs and subsequent delays in matching and brokerage.

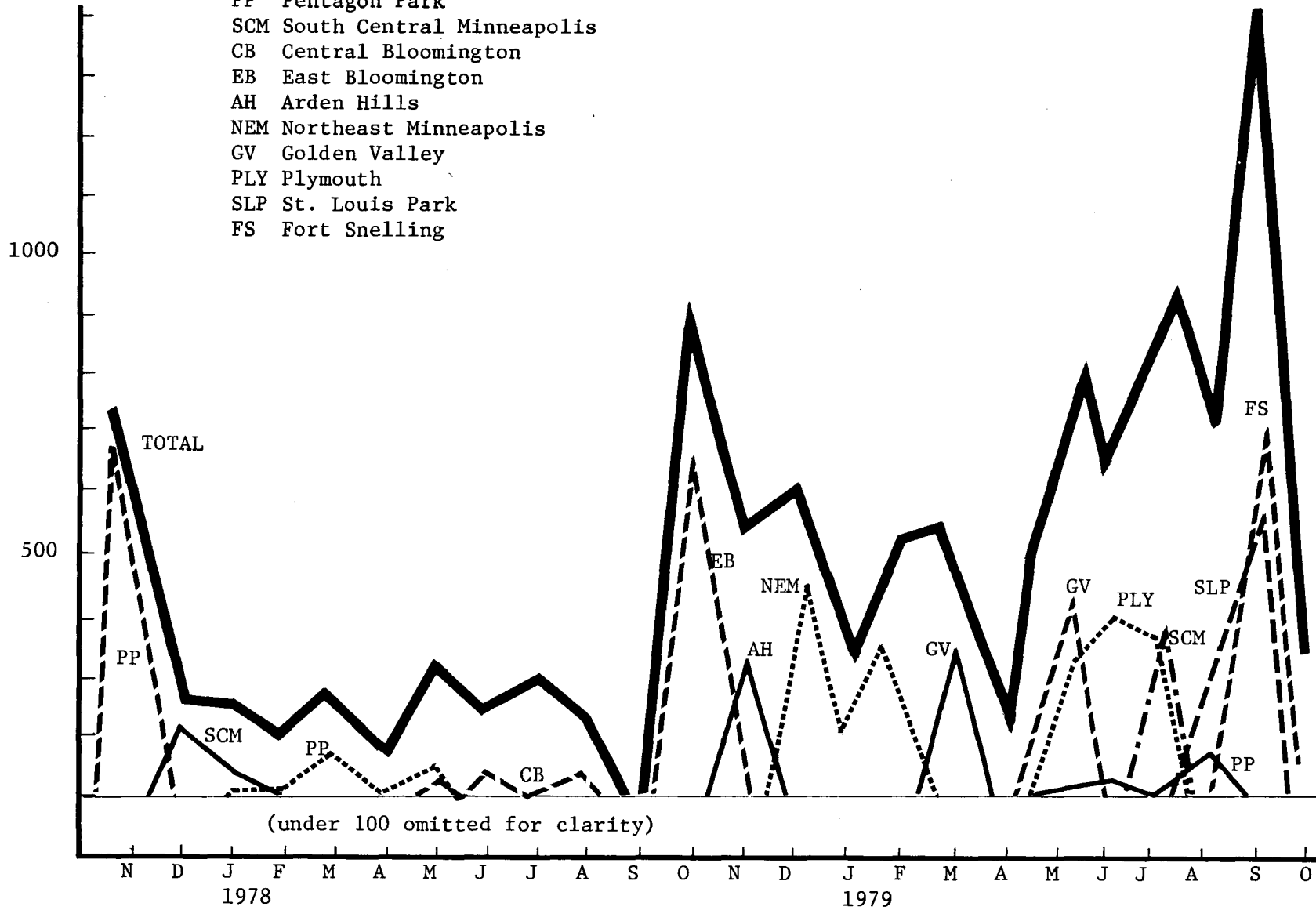
Figure 6.2 illustrates the timing between peaks and the impact of new site marketing on monthly application submittal.² Generally, the highest number of applications from each site were completed in the initial month of marketing; "old site" applications trickled in after that at a rate corresponding to the amount of follow-on marketing, new-hire marketing, and other factors such as availability and cost of gas or changes in bus service.

After the initial influx of applications from the Pentagon Park and South Central Minneapolis sites, the 500 applications-per-month threshold was not exceeded until marketing began in East Bloomington in October 1978. (This followed a decision to accelerate marketing to increase the cost-effectiveness of the program). In that month, almost 800 applications were received from just this one site. The arrival of this number of applications in one month put a substantial strain on the

² The monthly application rates shown in Figure 6.2 are not directly comparable to the application arrival rates reported in Table 5-1 due to a minor time lag between receipt of applications by Public Service Options and the forwarding of the carpool applications to the MTC Area Office.

KEY SITE

- PP Pentagon Park
- SCM South Central Minneapolis
- CB Central Bloomington
- EB East Bloomington
- AH Arden Hills
- NEM Northeast Minneapolis
- GV Golden Valley
- PLY Plymouth
- SLP St. Louis Park
- FS Fort Snelling



(under 100 omitted for clarity)

FIGURE 6.2

Carpool Application Cards Received Monthly by Site

matching/brokerage staff. Telephoning was suspended for the month and a second typist was employed temporarily to help prepare and mail match letters. The notion of "ideal timing" for sending match letters and following up with telephone brokerage had to be abandoned at this point due to the arrival rate of new site applications each month. Also, the number of telephone calls to each matched person was reduced from three to two for the East Bloomington site and then to one at subsequent sites.

Although application arrival from East Bloomington dropped off quickly, the matching/brokerage system had barely recovered when applications came in from Arden Hills in November and Northeast Minneapolis in December (1978). The Arden Hills site was the first one for which the master list of applicants was not used. Although this improved matching efficiency, match letters were not mailed for two to three weeks after applications were received; phone brokerage was not completed until January--two months after applications were received. Figure 6.3 illustrates the extent of telephone brokerage reductions in months where large numbers of applications were received.

One of the impacts of marketing on brokerage is exemplified by the application arrival pattern for Northeast Minneapolis. If matching was begun before all applications were received, the best matches may not have been found for early applicants. If matching was delayed to wait for all applications, however, the interest generated by initial marketing may have subsided. Faced with this dilemma, the decision was made for matching to proceed as soon as possible so that only second-wave applicants were mailed match lists that included all applicants at their

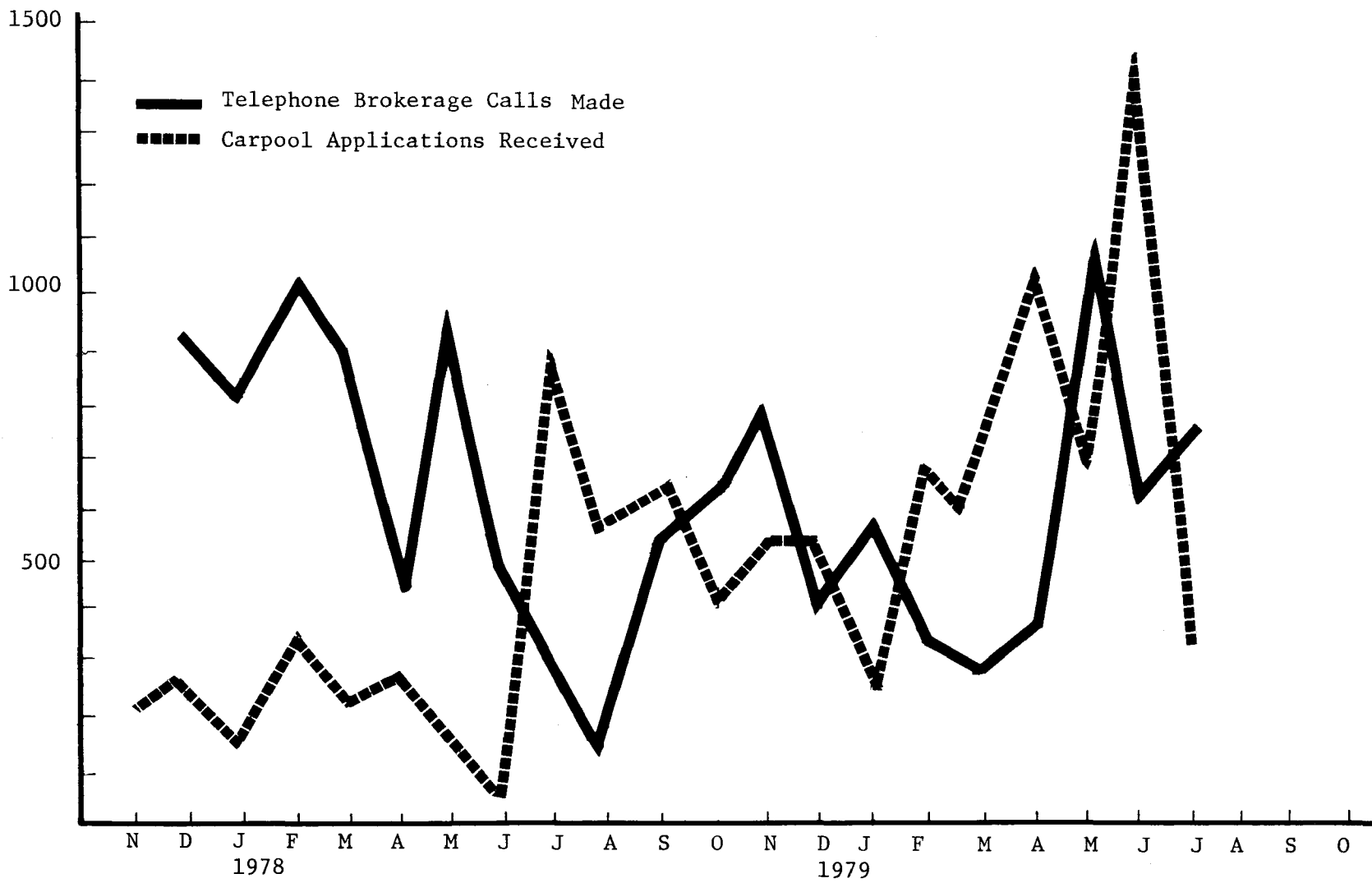


FIGURE 6.3

Applications Received and Telephone Brokerage Calls Made, by Month

work site. A rematch of early applicants was never planned or proposed, as there was not enough staff time to prepare and mail new match lists to early applicants who had already received first-wave match lists.

The introduction of Golden Valley and Plymouth sites into the program in the spring of 1979 kept the work level for the Area Office very high. There was no increase in the size of the Area Office staff at this time, even though it was recognized that the ability of marketing to generate applications out-stripped the staff capacity to perform matching and make telephone brokerage calls. In August 1979, a student intern was hired to assist part-time with the growing volume of matching and brokerage; in September, this assistance became full-time.¹

6.5.2 Effectiveness of Various Telephone Brokerage Strategies

The issue surrounding telephone brokerage revolves around the cost effectiveness of the technique. There are several potential advantages from having a follow-up to match letters and, specifically, having a telephone follow-up. These advantages are:

- it increases the number of people placed in carpools;
- it gives personal service, responsive to the needs of individual applicants;
- it acts as an automatic data updating and application purging system; and
- it confirms the number of people placed in carpools.

¹The addition of a third person to assist with matching and telephone brokerage increased the processing capacity of the Area Office to about 750 applications per month.

The disadvantage of telephone brokerage is that it is very time consuming. Approximately one-third of the total time taken to process each applicant was spent in telephone brokerage.¹ During most of the demonstration period, two persons in the MTC Area Office processed the applications; one of them spent a majority of her time doing telephone brokerage and the balance doing other application processing tasks. In a week in which telephone brokerage was done full time by this person, up to 400 brokerage calls could be made. On the other hand, it was estimated that elimination of telephone brokerage would allow a 60 percent increase in the number of applications that could be processed, from 500 to 800 per month.² As only one person made telephone calls at any time, the second staff member was always involved in other application processing or secretarial tasks.

Since telephone brokerage was time consuming and necessarily had to follow-all other tasks in the processing of applications from a particular site, it became a lower priority task. When the number of applications surpassed the staff capacity to process them, telephone brokerage was delayed while efforts were concentrated on sending out match

¹Processing applicants involved sorting applications, filing, manual matching and preparing match letters, in addition to telephone brokerage. Total processing time per application was estimated to be around 30 person-minutes.

²This also depends on the amount of time spent by the staff on other responsibilities, including continuing marketing at old sites, distribution of bus information and meeting with advisory committees.

letters. This, in addition to the reasons outlined below, make it difficult to assess the effectiveness of the telephone brokerage technique.

Measuring Effectiveness--Not enough data exist to assess the cost effectiveness of telephone brokerage, in terms of the number of additional drive alone applications placed in carpools relative to the staff time invested. The principle reason is that there were no records of the number of new carpoolers placed as a result of the match lists and prior to any telephone brokerage call. This information was ascertained during the telephone calls, but no records were maintained in a form usable for analysis. It was also not possible to estimate the number of new carpoolers that would have eventually contacted people from this list without the extra "push" from the telephone brokerage call. The importance of telephone calls as a means of correcting or amending application information is also unclear. While the recycling of applications with revised information might not have otherwise occurred, it is not known how many recycled applications received better matches the second time, nor how many rematched people subsequently joined pools. While it is probably true that updating of applications resulted in overall higher quality matches, there are no measures of the magnitude of such an effect.

There is a clear need for further analysis of the telephone brokerage technique in order to determine its effectiveness in increasing carpool placement rates beyond what would naturally occur with the more traditional strategy of mailing out match lists with no formal follow-up.

This information can be collected through a series of telephone surveys based on samples of applicants who were and were not subject to telephone brokerage calls. The extent of carpool placement between the time a match list is received and a telephone brokerage call is made can be measured by means of careful record keeping at the time of the telephone brokerage call. For those applicants not yet carpooling at the time of the telephone brokerage call, the success of the call as a tool to encourage subsequent carpool formation can be measured by a second phone call made several weeks later. It is desirable that such a carpool placement inquiry call also be made at the same time to a control group of applicants that had no previous telephone brokerage call. These survey calls are necessary only for a sample of applicants.

If it were possible to record the number of people joining pools as a result of only a match letter, the number joining because of a letter and a phone call, and the amount of staff time spent in each of these activities, the effectiveness of telephone brokerage in placing new poolers could be determined. As time-consuming as the recording of these data may be, without it it is unclear whether staff time priority should go to matching activities, continuing marketing activities, telephone brokerage or other tasks. Although the telephone brokerage process also helped track the number of new carpoolers, alternatives such as periodic resurveys and mail-back updating could also be employed for the simple purpose of record keeping.

Strategy Alternatives--There are a variety of possible levels of effort and technique variations for telephone brokerage. The issues involved in devising a telephone brokerage strategy include:

1. the number of follow-up telephone brokerage calls
2. the extent of selectivity in making telephone calls only to those market segments most likely to form carpools
3. the extensiveness of conference calls to introduce potential carpoolers relative to single calls to individuals
4. the time delay between mailing match lists and conducting telephone brokerage calls

As the Share-A-Ride program expanded, the extent of telephone brokerage was reduced to allow more staff time for preparing carpool match lists. As described earlier (Section 6.3), these reductions included: (1) the elimination of second and third telephone brokerage calls, (2) the elimination of all calls to applicants already in carpools and (3) the elimination of all conference calls. In addition, a study was made of the carpool placement rates at the Pentagon Park and East Bloomington sites to determine if placement rates were higher for applicants with longer home-to-work commute distances. The results of this study were inconclusive, so no change in telephone brokerage priorities was made.

Telephone brokerage offers a personal service to carpool applicants at the cost of substantial investment of program staff time. There is an optimal level of effort and timing to produce the most efficient placement rate. Telephone brokerage conducted in the Share-A-Ride demonstration program was characterized by a decreasing level of telephone calls per applicant and an increasing time delay as the program expanded. These changes were necessitated by staff time constraints, and were not part of any systematic experimentation with different levels of effort.

Thus, it can only be concluded that telephone brokerage is a potentially important technique for carpool placement which should be the subject of further investigation.

6.5.3 Carpool Applicant Placement Rate

The ability of the Share-A-Ride program to carry through the marketing effort by placing individuals in operating pools is, in the final analysis, a key criterion of success. Over the course of the first two years, over 80 percent of ridesharing applicants were provided with the name of at least one potential ridesharer, but just 17 percent of these matched applicants (14 percent of all applicants) were successfully placed in pools.¹ Both the high match rate and the relatively lower carpool placement rate for matched individuals are to be expected, in light of the liberal definition adopted for matching suitability. In addition, the placement rate is reduced by the extent of applications that do not represent a serious interest in carpooling. This explanation is supported by the large number of "lost interest" applications: Under the telephone brokerage system, in where each matched applicant was contacted following submission of his/her application, 34 percent of drive alone applicants were found to be no longer interested in ridesharing services.

¹This rate (which excludes the Ft. Snelling site; see Table 6-2 and footnote) is nevertheless significantly better than both the 2 to 4 percent achieved in Knoxville (Juster et. al., 1979) and the 10 percent average found in a survey of company-sponsored carpool matching programs (Johnson and Son, 1977). The proportion of total site employees placed into carpools is discussed in Chapter 10.

There was a significant variation among sites in the success of the brokerage operation in placing applicants into carpools. This variation was attributable to a number of factors including the marketing effort, characteristics of sites, and timing. The issue of carpool placement rate at different sites is important insofar as it yields insight into how future money and effort should be spent to optimize the efficiency of carpool programs.

The placement rate of the carpool brokerage effort is measured here as the ratio of former drive alone applicants verified to be carpooling to the total number of drive alone applications received to date. This measure of carpool placement rate is meant to be interpreted as an indicator of relative differences between sites. There are several factors that complicate any interpretation of the absolute magnitudes of the carpool placement rate. These are:

1. Applications for matching from current carpools are not reflected in this placement rate measure.
2. The denominator includes "lost interest" drive alone applicants, some of whom may never have been really interested in ride-sharing. There is some evidence that the proportion of applicants who lose interest is related to the extent of mandatory promotion meetings and mandatory surveys at the site.¹
3. The carpool placement rate is held down by the extent to which drive alone carpool applicants subsequently join vanpools.

¹For example, Pentagon Park, which had the largest levels of "mandatory meeting" applications, would have a success rate of .279 (instead of .133) if lost interest drive alones were excluded from the denominator of the ratio. At the Northeast Minneapolis, however, the revised placement rate would rise only to .181 (from .135).

4. The number of verified new carpoolers is only an approximation of the number actually pooling, since people join and disband carpools faster than the carpool office becomes aware of the changes in their pooling status.¹

Although the carpool placement rate is only an approximation, it is useful as a measure of the relative success of the carpool matching and brokerage effort for different sites.

Table 6-2 presents the placement rate for all the sites (column 1) as well as the actual number of verified new carpoolers (column 2). The carpool placement rate can be related to a number of other factors also noted in this table: the size of the applicant pool (column 3), the proportion of applicants that are not already in carpools (column 4), various unique site characteristics (column 5), the period of time elapsed since initial site marketing (column 6), and the time delay between mailing of match lists and telephone brokerage calls (column 7). The remainder of this chapter discusses each of these various factors affecting the carpool placement rate. (For data on other site characteristics and levels of marketing penetration, the reader may refer back to Tables 4-1 and 5-4).

One of the primary factors affecting placements at sites is the number and type of applications which are submitted. The larger the number of applicants at a given site, the better the chance of finding

¹The reduction, during the course of the demonstration, from three telephone brokerage calls per applicant to one only made it more difficult to keep accurate records on the status of applicants. The postcard reactivation for carpoolers applicants at Pentagon Park (about a year after initial matching and brokerage) revealed that in many cases the Area Office carpool records were out-of-date. In addition, the measure of verified new carpoolers can be considered, in that it excludes new carpoolers who never filled out an application, but nevertheless became part of carpools registered with Share-A-Ride.

TABLE 6-2

Carpool Brokerage Summary by Site (as of October 31, 1979)

Site	<u>Verified New Carpoolers</u>		Total Carpool Applications to Date (Includes Current Carpoolers)	% Drive Alone of Remaining Active Applicants	Unique Site Characteristics	Months Since First Marketed	Weeks Between Match Letter and Phone Call
	As % of Drive Alone Applicants	Number					
1. Pentagon Park	13.3%	287	2,521	66.5%	dispersed work hours	22	2-3
2. S.C. Minneapolis	14.4	175	1440	49.1	rotating shifts	21	2-3
3. Cen. Bloomington	15.8	64	456	69.5	many shifts	17	2-3
4. East Bloomington	17.9	196	1,210	67.5		13	7-8
5. Arden Hills	12.0	70	681	73.5	lack of critical mass of applicants	12	7-8
6. NE Minneapolis	13.5	137	1,278	65.1	companies far apart	11	7-8
7. Golden Valley	10.1	69	868	67.7	large number already pooling	8	4-5
8. Egan ¹	Not Available	Not Available	1,472 ²	Not Available		6	No Phone Calls
9. Plymouth	14.4	129	1,087	62.5		5	8-9
10. St. Louis Park	9.2	70	945	70.9		3	2-3
11. Ft. Snelling ³	5.4	37	838	79.1	rotating shifts	1	2-3
Total (excluding Ft. Snelling)³	13.0 (13.6)	1,234	11,335	67.0			

¹Egan site was subject to the normal share-a-ride marketing program, but all subsequent carpool matching was performed by the Univac facility there. There was no telephone brokerage or other means to count the number of new carpoolers resulting.

²Includes vanpool applications

³Carpool matching and brokerage at Ft. Snelling was not completed until January 1980. (By that time, an estimated 17.5% of all drive alone applicants from that site were verified carpoolers)

each applicant a good match. This functional relationship is illustrated by Figure 6.4, which shows the theoretical probability of finding matches in the same residence zone based on the total number of employee applicants, given the hypothetical situation in which employees are distributed equally among 500 uniform size residence zones. Given this simplifying assumption and a situation with 1,500 applicants at one work site having the same working hours, for example, the probability of finding a match is about 85 percent; with 500 employees it drops to about 25 percent. With a small base of applicants, a marginal increase in applications results in a large increase in matching probability and quality. At some point a theoretical threshold is reached beyond which each additional application has a lesser impact on the matching probabilities. Nonattainment of this threshold or "critical mass" is the major reason why relatively few applicants were placed in carpools in the Arden Hills site.

In analyzing the carpool placement rate at the various sites, it is important to take into account the proportion of the pool of applicants who drive alone and the period of time since initial site marketing. The placement rate is computed on the basis of drive alone applicants placed in carpools; applications from current carpools are not part of the placement rate computation although their existence does increase the probability of placing a drive alone applicant into a carpool.¹

¹Some carpools registered with the Share-A-Ride program in order to obtain a preferential parking spot rather than due to an interest in obtaining additional riders.

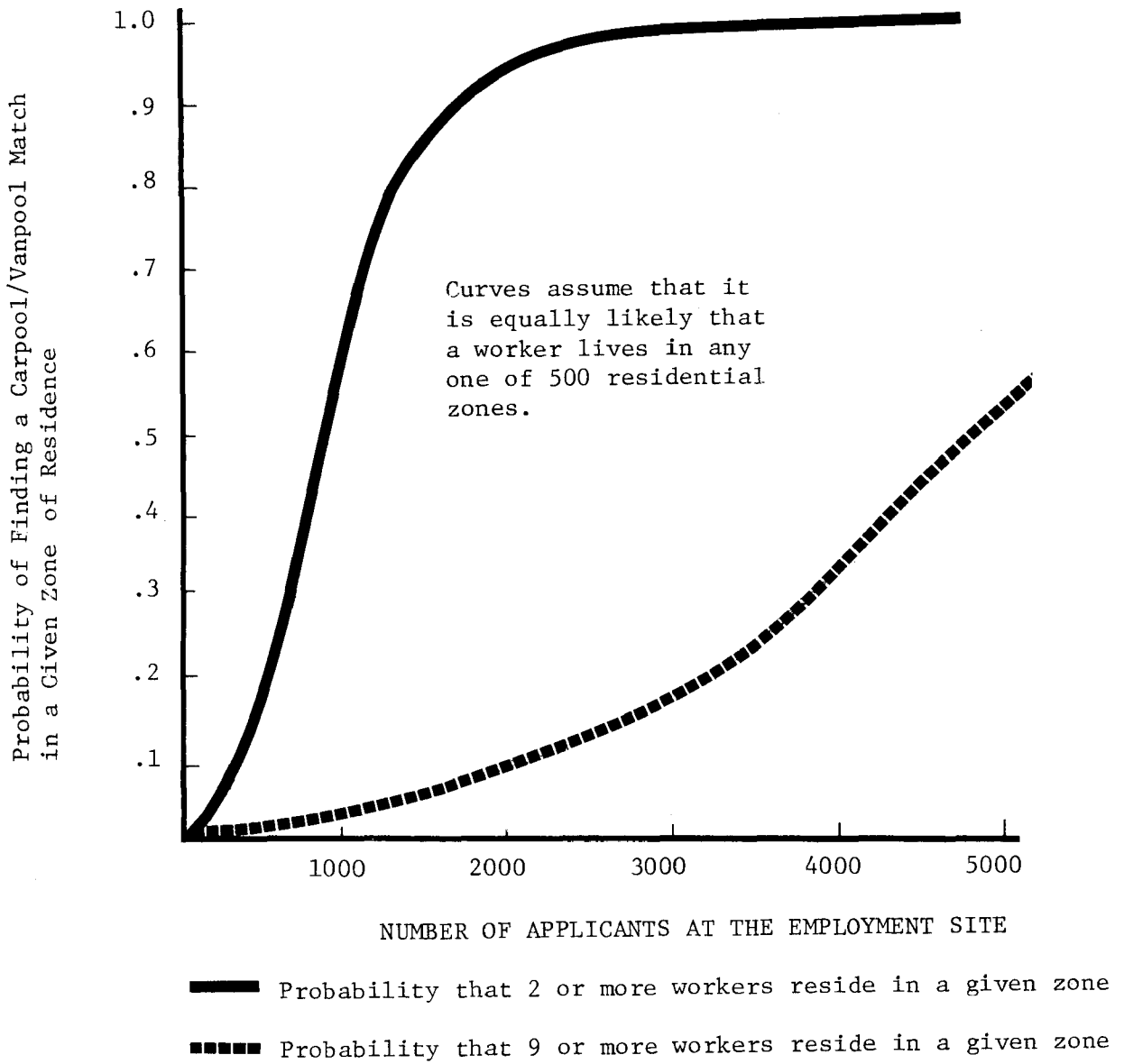


FIGURE 6.4

Effect of Application Base Size on Probability of Finding
Carpool/Vanpool Matches

Note that in the newer sites of St. Louis Park and Ft. Snelling, where the carpool placement rate to date is relatively low, there is a relatively high proportion of active applicants who drive alone. As these people are called by phone, the placement rate will increase and the drive alone proportion of remaining applicants will decrease. It is generally expected that the placement rate will be higher at the older sites, which would have the benefit of some continuing marketing promotion, new hire marketing and remarketing surveys.

Unique site characteristics which may have affected the demand for carpooling are also listed in Table 6-2. For example, at the Northeast Minneapolis site, the highway system created physical barriers to easy auto travel between sections of the work site. Another problem, prevalent in part of S.C. Minneapolis and Ft. Snelling which have hospitals, was rotating work shifts. It is virtually impossible to form multi-employer carpools with people whose work hours change each week. The extent to which these problems reduced the carpool placement rate at those sites is not known, however.

Finally, the time delay between mailing of match lists and telephone brokerage calls may have had an impact on the placement rate at sites. It was felt by the Area Office staff that, under ideal circumstances, match letters should be mailed a week to ten days after an application was submitted and a phone call should follow two (or at most three) weeks later. This goal was met during the program's first year. The accelerated site marketing schedule and increased inflow of applications in the second year exceeded the capacity of the MTC Area Office to maintain the

matching and telephone brokerage schedule. Priority was therefore given to matching applicants, and telephone brokerage at each site was delayed as much as two months. It is not known how many people who would have joined pools were not placed due to the loss of momentum in the brokerage process.

The increase over time in the number of drive alone applicants verified as new carpoolers is illustrated in Figure 6.5.

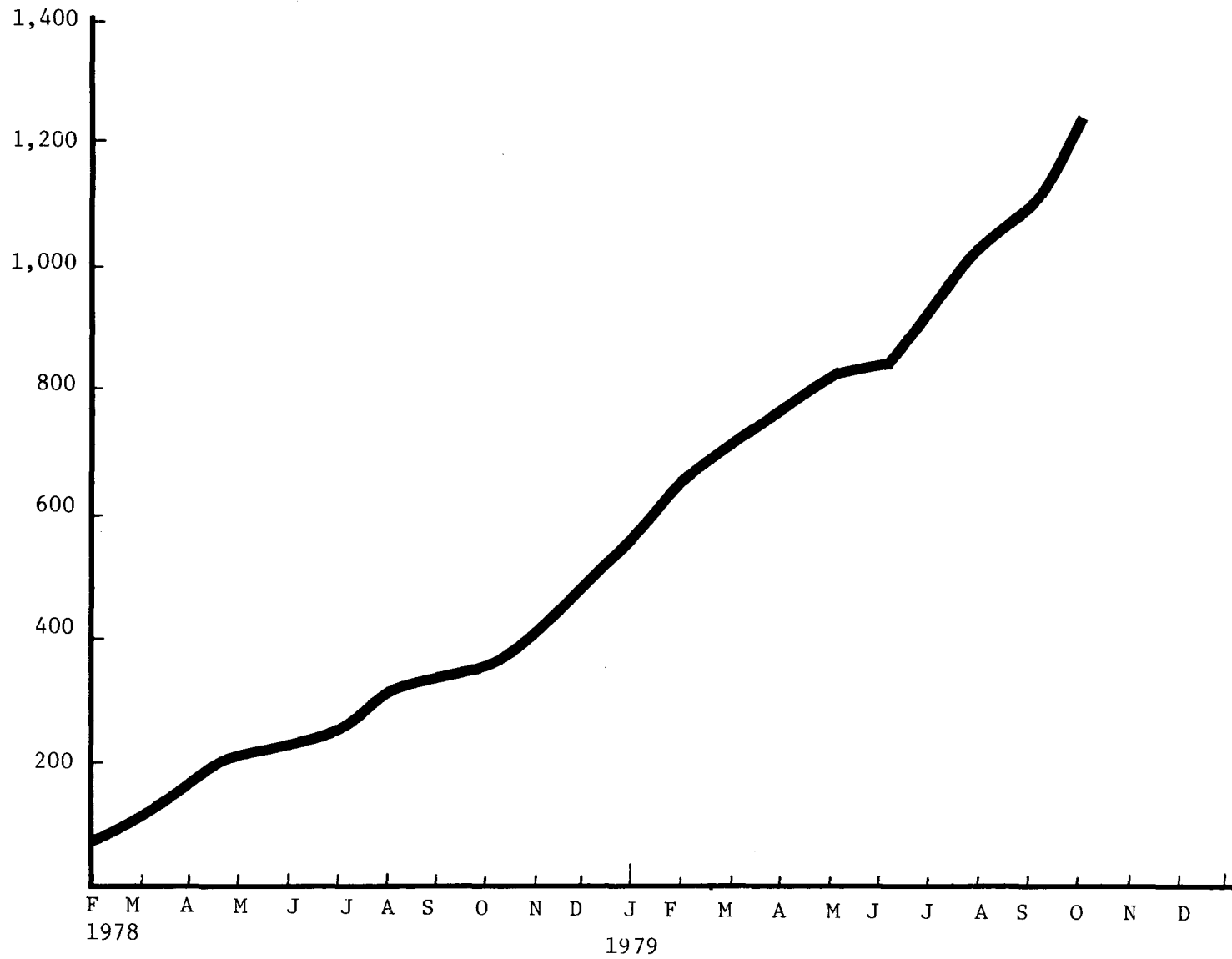


FIGURE 6.5

Verified Carpoolers Added
 (formerly drove alone)

CHAPTER 7

VANPOOL PROGRAM OPERATIONS

7.1 OVERVIEW OF PROGRAM OPERATIONS: ORGANIZATION AND RULES

7.1.1 Role of Van Pool Services, Inc.

Vanpool operations of the Share-A-Ride program were managed by Van Pool Services, Inc. (VPS), a subsidiary of Chrysler Corporation. VPS was under contract to the Metropolitan Transit Commission (MTC) as a "third-party provider" and was responsible for several aspects of the vanpool program including initial matching; van provision, maintenance, and insurance; and driver selection and training. VPS collected fees for the service directly from the van driver/coordinators (who collected them from the riders) and was responsible for helping to maintain van occupancy at a minimum of nine passengers.

The use of a third-party provider to supply vans differentiates this program from most other currently-existing vanpool programs. In most public vanpool programs, the program operator purchases the vans and leases them to drivers (and in some cases, eventually sells the vans to the drivers). In Minneapolis, vans were leased by VPS from a local Chrysler dealer and made available to vanpool groups. The lease cost, along with gas and maintenance costs, were covered by the monthly fares collected from van riders. Van insurance, van licenses, VPS administrative costs, and holding costs (lease charges) on vans not in service within two weeks after becoming available for use were subsidized by MTC.

Marketing--Although PSO had primary responsibility for marketing the entire Share-A-Ride program, VPS played a supplementary role in marketing the vanpool program. At the initial three demonstration sites, members

of the VPS staff were present at employee presentations to answer questions about vanpooling. During the second year of the demonstration, VPS participation in Share-A-Ride site marketing was reduced as the staff spent considerable time marketing and setting up vanpools for off-site employers.¹ VPS did continue to be involved in overall program marketing by helping to develop and refine marketing strategies and promotional materials pertaining to vanpooling.

Matching--The matching procedure used for vanpoolers was very similar to the manual method used by the MTC Area Office for carpoolers. All vanpool applications were forwarded to VPS where they were filed by work location. Within each work site, applications were separated by home zip code and within each zip code, they were sorted by work start/end times. Since not all applicants who were matched actually joined a vanpool, VPS sought to match as many as 15-20 people with similar residential locations and work hours. Adjacent zip code areas and slightly different start/end times were checked in an effort to increase the number of people in each matched group. Arrangements could sometimes be made by these people to change their work hours or meet the van at a place other than their home.

Vanpool Group Formation Process--The names, addresses, phone numbers, employers, and work hours of matched vanpool applicants were recorded on vanpool match sheets--one sheet per group (see Appendix A). Two methods were used for contacting applicants and starting the vanpools: organizational meetings and driver contact by phone. Organizational meetings

¹Firms not part of a multi-employer comprehensive rideshare marketing site are off-site employers. See Section 7.4 for a detailed discussion of this VPS activity.

were originally planned for the establishment of all vanpools and were used at the first two demonstration sites and later at some single employer "off-site" locations. As with the carpool organizational meetings, the vanpool formation meetings required significant staff time and often had small turnouts. Although meetings were potentially the most personal method of establishing vanpools, this approach had to be abandoned as the vanpool program grew and VPS staff time was limited.

The alternate method that was adopted for organizing vanpools was to contact a prospective driver/coordinator for each potential vanpool group, send that person a vanpool match list and have him or her call each person on the list. Prospective vanpool group driver/coordinators were identified either by a preference for driving indicated on an application or through direct telephone solicitation by VPS of vanpool applicants to accept the role, starting with those on the match list living the furthest from work. The application cards used for presentation meetings and literature distribution at the original three sites (Appendix A, exhibit 7) did not ask for vanpool rider or driver preference (see Appendix A), although the question was added for the subsequent sites (Appendix A, exhibits 8, 9).

In addition to residence location with respect to riders and indication of interest in coordinating a vanpool, criteria for selecting drivers included:

- Review of driving record,
- Recommendation of driver's employer as to attendance, punctuality, etc.,
- Age and physical condition, and
- Ability and willingness to obtain the proper (chauffeur's) driving license.

7.1.2 Driver and Passenger Responsibilities

Vanpool Driver Responsibilities and Benefits--Prospective vanpool drivers were responsible for contacting the applicants on their lists. They were permitted to solicit passengers who were not on the match list since a vanpool could be started whenever commitments were made by at least nine passengers. Drivers, with the help of VPS, were expected to recruit a back-up driver, check the van route mileage (to determine monthly fares), and obtain a Minnesota Class B license.

Vanpool driver/coordinators and backup drivers were expected to sign an agreement with VPS which outlined driver responsibilities and van and service provision by VPS. A copy of this agreement is in Appendix A, exhibit 12. Basically, the driver agreed to:

- collect fares and turn them over to VPS
- record the monthly odometer mileage
- purchase gas and maintain the vehicle
- drive the van (or arrange an alternative)
- give 30 days notice for termination of agreement
- pay a \$100 deductible for van damage if it occurred during personal use

In return, the driver was entitled to:

- a free commute trip
- personal use of the van at the cost of gas only for the first 200 miles per month and gas plus 8¢ per mile over 200 miles per month
- one-half the amount of fares collected over the monthly van operating cost¹
- reimbursement for maintenance and (commuting) gas

Vanpool Passenger Responsibilities--Vanpool passengers were expected to sign a memorandum of understanding in which they agreed to:

- meet the van on time
- notify the driver in advance if they could not meet the regular van schedule

¹See discussion of the fare structure in Section 7.2.

- make other commuting arrangements when they elected not to vanpool
- pay their monthly fare to the driver
- solicit riders to fill a van with less than nine passengers
- notify VPS 15 days in advance of withdrawal from the vanpool

A copy of the passenger memorandum of understanding (which back-up drivers also completed) is in Appendix A, exhibit 13. There was no policy for back-up driver compensation; this was determined by mutual consent of the regular driver and the back-up driver.

7.1.3 Vanpool Operations and Rules

Vanpool operating rules and, to some extent, fare modifications were left to the discretion of each vanpool driver/coordinator and passengers. These rules include van route and schedule, pickup points, rules concerning waiting for late passengers, making stops en route, smoking, playing the radio, and alternative travel means when the van was being serviced, as well as modification of passenger fares. Rules for fare modifications are discussed in Section 7.2.4. The reader is referred to Chapter 9 for an analysis of vanpool service characteristics and attitudes toward vanpooling.

Backup Vehicles--Van Pool Services initially provided a backup van when assigned vehicles were being serviced. As the number of pools grew and staff time to shuttle vans became very limited, VPS encouraged the use of two or three carpools on days the van was not available, and began to limit use of this backup van service. These car drivers were reimbursed by VPS at the rate of 15 cents per commute mile.

7.1.4 Vehicle Description

The vehicles were one-ton, 12-passenger Dodge Sportsman B-300 vans (see Figure 7.1). They featured:

- automatic transmission
- power front disk brakes
- power steering
- air conditioning in front
- heaters in front and back
- bench seats
- color-keyed carpeting and interior package
- AM radio
- safety features: seat belts, dual exterior mirrors and reflection kits

7.2 FARE STRUCTURE AND COST ACCOUNTS

7.2.1 Fare Structure

The total monthly fare for each van was based on a fixed cost equal to the dealer leasing charges (and, in the first year, van insurance), plus a variable component based on total monthly commute miles and a fixed operating charge per mile. The complete fare schedule effective September 1, 1979 is shown in Table 7-1. The "total cost per month" at that time was computed on the basis of a \$215 fixed monthly charge plus a commute mileage charge of 14 cents per mile multiplied by total daily commute miles and an assumed 21 commuting days per month. Van Pool Services listed suggested fares for different vanpool occupancy rates. No



7-7

FIGURE 7.1

Share-A-Ride Van

TABLE 7-1

Van Pool Services Inc. Passenger Fare Sheet

Van Pool's Daily Round- trip Mileage	Monthly Fare 9 Passengers in Van Pool	Monthly Fare 10 Passengers in Van Pool	Monthly Fare 11 Passengers in Van Pool	Total Cost per Month
20	\$30.45	\$27.40	\$24.90	\$273.80
25	\$32.10	\$28.85	\$26.25	\$288.50
30	\$33.70	\$30.35	\$27.60	\$303.20
35	\$35.35	\$31.80	\$28.90	\$317.90
40	\$37.00	\$33.30	\$30.25	\$332.60
45	\$38.60	\$34.75	\$31.60	\$347.30
50	\$40.25	\$36.20	\$32.95	\$362.00
55	\$41.90	\$37.70	\$34.25	\$376.70
60	\$43.50	\$39.15	\$35.60	\$391.40
65	\$45.15	\$40.65	\$36.95	\$406.10
70	\$46.80	\$42.10	\$38.30	\$420.80
75	\$48.40	\$43.55	\$39.60	\$435.50
80	\$50.05	\$45.05	\$40.95	\$450.20
85	\$51.70	\$46.50	\$42.30	\$464.90
90	\$53.30	\$48.00	\$43.60	\$479.60
95	\$54.95	\$49.45	\$44.95	\$494.30
100	\$56.60	\$50.90	\$46.30	\$509.00

Prices listed are effective September, 1979, and are subject to change.
 Van Pool Drivers ride for free, and are not included as passengers in these fares.
 Mileage is determined by the total distance the van travels each day, not by each individual's drive alone commute.

one was required to pay more than the "nine-passenger" fare (unless occupancy was less than nine for several months). At the driver's discretion, all riders in 10- and 11-passenger vanpools could be asked to pay the "nine-passenger" fare. Table 7-2 shows the change in passenger fares during the program. These adjustments are explained in terms of changes in fixed costs and vehicle operating costs in the following sub-sections.

7.2.2 Fixed Costs

The three major categories of fixed program costs were vehicle leasing, vehicle insurance and administration. Lease costs were paid through the fixed portion of passenger fares, while administrative costs and insurance costs (after November 1978) were subsidized by outside program funding.

The original 20 vans (1977 model year) were obtained by closed-end leases, with VPS agreeing to a 7 cents per mile penalty payment for vehicle mileage in excess of 45,000 miles at the end of three years. All later leases were open-end, which means VPS guaranteed specified resale value for each vehicle but had no mileage stipulation. Table 7-3 shows the monthly vehicle lease costs. Rising interest rates and the rising capital costs of vans were the principal reasons for the increases in lease costs over time.

The level of insurance for each van has been:

- bodily injury and vehicle liability--\$500,000 combined single limit
- personal injury protection--\$30,000 no-fault aggregate¹

¹Originally, this was \$10,000/person, \$20,000/accident.

TABLE 7-2

Change in Monthly Vanpool Fares

Effective Date		Round Trip Miles				
		50	60	70	80	90
November 1977	Total Cost	\$364.50	\$383.40	\$402.30	\$421.20	\$440.10
	"Eleven-Passenger" Fare	33.15	34.85	36.60	38.30	40.00
November 1978 ¹	Total Cost	299.50	318.40	337.30	356.20	375.10
	"Eleven-Passenger" Fare	27.25	28.95	30.70	32.40	34.10
June 1979	Total Cost	331.00	356.20	381.40	406.60	431.80
	"Eleven Passenger" Fare	30.10	32.40	34.70	37.00	39.25
September 1979	Total Cost	362.00	391.40	420.80	450.20	479.60
	"Eleven Passenger" Fare	32.95	35.60	38.30	40.95	43.60

Total Cost = Fixed Monthly Cost + (Daily Round Trip Miles * 21 Days * Per Mile Cost)

Small increases (resulting from higher gas prices) effective March and April, 1979 have not been shown.

¹Vanpool fares decreased in November 1978 because van insurance cost became the responsibility of MTC and was no longer included in determining the monthly fares.

TABLE 7-3

Van Costs Included in Passenger Fares

	Nov. 77- Oct. 78	Nov. 78- Feb. 79	Mar. 79	Apr. - May 79	Jun. - Aug. 79	Sept. - Nov. 79	Dec. 79
<u>Fixed Monthly Cost</u>							
Lease Cost	\$205	\$205	\$205	\$205	\$205	\$215	\$225
Insurance (Liability Only)	<u>65</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	\$270	\$205	\$205	\$205	\$205	\$215	\$225
<u>Per Mile Operating Cost</u>							
Maintenance	\$.025	\$.025	\$.025	\$.025	\$.030	\$.035	\$.035
Gasoline	<u>.065</u>	<u>.065</u>	<u>.070</u>	<u>.075</u>	<u>.090</u>	<u>.105</u>	<u>.105</u>
Total	\$.090	\$.090	\$.095	\$.100	\$.120	\$.140	\$.140

- property damage--\$50,000
- uninsured motorist, bodily injury--\$25,000/person,
\$50,000/accident
- excess liability on vehicle--\$2,000,000
- general liability--\$1,000,000
- collision, fire and theft--\$100 deductible¹
- comprehensive--\$100 deductible¹

Until November 1978, a \$65 monthly insurance charge had been included in computing the fixed portion of passenger fares. Effective November 1978, the insurance coverage was transferred from the Allstate Insurance Company to the Hartford Accident and Indemnity Company, with Van Pool Services now self-insuring the vans for collision and comprehensive damage. This reduced the monthly insurance policy cost to about \$35. At the same time, the MTC agreed to underwrite the insurance costs as part of a decision to expand the demonstration program and in an effort to stimulate vanpool ridership. With insurance costs no longer a component of fare determination, vanpool fares decreased approximately five dollars per month. Since new site marketing efforts were simultaneously increasing the market for vanpools, it is difficult to judge the demand response to this price reduction (see discussion of vanpool formation and occupancy in Section 7.3).

Total administrative costs for the vanpool program included the VPS budget, part of the PSO budget for marketing and part of the MTC budget for administration of the overall ridesharing project. All administrative costs were covered by the MTC project budget. The cost of a

¹No deductible for commute trips.

two-year contract with VPS was \$160,000; the other administrative costs are detailed in Chapter 10, "System Productivity and Economics."

7.2.3 Gasoline and Maintenance Charges

Table 7-3 also lists the per mile gas and maintenance charges which were used to compute passenger fares. Over the course of two years, these per mile charges rose by more than 50 percent. This was the result of rising gas prices and higher than expected van use which caused maintenance costs to increase.

The gas and maintenance charges were estimates of the average per mile cost for all vans since driver reimbursement based on gas and service receipts was determined to be too complicated. The fare calculation assumed that average fuel usage for vans was ten miles per gallon, and the last increase in mileage charges in September, 1979 anticipated a price of \$1.05 per gallon.¹ Because they were reimbursed on a set mileage amount rather than actual costs, drivers who purchased gas for less than the VPS estimated price or who drove more fuel efficient vans benefited financially.

Maintenance charges were estimated from past service records of Dodge Royal Sportsman vans. It is not possible to determine how close these fees matched costs since full cost information was not available from the Detroit office of Chrysler (which had ultimate responsibility for VPS

¹Drivers of 1977 vans (which used leaded gas) were compensated at 10 cents per mile, while drivers of 1979 vans (which used unleaded) received 10.5 cents per mile. Since passenger fares did not vary by van model year, all fares were computed using 10.5 cents per mile for gas.

accounting records). The increase in maintenance charges from 2.5 cents to 3.5 cents per mile was made in response to higher than anticipated vehicle mileage. The original lease and maintenance charges were estimated on the basis of an expected average of 50 daily commute miles per vehicle. In fact, the average commute mileage was 68 miles as of October 1979. As early as February 1978, vehicles were exchanged between vanpool groups in an effort to equally distribute the total mileage accumulated on each vehicle. The maintenance cost increase was determined from expected increases in repair costs due to rising mileage and to cover additional lease costs due to excess mileage or lower-than-expected vehicle resale values.

Van repair costs over the course of the program were very small. With over 600,000 vehicle miles travelled in two years, there were only two accidents: a minor collision and a more serious collision with a truck. Total repair costs for the two accidents and for several windshield replacements was \$3,375. There have been no liability claims from the accidents.

7.2.4 Fare Adjustment for Occupancy Levels

Driver Adjustment of Fares--For certain policies, such as fare collection, VPS established guidelines but allowed flexibility for each van group to determine the details. As was shown in Table 7-2, VPS computed van passenger fares for different numbers of riders in one van. Van drivers could collect the highest (nine-passenger) fare from each of ten or eleven passengers and keep half of the revenue collected in excess of the van cost. Only one driver opted for this; the others chose to keep

fares low by splitting costs among all passengers. In addition, a few drivers who lived much further from work than their passengers, voluntarily contributed a monthly van fare to keep their passengers' fares at a reasonable level.¹

Below Breakeven Ridership--Officially, the highest vanpool fare is one-ninth of the total cost of leasing and operating the van. Vanpools which fell below the nine-passenger breakeven level were given a grace period during which revenue lower than costs would be accepted if each rider paid a "nine-passenger" fare. At the end of the grace period (one to three months depending on demand for vans by other groups) vanpools would be disbanded unless additional riders were recruited or the remaining passengers split the entire van cost.² Some passengers chose to pay higher fares to keep their vanpool operating, and in at least one case, the driver contributed a fare. During the first year of the program when there were only six vans, the grace period for below break-even ridership was often extended in an effort to keep passengers in the program.

Vacation-Period Fare Adjustment--A policy of fare adjustment for passenger vacation months was never adopted by VPS and as a result, some people stopped vanpooling for one month rather than pay for two or three

¹Monthly van cost was based on total commute miles of the vehicle and not on any individual's distance from work. The further a driver lived from the passengers, the higher the total monthly cost of operating the van. When the driver contributed a van fare, passenger fares were kept in line with the actual cost for their commute distance to work.

²At the time of this report, the grace period is one month.

weeks of commuting which they were not going to use. During the first year of the program when vans were not full, these dropouts were practically guaranteed seats when they were ready to return. In the meantime, the program would have to subsidize the vanpool if this dropped its occupancy below nine passengers. This problem disappeared in the second year of the program when van occupancy levels became much higher. (See the discussion of van occupancy rates in Section 7.3.)

7.3 VANPOOL APPLICATIONS AND FORMATION RATES

7.3.1 Applications

Vanpool applications were submitted at employee marketing presentations, by mail, from new-hire presentations, and from continuing marketing efforts at "old" demonstration sites. The same application form was used to indicate an interest in vanpooling and carpooling and, indeed, many people did indicate an interest in being matched for both. The fluctuation in vanpool application submittal was proportional to that of carpool applications (as was illustrated in Figure 6.1); both reflect the level of new marketing and old-site remarketing which occurred in the previous month.

Table 7-4 lists the number of vanpool applications submitted by month for employees at all Share-A-Ride sites. The numbers for November 1977 through October 1978 are estimates since actual counts were not kept for this period. They are accurate to within ± 10 percent. There are no counts for applications received from employees at off-site companies. VPS did not keep any counts of vanpool applications, and PSO, which made the counts for the second year demonstration sites, was not involved in off-site marketing.

TABLE 7-4

Applications for Vanpool Matching by Month

		Requests for Vanpool Matching
1977	November*	566
	December*	169
1978	January	162
	February	147
	March	173
	April*	120
	May	220
	June	167
	July	185
	August	113
	September	49
	October*	654
	November*	697
	December*	621
1979	January	502
	February*	350
	March	572
	April*	175
	May*	1048
	June	1355
	July*	646
	August	1107
	September*	721
	October	<u>624</u>
		11,143

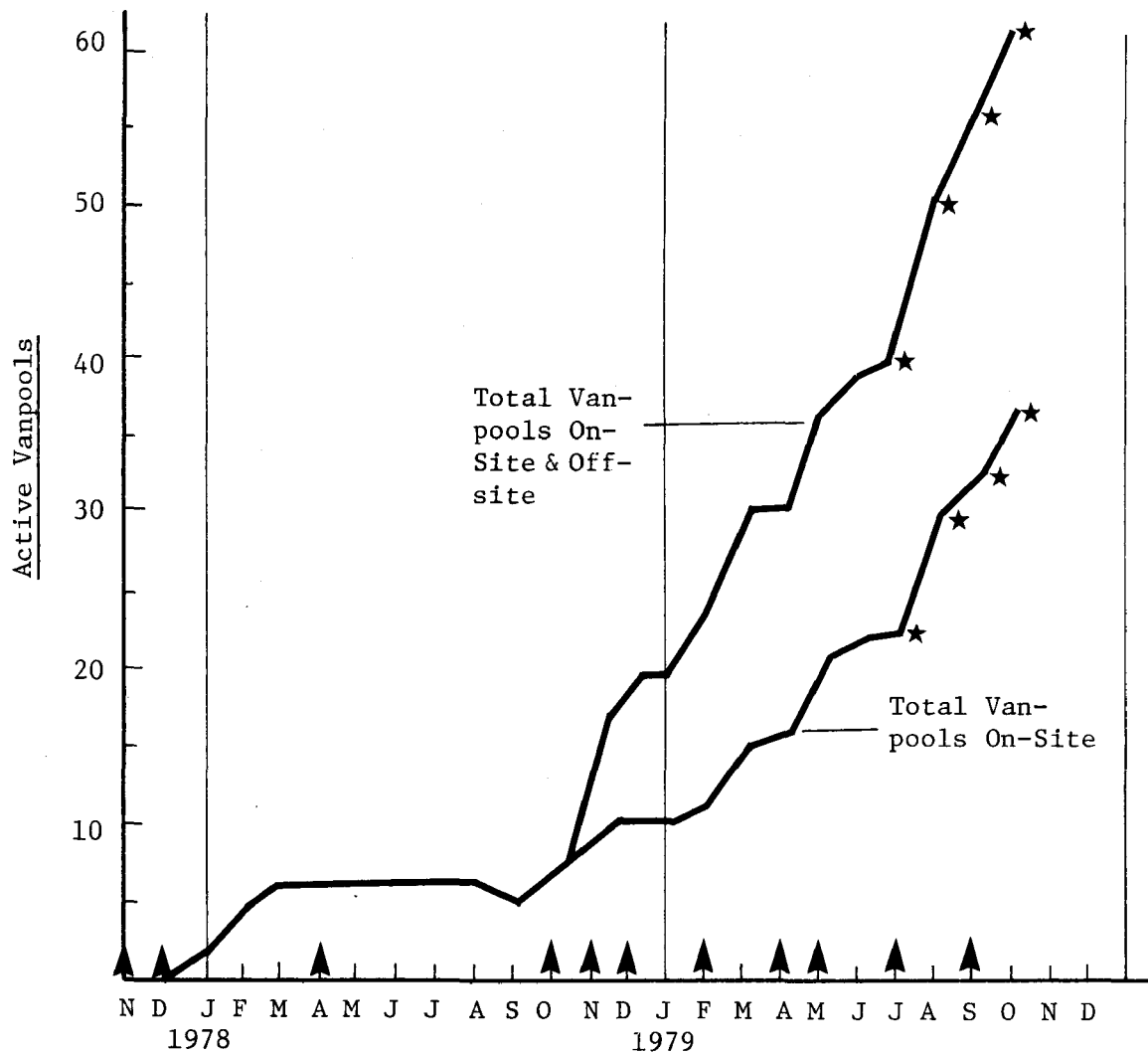
*Months in which employee marketing was initiated at a new site.

7.3.2 Formation Rates

The rate at which vanpools were formed depended not only on matching and organizing groups of riders but on the availability of vans. During the first year of the demonstration when marketing was concentrated at three sites, vans were available but there were only a small number of matched groups of employees. Interest increased dramatically during the second year due in part to rising fuel prices and the existence of waiting lines for gasoline, and many groups which were ready to begin vanpooling had to be put on a waiting list for van delivery. The change from an excess number of vans to not having enough was the result of an increase in the number of matched applicants at the same time as there were delays in van delivery.

Figure 7.2 illustrates the number of on-site and total (on-site plus off-site) vanpools operating in each month, and Figure 7.3 shows the total number of active vanpoolers each month. After the initial six vanpools were started, no new vanpools were formed until new site marketing began in the second year of the demonstration. The initial month of employee marketing at each site has been noted in Figure 7.2. Despite the introduction of old-site remarketing, new site marketing seemed to be the driving force behind increased applications and additional operating vanpools.

July 1979 was the first month in which there were more organized vanpool groups than there were vans available. This occurred when gasoline shortages developed and van delivery was interrupted due to a shut-



▲ Month during which employee marketing began at a new site.

★ Vanpool implementation was constrained in this month due to delays in vehicle delivery.

FIGURE 7.2

Total Vanpools Operating On-Site and Off-Site

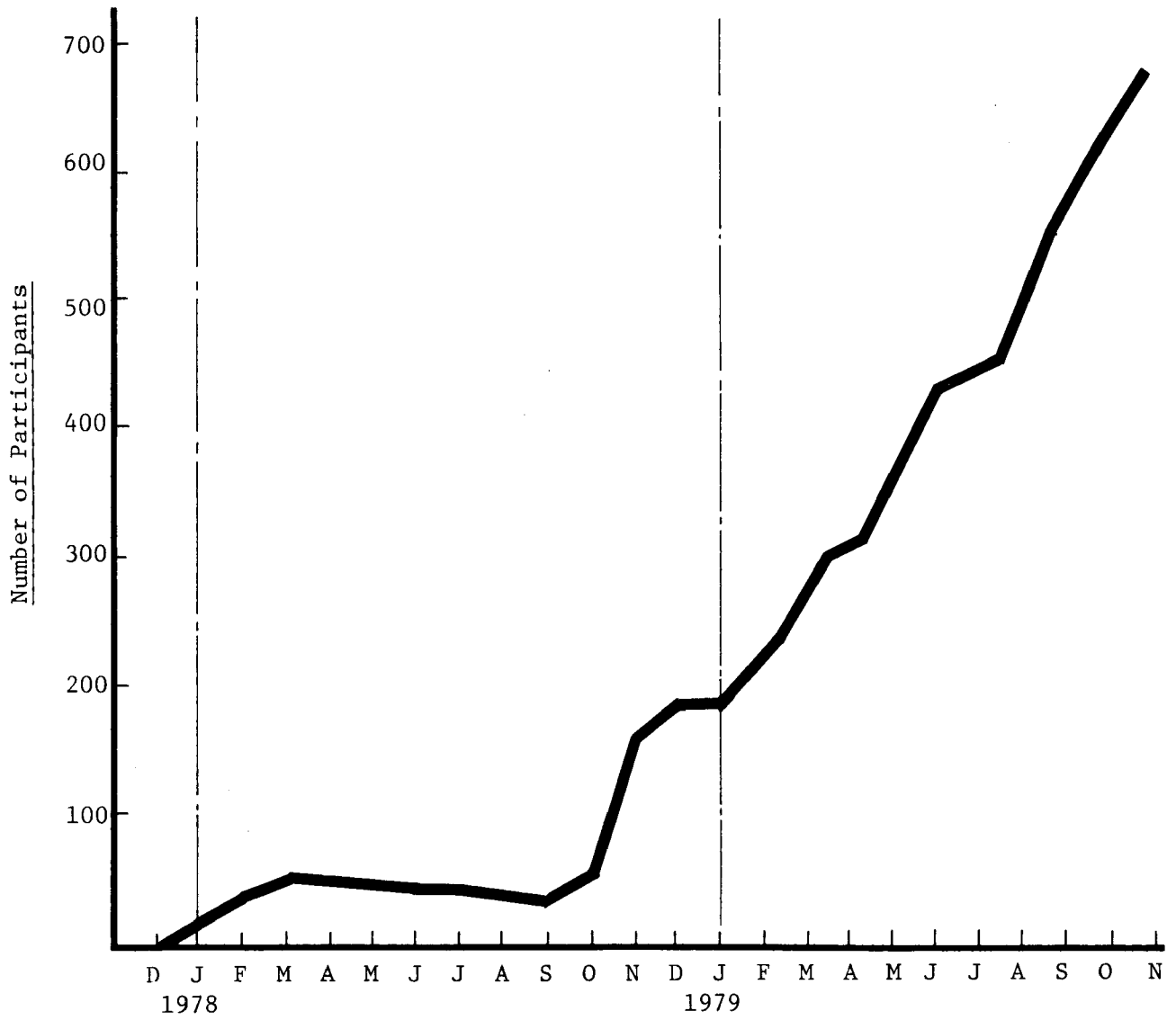


FIGURE 7.3

Active Vanpool Participants

down of the assembly plan for model change-over and inventory reduction of small trucks assembled in the same plant.¹ Only one additional vanpool was given a vehicle in July, while 20 groups were placed on a waiting list. In August when 10 new vanpools were supplied vehicles, there were 25 groups on the van waiting list. By the end of September, the waiting list had grown to 40 groups and maintained at this level through October. Many of the groups from the waiting list disbanded before a vehicle was made available because the prospect of waiting several months for a van encouraged them to make alternative commuting arrangements. Despite the seemingly large increases in total operating vanpools in the months at the end of the demonstration, there were enough matched groups to almost double the number of vans on the road. (See Section 7.6.1 for a discussion of van acquisition procedures and problems.)

Vanpool Dropout and Disbandment Rates--Over the course of the demonstration, only 10 vanpools (which had actually started operation) disbanded. In every month except September 1978, there were at least as many groups waiting to start vanpooling as disbanding. Two basic reasons for individuals leaving the vanpool were a change in commuting needs or a disenchantment with the service. If too many people from one vanpool dropped out without replacement, pools were disbanded for having below breakeven ridership. The average life of the vanpools that disbanded was 3.9 months; none of them lasted more than five months. As of November 1, 1979, 230 persons had dropped out of vanpooling out of 903 persons who

¹See Fong (1979) for a discussion of effects of the energy crisis on vanpooling.

had participated in the vanpool program to that date. Of these dropouts, 162 had voluntarily quit, while the remaining 68 were members of the vanpools that disbanded. The overall voluntary dropout rate was .35 persons per van per month. The specific reasons for individual attrition from vanpools are examined in detail in Section 9.5.3.

Placement Rate by Site--There are several factors which contributed to the successful formation of vanpools at each work site. These parallel the influences on carpool formation and include:

- marketing methods
- cooperation of employers
- commuting conditions
 - pre-marketing commute mode shares
 - distribution of employee residences
 - work constraints such as overtime

The degrees of influence of each of these varies from site to site and are difficult to quantify.

Table 7-5 shows the vanpool placement rate (percent of applicants placed into operating vanpools) and the total number of vanpools at each site as of October 31, 1979. It is notable that only the Central Bloomington site failed to produce a single vanpool. This may be related to the fact that this was also the only site lacking a large employer of at least 1,000; the site also suffered from a large number of different work shifts among the firms. Overall, most of the sites produced 3-6 vanpools out of a total employee population of 4,000-8,000. (Refer to Table 4-1 for summaries of employment size and other site characteristics.)

TABLE 7-5

Vanpool Site Summary as of October 31, 1979

Site	Total Vanpool Applications ¹ to Date	Placement Rate: Percent of Vanpool Applicants Ever Placed in A Vanpool	Total Vanpools On Oct. 31, 1979	Total Vanpoolers On Oct. 31, 1979
Pentagon Park	1808 ²	5.1% ²	3	26
SC Minneapolis	1243 ³	9.4 ³	6	63
Central Bloomington	314	0	0	0
East Bloomington	1069	7.3	4	44
Arden Hills	660	3.9	2	22
NE Minneapolis	1289	9.5	9	102
Golden Valley	784	7.5	4	47
Eagan	1066	4.4	4	46
Plymouth	1006	3.6	4	42
St. Louis Park	1100	-- ⁴	0 ⁴	0 ⁴
Ft. Snelling	821	-- ⁴	0 ⁴	0 ⁴
St. Paul ⁵	766 ⁶	NA	15	} 281
Other ⁵	NA	NA	11	
TOTAL	11,926	6.2%⁷	62	673

NA Not applicable

¹ These are estimates since actual counts were not kept.

² Includes new hire applications for Magnetic Peripherals, Inc.

³ Includes partial resurveying at Honeywell.

⁴ Vanpool matching had not yet occurred at St. Louis Park and Ft. Snelling sites as of October 31, 1979.

⁵ Not a Share-A-Ride site; vanpool marketing only (see listing of off-site vanpools in Table 7-7).

⁶ Applications from Burlington Northern employees only.

⁷ This was computed on the basis of the first nine Share-A-Ride sites, for which initial vanpool matching was completed.

Comparison of placement rates between sites must be done carefully since they are affected by many factors. For instance, the Pentagon Park placement rate of 5.1 percent is lower than the program average of 6.2 percent. This can be partly attributed to staggered work hours at CDC-MPI (the largest employer) and a large number of employees with different working hours who worked for many small employers. The Pentagon Park placement rate was also held down by the continuing stream of applications from new hires at CDC-MPI later in the program, who were not sufficient in number at any single time to set up a vanpool. Additionally, since the major marketing effort at Pentagon Park occurred before the gas problems of Spring and Summer, 1979, employees at this site had less incentive to join a vanpool than employees initially marketed when gas was difficult to purchase.

Last of all, it should be noted that the degree of interest and encouragement on the part of employers had a great influence on vanpool formation at each of the sites. Table 7-6 lists the major employer(s) at each site and in the percent of the vanpools involving their employees.

The corporate support from CDC, Honeywell, Univac, and Burlington Northern has been described in Chapter 5; only two of the sites did not have one of these firms as a major employer.

7.4 OFF-SITE VANPOOLS

An off-site vanpool is one whose destination is a workplace outside of the specific sites where the comprehensive ridesharing services of the Share-A-Ride program were marketed. Although there were not enough people from the original three demonstration sites to fill the ordered vans,

TABLE 7-6

Influence of Major Employers on Vanpool Placement Rates
As of October 31, 1979

Site	Major Employer(s)	% of Total Site Employment at Major Employer	Total Vanpools at the Site	% of Vanpools With Major Employer Represented
Pentagon Park	Magnetic Peripherals (CDC)	33%	3	100%
SC Minneapolis	Honeywell	23	6	100
Central Bloomington	Donaldson	13	0	--
East Bloomington	Control Data Corp. (CDC)	59	4	100
Arden Hills	CDC	49	2	100
Northeast Minneapolis	Honeywell; Univac	18 30	9	33 67
Golden Valley	Honeywell	53	4	100
Eagan	Univac	62	4	100
Plymouth	Litton CDC	21 14	4	40 40
St. Louis Park	Honeywell	NA	0	--
Ft. Snelling	VA Center	NA	0	--
Downtown St. Paul	Burlington Northern	NA	15	67

TABLE 7-7
Off-Site Vanpools
October 31, 1979

Destination	Number of Vanpools	Major Employer
St. Paul - Downtown	15	Burlington Northern, CDC
Minneapolis/Fridley	5	F.M.C.; US Government
Eden Prairie	1	Rosemount
Northfield	1	Fairway Foods
Edina	1	Clow Stamping
Stillwater	1	Kroy Industries
Minnetonka	1	Precision-Cosmet
Plymouth ¹	1	Northwestern Bell
TOTAL	26	

¹The vanpool to Northwestern Bell in Plymouth is physically separate from the Plymouth Share-A-Ride site.

increasing awareness of the program led employers in other parts of the Twin Cities area to contact VPS to learn how vanpools could be started at their own companies. MTC first approved the deployment of up to 10 off-site vanpools in April, 1978; in January, 1979, approval was expanded to 25 vanpools. Approval was originally given so that vans that had been leased by VPS but were sitting idle would no longer be a financial drain on the program. Table 7-7 lists the work site destinations and major employers for off-site vanpools. Based strictly on total vanpools or total vanpoolers, downtown St. Paul would be considered more successful than any of the current Share-A-Ride sites. Most of these downtown St. Paul vanpoolers were organized through the cooperation of Burlington Northern.

While off-site vanpools operated in the same manner as Share-A-Ride site vanpools, marketing differed at the two types of sites. At the demonstration sites, PSO initiated discussions with employers, but off-site vanpool marketing was handled almost exclusively by VPS and then only by invitation of an employer.¹ Since these firms took the initiative to contact VPS, employer resistance to distributing surveys or holding employee meetings was not a problem. The actual amount of VPS time spent marketing vanpooling off-site depended on the type of promotion desired by a company and the amount of VPS staff time available. At some companies the only "marketing" was distribution of the survey (see Appendix A) which was later used for vanpool matching. Marketing costs

¹The agreement to allow VPS to deploy off-site vans included the stipulation that no active off-site marketing efforts be undertaken.

were often minimal, as the employers frequently took responsibility for producing promotional materials. In some cases, groups of employees were matched and ready for vehicles when VPS was contacted. The possible disadvantages of off-site marketing are examined in the issues discussion of Section 7.6.2.

Handicapped Van Usage--In addition to the desire to fill idle vans, another MTC motivation for approving off-site vanpools was for handicapped usage. Discussions began in April, 1978 between VPS and the Minneapolis Public Schools Community Based Transition Program for the use of demonstration vans to transport mentally handicapped employees to jobs. Several employers of people in the Transitional Program were interested, but only Marriott Inn actually had a vanpool started. It ran for five months until a social service agency took over the responsibility.

The Marriott van was driven by a volunteer employee of Marriott who was not a member of the Transitional Program. Total ridership was 23 since more than one round trip was made each day. Because of the unique service provided by this vanpool, the passenger fares were paid from public funds; Marriott agreed to underwrite the cost if ridership ever fell below the breakeven level. The monthly payment to VPS for use of the van was equal to what it would have been for a conventional vanpooling arrangement.

Future Designation of "Off-Site"--As the demonstration program has expanded, the designation of "off-site" has become blurred. Several Share-A-Ride sites were selected after companies at

them requested vanpool assistance. St. Louis Park and Plymouth both became Share-A-Ride sites at the end of the second year and downtown St. Paul (which currently has 15 vanpools) became a Share-A-Ride site in the third year of the program. As Share-A-Ride is moving towards regional coverage, the distinction between Share-A-Ride site and off-site designation was dropped for the third year of the program.

7.5 VANPOOL OCCUPANCY, MILEAGE AND MULTI-EMPLOYER COMPOSITION¹

7.5.1 Vanpool Occupancy

In the first year of Share-A-Ride, vanpool occupancy averaged about seven people (including the driver) per van. Because there were so few (six) vanpools in operation, those at below the nine-passenger breakeven level were permitted to continue with demonstration funds covering the difference between van cost and fare revenue.

Starting in the second year of the demonstration, average vanpool occupancy (See Figure 7.4) climbed to between 10 and 11 people and the proportion of vans at the full occupancy level of 12 persons rose from zero percent to near 50 percent (see Figure 7.5). The large increase in these two measures in November, 1978 reflected the implementation of seven off-site vanpools (matched and organized by the employer), of which three of these vans were at full occupancy (12 people) and the overall average occupancy was 11.3. In contrast, the average occupancy of Share-A-Ride site vanpools in November, 1978 was 10.2 with only one (of nine) vans at full occupancy.

¹Additional characteristics of vanpool composition and commuting arrangements are presented in Chapter 9.



FIGURE 7.4

Average Vanpool Occupancy

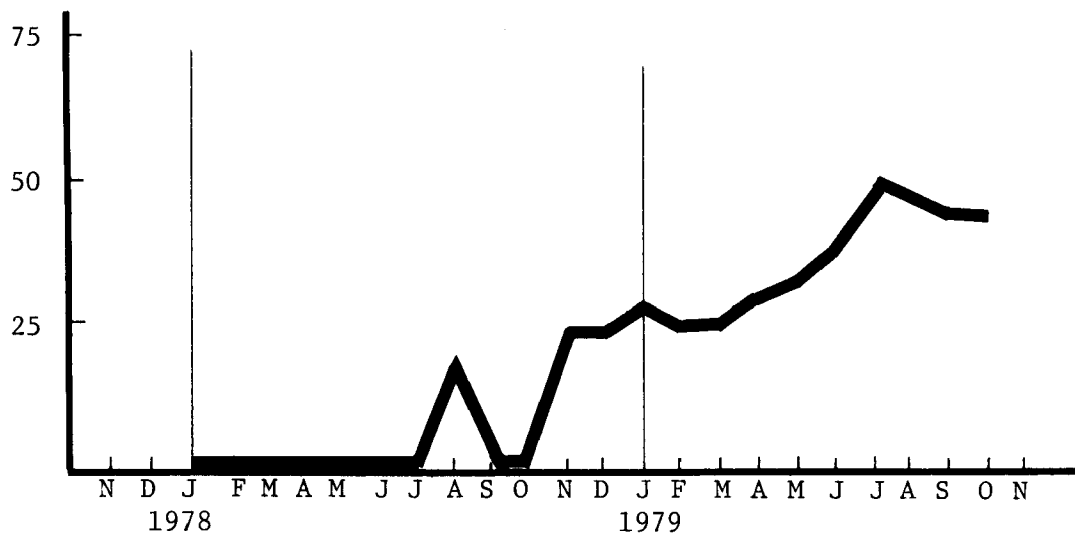


FIGURE 7.5

Percent of Vans at Full Occupancy (12 people)

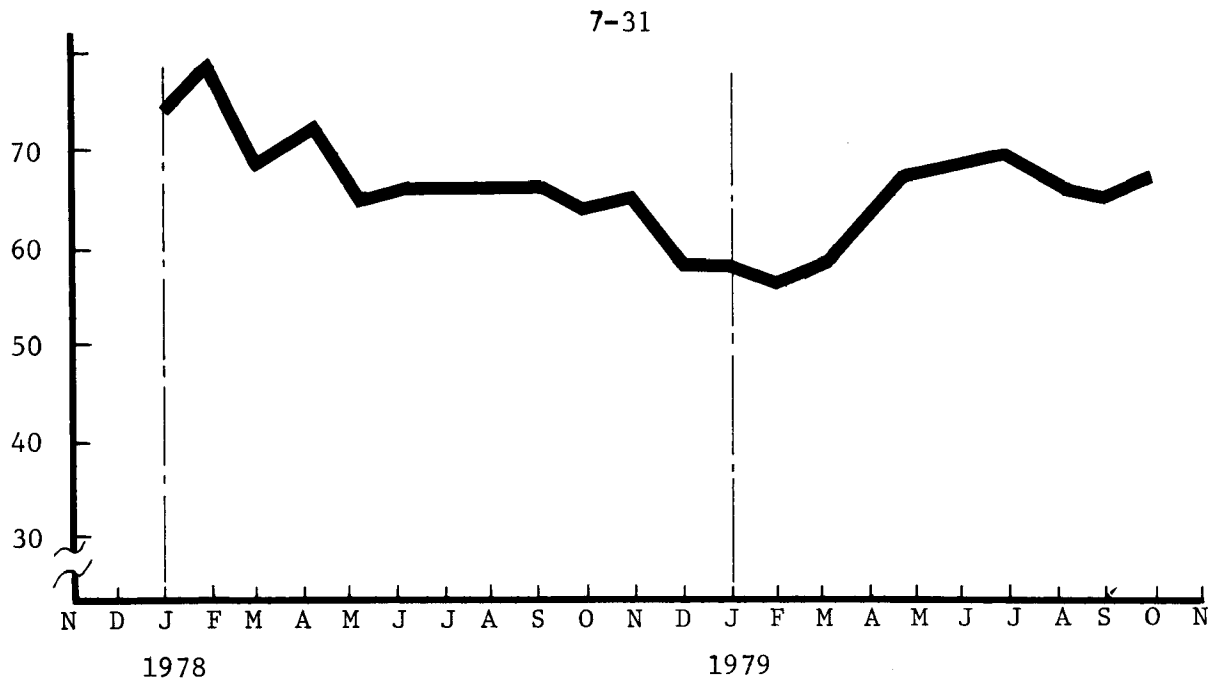


FIGURE 7.6

Average Daily Commute, Miles Per Van

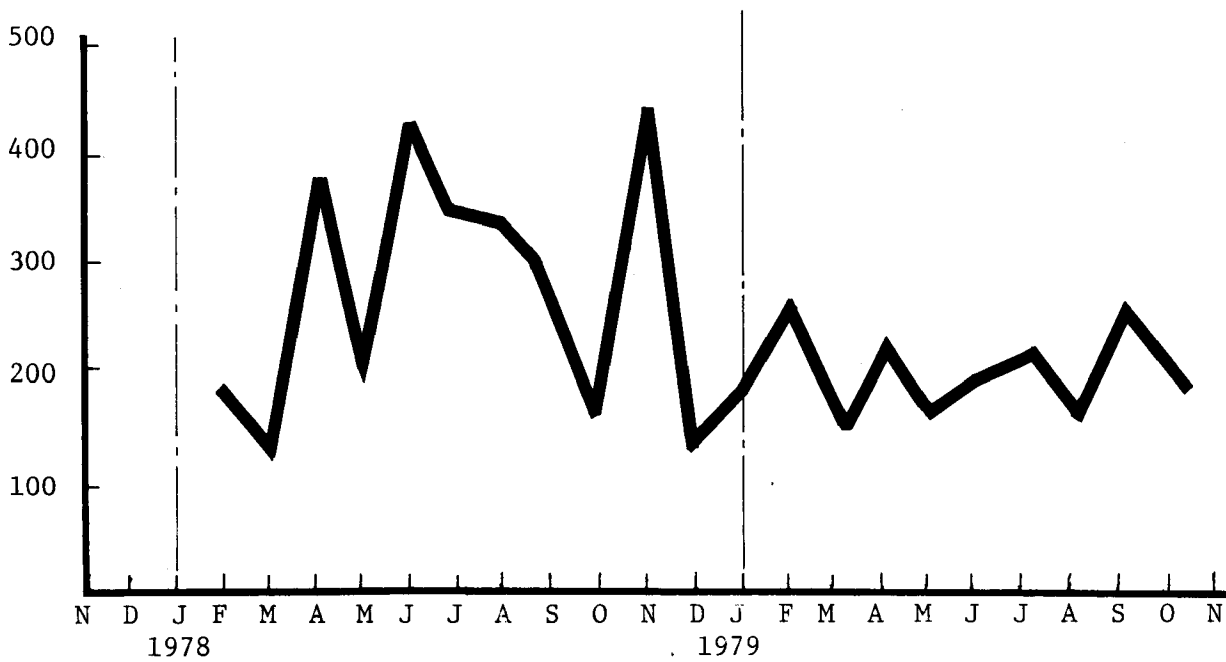


FIGURE 7.7

Average Monthly Personal Miles Per Van

The trend toward increased vanpool occupancy levels in the second year can be attributed, in general, to Share-A-Ride marketing at new sites, the increase in gasoline prices, and the participation of one of the off-site employers, Burlington Northern in downtown St. Paul.

7.5.2 Van Mileage

Figure 7.6 illustrates the average daily commute miles per van for each month of the demonstration. The average daily commute mileage has fluctuated in the range of 60 to 70 miles during the two years of the demonstration. The general trend in the second year was an increase in mileage as new vans were added to the fleet. While this may seem to indicate that "new" vanpoolers had a higher daily commute distance than the established vanpoolers, several facets of vanpool operations which influence the "average daily mileage" figure must be taken into account.

One explanation for increasing vehicle commuting distances in the second year is increasing route circuitry. Circuitry, the extra drop off and pickup time spent travelling between peoples' homes and travelling between their workplaces could amount to as much as one-third of the total daily commute mileage. As vanpool occupancy rates increase, it is likely that there would be some corresponding increase in the circuitry mileage for picking up and dropping off the additional passengers. It should also be noted that vanpool commute mileage is computed for the trip from the vanpool driver's home to work. The difference between daily van mileage and the average distance from passengers' homes to work increases to the extent that drivers live far from their passengers. Since there are no records kept on circuitry or increased van mileage due

to drivers' residence locations, these effects cannot be measured. The distribution of distance from vanpoolers' homes to work has been determined from the vanpooler surveys and is reported in Section 9.3.

Figure 7.7 shows the average monthly personal use of vans by the drivers. There was no significant change in average personal use of vans over time, although it can be seen that the monthly variation in average personal mileage decreased as the number of vans increased. The agreement between VPS and each driver allowed 200 miles of personal use a month at only the cost of gas to the driver, with each mile over 200 costing drivers 8 cents plus gas. VPS never adjusted this to account for the high commuting mileage. Since the 200-mile-per-month free use was not cumulative, any month in which less miles were driven, the driver "lost" the use of the remaining free miles. Figure 7.7 suggests that most drivers did not use their vans for more than the free use limit.

7.5.3 Multi-employer Vanpools

An expected distinction between Share-A-Ride site and off-site vanpools was the ratio of multi-employer to single-employer pool groups. Sites were selected for, among other things, their multi-employer pooling potential; off-site marketing was to single employers. Despite this difference in marketing and matching emphasis, 62 percent of the off-site vanpools were multi-employer while only 55 percent of the demonstration site vanpools were multi-employer.

The reason for the high level of multi-employer off-site vanpools was that 20 of the 26 off-site vans travelled to Minneapolis or downtown St. Paul. Downtown St. Paul is one of the largest employment sites in the region and exhibits a greater density of large employers and shorter

distances between firms than the outlying (Share-A-Ride) work sites. The majority of the vanpools serving downtown St. Paul can be attributed to Burlington Northern; most of them are multi-employer vanpools because BN invited employees of neighboring firms to participate. The six off-site vanpools which traveled to suburban destinations were single-employer.

7.6 ISSUES REMAINING

7.6.1 VPS Advantages for Van Acquisition

VPS was seen as having two major advantages for acquiring new vans: (1) as a third party provider, it could lease vans only as needed, and (2) as a subsidiary of a manufacturer, it could obtain priority in acquiring new vehicles from that manufacturer. If vehicles could be ordered from the dealer only as groups were organized and ready to start vanpooling, this would minimize the extent of leased vans sitting empty.

In fact, the timing of van leasing was not as advantageous as was hoped. MTC required that 20 vans be leased and available at the beginning of the program in anticipation of significant vanpool demand from the first three sites. In the first year, not more than seven of these vans were ever issued at one time. The unassigned vans were used as backups and their lease costs were paid from demonstration funds.

The organization of off-site vanpools began in November 1978 and because of the demand from Burlington Northern employees in downtown St. Paul, most of the original 20 vans were in use by December. Coordination of van leasing with demand for vans by newly organized groups went well until about June 1979. At this time, there was a dramatic increase in requests for vanpool service due largely to gas lines and increasing gas

prices. VPS had a May deadline from Chrysler Corporation for ordering additional 1979-year vehicles and placed an order at that time based on demand levels through the spring and anticipated requirements for summer marketing. Many of the vans ordered in May did not arrive until September. Despite "borrowing" vehicles from the VPS office in Duluth, from June through October 1979, most organized van groups had to delay the start of ridesharing one to three months while waiting for van delivery. In one case, a group rented a van until they could get a VPS vehicle.

The combination of events which led to a van waiting list was beyond VPS control. The van availability situation could have been worse without the advantage of a Chrysler subsidiary ordering vans from the Chrysler dealer, or it might have been better if the third party provider were not constrained to a single manufacturer of vehicles. Besides delaying vanpool implementation, this delay caused several groups that were organized and put on the waiting list to drop out of the vanpool program. The van delivery delay was a problem which reduced the potential accomplishments of the rideshare marketing effort.

7.6.2 Priorities for Off-Site Vanpools

When off-site vanpools were first implemented, they were advantageous for everyone involved. Idle vans were filled, employees at off-site firms were offered vanpool services, and the Share-A-Ride program was placing more people in pools. Because off-site vanpools were organized at an employers initiative, they typically required less marketing and matching effort than those at Share-A-Ride sites. VPS

welcomed off-site vanpool formation, although, they were wary of opening their program on a full regional basis unless there was sufficient staff to handle such an operation.

As advantageous as off-site vanpools were when first started, there were disadvantages in their continued organization to the extent that off-site applicants competed with on-site applicants for the attention of the VPS staff and for vehicle deliveries. While off-site vanpool marketing represented a low level of effort which included less promotion than the comprehensive Share-A-Ride marketing, this marketing approach also put less emphasis on bringing marginally interested employees into ridesharing, and did not involve any simultaneous bus and carpool promotion.

About seven months after off-site vanpools were started, the on-site demand for vans was greater than the van supply. Since there was no more need to fill idle vans, it can be argued that off-site marketing and matching should have been curtailed and priority given to Share-A-Ride site groups for van issuance. In reality, VPS recognized prior commitments and continued to process off-site and on-site applications with equal priority on a first-come, first-served basis. This situation may have reduced the apparent effectiveness of the Share-A-Ride marketing efforts insofar as the additional wait caused some demonstration site groups to drop off the van waiting list.

The interest in continuing off-site vanpool implementation by VPS is understandable given the different incentives faced by the third-party provider, whose priorities for vanpool expansion may not coincide with

the overall ridesharing goals of Share-A-Ride. On the other hand, requests for vanpool services from an offsite firm frequently contributed to the designation of that firm's work location as part of a new Share-A-Ride site with comprehensive rideshare marketing. This happened at East Bloomington (CDC), Plymouth (Carlson, Litton, CDC), Arden Hills (CDC) and Northeast Minneapolis (Honeywell, Univac). Inquiries from Burlington Northern led to the formation of vanpools to downtown St. Paul and contributed to the decision to add downtown St. Paul as a Share-A-Ride site in the third year of the program. In addition, it should be recognized that off-site vanpool-only marketing can be the most appropriate strategy for locations where a carpool matching program is already available. Such was the situation for Univac in Eagan and for the three Minneapolis-St. Paul campuses of the University of Minnesota, which had vanpool-only marketing by the Share-A-Ride staff during October 1979.

7.6.3 Level of Assistance to Vanpool Groups

The VPS role in daily van operations evolved during the course of the program. In the beginning, van drivers and passengers were pampered; VPS held organizational meetings for potential vanpool groups, took the lead role in finding new people to fill pools, shuttled vans to dealers for maintenance, and allowed vanpools to run with less than nine passengers.

It was to VPS' advantage to keep as many vanpools operating as possible. With only six vanpools in the first year, they had time to perform these functions. When vanpool demand increased dramatically,

VPS, still staffed by only two people, did not have time to continue these services and had less incentive to offer such a high level of assistance to drivers. During the second year of the program, there were between 40 and 60 vanpools to administer, matching for a new Share-A-Ride site generally every other month, marketing discussions with many offsite firms and occasionally up to 100 daily phone calls from individuals requesting vanpool information.

At this point, drivers were made responsible for contacting and organizing passengers, determining compensation for the back-up driver, having their van serviced, arranging alternative transportation when the van was not available, keeping at least nine passengers, and for turning in enough vanpool fares to cover the monthly lease and operating costs. The reduction in VPS assistance to vanpool driver/coordinators caused some problems for drivers in the original vanpools since they were used to such VPS assistance. However, none of them left the program when they were required to take more of the responsibility. Drivers who started later, expressed no problems with the coordination responsibilities required of them.

CHAPTER 8

BUS SERVICES

8.1 OVERVIEW

Promotion of "regular bus" and "custom bus", and the matching of applicants for these services, were designed from the beginning to be an integral part of the Share-A-Ride program, in addition to carpool and vanpool matching. "Regular bus" refers to regularly scheduled public bus service. "Custom bus" refers to a subscription bus service operated for a group of 30 or more commuters. In the context of the ridesharing demonstration, this refers to standard transit buses with drivers provided and routes tailored to the convenience of the rider group and modified as necessary to reflect rider needs. Fares are paid on a monthly subscription basis to cover the full contract price of the bus. One of the commuters is selected as a "bus pool coordinator", and coordinates route selection, ridership levels and rider satisfaction issues with the driver and the ridesharing office in return for free travel. Service is provided by the bus operator having operating rights in the residential pickup area (i.e., MTC in most areas).

Initially, both regular bus and custom bus options were explained (along with carpooling and vanpooling) in the Share-A-Ride pamphlets and during the employee marketing meetings. (See examples of pamphlets in Appendix A, exhibits 2 and 3) The two services were separate items that could be checked on the Share-A-Ride application forms. The custom bus option was subsequently dropped at the end of the program's first year. (This is discussed in Section 8.3).

The MTC Area Office, as the local ridesharing coordinator, was charged with the task of referring all bus applications to be processed.

These responsibilities included:

- (1) Currently available bus service--Match bus applicants, on the basis of residential location and work hours, to identify for them the appropriate bus service available for commuting to and from work.
- (2) Modifications to regular bus service--From applications, identify high density clusters where new bus service appears feasible. Review regular route service and ascertain if regular service can be modified (in route or schedule), or if new service should be instituted to meet demand.
- (3) Custom bus--Structure route, and ascertain both costs and passenger interest in order to form a custom bus pool. If the route is beyond the MTC service area, contact possible third party bus providers.

All three of these areas of responsibility may be considered forms of "bus brokerage"--responses to the bus service needs of applicants.

Each are discussed separately below.

8.2 REGULAR BUS SERVICE INFORMATION

Applicants requesting bus route information were mailed either appropriate schedule documents or a letter notifying them that no service from their home to their workplace is currently available. The matching of applicants to the appropriate bus routes was largely carried out by the MTC Transit Information Center in St. Paul. Procedures were established to forward bus applications to the MTC Marketing Department, whose Transit Information Center representative was made responsible for designating the correct schedules to be sent to each applicant. These schedules were then sent out by the Area Office. One problem with this

arrangement was that the Transit Information Center representative processed Share-A-Ride bus requests during slow periods while working in an information booth in St. Paul. Thus, increasing direct requests at the information booth slowed down the processing of Share-A-Ride bus applications.

To provide all useful information in one document, site-specific bus information brochures were developed, initially by the Area Office and PSO and later by the MTC Marketing Department (see example in Appendix A, exhibit 1). Each brochure presented route and schedule information for all bus routes serving the specific employment site. The first brochure was developed for Pentagon Park in May 1978, at the end of marketing to that site. This was followed by bus brochures for Central Bloomington (September 1978), East Bloomington (September 1978) and N.E. Minneapolis (November 1978). Several hundred brochures for the East Bloomington and N.E. Minneapolis sites were distributed to employees as part of the employee marketing presentations.

Nearly 3600 bus information applications had been handled by the Area Office during the two-year period through October 1979. The influx of bus requests varied from 7 to 494 cards per month, as shown in Table 8-1. The increasing flow of requests during the program's second year and delays in processing by the Transit Information Center, in addition to the Area Office's heavy work load for carpool matching and telephone brokerage, resulted in delays of up to two months in sending out bus information. Table 8-2 shows the number of bus information

TABLE 8-1

Bus Application Cards and Telephone Information Requests by Month

Month	Number of Bus Application Cards from Marketing	Number of Telephone Requests for Information ¹
Nov. '77-June '78	174	N.A.
July	88	N.A.
August	25	N.A.
September	7	N.A.
October	31	N.A.
November	38	N.A.
December	441	N.A.
January '79	173	N.A.
February	216	N.A.
March	445	263
April	239	192
May	90	201
June	125	502
July	151	400
August	324	475
September	232	N.A.
October	494	N.A.
	<u>3566</u>	

N.A. = not available.

¹The recorded number of phone calls for bus route and schedule information is an underestimate of the true load by as many as 100 calls per month.

TABLE 8-2

Bus Requests and Percent Provided with Schedules, by Site

Site	Bus Applications to Date (through 10/31/79)	Percent provided with schedules
Pentagon Park	458	65%
S. C. Minneapolis	418	83
Central Bloomington	105	54
East Bloomington	436	58
Arden Hills	249	18
N.E. Minneapolis	715	64
Golden Valley	389	47
Plymouth	338	69
St. Louis Park	458 ¹	89 ¹
Ft. Snelling	0 ¹	-- ¹
TOTAL	3566	64%

¹St. Louis Park and Ft. Snelling applications were not fully processed as of 10/31/79. Including the subsequent two months, there were 878 bus applications from St. Louis Park, with 89 percent receiving schedules, and 280 bus applications from Ft. Snelling, with 99 percent receiving schedules.

requests and the proportion with convenient bus service for each site. It is evident that the proportion of bus applications for which convenient service did exist varied widely by site, from a low of 18 percent for Arden Hills to a high of over 80 percent for S.C. Minneapolis and the last two sites. Overall, 64 percent of bus applicants received schedules and 36 percent received notifications of no convenient bus service. "Convenient" bus service was initially defined to mean anyone who could get from home to work within 45 minutes, including transfers. This definition was later dropped and persons were provided with information if they lived and worked within 6 blocks of a busline, regardless of travel time or transfers required.

In addition to processing application cards, the MTC Area Office received numerous telephone requests for bus service information, including requests for bus information about areas outside of the demonstration sites. The MTC Transit Information Center was the appropriate destination for these telephone requests, but difficulty getting through to that number caused some callers to turn to the Area Office (listed as MTC Commuter Services). The gasoline shortages of April-August 1979, with rising gasoline prices and lines at gas stations, brought a strong increase in requests for bus information. The cessation of service of a suburban bus line (Richfield Bus Lines) in June 1979 added to the increase in telephone calls. Telephone lines to the MTC Transit Information Center were overwhelmed, and the Area Office handled over 500 calls per month during that summer.

The Area Office staff could not help many of the callers due to limited resources. Handling these calls also took a substantial amount of staff time during the summer of 1979 away from the other tasks of processing bus applications, matching carpool applications, and conducting telephone brokerage for carpools.

In order to measure the impact of the Share-A-Ride program on bus ridership, peak-period bus counts were conducted at all three initial sites. Original bus counts were made in November 1977 and re-counts were made about one year later, from August through December 1978. The overall results are summarized in Table 8-3. They indicate small, but statistically insignificant declines in bus ridership at all three sites. Thus, it may be concluded that either: (1) the bus information brokerage process had no impact on increasing bus ridership, or that (2) any resulting ridership increases were completely offset by losses in bus ridership due to switches to carpooling or vanpooling, or for other reasons. Survey analyses of mode switching behavior (Chapter 9) indicates that less than 8 percent of new carpools and vanpools were former bus riders, so it may be concluded that impacts of the bus promotion effort were small.

8.3 BUS SERVICE MODIFICATIONS

It was originally hoped that the bus information brokerage process would serve to pinpoint potential areas for new or modified MTC routes or route schedules. In reality, the geographic dispersal of residences and the dispersal of working hours at most sites meant that no major route or

TABLE 8-3

Bus Alighting Counts Before and After Share-A-Ride

	November 1977	August-December 1978
Pentagon Park	65	61
South Central Minneapolis ¹	321	301
Central Bloomington	31	25

¹excluding passengers alighting at the intersection of Lake Street and Chicago Avenue (approximately 125-190 passengers), since not all of them were headed towards the S.C. Minneapolis site.

schedule changes were indicated from the bus information application cards at any site. For example, potential routes for persons requesting bus information were analyzed at the Pentagon Park site. However, potential ridership for even a single peak period run never reached the number necessary to justify a new route or changes in existing routes.

The Share-A-Ride promotion did, however, serve to initiate requests for service modifications by employee groups. In the program's first month (November 1977), Honeywell employees requested that an additional run of the MTC's "Honeywell Shuttle" service be initiated to serve the needs of the 7:30 AM shift for a connector between the I-35 Freeway Flyers and the Honeywell facility. That service was initiated in the following month.

Another request for modification of bus service came from the CDC Magnetic Peripherals Inc. (MPI) facility at Pentagon Park, in July 1979. A meeting was held between the Area Office and MPI representatives to discuss the need for better service to bring the first shift workers to work on time. No change in schedule was made, however, due to budgetary and timing constraints at the MTC, and a determination that there was not really significant room for further schedule changes to the bus route in question.

Another request for modification of bus service came from a medium-size employer at the N. E. Minneapolis site. It was requested that a northbound bus serve the southbound side of a street so passengers could be picked up in front of the work entrances rather than crossing a

heavily-used four lane boulevard with no marked pedestrian crossing. The MTC proceeded to lengthen the bus route by one mile in order to expand its service area, meet this request and still serve the entire length of the previous route. Lastly, a bus stop at Sears in S. C. Minneapolis was relocated closer to the employee entrance at the request of this firm.

8.4 CUSTOM BUS

Custom bus, originally one of the four forms of ridesharing promoted by the program, failed to emerge as a viable alternative form of transportation for the multi-employer, suburban sites. After the experience of the first three sites, it became clear that there was not sufficient scale in any of the sites to form bus pool groups of 30 or more. Accordingly, the custom bus option was eliminated from the marketing materials and applications after May 1978, one-half year into the program.

There are two aspects to the failure of the custom bus option: (1) its cost and (2) its potential demand. As of 1977, when the ridesharing program was being designed, the cost of chartering an MTC bus for morning and afternoon commuter service was estimated to be in the range of \$90-95 per day.¹ Since custom bus rates would not be subsidized, this translates to a monthly fare of \$42-45 per passenger

¹This estimate is based on operating costs of 48¢/mile, vehicle costs of \$16.29 per day, peak period costs of \$14.70 per vehicle-hour, and assumed one-way distances of around 20 miles.

with 45 passengers per bus. With a bus pool group of only 30 passengers, the monthly fare rises to \$63-67 per passenger. Comparing these costs to vanpool fares (see Table 7-1 and 7-2), it becomes evident that vanpooling was cheaper than custom bus for all commute distances.

Even assuming that custom bus fares could be held to around \$42 per month, which was the typical fare suggested in the promotional materials, there was insufficient demand to form bus pool groups. The main problem was that dispersed residential locations and dispersed working hours at the non-downtown, multi-employer sites acted together to reduce the potential for buspooling. Among interested applicants at all three first-year sites, there were no identifiable groups of 30 or more who had similar working hours and also lived in the same general area or along a possible route. The largest potential bus pool group occurred in Pentagon Park, and contained only 14 persons.

In general, it can be concluded that the potential for subscription bus routes serving areas outside of the central business districts is very limited. Consistent with this finding is the experience of several single-employer subsidized subscription bus routes operated by the MTC in suburban areas. All of these subscription buses, despite heavily subsidized fares, operated at load levels of only 15-24 passengers riding in 52-passenger buses (Public Service Options, 1977).

An additional argument against the provision of custom bus service is that it typically uses the vehicles only during peak periods, when the demand for vehicles is already greatest. Thus, subscription buses can serve to increase vehicle deficits by increasing disparity between peak period demand and off-peak demand.

8.5 REMAINING ISSUES

While bus promotion and information referral was an integral component of the Share-A-Ride program, it did not receive the interest or attention given to the carpooling and vanpooling components. The experience of bus brokerage did nevertheless raise several issues, each of which is discussed briefly below:

(1) Telephone Brokerage. An important aspect of the carpool brokerage program was the follow-up telephone calling to matched applicants, as a means of answering questions, encouraging the applicant to act upon the match list received, and to monitor the program's effectiveness. A similar process of follow-up telephone calling to bus information applicants was also anticipated during the program's planning stages, but did not materialize due to cost and staff time constraints. Given that the distribution of bus information apparently had little or no impact on increasing bus ridership at the sites, more personalized extensions of the marketing program such as telephone follow-up might be considered as a means of increasing that impact. The experience with carpool telephone brokerage established that the telephone technique is time-consuming and costly, however. The ultimate cost-effectiveness of the technique is currently unclear.

(2) Interface with other program components. Given budget and staff time constraints, the MTC Area Office had to assess the tradeoff priorities of processing bus information applications, relative to processing carpool applications. Given the importance of a timely

response for carpool matching and brokerage, there were sometimes delays of several months in responding to bus information applications. Part of this problem was also related to the physical separation of the Area Office from the MTC Marketing Department, which assisted in identifying appropriate bus schedules for applicants. Since this task was performed during slow periods at the Transit Information Center, the amount of time available there for processing Share-A-Ride card requests was limited by the load of direct telephone information requests received at that center.

In general, the integration of bus promotion into a comprehensive ridesharing program requires careful coordination of responsibilities between the ridesharing program staff and the transit marketing office, and allocation of sufficient staff for both functions if they are determined to be cost effective.



CHAPTER 9

SURVEY ANALYSIS OF FACTORS AFFECTING COMMUTING MODE CHOICE

9.1 DESCRIPTION OF SURVEYS

Two commuter surveys were conducted in connection with the ridesharing demonstration. The first was the Preliminary Travel Survey (PTS), administered to most firms at the Pentagon Park and South Central Minneapolis sites in late 1977 and early 1978. This was a pre-marketing survey, conducted by PSO just prior to employee marketing at each firm. The survey asked about commuting patterns and working conditions, and was brief in order to keep the pre-marketing burden on employees to a minimum. A copy of the Preliminary Travel Survey is shown in Appendix A, exhibit 6. The survey was distributed to employees of cooperating firms at Pentagon Park and was completed by 2377 persons (32 percent of site employment). Only a random sample of 640 of the Pentagon Park surveys were coded and keypunched for computer analysis, however. At South Central Minneapolis, the survey was distributed to employees at 11 of the 16 major employers, although the responses were coded and keypunched only for eight of the employers. Among these eight firms, the survey was completed by 4109 persons out of 7030 employees. The results of this survey are described in detail in the Interim Report of the Minneapolis Ridesharing Commuter Services Demonstration (Sherman, 1978), and presented in summary form in this chapter.

The second survey was the Employee Follow-up Survey (EFS), consisting of a screener and telephone survey of employees at Pentagon Park and Northeast Minneapolis sites, and a mail-back survey of current and former vanpool program participants at all sites. In June and July, 1979, 1031 Pentagon Park employees and 1298 Northeast Minneapolis employees were screened for phone numbers and mode of travel as they entered offices in the morning.¹ Some of those who agreed to participate in the survey were phoned at home at a later date. The telephone survey of commuters to Pentagon Park and to Northeast Minneapolis was conducted with quotas of approximately 200 drive-alones, 100 carpoolers, and 50 bus riders for each site.² Carpoolers and bus riders were purposely oversampled in the telephone survey to ensure an adequate number of responses for survey analysis of these groups. As the screening process was limited to the morning peak period, this process effectively eliminated second- and third-shift workers from the survey. Since there were relatively few people in these shifts, however, this was not considered a serious problem. The screener form and the telephone survey questionnaire (version for shared-ride carpoolers) are presented in Appendix B, exhibits 1 and 2.

¹The screening at Pentagon Park was supplemented by on-board bus interviews to obtain sufficient bus users for the telephone survey.

²The actual number of completed telephone surveys, which are the basis for most of the tables in this chapter are as follows. Pentagon Park: 200 drive alone, 25 carpool-driver, 53 carpool-shared driving, 24 carpool-passenger and 50 bus; N.E. Minneapolis: 201 drive alone, 17 carpool-driver, 58 carpool-shared driving, 24 carpool-passenger and 49 bus.

Vanpoolers and ex-vanpoolers from all sites were mailed surveys in August, 1979. Fifty-nine percent (241 of 411) of vanpoolers returned completed surveys and 42 percent (67 of 160) of ex-vanpoolers returned them. Seven percent of ex-vanpoolers never received their surveys because they had moved. The survey instrument for current vanpoolers is shown in Appendix B, exhibit 3.

The purpose of the follow-up surveys was to gather information about:

- current and previous mode shares
- commuting characteristics of each mode
- work restrictions on mode choice
- effectiveness of Share-A-Ride marketing
- socio-economic characteristics of employees
- employee perceptions of modal attributes

The telephone and vanpooler surveys had a basic core of questions which were asked of everyone plus additional questions applicable to the mode of the respondent. The ex-vanpooler survey was shorter than the others; its primary purpose was to determine why people stopped vanpooling.

This chapter presents results of the Employee Follow-up Survey and discusses their implications for carpool and vanpool marketing. Results from comparable questions in the Preliminary Travel Survey are also shown for comparison purposes. Analyses in this chapter are all based on simple cross-tabulations which, while giving insight into a variety of factors affecting ridesharing, also raise many further questions concerning interrelationships among various attributes of commuters and their commute trip. Some issues raised in this chapter will require further multivariate statistical analysis.

9.2 WORK-RELATED MODE CHOICE FACTORS

9.2.1 Restrictions

Work-related factors which restrict the opportunities to rideshare are:

- rotating work shifts
- overtime requirements
- need for a car during the day

Each of these implies a different degree of restrictiveness but they all serve to reduce the ridesharing potential at a work site. Rotating work shifts and overtime requirements both serve to inhibit any ridesharing with a constant schedule, as well as reduce the likelihood of finding a matching person with a corresponding time schedule. Since the type of rotating work shift and the extent of overtime hours both tend to be employer-specific, their existence particularly tends to inhibit multi-employer pooling. Ridesharing is still possible, nevertheless, if there is a sufficient-sized group with the same regular rotating shift or the same regular overtime hours. Need for a car during the day is prohibitive for vanpooling but does not necessarily restrict an employee from being a carpool driver.

Table 9-1 shows the percent of employees at each site who have some level of restriction on their mode choice. Rotating work shifts (due to hospitals) were an important restriction on ridesharing at South Central Minneapolis (SCM), while the percent of employees with overtime requirements there was relatively low. The extent of all forms of restrictions were of the same magnitude at Pentagon Park and at Northeast

TABLE 9-1

Extent of Work-Related Restrictions by Site

Percent of Employees Reporting:	Pentagon Park		NE Mpls	SC Mpls
	EFS, 1979 ¹	PTS, 1977	EFS, 1979 ¹	PTS, 1977
<u>Overtime:</u>				
None ²	45.8%	67.3%	60.2%	74.0%
1 - 2 days per week	26.8%	19.9%	18.8%	16.4%
3 or more days per week	27.4	12.8	21.0	9.6
<u>Need for a car during the day:</u>				
None ²	64.2%	62.9%	73.5%	59.7%
1 - 2 days per week	14.3	15.5	14.1	14.2
3 or more days per week	21.5	21.6	12.4	26.1
<u>Overtime or Need for a car:</u>				
None ²	35.1%	46.3%	48.0%	50.9%
1 - 2 days per week	24.1	23.4	22.4	19.6
3 or more days per week	40.8	30.3	29.6	29.5
<u>Rotating Shift:</u>				
Yes	7.6	NA	8.4	21.1
No	92.4	NA	91.6	78.9

¹Results are corrected for oversampling of carpoolers and bus riders in the Employee Follow-up Survey.

²Response to survey category "less than one day per week".

Minneapolis. This is particularly evident in the percent of employees with either overtime hours or need for a car during the day. Nearly one-quarter of employees at each of the sites had at least one of these two restrictions one to two days per week, while about one-third were restricted three or more days per week.¹

Tables 9-2 and 9-3 show the relationship between work restrictions and mode choice. The follow-up survey results from Pentagon Park, N.E. Minneapolis and the vanpooler survey all show that for each restriction listed above, people who drive alone to work are more likely to be restricted than people who rideshare (carpool, vanpool or bus). For the ridesharers, a large percent had no work-related restrictions on their travel. The difference in the distribution of restrictions between ride sharers and drive-alone commuters indicates that the introduction of any restriction reduces the proportion of employees ridesharing. There was little evidence that restrictions three or more days a week are more prohibitive to carpooling than restrictions only one or two days per week.

It is notable that vanpoolers not only tend to have few restrictions, but in fact have even fewer restrictions than carpoolers. This is understandable, since the less formal nature of many carpools allows for alternate travel arrangements one or two days per week, while fare payment on a monthly basis discourages vanpooling on a less than

¹The greater extent of overtime restrictions at Pentagon Park in 1979 compared to the 1977 survey may be related to expansion at the large manufacturing facility there (MPI), seasonal differences and differences in survey sampling techniques (described earlier in this chapter).

TABLE 9-2

Percent of Employees with Restrictions, by Mode

Percent of Employees Reporting	Pentagon Park (1979)			N.E. Mpls. (1979)			Vanpoolers
	Drive Alone	Car-pool	Bus	Drive Alone	Car-pool	Bus	
Overtime: None ¹	41.5%	58.8%	70.0%	52.2%	76.8%	63.3%	85.9%
1 to 2 days per week	28.5	21.6	20.0	22.9	9.1	30.6	11.6
3 or more days per week	30.0	19.6	10.0	24.9	15.2	6.1	2.5
Need for a car:							
None ¹	59.0	80.4	88.0	71.1	75.8	91.8	85.5
1 to 2 days per week	15.5	10.8	6.0	13.9	15.2	8.2	13.7
3 or more days per week	25.5	8.8	6.0	14.9	9.1	0.0	0.8
Rotating Shift:							
Yes	8.5	4.9	0.0	11.9	2.0	4.1	0.8
No	91.5	95.1	100.0	88.1	98.0	95.9	99.2
Overtime or Need Car:							
None ¹	30.5	49.0	66.0	39.8	62.6	61.2	76.3
1 to 2 days per week	24.0	24.5	22.0	23.9	18.2	32.7	20.3
3 or more days per week	45.5	26.5	12.0	36.3	19.2	6.1	3.3

¹Response to survey category "less than 1 day per week".

Source: Employee Follow-up Survey.

TABLE 9-3

Mode Shares by Degree of Work-Related Restriction

	Overtime < 1 Day/Week	Overtime 1 - 2 Days/Week	Overtime 3+ Days/Week	Need Car < 1 Day/Week	Need Car 1 - 2 Days/Week	Need Car 3+ Days/Week
Pentagon Park (1977)						
Drive Alone	76.4%	82.3%	85.6%	71.4%	85.2%	93.3%
Carpool	19.6	17.1	9.8	23.4	14.8	4.7
Bus	3.1	0.0	3.0	3.7	0.0	0.0
Other	0.9	0.7	1.7	1.5	0.0	0.0
S. C. Minneapolis (1977)						
Drive Alone	60.8	73.7	78.4	59.5	75.4	88.1
Carpool	20.0	12.0	9.5	19.6	16.2	11.0
Bus	14.0	10.3	9.7	15.1	6.5	0.6
Other	5.2	4.0	2.4	5.8	2.0	0.4

Source: Preliminary Travel Survey.

Note: Refer to Table 9-1 for the proportion of employees in each category of overtime and "need car" restrictions.

full-time basis. Results from the Preliminary Travel Survey at Pentagon Park and S.C. Minneapolis (Table 9-3) confirm the tendency of employees with work restrictions on mode choice not to rideshare.

9.2.2 Firm Size and Work Hours

While firm size and work hours do not present the daily uncertainty for travel as does working overtime or needing a car during the day, they do affect the probability of finding people with similar commuting patterns with whom to rideshare.

Table 9-4 shows the firm size distribution of employees by firm size from the Preliminary Travel Surveys (PTS) and Follow-up Employee Surveys (EFS) conducted at some of the sites. The data from the Preliminary Travel Surveys (PTS) conducted in late 1977 and early 1978 are based on a random sample from all firms participating in the marketing effort. The firm size distribution of PTS respondents at Pentagon Park represents an accurate description of site employment since an effort was made to market the program to all employees within the defined geographical area. The PTS firm size distribution from S.C. Minneapolis, however, is affected by the fact that there was little effort made to reach employees of small firms. The EFS conducted in the summer of 1979 at Pentagon Park and N.E. Minneapolis should approximately represent the firm size characteristics of site employment without regard to firm marketing, although late shift employees were missed. Actually, employees of smaller firms (i.e., those with under 100 workers) were undersampled at N.E. Minneapolis; they should represent 8 percent of total site employment rather than 0.3 percent as found in the EFS. There is also

TABLE 9-4

Distribution of Firm Size Among Site Employees

Firm Size	Distribution of Employees Marketed ¹		Distribution of Employees Surveyed ²	
	Pentagon Park (1977)	S.C. Minneapolis (1977)	Pentagon Park (1979)	N.E. Minneapolis (1979)
1-10	21.0%	0.0%	10.6%	0.0%
10-25		0.0	8.6	0.3
26-99	46.0	21.0	12.3	0.0
100-999		32.6	45.6	32.8
1000+	32.9	46.4	22.8	66.8

¹Preliminary Travel Survey.

²Employee Follow-up Survey; corrected for oversampling of carpool and bus commuters.

Note: See text for a description of biases in these distributions.

some evidence of an undersampling of employees at Magnetic Peripherals, the single large employer in Pentagon Park, which is caused by the exclusion of second and third shift workers from that survey. (Refer to Section 9.1 for a further description of the EFS administration procedures.)

Tables 9-5 and 9-6 show the relationship between firm size and employee mode choice. Carpooling was most frequent among workers at firms with over 100 employees, while bus riders were most likely to work at firms with under 25 employees. There are a number of explanations for the reduced tendency of small firm employees to carpool. It can be related partly to the difficulties in marketing ridesharing to small firms (as described in Chapter 5). It may also be due to the reluctance of some people to rideshare with someone from a different firm, coupled with the difficulty in finding a suitable match from within a small firm. It may also reflect differences in occupation types and travel distances among employees of small and large firms.

Table 9-7 presents the distribution of employees by work shifts, based on responses to the employee surveys. Although most people start work between 7 and 8:30 AM, it is clear that the variance in start and end times among individuals effectively reduces the number of potential poolers. The difficulty in finding people with similar start/end times and residence and work locations is, of course, further complicated by the overtime and need for car restrictions discussed above.

The highest percentage of employee ridesharers to Pentagon Park occurs for those working in the most popular workshift: from 6-7 AM through 3-3:30 PM (see Table 9-8). Most of the people who work these

TABLE 9-5

Distribution of Firm Size, by Employee Mode of Travel

Firm Size	Pentagon Park (1979)			N.E. Minneapolis (1979)		
	Drive Alone	Car-pool	Bus	Drive Alone	Car-pool	Bus
1-10	12.2%	5.0%	12.1%	0.0%	0.0%	0.0%
10-25	9.5	5.0	15.2	0.5	0.0	0.0
26-99	12.2	12.5	15.2	0.0	0.0	0.0
100-999	44.0	51.7	35.4	34.6	30.8	20.8
1000+	22.0	25.8	19.1	64.8	69.2	79.2
All Employees	100.0	100.0	100.0	100.0	100.0	100.0

Source: Employee Follow-up Survey

TABLE 9-6

Mode Share by Firm Size - Pentagon Park (1977)

	1000+ Employees	25-999 Employees	1 - 25 Employees
Drive Alone	72.8%	80.6%	79.9%
Carpool	23.7	16.8	14.9
Bus	1.7	2.3	4.6
Other	1.8	0.4	0.6
All Employees	100.0	100.0	100.0

Source: Preliminary Travel Survey

TABLE 9-7

Distribution of Work Shifts, by Site

Shift		% of Employees in that Shift	
Start Time	End Time	EFS, 1979 ¹	PTS, 1977
<u>Pentagon Park</u>			
8:00 - 8:29	4:00 - 4:29	13.9%	13.6%
7:30 - 7:59	4:30 - 4:59	9.0	10.2
8:00 - 8:29	4:30 - 4:59	8.1	9.9
6:30 - 6:59	3:00 - 3:29	8.9	9.7
8:00 - 8:29	5:00 - 5:29	8.4	8.8
7:00 - 7:29	4:00 - 4:29	7.5	7.1
8:30 - 8:59	4:30 - 4:59	1.9	2.8
(Other Shift Times) ²		(57.7)	(62.1)
<u>N.E. Minneapolis</u>			
8:00 - 8:29	4:30 - 4:59	30.7%	(N.A.)
7:30 - 7:59	4:00 - 4:29	17.0	(N.A.)
7:00 - 7:29	3:30 - 3:59	16.2	(N.A.)
7:30 - 7:59	4:30 - 4:59	10.4	(N.A.)
(Other Shift Times) ²		(29.7)	(N.A.)
<u>S.C. Minneapolis</u>			
8:00 - 8:29	4:30 - 4:59	(N.A.)	22.2%
7:30 - 7:59	4:00 - 4:29	(N.A.)	10.6
7:00 - 7:29	3:30 - 3:59	(N.A.)	10.2
8:30 - 8:59	5:00 - 5:29	(N.A.)	9.0
(Other Shift Times) ²		(N.A.)	(48.0)

¹Corrected for oversampling of carpoolers and bus riders in the Employee Follow-up Survey.

²Other start and end time combinations, each accounting for fewer surveyed employees than the above work shifts.

N.A. - Not Available

TABLE 9-8
Percent Carpooling by Work Shift

Workshift	Percent Ridesharing of Employees in that Shift ¹
<u>Pentagon Park, 1979</u>	
First Peak Period 6:00 - 7:00 to 3:00 - 3:30	55%
Second Peak Period 7:30 - 8:30 to 4:00 - 5:00	22%
Off-peak (all others)	16%
<u>N.E. Minneapolis, 1979</u>	
Peak Period 7:00 - 8:30 to 3:30 - 5:30	35%
Off-peak (all others)	23%

¹Corrected for oversampling of carpoolers and bus riders in the Employee Follow-up Survey.

hours are production workers at CDC Magnetic Peripherals (the largest firm at Pentagon Park), which was a strong supporter of ridesharing. The second distinct peak work shift at Pentagon Park has only half as many people ridesharing, and consists mostly of office workers. In N.E. Minneapolis, where there was a somewhat more pronounced single peak of commuting hours, about one-third of peak-period commuters rideshare. Because surveying at these sites was done primarily from 6-9 AM, only a small percentage of respondents worked "off-peak" shifts. Of these, only one-fifth indicated that they rideshare.

9.2.3 Flexibility in Working Hours

Table 9-9 summarizes responses to survey questions concerning employee freedom to change working hours on a daily basis and on a permanent basis. While one might expect drive-alone commuters to be those with less flexibility in adjusting work hours (to accommodate pooling arrangements), there is no clear trend exhibited in the survey responses.

9.3 COMMUTE DISTANCE, TRAVEL TIME AND RELIABILITY

9.3.1 Commute Distances

Table 9-10 displays average commute distances to each surveyed site and commute distances by mode to Pentagon Park and N.E. Minneapolis. While the average commute distance for survey respondents does not vary very much between sites (from 9.51 to 11.24 miles), there are significant differences between mode groups, confirming that carpool participation increases with commute distance. Average commuting distance for carpools to Pentagon Park is about 50 percent higher than that for drive-alone commuters; at N.E. Minneapolis, it is 25 percent higher.

TABLE 9-9

Work Shift Flexibility, by Current Mode

	<u>Pentagon Park (1979)</u>				<u>N.E. Minneapolis (1979)</u>				<u>All Sites (1979)</u>
	All Modes	Drive Alone	Carpool	Bus	All Modes	Drive Alone	Carpool	Bus	Vanpool
<u>Daily Flexibility¹</u>									
% with flexibility	37.8%	39.5%	35.3%	36.0%	47.1%	41.0%	52.0%	59.2%	33.2%
% with no such flexibility	60.2	57.5	63.7	64.0	51.5	57.5	42.2	40.8	65.6
<u>Permanent Flexibility²</u>									
% with flexibility	30.7	28.0	37.3	28.0	43.7	39.0	47.5	53.1	46.9
% with no such flexibility	64.8	67.5	59.8	64.0	50.3	53.5	45.1	44.9	51.5

¹Ability, on a day-to-day basis, to shift work hours by more than 30 minutes without advance arrangement.

²Ability to shift work hours by more than 30 minutes on a permanent basis.

TABLE 9-10

One-Way Commute Distance, by Mode and Site

	Pentagon Park (1979)	N.E. Minneapolis (1979)	S.C. Minneapolis (1977)	Vanpoolers (1979)
<u>All Modes¹</u>				
Average	11.54 mi.	11.48 mi.	9.51 mi.	27.03 mi.
% under 10 miles	50.4%	52.6%	84.9%	7.1%
% 10-20 miles	36.4%	36.7%	13.5%	25.8%
% over 20 miles	13.1%	10.7%	1.5%	67.1%
<u>Drive Alone</u>				
Average	10.36 mi.	10.75 mi.		
% under 10 miles	57.1%	55.7%		
% 10-20 miles	34.3%	35.3%		
% over 20 miles	8.6%	9.0%		
<u>Carpool</u>				
Average	15.64 mi.	13.16 mi.		
% under 10 miles	33.7%	39.4%		
% 10-20 miles	40.6%	44.4%		
% over 20 miles	25.7%	16.2%		
<u>Bus</u>				
Average	9.99 mi.	9.51 mi.		
% under 10 miles	59.1%	67.4%		
% 10-20 miles	36.4%	26.1%		
% over 20 miles	4.5%	6.5%		

¹Corrected for oversampling of carpoolers and bus riders in Employee Follow-up Survey.

The average commute distance for vanpoolers is three times higher than the overall average distance and about two times higher than the carpoolers' distance. In section 7.5.2, the average daily van commute mileage per day as collected from vanpool operating records was given as 68 miles. Since round-trip distance to work for vanpoolers responding to the survey is only 54 miles, it can be inferred that the average daily circuitry per vanpool is 14 miles, or 21 percent of the total van mileage. An alternative estimate of vanpool circuitry is the perceived travel time differential between commuting by vanpool or carpool and driving alone. Section 9.7.2 discusses the travel time circuitry of ridesharing based on travel time estimates in the follow-up survey. These indicate that circuitry accounts for 33 percent of average vanpool travel time and 14-21 percent of average carpool travel time.

9.3.2 Travel Time and Speed

Table 9-11 shows average travel time and average travel speed by mode at each survey site and for vanpoolers at all sites. Speeds were computed on the basis of respondent-supplied travel time and distance estimates. Although average travel time for carpoolers and vanpoolers is higher than for those who drive alone, most of this can be explained by the higher average travel distance; drive alone, carpool and vanpool travel speeds are all about 30 miles per hour. In contrast, the effective average travel speed for bus riders is only about 14 mph.

9.3.3 Ridesharing Reliability

Table 9-12 shows the reliability of carpools, buses, and vanpools in terms of the average number of days per month that the pool or bus was more than ten minutes late or never showed. It is clear that bus is perceived as significantly less reliable than carpools or vanpools.

TABLE 9-11

One-Way Travel Time and Speed, by Mode and Site

	Pentagon Park (1979)	N.E. Minneapolis (1979)	Vanpoolers (1979)
<u>All Modes¹</u>			
Average Travel Time	22.70 min.	24.17 min.	48.25 min.
Average Speed	30.56 mph	28.50 mph	33.61 mph
% Over 30 Minutes	22.4%	26.3%	87.4%
<u>Drive Alone</u>			
Average Travel Time	20.54 min.	20.77 min.	
Average Travel Speed	30.26 mph	31.05 mph	
% Over 30 Minutes	16.5%	15.4%	
<u>Carpool</u>			
Average Travel Time	28.82 min.	28.77 min.	
Average Travel Speed	32.56 mph	27.45 mph	
% Over 30 Minutes	39.2%	41.8%	
<u>Bus</u>			
Average Travel Time	43.4 min.	41.17 min.	
Average Travel Speed	13.81 mph	13.86 mph	
% Over 30 Minutes	74.0%	73.5%	

¹Corrected for oversampling of carpoolers and bus riders in Employee Follow-up Survey.

TABLE 9-12
Modal Reliability

	Average Days per Month Pool or Bus was Late	Average Days Per Month Pool or Bus never showed
Carpool Passengers	0.31 days	0.10 days
Bus	1.47	0.99
Vanpool	0.34	0.05

TABLE 9-13

Late Days per Month by Perception of Lateness Problem

Subsample: Perception of Lateness	Carpools	Vanpools
No Problem		
mean number of late days	.21	.11
% with 4 or more late days per month	0.0%	0.5%
Minor Problem		
mean number of late days	1.93	3.73
% with 4 or more late days per month	22.5%	45.5%
Major Problem		
mean number of late days	5.34	2.67
% with 4 or more late days per month	35.6%	33.3%

Table 9-13 shows the relationship between the average number of late days per month and the perception of lateness as a problem. Apparently, vanpoolers are not as sensitive as carpoolers to late arriving pools since the average number of late days for vanpoolers considering lateness to be a "minor problem" was actually higher than for vanpoolers considering it to be a "major problem."

9.4 PERSONAL CHARACTERISTICS OF MODAL USERS

9.4.1 Auto Ownership

It has been hypothesized that auto ownership levels for ridesharing workers are lower than for drive-alone commuters, due to a lesser vehicle-availability requirement. Data summarized in Table 9-14, however, shows very little difference in auto ownership for drive alones, carpoolers, and vanpoolers--approximately two autos per household (except at South Central Minneapolis where there were only 1.4 autos per household). Average auto ownership level for bus riders is only about half of the level for commuters using other modes, although this difference is related to income (Section 9.4.2).

There was no clear evidence that commuters who established ridesharing arrangements were significantly more likely to reduce their auto ownership level than others. Table 9-14(b) shows that there were small (and statistically insignificant)¹ increases in auto ownership levels among all modal groups, which are undoubtedly attributable to economic trends, socio-economic status and other factors exogenous to the Share-A-Ride program. Only at N.E. Minneapolis did carpool

¹Two-tailed t-test at 90 percent confidence level.

TABLE 9-14

Household Auto Ownership Level and Change Over Time, by ModeA. Household Auto Ownership Level

	Pentagon Park (1979)	N.E. Minneapolis(1979)	Vanpoolers(1979)	S.C. Minneapolis(1977)
Average	1.89 autos	2.01 autos	2.09 autos	1.41 autos
% 3 or more	19.3%	25.5%	22.6%	9.7%
DA average	2.00	2.09	--	1.58
CP average	2.08	2.19	--	1.51
Bus average	1.06	1.33	--	.70
Average for males	1.92	2.16	2.03	N.A.
Male DA	1.93	2.15	--	--
Male CP	1.93	2.29	--	--
Male Bus	1.50	1.29	--	--
Average for females	2.04	1.90	2.16	N.A.
Female DA	2.03	2.00	--	--
Female CP	2.14	1.86	--	--
Female Bus	0.75	0.71	--	--

B. Average Change in Auto Ownership Level From January 1, 1977 to June, 1979

Current Mode:	Pentagon Park	N.E. Minneapolis	All Sites
Drive Alone	+ .05	+ .10	N.A.
Carpool Driver or Shared Driving	+ .05	+ .06	N.A.
Carpool Passenger and Bus	+ .067	No Change	N.A.
Vanpool	N.A.	N.A.	+ .06

N.A. = Not available

-- = Not applicable

passengers and bus riders report less of an increase in auto ownership level than did drive-alone commuters, carpool drivers and shared-driving carpoolers. The opposite trend occurred at Pentagon Park. However, it can be noted that vanpoolers (from all sites combined) had a smaller net increase in auto ownership level than did other modal groups for the average of Pentagon Park and N.E. Minneapolis, although even this difference was not statistically significant. A separate analysis of persons who switched from driving alone to carpool-shared driving, carpool-passenger or vanpooling found that the car formerly used for driving to work was currently not being used by anyone else for 74 percent of the group, was being used for fewer miles for 24 percent of the group, and was being used for the same or greater mileage for only 2 percent of the group.

9.4.2 Income

Table 9-15 shows average household income by respondent mode of commuting. As might be expected, bus riders have a lower average household income than other commuters. There was no evidence of significant income differences between carpoolers, vanpoolers and drive-alone commuters.

9.4.3 Gender

Table 9-16 shows the percent of commuters using each mode who are male. South Central Minneapolis (where there are large retail, clerical and nursing staffs) has a large number of women employees. Note that at each site, males are more likely than females to drive alone or drive a carpool, and are less likely than females to be carpool passengers or bus riders. In particular, driving or sharing the driving is much more

TABLE 9-15

Average Income by Mode

	PENTAGON PARK (1979)				N.E. MINNEAPOLIS (1979)				ALL SITES
	All Modes ¹	Drive Alone	Carpool	Bus	All Modes ¹	Drive Alone	Carpool	Bus	Vanpool
Mean	\$26,100	\$26,300	\$25,750	\$20,400	\$25,400	\$24,350	\$28,000	\$20,600	\$25,200
% over \$30,000	34.0%	34.8%	31.9%	20.9%	27.2%	22.9%	37.8%	10.6%	25.7%

¹Corrected for oversampling of carpoolers and bus riders in Employee Follow-up Survey.

TABLE 9-16

Sex of Commuters By Mode

	Pentagon Park (1979)	N.E. Minneapolis (1979)	Vanpool (1979)	S.C. Minneapolis (1977)
% male	44.6	59.0	55.7	22.7
of Drive-Alone	51.0	59.7		25.5
of Carpool Drive or Share	42.3	68.0		27.0
of Carpool Passenger	12.5	41.7		17.0
of Bus	38.0	51.0		15.2
<u>% who drive or share driving</u>				
of Male Carpoolers	83.6	91.7		74.3
of Female Carpoolers	68.2	63.2		33.4

common among males who carpool, than among females who carpool. These differences may be due to variation between males and females in income, occupation, auto ownership and/or auto availability (particularly in households where there are more drivers than automobiles).

9.4.4 Age

Table 9-17 shows the average age of survey respondents by mode. Consistent with other studies, this data indicates that vanpoolers tend to be older than users of other modes. There is no significant difference in average age among the other modes.

9.4.5 Job Type

Table 9-18 shows the distribution of job types by commuting mode. It is clear that a carpooler is more likely than a drive-alone commuter to be a production worker but is less likely to be a secretary or sales/service worker. There were no consistent differences between carpoolers and drive-alone commuters in the proportion with managerial or professional/technical occupations. At both Pentagon Park and Northeast Minneapolis, the majority of workers considered themselves to be either secretaries or professional/technical workers.¹

9.5 MODE SWITCHING

Table 9-19 shows the former mode choice of carpoolers, vanpoolers and bus riders. It is clear that while almost all carpoolers were former drive-alone commuters, most of the vanpoolers were already previously ridesharing in carpools. In addition, 8 percent of the vanpoolers and 4-6 percent of the carpoolers were formerly bus riders. These findings

¹The large proportion of employees at N.E. Minneapolis involved in assembling computers or gyroscopes appear to consider themselves technicians rather than production workers.

TABLE 9-17

Age of Commuters, by Mode

	Pentagon Park (1979)	N.E. Minneapolis (1979)	Vanpool (1979)
Average ¹	33.1	33.6	39.7
Drive-Alone Average	33.4	32.7	
Carpool Average	32.2	35.2	
Bus Average	32.4	34.9	

¹Corrected for oversampling of carpoolers in the Employee Follow-up Survey.

TABLE 9-19

Former Mode Choice of Ridesharers

Distribution of Former Mode Choice	Current Mode Group				
	<u>Pentagon Park</u>		<u>N.E. Minneapolis</u>		<u>Vanpoolers</u>
	<u>Carpool</u>	<u>Bus</u>	<u>Carpool</u>	<u>Bus</u>	
Drive-Along	94%	53%	96%	77%	27%
Carpool	-	47%	-	23%	65%
Bus	6%	-	4%	-	8%
Total	100%	100%	100%	100%	100%

Source: 1979 Employee Follow-Up Surveys

are consistent with Knoxville results, which found that 54 percent of vanpoolers were formerly carpoolers, and 10 percent were formerly bus riders. The implications of these former mode choices, and particularly the fact that most vanpoolers were previously ridesharing, are examined in Chapter 10.

Table 9-20 shows the distribution of alternative mode choices given by vanpoolers for the hypothetical event that the vanpool program ended. These results are similar to the previous mode choices of the vanpoolers and indicate a population of stable ridesharers.

The average days per week that alternative modes are used to work is shown in Table 9-21. On average, carpoolers and vanpoolers used an alternate mode about one day a week; the alternative mode was almost always driving alone.

9.6 PERCEPTIONS OF THE DIFFERENT MODES

9.6.1 Perception Ratings of Attributes by Mode

Commuters at Pentagon Park and N.E. Minneapolis plus vanpoolers at all sites were asked to rank the four modes of drive alone, carpool, vanpool, and bus for their performance along six attribute dimensions. These attributes were: dependability, safety, short travel time, ability to relax, low cost and flexibility. Table 9-22 presents the percent of persons rating each mode as the best for each of the six attributes. These ratings are also stratified by the current mode of the respondent.

For example, of all drive-alone commuters at Pentagon Park, 79.0 percent rated driving alone as the most dependable mode, 3.9 percent chose carpooling as most dependable, 4.1 chose vanpooling, and 12.9 chose bus. Survey respondents were asked to rate all modes in each attribute

TABLE 9-20

Mode Choice of Vanpoolers
If Vanpool Program Ended

Drive Alone	19.5%
Carpool	67.8
Bus	10.2
Other	2.5
	100.0%

TABLE 9-21

Average Days per Week of Alternate Mode Use

Alternate Mode	Usual Mode			
	Drive Alone	Carpool	Vanpool	Bus
Drive Alone	-	0.28	0.22	0.14
Carpool	0.06	-	0.03	0.09
Bus	0.02	0.00	0.00	-
Other	0.03	0.01	0.00	0.06

Source: Employee Follow-up Survey of commuters at Pentagon Park and Northeast Minneapolis.

TABLE 9-22(A)
Perception Ratings of Modes (Pentagon Park)

Percent Responding First Choice:

Attribute	Mode Being Rated	Current Mode of Respondent		
		Driving Alone	Carpooling	Bus
Dependability	DA	79.0%	58.6%	44.0%
	CP	3.9	26.6	4.0
	VP	4.1	7.0	2.0
	B	12.9	7.9	50.0
Safety	DA	40.1	28.6	8.2
	CP	2.6	15.7	2.0
	VP	3.7	5.0	0.0
	B	53.7	50.7	89.8
Short Travel Time	DA	96.5	81.5	88.0
	CP	1.5	17.5	10.0
	VP	1.0	1.0	0.0
	B	1.0	0.0	2.0
Relaxation	DA	45.0	28.2	28.0
	CP	14.2	37.3	14.0
	VP	12.7	11.8	4.0
	B	28.1	22.6	54.0
Low Cost	DA	15.1	3.9	4.0
	CP	25.8	41.2	10.0
	VP	14.3	11.8	6.0
	B	44.8	43.1	80.0
Flexibility	DA	92.4	87.3	86.0
	CP	3.6	11.9	2.0
	VP	0.5	0.0	2.0
	B	3.6	1.0	10.0

TABLE 9-22(B)

Perception Ratings of Modes (N.E. Minneapolis)

Percent Responding First Choice:

Attribute	Mode Being Rated	Current Mode of Respondent		
		Driving Alone	Carpooling	Bus
Dependability	DA	72.6%	62.0%	40.0%
	CP	4.0	20.0	4.0
	VP	8.7	3.0	8.0
	B	14.7	15.0	48.0
Safety	DA	36.1	29.6	0.0
	CP	3.0	15.3	8.2
	VP	4.0	5.1	8.2
	B	56.9	49.9	83.7
Short Travel Time	DA	96.5	85.9	89.8
	CP	2.5	13.1	4.1
	VP	1.0	1.0	0.0
	B	0.0	0.0	6.1
Relaxation	DA	47.9	26.0	6.1
	CP	17.7	49.0	16.3
	VP	15.2	14.0	8.2
	B	19.2	11.0	69.4
Low Cost	DA	15.3	5.9	2.0
	CP	27.7	45.5	8.2
	VP	10.7	9.1	6.3
	B	46.3	39.5	83.7
Flexibility	DA	91.8	87.9	91.8
	CP	5.6	12.1	2.0
	VP	1.6	0.0	0.0
	B	1.0	0.0	6.1

TABLE 9-22(C)

Perception Ratings of Modes (Vanpooler and Ex-Vanpooler Surveys)

Percent Responding First Choice:

Attribute	Mode being Rated	Vanpoolers	Ex-Vanpoolers	
			Current Mode:	
			DA	CP
Dependability	DA	50.3%	88.2%	44.0%
	CP	5.5	5.9	22.1
	VP	41.6	0.0	31.7
	B	2.6	5.9	2.2
Safety	DA	28.8	35.3	26.1
	CP	5.9	0.0	17.4
	VP	37.6	23.5	23.9
	B	27.8	41.2	32.6
Short Travel Time	DA	87.4	100.0	74.5
	CP	9.4	0.0	10.5
	VP	12.1	0.0	12.9
	B	0.0	0.0	2.1
Relaxation	DA	10.6	35.3	16.3
	CP	9.4	35.3	28.6
	VP	67.2	17.7	40.8
	B	12.8	11.8	14.3
Low Cost	DA	3.1	0.0	0.0
	CP	24.5	43.8	33.4
	VP	39.9	12.5	31.7
	B	32.6	43.8	34.9
Flexibility	DA	96.8	100.0	93.2
	CP	0.9	0.0	2.2
	VP	2.3	0.0	4.6
	B	0.0	0.0	0.0

Source: Employee Follow-up Survey

regardless of whether they had ever used the mode. Since modes were ranked, a first-choice response could be given to only one mode for each attribute.

Some interesting, and not surprising, trends can be seen in these results:

1) Driving alone is rated extremely high for dependability, speed, and flexibility by people who drive alone. Driving alone is also rated high for these attributes by persons who carpool and ride the bus; however, carpoolers rate carpooling two to five times more often as the best mode for these attributes than do drive-alones. Similarly, bus riders rate buses two to four times higher than drive-alones for these attributes.

2) Approximately half of all drive-alones and half of all carpoolers rate bus as the safest mode, while 80-90 percent of bus riders rate bus the safest.

3) Each modal group rated its own mode as the most relaxing.

4) Bus riders overwhelmingly chose buses as least costly. Carpoolers rated carpooling and bus about equally as the least costly, while drive-alone commuters chose bus as the least costly most often and carpooling somewhat less frequently.

5) Among drive-alones, carpoolers and bus riders, vanpooling was seldom chosen as the best mode for any attribute, perhaps because of unfamiliarity with this mode. Among vanpoolers, vanpooling was the most frequently chosen mode for safety, relaxation and low cost. The latter may be related to the fact that no convenient bus service is available for many vanpoolers.

Table 9-22 (c) presents the mode attribute ratings given by vanpoolers and ex-vanpoolers. Vanpoolers chose vanpooling as the best mode more often than they chose other modes for dependability, safety, relaxation and cost. They still overwhelmingly chose driving alone first for quickness and flexibility.

Ex-vanpooler ratings have been separated by current mode of respondent. It is interesting that choices of ex-vanpoolers who now carpool are not very different from those of current vanpoolers except that carpooling is chosen more often as the best mode by current carpoolers. In contrast to this, ex-vanpoolers who currently drive alone chose vanpooling as the best mode for each attribute far less often than did current vanpoolers. (This difference is particularly striking with respect to the "dependability" attribute.) It may be that vanpoolers who switched to driving alone rejected ridesharing while many of those who switched to carpooling like ridesharing and just could not continue to vanpool due to constraints beyond their control. Only one person responding to the ex-vanpoolers survey is now riding the bus to work.

9.6.2 Importance Ratings of Attributes

Besides ranking the performance of each mode along various service attributes, the follow-up survey respondents were asked to rate the importance of each of nine attributes in choosing their mode of travel to work. These attributes are dependability, safety, short travel time, sociability, ability to relax, low cost, schedule flexibility, flexibility for making stops en route, and privacy. The importance rating of each attribute is given in Table 9-23. Dependability and safety, and schedule flexibility were always rated very high in importance regardless of current mode. Short travel time and low cost

TABLE 9-2 3

Mean Importance Ratings of Modal Attributes, by Site
(Five-point Scale)¹

	Current Mode			Current Vanpoolers (All Sites)
	Drive Alone	Carpool	Bus	
<u>Pentagon Park</u>				
dependability	4.755	4.598	4.800	4.860
safety	4.540	4.667	4.520	4.847
quickness	4.065	3.647	4.340	3.519
socialability	1.820	2.420	1.880	1.945
relaxation	2.805	3.178	3.420	3.297
low cost	3.875	4.196	4.340	4.306
schedule flexibility	4.435	3.822	3.800	3.030
stopping	3.165	2.529	2.980	1.749
privacy	2.695	2.327	2.580	1.790
<u>N.E. Minneapolis</u>				
dependability	4.652	4.667	4.674	
safety	3.458	4.515	4.571	
quickness	3.930	3.596	3.592	
sociability	1.866	2.546	2.041	
relaxation	2.821	3.152	3.633	
low cost	3.632	3.970	4.062	
schedule flexibility	4.428	3.778	3.551	
stopping	3.284	2.748	2.714	
privacy	2.771	2.333	2.245	
<u>Ex-Vanpoolers</u>				
dependability	4.833	4.778	*	
safety	4.778	4.711		
quickness	3.944	3.533		
sociability	2.111	1.911		
relaxation	2.611	2.978		
low cost	3.667	3.844		
schedule flexibility	3.556	3.067		
stopping	2.889	1.773		
privacy	2.222	1.667		

*Not enough respondents in this category

Source: Employee Follow-up Survey

¹Mean scores are based on a scale of 1 to 5, where 5 is very important.

were rated somewhat lower in importance, with ridesharers giving cost a slightly higher importance rating than did drive-alone commuters. In general, sociability, privacy, relaxing travel and ability to stop for errands en route were rated least important for mode choice. Not surprisingly, ridesharers gave privacy and ability to make intermediate stops lower importance ratings, and gave relaxation a higher importance rating, than did drive-alone commuters.

These importance ratings from the follow-up survey were generally consistent with the results of a pre-demonstration survey conducted in 1976 with a sample of workers at multi-employer work sites in Southern Hennepin County (Frankenberry, 1976). Table 9-24 presents the mean importance ratings given by respondents for 16 modal attributes. It shows that safety and convenience were rated as the two most important mode choice factors. (There was no equivalent to the "dependability" item that was in the follow-up survey, although "convenience" comes the closest.) Among those remaining items rated lower in importance, travel time had a higher mean importance rating than overall cost of travel, although it had a lower importance rating than the price of gasoline.

Overall, results from the pre-demonstration survey and the follow-up survey are consistent in indicating that safety, convenience and dependability are considered more important than travel cost in the mode choice decisions of commuters. This finding is also consistent with a number of prior studies of travel behavior (e.g., Cambridge Systematics, 1976A and 1976B; Margolin et al., 1977). The results from the 1979 employee follow-up survey are of particular interest because that survey

TABLE 9-24

Importance Ratings of Modal Attributes:
Pre-Demonstration Survey of Multi-Employer Worksites

Modal Attribute	Mean Score	Very Important
The total travel time it takes from leaving your house to arriving at your work	3.15	42%
The costs or expenses involved	3.05	36
How close a bus stop is located to your home and to your work	2.79	38
How the bus schedule agrees with your work schedule	2.93	47
Whether or not you have to transfer to use the bus to make the trip	2.76	38
The availability of information about bus service	2.70	34
Price of gasoline	3.26	51
How easy or convenient it is to use a bus or a car, vanpool, or a carpool	3.39	59
How comfortable the ride is	2.58	19
How safe you feel	3.56	66
The normal level of traffic congestion	2.95	38
Problems associated with winter driving	2.99	43
The use of a car during the day for work purposes	1.86	13
The use of a car during the day for personal reasons	2.44	20
Weather conditions	2.75	31
Convenience of parking	2.44	27

SOURCE: James Frankenberry, Marketing Decisions, Inc.: Commuter Vanpool Study, 1976.

¹Mean scores are based on a scale of 1 to 4, where 4 is very important.

was conducted at the tail end of the national gasoline shortage of spring and summer 1979. While the importance of cost was rated in this survey, there was no question pertaining to the importance of fuel availability.

9.6.3 Reasons for Changing Modes

Table 9-25 shows the distribution of reasons for changing modes, by current mode of travel. The sample group for this table is all persons who formerly commuted to the current work site by a different mode. (Refer back to Table 9-19 for the distribution of former modes of carpoolers, vanpoolers and bus riders.) The most often reported reason for changing to driving alone was a change at home or work which interfered with established ridesharing arrangements. At Pentagon Park, the next most important reason was pools disbanding due to low ridership. Largely because Northeast Minneapolis was marketed and matched after gas prices had dramatically increased, pool disbandment was not a large problem; at this site, general disenchantment with pooling (inconvenient, inflexible) was the second most important reason for switching to driving alone.

The reason most often given for switching to carpooling, vanpooling, or bus was to save money and avoid problems buying gas. "Others joining" was the second most important reasons for changing to carpooling; dependability or convenience was second for changing to vanpooling. The fact that dependability or convenience was a frequent reason for changing to bus at N.E. Minneapolis but not a Pentagon Park is a reflection of the superior level of bus service at N.E. Minneapolis.

TABLE 9-25

Main Reason for Changing Mode, by Current Mode

Reason	Current Mode						Vanpoolers Reasons for joining vanpool	Ex-Vanpoolers Reason for leaving vanpool
	Pentagon Park			N.E. Minneapolis				
	DA	CP	Bus	DA	CP	Bus		
Cost or gas problems	0.0%	46.2%	35.0%	0.0%	50.9%	38.7%	56.6%	17.1%
Others joined or quit	25.7	15.4	10.0	8.0	17.0	2.0	6.2	30.5
Do not like driving	0.0	9.2	0.0	0.0	12.3	4.1	14.3	6.1
change at home or work	37.1	9.2	5.0	40.0	6.6	8.2	0.0	7.3
dependability, flexibility, or convenience	20.0	4.6	10.0	34.0	2.8	26.5	16.2	20.7
auto ownership changed	8.6	3.1	20.0	6.0	7.5	12.2	5.0	0.0
took too long	5.7	0.0	5.0	2.0	1.9	4.1	0.6	13.4
safety	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9
other	2.9	12.3	15.0	10.0	0.9	4.1	1.2	0.0

It is notable that safety was almost never offered as a reason for changing modes, even though it was consistently rated as one of the most important attributes of mode choice (Tables 9-23, 9-24). This indicates that although safety was considered to be important, all of the commuting mode alternatives were considered sufficiently safe so that safety did not emerge as a reason for choosing or rejecting any particular mode.

The differences between reasons for driving alone and reasons for choosing the ridesharing modes are of particular interest because they suggest the existence of segments of the population with different values for the importance of travel cost. This helps explain another finding in the pre-demonstration survey, that only 8 percent of commuters reported cost as being the primary reason for their mode choice, while 44 percent noted convenience as being the major determinant (Frankenberry, 1976). It is clear that this largely reflects the fact that the majority of the respondents were drive alone commuters, and they did not view cost savings as one of the attributes of that form of travel. The market potential for ridesharing is clearly greatest for that segment of the population for whom commuting costs are most important.

9.7 PERCEIVED COST AND TIME DIFFERENCES BETWEEN RIDESHARING AND DRIVING ALONE

9.7.1 Cost Savings of Ridesharing

Table 9-26 shows the average perceived cost savings of carpooling over driving alone, by current commuting mode. It is notable that people who currently drive alone perceive a rideshare savings of only about half the savings perceived by those who currently ride or share the driving in

TABLE 9-26

Perceived Cost Savings of Carpooling over Driving Alone
(Average Weekly Cost Savings)

Current Mode	Pentagon Park	N.E. Minneapolis
Carpool Driver	\$7.72	\$4.20
Carpool Rider	13.74	6.93
Carpool Share Driving	10.85	7.33
Drive-Alone	5.06	4.60

TABLE 9-27

Perceived Cost Savings of Vanpooling over Previous Mode
(For Current Vanpoolers)

Previous Mode	Average Weekly Cost Savings
Drive Alone	\$6.42
Carpool Driver	8.62
Carpool Passenger	2.56
Carpool Share Driver	4.22
Bus	1.58
ALL VANPOOLERS	\$4.89

a carpool. (Those who always drive their passengers perceive a smaller cost savings than other types of carpoolers; see Section 9.8 for data on carpool cost sharing arrangements.) The difference in perceived cost savings between carpoolers and those who drive alone is partly explained by the fact that the average commute distance of drive alone commuters is only two-thirds that of carpoolers (see Table 9-10). Even after controlling for distance travelled, however, it is still true that drive alone commuters perceive less of a cost savings than do current carpoolers. Similarly, Table 9-27 shows the perceived cost savings of vanpoolers over their previous mode. In general, current vanpoolers perceive less savings over driving alone than do current carpoolers.

These perceived cost savings can be compared to the advertised cost savings of ridesharing (shown in Table 5-9), as a measure of the extent to which the audience believed the level of savings advertised in the promotional materials. For instance, Table 9-26 indicates that drive alone commuters believe carpooling could save them an average of \$250 per year for a 21 mile commute distance. This compares to a savings of \$444 per year for that trip length, based on the advertised savings table, an intermediate size car and a switch from driving alone to a three-person carpool. Similarly, Table 9-26 indicates that carpoolers estimate their cost savings over driving alone to be in the range of \$400 to \$600 per year, for an average one-way distance of 30 miles. This compares to an advertised carpool savings of \$696 per year for that trip length. Lastly, the survey of vanpoolers at all sites showed that those who previously drove alone to work estimate the cost savings of vanpooling to

be approximately \$330 per year, given an average commute distance of 27 miles. This compares to an advertised vanpool savings of over \$700 per year for that trip length.

It is clear from the above analysis that drive alone commuters, carpoolers and vanpoolers all perceive there to be sizable cost savings in ridesharing rather than driving alone. All groups, however, believed these cost savings to be less than the level suggested by the marketing materials. The primary audience group for the marketing, those still driving alone, perceived these cost savings to be approximately half of the amount that was advertised. While drive alone commuters may have minimized the perceived cost savings to rationalize their current mode choice, even those already carpooling and vanpooling perceived the cost savings to be significantly less than the advertised amount. One possible explanation for this finding is that the cost savings of ridesharing that are perceived by commuters are based primarily on operating cost savings without an additional allocation of savings on the fixed costs of maintaining a car, as was assumed in the advertised cost savings calculations.

The advertised savings attributed to carpooling and vanpooling in the Share-A-Ride brochures (and shown in Table 5-9) were based on the Federal Highway Administration pamphlet, "Rideshare and Save: A Cost Comparison" (1978), which allocates fixed vehicle costs to work and non-work uses of a household vehicle in proportion to their average contributions to vehicle miles travelled. According to this cost convention, if a commuter's driving mileage declines due to carpooling,

then so too does the allocatable fixed vehicle costs. A full 56 percent of the advertised cost savings of carpooling are attributable to savings in fixed costs.

In reality, these advertised cost savings may be inflated, to the extent that some of the fixed costs of maintaining a car are not reduced by the switch to ridesharing if there is no change in vehicle ownership level. State taxes and registration fees are certainly fixed, independent of vehicle use. The cost of insurance in Minnesota can be reduced by just 10 to 15 percent by carpool arrangements. Even depreciation of a vehicle's value is usually dependent on its age in addition to its mileage. Thus, much of the fixed cost of maintaining a car is borne by the commuter regardless of his/her commute mode choice, if there are no resulting changes in auto ownership level. (In fact, Table 9-14 confirmed that there were no net reductions in auto ownership level for commuters switching from drive alone commuting to any of the shared-ride modes.) For this reason, other carpool programs such as Massachusetts' Masspool have in their brochures differentiated between the vehicle operating cost savings from carpooling (which are directly proportional to vehicle occupancy level) and the fixed cost savings of giving up a second car.

9.7.2 Additional Travel Time for Ridesharing

Offsetting the cost savings of ridesharing is an element of additional travel time attributable to stops made dropping off and picking up passengers, and added trip circuitry. Table 9-28 shows the average perceived increased travel time of ridesharing over driving

TABLE 9-28

Perceived Travel Time Increase for Ridesharing Over Driving Alone
 (For Current Ridesharers)

Current Mode	Percent Time Increase over Drive Alone	(Circuitry) Time Increase as Percent of Ridesharing Time
Carpool Drive	26.7%	21.1%
Carpool Ride	24.8	19.9
Carpool Share	15.8	13.6
Bus	135.0	57.5
Vanpool	49.0	32.9

alone. Among bus riders, the estimated commute time by bus was an average of more than twice the time they estimated for driving alone. Vanpooling followed with a perceived extra travel time of nearly 50 percent, as estimated by the vanpoolers. Carpooling required the least extra time of all ridesharing modes. There is no explanation for differences between shared-ride carpoolers and those always driving or riding.

Tables 9-29 and 9-30 show the average amount of increased travel time required for ridesharing over driving alone, as perceived by those currently ridesharing. Table 9-29 shows the relationship between carpool travel time increases and the number of passengers picked up after the respondent. The average carpool commute is estimated by respondents to be 20 percent longer than a drive-alone commute; however, if three more stops are made before going to work, the carpool commute becomes as much as 80 percent longer.

The average travel time increase experienced by vanpoolers (relative to driving alone travel time) is shown in Table 9-30 by range of commute distance. In general, the closer one lives to work, the larger the percent of travel time increase that is experienced by individual vanpoolers. For those going less than ten miles, average vanpool time is more than twice the time required for driving alone! The fact that trips more than 20 miles one-way require just 30-40 percent more time is part of the appeal of vanpooling for long commute trips.

TABLE 9-29

Increased Travel Time for Carpooling Over Driving Alone,
By Number of Passengers in Carpool

Number of Passengers Picked Up After Respondent	% Additional Travel Time
0	12.0%
1	32.2
2	48.0
3	77.3
ALL PASSENGERS:	20.6%

TABLE 9-30

Increased Travel Time for Vanpooling over Driving Alone, by Distance

One-Way Distance to Work	% Additional Travel Time
Less than 5 miles	*
5-9 miles	120%
10-19 miles	63%
20-29 miles	41%
30+ miles	32%
ALL VANPOOLERS:	49%

* No vanpoolers reported living closer than 5 miles from work.

Combining the above information on increases in travel time with average commuting travel times presented in Table 9-11, it can be inferred that carpoolers on average perceive the added travel time of carpooling (compared to driving alone) to be about 5.5 minutes per trip (which translates to an annual loss of 46.2 hours). For the average drive alone commuter (travelling 20 miles per day), this additional travel time would be offset by a cost savings of what the marketing campaign estimated to be \$444 and what even the drive alone survey respondents estimated to be \$250. In an aggregate sense, these figures suggest that unless a commuter's value of time exceeds \$9.60 per hour (if the marketing numbers are used) or \$5.40 (if the survey responses are used), he/she should be willing to carpool. Clearly, there must be other mode attribute factors besides time and cost (e.g., convenience, dependability and flexibility) that influence choice and tend to disfavor ridesharing.

9.8 CARPOOL AND VANPOOL COMPOSITION AND DURATION

9.8.1 Occupancy of Pool

The average carpool occupancy at each site during the Share-A-Ride program is shown in Table 9-31. These occupancies are based on carpool records kept at the MTC Area Office, and include previously-existing carpools registered with the Area Office as well as new carpools added by Share-A-Ride. There are two notable points to be made about these numbers. First, it will be noted that there was no consistent increase or decrease in the carpool occupancy level over time at any of the sites. This was presumably because formation of new carpools offsets any effect on occupancy level caused by persons added to existing pools.

TABLE 9-31
Average Carpool Occupancy by Month

	7/31/78	10/31/78	1/31/79	4/30/79	7/31/79	10/31/79
Pentagon Park	2.26	2.28	2.30	2.34	2.34	2.34
S.C. Minneapolis	2.61	2.62	2.57	2.60	2.65	2.63
Central Bloom.	2.26	2.41	2.51	2.49	2.50	2.52
East Bloomington			2.46	2.46	2.44	2.40
Arden Hills			2.48	2.42	2.44	2.51
Golden Valley				2.71	2.64	2.61
N.E. Minneapolis				2.59	2.58	2.57
Plymouth					2.54	2.53
St. Louis Park						2.49
Ft. Snelling						2.47

Source: MTC Area Office records.

Second, it is notable that results from the Employee Follow-up Survey showed higher carpool occupancy at both sites in July, 1979, than did the MTC records. (The survey indicated mean carpool occupancy levels of 2.58 at Pentagon Park and 2.74 at Northeast Minneapolis.) This difference may be attributable to incomplete or less up-to-date information in the carpool records. According to MTC Area Office records for ten sites, 63 percent of all registered carpools had two persons, 23 percent had three persons, 10 percent had four persons, and 4 percent had five or more persons.

Vanpool occupancy levels are discussed in detail in Section 7.5. Of vanpoolers returning the Employee Follow-up Survey, the average vehicle occupancy (in September 1979) was 11.5. This is slightly higher than the level of 11.0 given by Van Pool Services records for that month.

9.8.2 Composition of Pool

Table 9-32 shows the distribution of carpool passenger composition at the two surveyed sites. It is notable that approximately one-third of the carpoolers had carpools consisting of just family members. Of the remaining carpoolers, less than 25 percent at Pentagon Park and under 10 percent at Northeast Minneapolis were in multi-employer carpools. This is consistent with the contention that multi-employer carpooling was not very prevalent. On the other hand, this finding does not necessarily indicate that the multi-employer aspect of Share-A-Ride matching efforts was less than successful since, as noted in Section 9.8.3 below, many of the carpoolers in this survey were carpooling prior to Share-A-Ride. Thus, the low level of multi-employer carpooling in the survey may

TABLE 9-32

Distribution of Carpool Composition

Carpool Composition	% of Carpoolers in Employee Follow-up Survey	
	Pentagon Park	N.E. Minneapolis
family members only	36.0%	32.4%
includes non-family members, but all from same employer	48.3	62.6
includes non-family members working at a different employer, but all at the same work site	10.8	5.0
includes non-family members working at a different work site (drop-off)	4.9	0.0

TABLE 9-33

Average Age of Carpools

	Pentagon Park (1979)	N.E. Minneapolis (1979)
Mean	18.8 months	25.9 months
Median	6.0 months	8.5 months

Source: Employee Follow-up Survey

partially reflect the characteristics of predemonstration carpools, and merely indicate that the persons interested in carpooling either don't know or prefer not to pool with others who work in nearby firms.¹ There was insufficient data to assess the extent of multi-employer pooling among carpools formed by Shared-A-Ride.

The issue of multi-employer vanpools was addressed in Sections 7.3-7.5. A total of 55 percent of the on-site vanpools and 58 percent of all vanpools involved participants from multiple employers.

9.8.3 Duration of Carpools and Share-A-Ride Impact

Table 9-33 presents the mean and median number of months that at least two members of each current carpool group have been together. This measure can underestimate the true duration of carpools, since the membership of carpool groups often change over time and may eventually have none or only one person who was in the original group. More generally, the duration of a common carpool group is not the same as duration of time any individual has been carpooling. The age of carpools that were formed or supplemented by Share-A-Ride was also constrained by the fact that the Share-A-Ride program was not initiated at Pentagon Park until 17 months prior to the Employee Follow-up Survey, and 7 months prior for Northeast Minneapolis. However, only 5 percent of the surveyed carpools at Pentagon Park and 8 percent at Northeast Minneapolis reported that their carpools were directly formed or increased by Share-A-Ride. On the other hand, 63 percent of surveyed carpools at Pentagon Park and 37 percent at Northeast Minneapolis reported that their present carpool

¹Margolin and Misch (1977) found that over one-third of commuters would want to carpool only with people they know.

group was organized since initiation of the Share-A-Ride program. (Overall, these percentages reflect the existence of significant carpooling activity prior to the Share-A-Ride program and limited program impacts on overall modal split at these sites; see Chapter 10 for further discussions of program impacts.)

9.9 CARPOOL AND VANPOOL DRIVING AND COST ARRANGEMENTS

9.9.1 Driving Arrangements

Table 9-34 shows how often carpoolers and vanpool driver/coordinators drive or do not drive their respective pools. The distribution of reasons for vanpool drivers not driving their vanpool (usually because of vacation) is shown along with van drivers' rules about waiting for passengers and whether waiting for late passengers has been a problem.

The percent of carpool and vanpool passengers who are not picked up at home, and the average access time for these persons to meet their pool groups is shown in Table 9-35. Approximately 42 percent of the vanpool riders are not picked up at home, and they spend an average of 9.5 minutes travelling to meet their vanpool. This finding, coupled with the fact that 64 percent of vanpoolers in the Knoxville vanpool program were also not picked up at home¹, suggests the importance of park and ride as a vanpool access mode.

¹Juster (1979). In that survey, 45 percent of vanpoolers drove their cars to meet the vanpool, 10 percent walked and 9 percent were dropped off at the vanpool meeting point, while 36 percent were picked up by the vanpool at their home.

TABLE 9-34

Carpool and Vanpool Driving Arrangements

For Carpoolers:

	Pentagon Park (1979)	N.E. Minneapolis (1979)
Percent who always drive	20%	13%
Percent who always ride	32%	37%
Percent who share carpool driving	48%	50%

For Vanpool Drivers:

Average Days per Month not Driving the Van	3.1 days
Reasons for Not Driving:	
Vacation	63%
Business Trip	24%
Sick	43%
Average Time Willing to Wait for a Late Passenger	3.7 minutes
Waiting for Late Passengers is a:	
Major Problem	0%
Minor Problem	19%
No Problem	80%
Percent of vanpools with rules about smoking	81%
Percent of vanpools with rules about making extra stops en route	39%

TABLE 9-35
Pool Pickup Arrangements

	Percent Not Picked Up at Home	Average Access Time to Meeting Place
Carpool (always) Passengers	8.3%	11.5 min.
Carpool Share Driving (Passengers)	17.0	5.8
Vanpool Riders	42.2	9.5

TABLE 9-36
Carpool Cost Sharing Arrangements

	Carpoolers: Always Drive	Carpoolers: Always Passenger	Carpoolers: Share Driving
Percent paying others in carpool	0.0%	50.0%	1.0%
Percent receiving payment from others in carpool	41.7	0.0	7.1
Percent paying others <u>and</u> receiving money from others in carpool	0.0	0.0	4.6
Percent with no money exchange	58.3	50.0	87.3

9.9.2 Cost Sharing Arrangements

Carpool cost sharing arrangements are shown in Table 9-36. There is no money exchange in most pools where the driving is shared, but approximately one-half of those who are always passengers do pay their driver. The proportion who do not pay their driver is partly explained by the significant extent of carpools made up of family members (as shown in Table 9-32).

9.10 KEY FINDINGS

Results from the Employee Follow-up Survey, together with the Preliminary Travel Survey, are useful as a means of identifying major factors that encourage or discourage ridesharing, and the potential for ridesharing at various sites. Key findings are summarized below.

- (1) Work-related Factors. Non-consistent daily work hours, caused by either overtime or rotating shifts, and need for a car during the workday were significant constraints to ridesharing. These factors do not necessarily preclude ridesharing, although the probability of an employee ridesharing diminishes as the number of restrictions faced and the extent of such restrictions (days per week) increase. Such work-related constraints affected, to varying degrees, more than half of the employees at all three sites surveyed (see Tables 9-2, 9-3). On the other hand, there was little evidence that flexibility to adjust work hours significantly increased the extent of ridesharing (see Table 9-9).
- (2) Size of Potential Employee Pool. The extent of carpooling was clearly dependent on the size of the potential carpooling pool at the employer and at the site. Carpooling was much more frequent at the larger firms (see Tables 9-5, 9-6). In addition, carpooling was also most frequent for those employees working in the largest work shifts at the site (see Table 9-8). Since the work shifts at the three sites surveyed were very dispersed (Table 9-7), it may be inferred that work shift dispersal was a very real constraint to more carpooling at the sites.
- (3) User Characteristics. Some personal and locational characteristics differentiated ridesharers from drive-alone commuters. On average, carpoolers and vanpoolers were more likely than drive-alone commuters to have production jobs and less likely to be in sales and service occupations. There were no other consistent differences

across job types, nor were there significant age, income or sex differences between poolers and drive-alone commuters. Females were, however, more likely than males to be carpool passengers (with no driving involved) and bus riders. Bus riders tended to have lower incomes than all other mode groups (Tables 9-15, 9-16, 9-17, 9-18). The most important factor differentiating modal groups was home to work commuting distance. The average drive-alone commuter and bus rider at the surveyed suburban work sites lived 10 miles away, while the average carpooler lived 13-16 miles away and the average vanpooler lived 27 miles away (see Table 9-10).

- (4) Ridesharing Impacts. Two possible advantages of increased ridesharing are a reduction in aggregate auto usage and a reduction in auto ownership. While the survey showed that 95 percent of carpoolers were former drive-alone commuters, the impact of vanpooling was reduced by the fact that 65 percent of the vanpoolers were formerly carpoolers. Also, 6-8 percent of the carpoolers and vanpoolers formerly were bus riders (see Table 9-19). There was no evidence that carpoolers or vanpoolers reduced their auto ownership levels over the course of the demonstration (see Table 9-14).
- (5) Pooling Arrangements. One possible advantage of the Share-A-Ride program was that it facilitated multi-employer carpooling. The importance of this advantage was, however, diminished by the facts that: (a) one-third of all carpools consisted of only family members; (b) most of the rest were single employer carpools; and (c) many of the carpools existed in some form prior to the Share-A-Ride program (see Table 9-32 and Section 9.8.3). For vanpools, an important finding was that nearly half of the vanpoolers were picked up by their vanpool at a location other than their home (see Table 9-35). This suggests that park and ride locations may be important for vanpooling.
- (6) Modal Perceptions. In general, all modal groups acknowledged driving alone to be the most dependable, fastest and most flexible mode of travel, while bus was acknowledged to be the safest and least costly mode. Few non-vanpoolers perceived any attribute superiority for vanpooling, suggesting a lack of familiarity with this mode (see Table 9-22). Regardless of site or mode group, surveyed respondents rated dependability and safety as the two most important modal choice attributes, followed by travel time and cost concerns (see Tables 9-23 and 9-24). These importance ratings, however, give only limited insight into the factors actually motivating mode choice decisions. Safety, for instance, was never offered as the main reason for any mode choice, presumably because no mode was viewed as unsafe. Furthermore, earlier market research indicates that the price of gasoline is a particularly important element of cost, and thus suggests that rising gasoline prices might increase the importance of cost concerns as a mode choice factor.

Both poolers and drive-alone commuters recognized that there were significant cost savings to be gained by pooling rather than driving alone, although these perceived savings were substantially less than those advertised in the promotional materials. In addition, these savings from ridesharing were perceived by current carpoolers and vanpoolers to be somewhat higher than the corresponding savings perceived by drive-alone commuters (see Tables 9-26, 9-27).

It can be concluded that the attraction of ridesharing for drive alone commuters is limited, as driving alone is currently perceived by most commuters as having significant advantages over others modes that far outweigh its only major disadvantage--the additional cost.

CHAPTER 10

PROGRAM ECONOMICS AND OVERALL RIDESHARING IMPACTS

The ultimate goal of the ridesharing program was to shift commuters from driving alone to a ridesharing mode--carpool, vanpool or bus. Section 10.1 summarizes outcomes of the demonstration program and the resulting effects on commuting mode split. These outcomes are compared with the program goals in Section 10.2. The demonstration program budget and costs are then presented (Section 10.3), and summary measures of cost effectiveness are briefly discussed (Section 10.4).

10.1 SUMMARY OF PROGRAM OUTCOMES

The Share-A-Ride program coverage and results are summarized in Table 10-1. Altogether, the Share-A-Ride program placed over 2000 persons into carpools or vanpools. Among the sites where matching and brokerage was completed, nearly 14 percent of the carpool applicants and over 6 percent of the vanpool applicants became verified poolers. This is as high or higher than the placement rate achieved by most other carpool and vanpool programs.¹ There are several explanations for this success:

¹As previously noted, just 2-4% of applicants in Knoxville formed pools (Juster, et al., 1979). In a survey of company-sponsored carpool programs (Johnson, et al., 1978), it was found that 10 % of applicants formed pools.

TABLE 10-1

Summary of Share-A-Ride Program Results(November 1, 1977 - October 31, 1979)

Program Marketing Coverage:	11 multi-employer sites 70,000 employees (9 percent of SMSA employment) ¹ 729 firms ¹									
Applications Received:	16,530 total (24 percent of employees, 30 percent of estimated eligible population) 11,335 carpool 11,143 vanpool ² 3,566 bus									
Verified New Carpoolers Placed: (former drive alone)	1,234 ³ (14 percent of former drive-alone applicants)									
Vanpool Participation to Date:	<table border="1"> <thead> <tr> <th></th> <th>(TOTAL)</th> <th>(SHARE-A-RIDE SITES)</th> </tr> </thead> <tbody> <tr> <td>72 vanpools</td> <td>44 vanpools</td> <td></td> </tr> <tr> <td>903 participants</td> <td>559 participants</td> <td></td> </tr> </tbody> </table>		(TOTAL)	(SHARE-A-RIDE SITES)	72 vanpools	44 vanpools		903 participants	559 participants	
	(TOTAL)	(SHARE-A-RIDE SITES)								
72 vanpools	44 vanpools									
903 participants	559 participants									
Current Vanpool Participation: (10/31/79)	<table border="1"> <tbody> <tr> <td>62 vanpools</td> <td>36 vanpools</td> </tr> <tr> <td>673 participants</td> <td>392 participants</td> </tr> </tbody> </table>	62 vanpools	36 vanpools	673 participants	392 participants					
62 vanpools	36 vanpools									
673 participants	392 participants									

¹Not including 200 firms in Metro Office Park East Bloomington site.

²Applications from Share-A-Ride sites only.

³Excludes Eagan site, where no telephone brokerage was performed. It has been estimated that about 100 new persons were placed into carpools at that site.

Note: As of April 30, 1980, the Share-A-Ride program had expanded to include Downtown St. Paul as one of the multi-employer sites. At this time, 2269 new carpoolers had been verified as placed by Share-A-Ride, 130 vanpools had been formed, and there were 1177 vanpoolers in the 104 currently operating vanpools. Since the program's beginning in 1977, between 24,000-25,000 applications had been received, including 16,947 requesting carpool matching.

1. Rather than area-wide coverage, the program focused on large, non-downtown, multi-firm employment centers. Marketing efforts concentrated on large employers, and retail firms were generally excluded.
2. The carpool placement rate benefited from telephone brokerage calls made to all matched applicants.
3. Interest in the vanpool program was clearly increased by the gasoline shortages of April-July 1979.

In aggregate terms, the overall mode split impacts of the Share-A-Ride program were modest, as shown in Table 10-2. While the ridesharing program changed the commuting mode for nearly 2,000 people among all 11 sites, this represents just 3 percent of the total employment population. The program outcome appears more significant when it is noted that the proportion of persons carpooling at some sites after initiation of the Share-A-Ride program was as much as 20 percent greater than the proportion carpooling before Share-A-Ride. It should be noted that the mode split changes indicated in Table 10-2 are only approximations, and are based on various combinations of surveys, bus ridership counts and Share-A-Ride records, together with assumptions about the stability of site employment sizes in the intervening period. Changes in the estimated percentage of employees carpooling at each site are subject to a confidence interval of ± 4 percentage points (at 95% confidence for a two tailed test) or ± 3 percentage points (at 90% confidence).

10.2 GOAL ATTAINMENT

Program objectives were established at the outset of the Share-A-Ride program (1977), and were revised in July 1979 when it became apparent that the preliminary objectives were neither realistic nor

TABLE 10-2

Commuting Mode Shifts, By Site

	% Carpooling ¹	% Vanpooling	% Bus Riders
<u>Pentagon Park</u>			
before ²	18.4%	0.2%	2.5%
after ³	22.0	0.3	2.0
<u>South Central Minneapolis</u>			
before ²	17	0.1	15.1
after ⁴	19	0.7	15
<u>Central Bloomington</u>			
before ^{2,6}	19	0	2
after ⁴	20.5	0	2
<u>Northeast Minneapolis</u>			
before ⁵	30.6	0	4.3
after ³	31.7	0.7	3.9

¹Includes drop-off.

²Results of Preliminary Travel Survey, conducted 11/77-6/78 (corrected for firm size distribution).

³Results of Employee Follow-Up Survey Screener, conducted 6-7/79 (omitting the last day of screening for Pentagon Park).

⁴Estimated on the basis of Share-A-Ride records of verified carpoolers and vanpoolers added as of 10/79. It is also assumed that there were no net changes in site employment size.

⁵Results of retrospective questions in Employee Follow-Up Survey, for mode choice as of 1/79.

⁶Four largest firms only.

appropriate. The original goals, revised goals and actual program outcomes are discussed below.

Objective 1: Marketing Coverage--It was originally hoped that active participation would be obtained from 80 percent of the employers within the demonstration sites. Given the high costs and disappointing outcomes associated with marketing to small employers at Pentagon Park, this goal was revised to a coverage level of 80 percent of the site employees. Active marketing techniques (i.e., employee presentations and surveys) were subsequently restricted to use only for large employers, reaching 15 percent of all firms and 66 percent of all site employees, at the demonstration sites. The remaining site employers were given posters and pamphlets to distribute, but the extent to which these marketing materials reached the employees is unknown.

Objective 2: Application Response--The major marketing objective was to obtain applications from at least 30 percent of eligible site employees. As of October 31, 1979, the program was offered at 11 sites with nearly 70,000 employees, of which an estimated 54,000 were considered potentially eligible for ridesharing. A total of 16,530 applications (for carpool, vanpool and/or bus information) were received during the period, which represents 24 percent of site employment or 30 percent of the estimated eligible population.

These percentages most likely overestimate the application rate among employees by a few percent points, for three reasons: (1) The total site employment count is an underestimate of the true number (as it tends to miss small firms in or around the expansion sites and omits growth of some of the larger firms during the demonstration period);

(2) The proportion of site employment considered to be "ridesharing eligible" is highly arbitrary and possibly low (as analysis in Chapter 9 indicates that although certain work-related conditions do reduce the likelihood of ridesharing, they are seldom absolute barriers to ridesharing); (3) The number of employees applying is slightly less than the number of applications received (since some employees filled out more than one application card over the two year course of the demonstration).

Objective 3: Carpool Placement--The goal of carpool brokerage was to move 20 - 25 percent of drive-alone applicants into carpools. As of October 31, 1979, 9,541 carpool applications had been received from the 8 sites for which brokerage operations were completed. Of these, 8,047 were from persons not currently carpooling. The number of verified new carpoolers placed in those sites was 1,127, representing just 14 percent of the drive alone applicant pool. It is not clear whether any of this shortfall should be interpreted as a reflection of the quality of the applications received or the effectiveness of the matching and telephone brokerage operation. It is particularly difficult to form carpools in the face of dispersed work hours at suburban, multi-employer work sites. Since the 14 percent placement rate was nevertheless better than that experienced by several previous ridesharing programs, it may be concluded that the original goal was not realistic.

Objective 4: Vanpool Placement--The goal for the vanpool program was to operate at least 20 vanpools in the first year and have 40 - 50 vanpools operating in the second year. While no more than 6 vanpools

operated at any one time in the first year, 62 vanpools were in operation by the end of the second year. The greater success of the vanpool program in the second year is attributable to a number of factors: the addition of off-site marketing, an accelerated pace for on-site marketing, and increased applicant interest due to rising gasoline prices and supply shortages during the summer of 1979.

Objective 5: Continued Growth at Original Sites--One of the revised objectives set in July 1978 was to increase the number of carpools by 50 percent and double the number of vanpools at the original three sites during the next year. As of July 1978, initial marketing had been completed at the three sites, and all carpool and vanpool applications from those sites had been processed. Between July 1978 and July 1979, continued marketing efforts had increased the number of verified new carpools placed at the original three sites from 226 to 441, a 66 percent increase.¹ The vanpool program expansion at the original sites did not meet the goal, however. The number of vanpools formed at those sites had increased from six to ten, although two of them had disbanded in the intervening period.

Objective 6: Overall MTC Ridesharing Goal--The demonstration program was a component of the MTC's efforts to meet the goal set by the Minnesota legislature of increasing the area-wide proportion of (peak period) commuters riding rather than driving to 50 percent by 1980. As

¹The majority of these new carpools were new employees at the major firm in Pentagon Park, which hired hundreds of new employees during that year. A smaller portion were persons who were originally employed and subjected to initial marketing activities.

part of that goal, the MTC (in 1976) hoped to increase ridesharing at the non-downtown Share-A-Ride sites to at least 30 percent of all work trips by one year after implementation. This would involve a 50 percent expansion of carpooling and the growth of vanpooling to account for 5 percent of all work trips there. This goal was dropped early in the program, as it became apparent that it was not realistic. After two years, the program had actually expanded carpooling and vanpooling at the original three sites by less than half those amounts.

10.3 PROGRAM COSTS

MTC had two major sources of funding for the ridesharing demonstration:

- a \$335,000 UMTA Section 6 (Service and Methods Demonstration) grant for the period June 1977 - February 1980, and
- A \$560,000 Federal Aid Urban Systems grant for three years commencing July 1977 (including \$28,000 of Mn/DOT paratransit funds and \$28,000 of MTC funds used as the local match for FAUS).

The bulk of the initial setup, marketing and first year operations were funded by the UMTA grant, while the FAUS grant provided the majority of the funding for the second year operations.

A breakdown of actual expenditures by organization and calendar year (through 1979) is shown in Table 10-3. (Remaining funds were spent during 1980). The relative expenditure levels of the four organization entities reflect the distribution of costs among the different program components, since each organization had distinct program tasks. (as described in Chapter 3):

Public Service Options (PSO)--site identification and initial marketing

TABLE 10-3

Demonstration Expenditures by Office

Office	1977 Expenditures	1978 Expenditures	1979 Expenditures
Public Service Options, Inc.	Not Available	\$118,700	\$123,000
Van Pool Services, Inc.	Not Available	74,300	91,600
MTC/Area Office	Not Available	92,200	102,100
MTC/ Main Office	Not Available	6,000	21,300
	\$95,611	\$291,000	\$338,000

Van Pool Services (VPS)--vanpool matching and operations

MTC Area Office--carpool brokerage, bus information and continuing marketing

MTC Main Office--overall program administration

A breakdown of expenditures by program function is currently available only for calendar year 1978, and is shown in Table 10-4. It is notable that total marketing expenses are nearly as large as total operating expenses for that year. The proportion of total expenditures spent for marketing is typically high in the introduction phase of a new product or service, and would be expected to decrease over time. In this case, the amount spent just on initial marketing by PSO (\$62,100) is three fourths of the level of combined operations costs incurred by the Area Office for carpool matching, brokerage and bus referrals and by VPS for vanpool brokerage and operations (totalling \$83,100). That is a reflection of both the intensive approach used for initial marketing and the limited staffing levels at which the Area Office and VPS operated. (As discussed in previous chapters, both the Area Office and VPS experienced delays in responding to applications in the second year due to insufficient staff to handle the influx of applications generated by the marketing effort.)

Among all marketing costs, 75 percent were for initial Share-A-Ride marketing, 14 percent were for continuing marketing at "mature" sites, and 11 percent were for off-site marketing of vanpools. As the ridesharing program becomes older, the magnitude of continuing marketing must increase as the number of "mature" sites increases. Initial

TABLE 10-4

Calendar Year 1978 Expenditures by Office and Function

Expenditures (\$1000's)							
Organization	Marketing	Operations	Administration	Planning and Evaluation	Sub-Total: (Total Minus Start-Up)	% of Sub- Total	Additional Start-Up Costs*
Public Service Options	62.1	8.3	18.6	13.0	102.0	(41%)	16.7
Van Pool Services	9.5	35.8	4.8	1.6	51.8	(22%)	22.5
MTC Area Office	14.3	47.2	21.9	4.4	87.8	(35%)	4.4
MTC Main Office	0	0	6.0	0	6.0	(2%)	0
TOTALS: (% of Total)	85.9 (35%)	91.4 (37%)	51.3 (21%)	19.0 (8%)	247.5 (100%)	(100%)	43.5

*Note that this does not include additional start-up costs incurred by PSO, MTC and VPS in 1977.

marketing costs, on the other hand, would be expected to remain level and then decrease as the number of sites (and employers) remaining to be marketed diminishes.

There are several reasons why the Share-A-Ride expenditure breakdown should not be considered transferrable to other programs. First of all, the Share-A-Ride program incurred some additional costs related to evaluation, which are attributable to its status as a federally-funded demonstration program. This includes approximately \$9,500 spent by PSO and \$4,000 spent by the MTC and VPS in 1978 for assistance with the Service and Methods demonstration evaluation. There were also additional start-up costs, including costs associated with the development and implementation of the employee presentation marketing approach (by PSO) and the development of the manual carpool matching system and the telephone brokerage approach (by the Area Office). The expenditure breakdown also misses some costs, such as the cost of services performed by the Transit Information Center in providing appropriate bus schedules to interested Share-A-Ride applicants.

Vanpool program costs (incurred by VPS) included several items relating to initial vehicle acquisition and early vanpool operations. This includes \$7,700 of passenger subsidy for maintaining vanpools operating at below breakeven ridership levels for one or two months each. The start-up costs for VPS include lease costs for the initial 20 vans during the start up period. In addition, VPS incurred \$12,000 of vehicle holding costs beyond start-up due to some of the vans sitting idle for much of the first year. As vanpool demand has grown to meet or

exceed vehicle supplies, and program staff has gained experience forecasting vehicle demand, such subsidies and holding costs should diminish for future years.

A breakdown of the vanpool lease cost and operating cost budget (for justifying vanpool fares) is discussed in chapter 7 and presented in Table 7-3. All administrative costs of the VPS office and some van insurance costs were subsidized by the MTC. Van Pool Services operated on a not-for-profit basis during the entire demonstration period. While vanpool fares and VPS revenue are known, the full costs incurred by VPS are not known since VPS is a private firm. No information is available on differences between the van fleet operations and maintenance costs actually incurred and the operating cost budget assumed for determining fare levels. All vanpool program cost accounting was performed at Chrysler Corporation offices in Detroit rather than at the VPS Twin Cities office. The cost of services performed in Detroit are not reflected in the VPS expenditure breakdown.

Excluding start up costs and the VPS passenger subsidy and vehicle holding costs, the costs of program marketing, brokerage and administration for all organizations combined were distributed as 77 percent direct labor, 14 percent office overhead and 9 percent direct expenses. The majority of the direct expenses were payments by PSO to subcontractors for development of marketing materials. The high labor costs were attributable to: (1) the front end marketing approach that involved hundreds of small-group employee presentations (as documented in Table 5-3), (2) the labor intensive nature of telephone brokerage, and

(3) the use of a manual matching system rather than totally automated (computer) matching for carpool and vanpool applications. As discussed in Chapter 6, it is not clear that a computer matching system would have been more cost effective than the manual system given the limited level of applications in the program's first year. As the program expands, however, computer matching will largely replace the manual system.

10.4 BENEFITS AND COST EFFECTIVENESS

Benefits

Overall program benefits, in terms of reductions in demand for transportation resources and savings to users, are estimated in Table 10-5. It is important to note that the reductions in vehicle miles travelled (VMT) and gasoline savings are functions of average travel distances. The greater savings (per pooler) from vanpooling compared to carpooling are due in part to the fact that the average vanpool commute was twice as long as the average carpool commute.

All of the measures of savings--VMT, gasoline, parking and user cost--are also dependent on the previous modes used by the new poolers. The average savings per pooler for all of these items adjust for the fact that not all of the new poolers formerly drove alone. No reductions in VMT, gasoline or parking were attributed to the 5 percent of carpoolers and 8 percent of vanpoolers who formerly were bus riders. In addition, all of the vanpool savings adjust for the fact that 65 percent of the vanpoolers formerly carpoled. It is for this reason that the parking demand reduction and user cost savings per pooler were smaller for vanpoolers than for carpoolers.

TABLE 10-5
Annual VMT, Gasoline, Parking and Cost Savings

	Average per Pooler ¹	Total For All New Poolers
<u>Vehicle Miles Travelled (VMT) Reduction</u>		
Carpool	3,867	4,771,878
Vanpool	5,517	3,712,941
Total		8,484,819
<u>Gasoline Savings (Gallons)</u>		
Carpool	227	280,699
Vanpool	324	218,052
Total		498,751
<u>Parking Space Demand Reduction</u>		
Carpool	0.95	1,172
Vanpool	0.46	309
Total		1,481
<u>User Cost Savings (\$) ²</u>		
Carpool	457	563,938
Vanpool	291	195,843
Total		759,781

¹1,234 verified carpoolers placed by Share-A-ride and 673 vanpoolers as of October 31, 1979.

²It is assumed that no change in auto ownership is associated with switching commuting modes (based on survey results from Chapter 9).

Assumptions for the above table (based on findings in Chapter 9):

	Carpool	Vanpool
1. Avg. Round Trip (drive alone) commute distance	28 mi.	54 mi.
2. Avg. Daily Pool Circuitry Distance	3 mi.	14 mi.
3. Avg. Vehicle Occupancy	2.6	11
4. % Formerly Driving Alone (max. savings)	95%	27%
5. % Formerly Carpooling (smaller savings)	--	65%
6. % Formerly Bus Riders (no savings)	5%	8%
	Auto	Van
7. Miles per Gallon	17	10
8. Commuting Cost (¢/Mile) (gas, oil and maintenance, plus lease costs for vans)	10¢	29¢

The user cost savings were computed on the basis that there was no reduction in vehicle ownership level associated with the switch from driving alone to ridesharing. Hence, the estimated user cost savings from switching to ridesharing include savings in gasoline, oil and auto maintenance, but no corresponding savings in fixed vehicle costs (depreciation, registration, taxes and most of insurance). In fact, the switch to vanpooling involves an increased fixed cost associated with obtaining (leasing) the van. As an example, the daily commuting cost of a 50 mile round-trip commute is thus estimated to be \$5 for driving alone, \$1.92 per person for carpooling and \$1.57 per person for vanpooling.

It is notable that the program benefits attributable to the 673 vanpoolers are of approximately the same magnitude as the corresponding benefits attributed to 703 vanpoolers in the Los Angeles Commuter Computer Program (Commuter Computer, 1979). The Commuter Computer vanpoolers had a smaller reduction in VMT and gasoline consumption due to shorter trip distances, and a larger parking demand reduction and user cost savings due to a greater proportion of former drive alone commuters.¹

Cost Effectiveness

Given the demonstration nature of the program and the lack of cost breakdown by task, it is difficult to allocate program costs between the carpool, vanpool and bus elements. It is also not possible to allocate

¹For 703 vanpoolers in 86 vans, Commuter Computer calculated a VMT reduction of 3.08 million miles, gas savings of 192,500 gallons, parking demand reduction of 400 spaces and user cost savings of \$277,400 annually.

costs between matching functions and either telephone brokerage (for carpool) or van fleet operations (for vanpool). Available data (Tables 10-3 and 10-4) allow only for a distinction between marketing, operations and administrative costs.

Marketing costs include expenditures on initial marketing by PSO and its marketing materials subcontractor, continuing marketing activities by the MTC Area Office, and vanpool marketing (on-site and off-site) by VPS. Marketing costs for 1978 amounted to \$16 per application received or \$122 per pooler placed. An accelerated expansion into new sites (and off-site vanpool promotion) in conjunction with a shift in marketing strategy to concentrate on major employers, helped reduce marketing costs in the program's second year. For the first ten months of 1979, estimated marketing costs were \$10 per application received or \$65 per pooler placed.¹

Operating and administrative costs include MTC Area Office expenditures for carpool matching, telephone brokerage and bus application processing, VPS expenditures for vanpool matching, pool formation and fleet operations, and PSO operating and administrative costs.

¹Cost estimates per application are based on applications from Share-A-Ride only (since no count of off-site applications is available), but cost estimates per pooler include off-site vanpoolers (as well as on-site carpoolers and vanpoolers). Costs for 1978 are calculated on the basis of 5453 applications received, 492 carpoolers placed and 214 vanpoolers placed during the calendar year. Costs for 1979 are calculated on the basis of 9518 applications received, 742 carpoolers placed and 689 vanpoolers placed during the first ten months of that year.

Operating and administrative costs in 1978 were \$202 per pooler placed, but dropped to an estimated \$102 per pooler placed for the first ten months of 1979. The lower cost in the second year is largely a reflection of the fact that almost twice as many Share-A-Ride applications were processed (and hence, persons placed in pools) during the first 10 months of 1979 as were processed during 1978, with almost no net increase in staff or expenditures.¹ The cost difference is also partly attributable to the addition of off-site vanpools during the second year, with 344 persons placed in off-site vanpools at relatively low additional cost for operations, administration and marketing.

In comparing Share-A-Ride program costs and outcomes with those of other ridesharing programs, it is important to note that the Share-A-Ride program has several relatively unique aspects: (1) widespread use of marketing presentations to small groups of employees, (2) the matching of multi-employer carpools (as well as vanpools), and (3) the use of personalized "telephone brokerage" follow-up for matched carpool applicants.

¹As noted in previous chapters, the higher number of applications in the second year did, however, at times exceed staff capacity for matching and telephone brokerage, resulting in delays in processing carpool and vanpool application.

CHAPTER 11

CONCLUSIONS

The Minneapolis Ridesharing Commuter Services Demonstration was important as a demonstration of a comprehensive commuter brokerage program oriented towards multi-employer, non-downtown sites. The intensive marketing effort, the personalized "telephone brokerage" approach for assisting carpool applicants and the use of a third-party vanpool provider all contribute to differentiate the operation of this program from other ridesharing programs. Several aspects of the marketing, matching and brokerage functions were refined over the course of the demonstration, and were reflected in a much improved performance in the demonstration's second year. While program performance measures were addressed in Chapter 10, this chapter summarizes major findings concerning the operational innovations of the Share-A-Ride program, organizational issues and lessons learned from the demonstration.

11.1 THE MARKET FOR A RIDESHARING BROKERAGE PROGRAM

Conditions Limiting the Potential for Ridesharing

Over a two-year period, the Share-A-Ride program was successful in placing approximately 2,000 commuters into carpools and vanpools, out of an applicant pool of 16,000. By comparison with other ridesharing programs, this is considered to be a very good placement rate. Overall impacts on mode split at the sites fell short of the stated program

goals, despite a great deal of refinement in the marketing and brokerage processes in the second year. It appears that the stated program goals may not have been achievable due to the existence of conditions limiting the potential for ridesharing at the non-downtown employment sites. These findings are summarized below.

The focus on non-downtown locations was one unique aspect of the ridesharing demonstration. Non-downtown worksites are generally less conducive to ridesharing than downtown worksites, as they are frequently characterized by plentiful free parking, a limited level of public transit service, close proximity to major freeways and little traffic congestion--all features favorable to solo driving. The non-downtown focus is important because the Twin Cities is characteristic of many urban areas in the US in which the majority of the employment is widely dispersed throughout the entire metropolitan area outside of downtown.

The focus on multi-employer sites was another unique aspect of this demonstration. In the past, carpool and vanpool programs have been successfully implemented at many large firms in the Twin Cities and elsewhere. A key question, however, was the extent to which employees of small and medium size firms could be successfully incorporated into a ridesharing program. Results from this demonstration suggest that the multi-employer sites do represent a significant market for ridesharing programs, but a difficult and expensive one to organize. The limited communication between smaller firms poses a major challenge to the effective penetration of this market. Efforts to obtain permission from each individual employer to solicit applications from their employees are

costly. This approach was tried in the demonstration but dropped due to concern about cost effectiveness.

From the experience at 11 different employment sites, work-related constraints consistently emerged as important factors limiting the extent of multi-employer pooling (and pooling within some large single firms). A multiplicity of different working times, overtime, part-time employment and employees needing their cars during work hours often reduced the potential for carpooling and vanpooling more than initially anticipated. Surveys indicated that over half of the employees at the three sites surveyed either worked overtime or required the use of a car for work at least once a week. While these conditions did not preclude ridesharing, they did consistently reduce rates of ridesharing. In general, restrictive work conditions, varying working hours and the geographic dispersion of applicants are major reasons why no custom bus groups were formed and only a small number of vanpool groups were formed at any of the sites, and just 14 percent of the drive-alone carpool applicants were placed in carpools.

In assessing the importance of work-related constraints to ridesharing, it is important to take into account the characteristics of existing commuting conditions and the perceived need for ridesharing services. The Share-A-Ride staff conducted discussions with employers regarding changing employee schedules to facilitate or encourage ridesharing. Many employers were not receptive to the idea, but it was felt that they would have been more willing to consider work shift changes if commuting conditions had been less favorable for driving

alone. In addition, employee surveys indicated that some persons with rotating shifts, occasional overtime or need for a car at work did nevertheless commute by carpool or bus, but that most commuters preferred the convenience and flexibility of driving alone over the cost savings they recognized from ridesharing. Future changes in fuel prices and availability could shift these values, and encourage more commuters to work out ridesharing arrangements that overcome the current work-related constraints.

Short commute distances were another factor particularly limiting the potential for vanpooling. While the median home-to-work distance for vanpoolers was 23 miles, less than 12 percent of total employment at the surveyed sites had commute distances in excess of 20 miles.

Characteristics of the Most Successful Target Groups for Marketing

The size and activity type of a firm were critical factors in determining ridesharing potential. Retail stores, hospitals and warehouses were generally poor markets for ridesharing, due in part to restrictions involving overtime, rotating work shifts and part-time employment. Sales and service businesses were also not conducive to ridesharing due to the frequent need of employees to use their own cars during the work day. Manufacturing facilities and offices were the most successful sources of ridesharing applications.

From the marketing experience at the original three sites, it was clear that small firms (under 100 employees) contributed little to the ridesharing potential of a site. The most successful sites all had at least one firm with over 1,000 employees which itself generated over 400

ridesharing applications. Very small firms (i.e., under 25 employees) usually exhibited a lack of interest in participation in the ridesharing program, and application rates from such firms were typically small.

In response to the finding that marketing efforts aimed at small firms yielded consistently disappointing results, active marketing efforts (presentations and surveys) in the second year were concentrated on large employers, with only passive marketing (brochure distribution) for employees of the small firms. This streamlining of the marketing effort substantially shortened the time (and cost) required for marketing to each new site. As a result, the Share-A-Ride program was able to expand from 3 to 11 sites in the second year, generate over twice as many applications, and place twice as many persons into carpools and vanpools as in the first 12 months. This accelerated program expansion was achieved at no cost increase over the program's first year, although it did come at the expense of a limited effort to reach the market of smaller firms.

The diminished role of small firms in the ridesharing program has even more important implications for the entire concept of multi-employer pooling. At almost all of the sites, one or two large firms accounted for a majority of the applications received from that site. This was equally true at the first two sites where strong attempts were made to involve small and medium size firms, as at the later sites where little attempt was made to involve the smaller employers. The general finding, then, is that a multi-employer ridesharing promotion works well only when it is "anchored" by one or more large (over 1,000 employee) firm.

Consistent with this finding is the fact that nearly half of the vanpools at the non-downtown sites were single-employer pools despite the multi-employer nature of the ridesharing program.

It is desirable that a multi-employer ridesharing site have carefully defined boundaries within which there is an easily-identifiable and reasonably compact cluster of firms. Inaccessibility between firms within a site emerged as a major factor discouraging the formation or continuation of multi-employer carpools and vanpools at some of the sites. Distances of over one mile between firms, or the existence of railroad tracks, expressways, other physical barriers or a non-direct road network, all may isolate some firms from others and make circuitry for dropping off and picking up riders an additional problem for multi-employer pools.

11.2 PROGRAM OPERATIONS

Marketing Techniques

The marketing strategy for the Share-A-Ride program was characterized by an intensive effort of personal contacts to employers and mandatory presentation meetings for employees, when possible. The willingness of employers to hold presentation meetings for their employees appeared to increase following the period of limited gasoline supply during spring and summer 1979.

When employee presentation meetings were not possible, the marketing staff attempted to distribute a travel survey form for marketing purposes. In terms of application rate per employees, mandatory meetings generated the greatest return, followed by mandatory surveys, voluntary

meetings and then voluntary surveys. Exclusive use of passive or indirect marketing techniques, such as information booths, posters, newsletters and brochures, resulted in far lower application rates than the "active" techniques utilizing meetings or surveys. At best, the passive marketing techniques may serve a longer run educational purpose.

The "hard sell" employee presentation approach that was frequently utilized was more successful than other marketing techniques in increasing employee application rates and hence increasing the size of the applicant pool for matching. The mandatory employee presentation approach was also more costly and labor intensive than the other marketing options, however. The cost-effectiveness of this technique and the value of the additional applications it generated is not clear. Concern was expressed that a too-intensive marketing approach could at some point decrease the quality of the match lists and frustrate the truly interested applicants by flooding the applicant pool with persons only marginally interested in ridesharing. There is no clear evidence that such a problem did emerge in this demonstration.

Carpool Brokerage

Telephone brokerage was one of the more unique aspects of this ridesharing demonstration. Follow-up efforts to assist matched carpool applicants to form carpools began initially as carpool formation meetings, but evolved into a system of "telephone brokerage." Under the telephone brokerage system, follow-up calls were made to all matched carpool applicants. The calls functioned as a marketing tool to encourage applicants to contact others on their match lists, and as a

data collection tool to determine whether the person had joined a carpool. Conference calls were sometimes made because of the reluctance of some applicants to make the initial contact with a stranger on their match list.

While the multi-employer characteristic of the applicant pool might be expected to have a negative influence on carpool formation rates, the telephone brokerage technique contributed to a carpool placement rate that was 4-6 percent higher than the rate achieved by most other types of carpooling programs. "Telephone brokerage" is clearly an effective follow-up monitoring device which allows continuous feedback of results from marketing and matching. Still, the cost-effectiveness of this technique as a marketing device is not known. Further analysis is necessary to measure the unit costs of telephone brokerage and the marginal increase in carpool placement that is directly attributable to the telephone brokerage technique. In addition, there remain several issues concerning the design and implementation of a telephone brokerage effort. These are: (a) the optimal number of follow-up telephone calls to be made, (b) selectivity criteria for concentrating the telephone calls on those market segments most likely to form carpools, (c) the extent of use of conference calls, and (d) the time delay between mailing match lists and conducting telephone brokerage calls.

Vanpool Operations

Vanpool program operations were the responsibility of a private, "third party provider," which leased the vans and supplied them to vanpoolers in return for monthly fares. This arrangement facilitated

multi-employer vanpooling, since it operated independently of employers and required no long-run investment costs or liabilities on the part of employers or employees.

After a slow start in the first year, the vanpool program exhibited a dramatic improvement in the second year. Only six vanpools were operating as of October 1978 (at the end of the first operating year) and their average occupancy level was eight. One year later, 62 vanpools were operating with an average occupancy level of 11.

There are several reasons for the dramatic vanpool program improvement. First of all, the Share-A-Ride program only involved three sites in the first year, while applications had been processed for nine Share-A-Ride sites by the end of the second year. In addition, the vanpool program was opened to participation by off-site employers, who accounted for 26 of the vanpools. Nevertheless, the increase in vanpool interest on the part of on-site and off-site employers in the second year was still dramatic and is partially attributable to concern over gasoline prices and availability starting in April 1979. The increased demand exceeded the number of vans on order and resulted in a sustained vehicle waiting list of 20 to 30 additional vanpool groups starting in July 1979.

Bus Promotion

While the ridesharing program led to measurable increases in carpooling and vanpooling at the sites, there were no measurable increases (and possibly even small decreases) in bus ridership during the program's first year. This is despite the fact that bus promotion was an integral part of the Share-A-Ride marketing campaign, and thousands of

requests for bus information were received. The accuracy of the bus ridership counts may be questioned, as can the usefulness of the bus schedule information provided. Most likely, however, the bus promotions lack of impact on ridership levels can be related to the problems of dispersed residential locations and limited bus service available at the non-downtown employment sites.

Continuing Marketing

Postcard follow-up surveys yielded very poor results as a means to reactivate carpool interest among "lost interest" applicants. Passive marketing techniques as a means of continued promotion (after the initial marketing campaign) resulted in just a trickle of new applications. By contrast, annual or other periodic resurveys of all employees at some firms were successful in bringing in applications from a significant proportion of employees. Thus, this latter technique may be more successful as a long-run means of maintaining an up-to-date pool of applicants. Presentations at new employee orientations at some of the larger firms were also a major element of continuing marketing, and accounted for a large proportion of all applications attributable to continuing marketing activities.

11.3 ORGANIZATIONAL ISSUES

A decentralized (multiple agency) organization may appear attractive because of its inherent flexibility, the opportunity for drawing on private sector skills and contacts, and increased efforts at program assessment that can result from the contracting process. However, this

form of organization can lead to serious inter-agency coordination difficulties unless there is strong central management to continually assess priorities and adjust the responsibilities and work flow of the organizations responsible for various functions. In the Share-A-Ride program, separate agencies were responsible for each of : (1) initial marketing, (2) continuing marketing and carpool brokerage, and (3) vanpool operations. There was no central coordinator for day-to-day operations decisions. Some of the problems that arose were:

- A. Coordination of timing and workload between the marketing staff and the matching/brokerage staffs for carpools and vanpools. At several times, the carpool staff and/or the vanpool staff were not able to process applications as fast as the marketing staff was able to generate them.
- B. Conflict of goal perspectives between the marketing staff and the carpool matching/brokerage staff, centering around the tradeoffs between obtaining a greater quantity of applicants through intensive marketing and maintaining a high quality pool of interested applicants.
- C. Confusion in the transition of employer contacts from the "initial marketing" team to the "continuing marketing" team.
- D. Priorities for the vanpool provider in marketing and processing application for off-site employers, relative to processing applications from the full ridesharing program sites.

To some extent, these conflicts are inherent in the separation of tasks among different staffs, although many of the coordination problems can be minimized with a strong coordinator for day to day management and a method for interagency conflict resolutions.¹ It should also be recognized that there were some advantages for the program from the use

¹MTC subsequently hired a Share-A-Ride Program Manager and internalized marketing functions in the third year of the program (1980).

of contractors to deliver the vanpool services and to perform marketing. The MTC was able to provide the vanpool service without having to resolve many issues related to public agency ownership, insurance and maintenance of vehicles. The use of a marketing* contractor also allowed the agency to readily obtain the assistance and expertise of others in the development and operation of the program. The use of the contractors encouraged flexibility and competition within the program, which may be viewed as either a positive or a negative feature.

The original concept of multiple area field offices, each fulfilling the role of an "area commuter broker" for a sub-region of the metropolitan area, was dropped as the program evolved. While one Area Office was set up to service the original sites in southern Hennepin County, that office expanded its coverage in the second year to handle carpool matching, brokerage and continuing rideshare marketing at all expansion sites in the Twin Cities area. Part of the reason for this was that the appropriate coverage region for an area field office was never determined or defined. It was originally assumed that field offices would be desirable for marketing and matching. As the program expanded, however, there did not appear to be any significant advantage to opening separate field offices, as the current Area Office staff was capable of serving expansion sites regardless of their locations in the metropolitan area. Since the geographic location of the Area Office was not critical, its staff was moved from its suburban location back to the MTC headquarters in St. Paul for the program's third year.

11.4 TRANSFERABILITY OF RESULTS

Regardless of how carefully a ridesharing program is designed and its market identified, overall program success also depends on the level of public interest in ridesharing, the level of support from employers and the level of commitment by the sponsoring organization. The dramatic improvement in the success of the vanpool program (and to a lesser extent, the carpool program) in the second year appeared to be partly attributable to the experience of limited gasoline availability and rising fuel prices in the Spring and Summer of 1979. This situation led to a noticeable increase in employer cooperation for employee presentation meetings and a strong increase in unsolicited requests for vanpool services from off-site firms, while there was little change in employer marketing strategy.

The level of success of the ridesharing demonstration in the Twin Cities was likely to have benefited from an atmosphere already conducive to ridesharing. Since vanpooling was originated at the 3M Company of St. Paul and had previously spread to ten other area firms, the concept was already familiar to many of the area employers. In addition, the employment base of the Twin Cities is dominated by the manufacturing and office facilities of several major high-technology computer-oriented firms. The attitudes of company management officials may be less conducive to ridesharing in other types of industrial firms that dominate the employment bases of some other metropolitan areas. Also, the corporate headquarters of several of the firms are located in the Twin Cities, which further benefits marketing by reducing delays in getting

approval or commitment from top management. For these reasons, care should be taken in applying results of the Twin Cities demonstration program to areas with different employment and commuting characteristics.

Despite the above caveats, the Minneapolis Ridesharing Demonstration has yielded a number of major findings that should be applicable elsewhere. One major finding is that the success of multi-employer carpooling and vanpooling depends upon meeting a number of specific conditions:

- work shift times are consistent between firms, and work characteristics are compatible with ridesharing
- the multi-employer site has at least one major "anchor" employer participating actively in the ridesharing program
- the multi-employer site is a well-defined, reasonably compact area with no large distances or access barriers between the firms

Lessons learned from experimentation with several different marketing strategies, a manual matching technique, the development of the telephone brokerage approach and use of contractors for marketing and vanpool services should all be applicable for the design and implementation of ridesharing programs elsewhere.

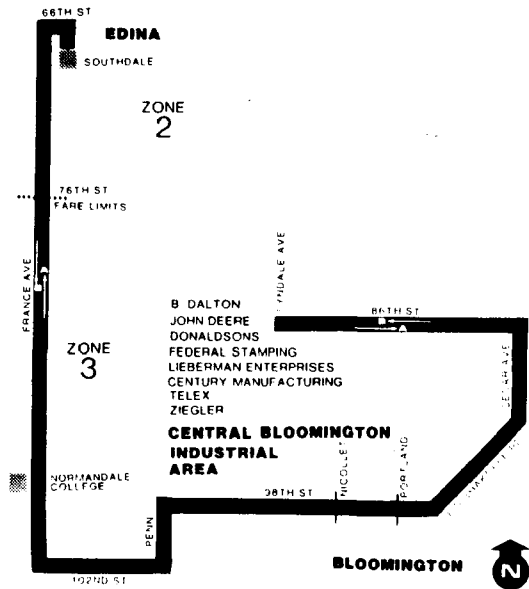
APPENDIX A

SHARE-A-RIDE PROMOTIONAL MATERIALS AND FORMS

Exhibit

A-1	Central Bloomington Bus Brochure
A-2	Share-A-Ride Brochure
A-3	Revised Share-A-Ride Brochure
A-4	Revised Vanpooling Brochure
A-5	Share-A-Ride News and Views
A-6	Preliminary Travel Survey
A-7	Ridesharing Application Card
A-8	Tear-out Ridesharing Application from Brochure
A-9	Commuter Survey (for Program Marketing)
A-10	Carpool Match Letter
A-11	Bus Schedule Letter
A-12	Vanpool Driver Agreement
A-13	Vanpool Passenger Agreement
A-14	Vanpool Revenue and Expense Report

**Route 48
A & B**



Monday thru Friday

(from Southdale, France Ave. and W. 102nd St.)

AM			
Southdale		48B	48B
76th & France	6:56	7:37	
102nd & France	7:03	7:44	
98th & James	7:11	7:52	
	7:16	7:57	

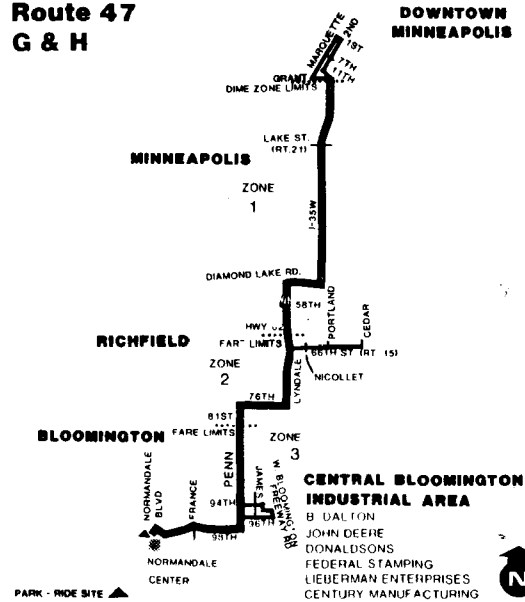
PM			
98th & James		48A	48A
102nd & France	3:50	4:52	
76th & France	3:55	4:57	
Southdale	4:03	5:05	
	4:09	5:11	

(from E. 86th St., Cedar Ave., and E. 98th St.)

AM			
86th & Lyndale		48A	48A
86th & Cedar	7:01	7:21	8:21
98th & Lyndale	7:06	7:26	8:26
98th & James	7:16	7:36	8:36
	7:19	7:39	8:39

PM				
98th & James	48B	48B	48B	48B
98th & Lyndale	3:08	4:08	4:38	5:35
86th & Cedar	3:11	4:11	4:41	5:38
86th & Lyndale	3:21	4:21	4:51	5:48
	3:26	4:26	4:56	5:53

**Route 47
G & H**



Monday thru Friday

(from Mpls., Richfield & Penn Ave. in Bloomington)

AM			
Marquette & 2nd St.		47G	47H
Lake & 135W	7:05	7:37	8:25
54th & Lyndale	7:15	7:47	8:35
66th & Lyndale	7:22	7:54	8:42
76th & Lyndale	7:27*	7:59*	8:47*
94th & Penn	7:31	8:03	8:51
94th & James	7:40	8:13	9:01
	4:45		

PM			
94th & James		47H	47H
94th & Penn	4:37		
76th & Lyndale	3:43	4:40	5:08
66th & Lyndale	3:54	4:47	5:19
54th & Lyndale	3:58	4:51*	5:23*
135W & Lake	4:03	4:56	5:28
7th & 2nd Ave. S.	4:11	5:04	5:35
	4:19	5:12	5:42

*connects with route 15 at 66th St.

(from W. 98th St. in Bloomington)

AM				
Normandale Plaza		6:32	6:59	7:29
98th & France	6:35	7:02	7:32	8:02
94th & Penn	6:38	7:06	7:36	8:06

PM				
94th & Penn	3:00	4:03	4:48	5:08
98th & France	3:04	4:07	4:52	5:12
Normandale Plaza	3:07	4:10	4:55	5:15

MEMO:

TO: Central Bloomington Employees

FROM: The Metropolitan Transit Commission

SUBJECT: MTC Bus Service to,
Donaldson's
John Deere
Century Manufacturing
B. Dalton
Federal Stamping
Lieberman Enterprises
Telex
Thermo King
Toro
Ziegler

Central Bloomington Bus Brochure

Figure A-1



Van Pools.

Once nine or more applicants having the same work hours and travel patterns are matched, we establish a van route. A volunteer driver is selected who picks up riders at their homes, drives them to work, and returns them to their homes.



The driver rides free and has personal use of the van after working hours.

Many riders who are now vanpooling have discovered they no longer need a second car.

All our vans are new, deluxe vehicles, equipped with radio, air conditioning and other comfort features. If any mechanical problems should arise while commuting, a back-up vehicle is provided.

Now you can enjoy this comfort and convenience—read the paper, crochet, or even take a cat-nap while commuting—at a savings of up to \$430 a year. If you drive farther than 10 miles to work, your savings will be even greater.

Fares are collected monthly and determined by your round trip distance.

Typical Van Pool costs are:		
Daily Round Trip Distance	Monthly Van Pool Cost	Annual Van Pool Cost
20 miles	\$35	\$420
30 miles	37	444
40 miles	40	480
50 miles	42	504
60 miles	45	540
70 miles	47	564
80 miles	49	588

* Your savings?

(Cost of driving alone) — (Van Pool Cost) = (Savings)

*compute on back page

Here's how to figure your cost of driving to and from work.

CAR SIZE	Operating Costs (per mile)			Fixed Costs (per mile)			TOTAL COST per Mile
	Maintenance Accessories Parts & Tires	Gas & Oil including Taxes	Vehicle Cost Depreciation	Insurance	State Taxes Registration & Garage		
Standard	3.8¢	4.7¢	6.3¢	2.2¢	2.0¢	19.0¢	
Intermediate	3.4	4.1	5.6	2.1	1.8	17.0	
Compact	3.0	3.5	4.9	2.0	1.5	14.9	
Subcompact	2.8	2.5	4.1	1.9	1.1	12.4	

Figures are adapted from Federal Highway Administration statistics.

Car Cost Per Mile \times Daily Round Trip Distance \times mi. = \times 21 = Monthly Commuting Cost \times 12 = Annual Commuting Cost

Reduce your costs of commuting to and from work.

Share a ride.
Commuter Services

Share a ride.

In cooperation with your employer, MTC's Commuter Services is offering information and assistance in helping you reduce the cost of commuting to and from work through four ride sharing alternatives: carpooling, vanpooling, custom bus, and regular bus service.

Low cost, convenience and safety are just some of the benefits of ride sharing. Ride sharing also conserves energy, reduces traffic congestion and lowers air pollution levels in the Twin Cities.

Look at the table on the back page and you'll see how to compute your annual commuting costs, if you now drive to work alone. For example, if you own an intermediate sized car, it costs you \$850 a year to drive to a job that's just 10 miles away. By participating in one of our four shared ride services, you can save more than half that cost.

Let us help you arrange a ride sharing way of getting to and from work. Just fill out the enclosed form or call Commuter Services at 835-7755.

Car Pools.



We match interested employees with currently functioning as well as new carpools, based on where you live and your work hours. Simply fill out the enclosed form and we'll arrange a meeting or phone conversation between you and other interested parties in your neighborhood so that you can complete the arrangements.

After initial car pools have been formed, Commuter Services will continue to provide matching services for existing car pools to assure they have the number of riders they want.

Carpooling could save you \$425 a year (based on a 20 mile round trip in an intermediate-sized car.) The more carpoolers per vehicle the greater the savings.

Your Car Pool cost can be determined as follows:

$$\frac{\text{(Cost of driving alone)}}{\text{(number of people in Car Pool)}} = \text{(Car Pool cost)}$$

Your savings?

$$\frac{\text{(Cost of driving alone)}}{\text{(Car Pool cost)}} = \text{(Savings)}$$

*compute on back page

Custom Buses.

Custom buses, another Commuter Service, differs from public buses in that they pick up only member riders at or near their homes and travel a route tailored specifically to the riders requirements.

Fares are determined according to daily commuting distance and collection is handled on a monthly basis. Fares may vary from seventy-

five cents to a dollar-fifty per ride.

By riding a Custom bus, you could save as much as \$350 a year on your commuting costs (based on a 20 mile round trip in an intermediate-sized car).

Typical Custom Bus cost for a 20-mile round-trip:

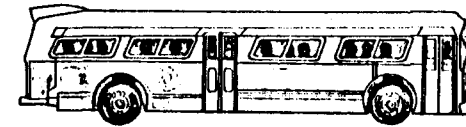
$$\$42/\text{mo.} \quad \times 12 = \quad \$504$$

Your savings?

$$\frac{\text{(Cost of driving alone)}}{\text{(Custom Bus cost)}} = \text{(Savings)}$$

\$504

*compute on back page



Regular Buses.

In addition to providing pocket schedules, for your convenience, Commuter Services also offers the MTC "All You Can Ride" monthly pass, and total bus service information.

By riding the bus you can save up to \$650 a year (based on an intermediate-sized car, 20 miles round trip).

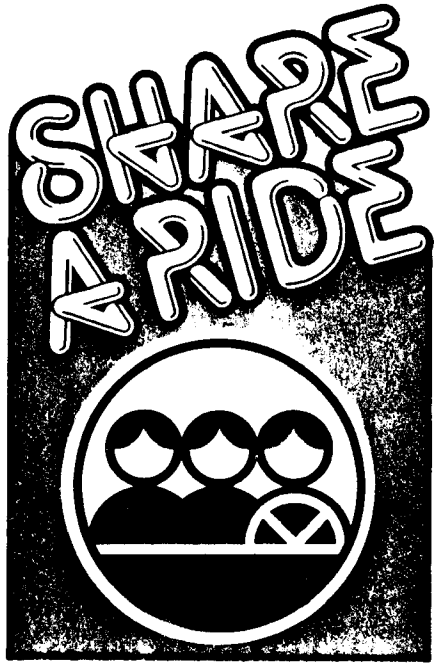
Regular Bus costs are:

One-way Fare	Daily Cost	Monthly Cost	Annual Cost
30¢	60¢	\$12.60	\$151.20
40¢	80¢	\$16.80	\$201.60
50¢	\$1.00	\$21.00	\$252.00

Your savings?

$$\frac{\text{(Cost of driving alone)}}{\text{(Regular Bus cost)}} = \text{(Savings)}$$

*compute on back page



SAVE A BUNDLE!

you can save
\$575 a year
 ...just by changing
 the way you
 ride to work!

We're "Share a Ride," and the \$575 is approximately what you can save if you don't drive your own car to work alone everyday.

Now, before you go stiff in your chair over the thought of not having your very own car sitting out there in the Company parking lot all day everyday, consider some of the advantages of sharing a ride to work.

You're going to save a lot of money...real, spendable, tax free income just because not driving will cost you less.

Depending on the car you're driving, you may save a little more or a little less than our \$575. If you're driving a '39 Volks powered by a rubber band, chances are you've beat the system. If you're tooling to work in a '78 Mercedes 450 SEL, we're about to save you a bundle.

Most days you'll be driven to work, and that's easier on you. Parking gets easier because there are fewer cars on the lot.

If you're a one car household, leaving the car at home will help others in your family get around.

And Share a Ride is a neat way to meet some new folks.

There are three ways to "Share a Ride". Which one interests you most?



CAR POOLING

We do all the work...supply you with the names, addresses and phone numbers of people in your area going to the same work location. We'll even suggest how you split the expenses. All you folks do is get together. And, it's flexible...you don't have to ride everyday. Plus the fact that car pooling may qualify you for a discount on your auto insurance.



VAN POOLING

This is different, but so are the benefits. You could wind up driving a nifty Dodge or Plymouth Van for free. Use it for your personal needs, too. How about that! Or, at the very least, you wind up being chauffeured to work in style & comfort...with time to read the morning paper. Once again, we do all the work, and all the organization...all you have to do to get started is indicate your interest.



REGULAR BUSES

We provide the schedules; pick out the best route for you to ride, and sell you the MTC "All you can ride" monthly pass. You just climb aboard, and start saving that \$575.

Q. Will the van pool driver pick me up at home?

A. We leave that decision up to the members of each van pool, but normally, yes. Most of our van pools do pick up passengers at their front door and drop them off at the front door at work. Some poolers prefer to meet at a central pick-up point if their homes are far apart and travel time becomes excessive.

Q. Are there limits on the driver's personal use of the van?

A. The driver receives 200 miles per month for which he or she only pays for gasoline. After 200 miles, the driver pays for gas plus 8¢/mile. The driver is required to request permission for trips of over 100 miles.

Q. What are driver qualifications and responsibilities?

A. Drivers must pass both the written and driving portions of the Minnesota Class-B license test. The cost of the license is reimbursed to 2 drivers per van pool. The driver's driving record is also checked, and the driver should be willing to attend a safe-driving seminar.

Q. What are driver benefits?

A. Drivers have a free ride to and from work and have personal use of their vans after work and on weekends. Many drivers have been able to sell their second cars, or else make the second cars

See back panel.

available for other family members. Both drivers and passengers often receive automobile insurance discounts because they're not driving their cars to work every day.

Q. What if a van pool falls below the minimum required passenger level?

A. The van pool has a one-month "grace period" during which the members pay the same fare as before. After the "grace period" expires, the pool has the option of splitting the total monthly van pool cost by the number of passengers, or to disband the pool until new riders are recruited. Passengers are urged to solicit new passengers with notices in their companies and neighborhoods when they lose passengers.

Q. How can I organize a van pool?

A. Van Pool Services will provide a van to any organized group of at least 9 passengers, plus a driver. Once a group of people is committed to vanpooling, we send the driver a checklist of items to be completed prior to placing a van pool on the road.



VAN POOL SERVICES, INC.
4510 W. 77th St.
Suite 127
Mpls., MN 55435
(612) 831-4792

Sponsored by the Metropolitan Transit Commission

Everything you always wanted to know about VANPOOLING*



***but were afraid
to ask**

VAN POOL QUESTIONS AND ANSWERS

Q. What is a van pool?

- A.** A van pool is a group of up to 12 commuters who ride to and from work together every day in a comfortable commuter van. The van pool driver rides free and has personal use of the van after working hours. Passengers pay a small monthly fare, and avoid driving in bad weather and in rush-hour traffic. Passengers also save an average of \$1,100 per year, and can use their commute time to relax and read the morning paper.

Q. What is Van Pool Services?

- A.** Van Pool Services is a wholly-owned subsidiary of Chrysler Corporation working on a non-profit basis in the Twin Cities area, providing a van pool service for the Metropolitan Transit Commission's Share-A-Ride Program.

Q. How are the passenger fares derived?

- A.** Fares are based on the number of passengers in the van pool and on the total daily distance that particular van pool travels each day. Passengers pay once a month, and fares generally range from \$25 to \$50 per month. If you would like a current fare sheet, call Van Pool Services at 831-4792.

Q. Who pays for gas?

- A.** The cost of gasoline is included in the passenger fares. The driver is reimbursed for gasoline, oil, small maintenance expenses (large maintenance expenses are billed directly to Van Pool Services), and miscellaneous expenses at the end of each month. Many drivers use a credit card to pay for gasoline, so that the credit card bill arrives at about the same time as the reimbursement check. Drivers receive a fixed amount for each commute mile for gasoline, and our reimbursement schedule always remains current to reflect the average price of gasoline in the area.

Q. Who is responsible for van maintenance?

- A.** Van Pool Services pays for all maintenance. For service that is not classified as warranty work, the driver may take the van to any service center that is convenient to the driver and approved by Van Pool Services. Warranty work must be performed at a Dodge or Chrysler dealership. Minor maintenance should be paid for by the driver when the work is finished. The driver is reimbursed at the end of the month after presenting a receipt to Van Pool Services.

Q. What about insurance?

- A.** Full insurance is provided. If the driver has an accident during the commute trip,

he or she pays no deductible for damage. If the driver has an accident during personal use, the driver pays \$100 deductible, an amount we find consistent with most personal automobile coverage. The driver's spouse is also insured to drive the van. Passengers are also covered under Minnesota No Fault. All vanpoolers should notify their own insurance agent as most insurance companies provide discounts for poolers.

Q. What if the driver gets sick or goes on vacation?

- A.** We require that each van pool has at least one qualified back-up driver.

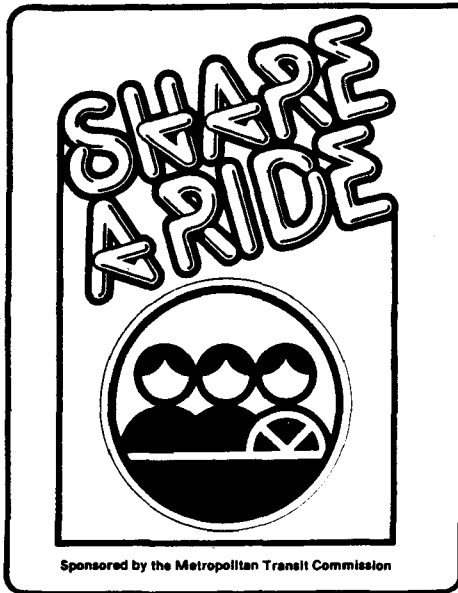
Q. What if the van is being serviced or is otherwise inoperable?

- A.** We have a back-up van available, which we can usually provide with one or two days notice. If a back-up van is not available for some reason, we ask the van pool to split up into two carpools, and we reimburse the two carpool drivers at the rate of 15¢/mile.

Q. Do the people in my van pool all have to work at my company?

- A.** No. Passengers in any one van pool often work at several different nearby companies.

See next page.



News and Views

Volume 2

June, 1979

Number 2

Employee Advisory committee discusses status, plans of Share-A-Ride program

EDITOR'S NOTE: The purpose of the Employee Advisory Committee is to gather ride-sharers [carpoolers, vanpoolers and bus riders] together from areas where Share-A-Ride is available. The ride-sharers offer MTC/Commuter Services a variety of suggestions and insights as to the best means of promoting the program in their firms and in general. The committee has been an instrumental force in developing a slide show and a series of brochures for Share-A-Ride.



MTC COMMUTER SERVICES Area Office Manager Greg Westerbeck, center right, conducted the May 24 Employee Advisory Committee meeting covering the status of the Share-A-Ride program and the third-year proposed expansion plans. Employees from 11 firms in the metropolitan area attended the noon meeting.

On May 24, the Employee Advisory Committee meeting was held at the MTC/Commuter Services offices to review the Share-A-Ride program's status update and third-year expansion plans.

Attending the box-luncheon meeting were 23 ridesharing employees from North Central Airlines, Honeywell, Burlington Northern, the St. Paul Post Office, Sears, Home Insurance, Boise Cascade, Univac, Mobil Oil, Argonaut Ins. and Control Data Corporation.

Expansion plans discussed at the meeting included the Share-A-Ride program's proposed expansion to downtown St. Paul and the University of Minnesota area in addition to continued promotion at all present locations served by Share-A-Ride. Committee members were also informed of the final proposals presented to the

MTC in June.

Further information on the Employee Advisory Committee and Committee membership information is available from the Share-A-Ride office by calling 835-7755. The Committee will meet again in September.

Vanpool riders wanted

If interested in joining an existing vanpool, please contact Tina Getz, Vanpool Coordinator, 831-4792, for specific details.

TO PENTAGON PARK (494 & 100)

Origin

Crystal/New Hope	6:50-3:20 P.M.
Big Lake/Rogers	7:15-4:30 P.M.
New Hope/Crystal	8:00-4:30 P.M.

TO S.C. MPLS. (35W & Lake St.)

Anoka/Coon Rapids	8:00-4:30 P.M.
*New Hope/Crystal	8:00-4:30 P.M.
Champlin/B.C./B.P.	8:00-4:30 P.M.
New Hope/Crystal	8:00-4:30 P.M.

TO E. BLOOMINGTON (494 & 34th Ave.)

*Cottage Grove	7:00-3:30 P.M.
----------------	----------------

TO ARDEN HILLS (694 & Lexington)

Taylor Falls	7:00-3:30 P.M.
*Hudson/Stillwater	7:00-3:30 P.M.

TO N.E. MINNEAPOLIS (280 & Stinson)

Origin	
*Forest Lake	8:00-4:30 P.M.
Cambridge/Isanti	8:00-4:30 P.M.
Annandale	7:00-3:30 P.M.
*Stillwater	7:00-3:30 P.M.
Stillwater	7:00-3:30 P.M.
White Bear Lake	8:00-4:30 P.M.
St. Paul/Mpls.	8:00-4:30 P.M.

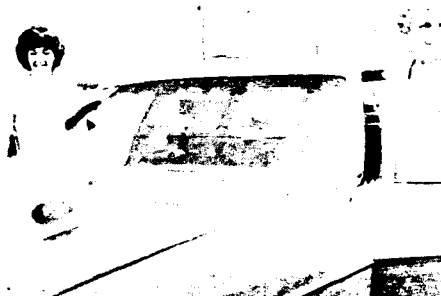
TO GOLDEN VALLEY (55 & 100)

Annandale	6:45-3:15 P.M.
Big Lake/Rogers	6:45-3:15 P.M.
Rush City/Braham	8:45-3:15 P.M.
Bloomington	8:00-4:30 P.M.

*Pools that need riders immediately

**Additional vans provide service to downtown St. Paul and Minneapolis.

Share-A-Ride carpoolers top 1000 with Harper, Glazer registrations



RUTH HARPER, right, and JOY GLASER, left, carpool daily from their Fridley homes to work at Pentagon Park firms.

Relieving the daily mental strain of driving to and from work and reducing the ever-growing weekly gasoline costs were the two basic reasons that brought RUTH HARPER of Continental Can Company and JOY GLASER of the Federal Milk Market Administration to MTC's Share-A-Ride office to seek carpooling assistance.

Unlike the majority of Share-A-Ride's car and vanpooling members who are employed at large

companies, both Ruth and Joy are employed in small offices lacking the persons and the resources needed to establish a formal large-scale carpooling program.

However, with assistance from Share-A-Ride's carpool coordinator Stephanie Butler, Ruth and Joy were matched in May as the MTC sponsored program's 999th and 1000th carpoolers.

To coordinate the carpool matches, Mrs. Butler required Ruth and


Joy, just as she does with all carpooling applicants, to complete a registration card, which is processed by Share-A-Ride to establish carpool matches for persons living in the same area
SHARE-A-RIDE cont. on 2

Carpooling—its time has come again

Carpooling is an idea whose time has come—again. The Administration warns that the Iranian oil shutoff poses a greater problem to highway users than the 1973 Arab oil embargo.

Energy Secretary James Schlesinger has called for some kind of mandatory restrictions on gasoline consumption. Gas stations may be closed Sundays if voluntary fuel conservation efforts fail to ease the oil pinch.

How can we easily save gasoline? The Highway Users Federation advises that, in addition to eliminating unnecessary trips and obeying
CARPOOLING cont. on 2



Share-A-Ride NEWS AND VIEWS is a quarterly publication produced free of charge to readers by the Metropolitan Transit Commission's Commuter Services program at 4530 W. 77th St., Suite 219, Edina, MN 55435, (612) 835-7755.

Project Manager—Judith Hollander
Editor—Greg Westerbeck, area office manager
Staff—Stephanie Butler, carpool coordinator
 Cheryl Selinsky, administrative assistant

Figures A-7 and A-8

A-7 Ridesharing Application Card

Yes, I am interested in Share A Ride

My name is: (8-23) Last Name (24-32) First Name (33) Middle Initial

My home address is: (34-39) Street Number (40-56) Street Name (57-74) Name of City or Suburb you live in (75-79) Zip Code

I am employed by: Name of Firm and Address (8-10) (11-14) My work starts at: (15-18) (nearest 1/4 hour) (19-20) AM or PM (for example) 0830 AM (21-27) I normally work these days, not including overtime: (please mark X) MO TU WE TH FR SA SU My work ends at: (28-31) (nearest 1/4 hour) (32-33) AM or PM

Please contact me about Car Pools, Van Pools, Regular Bus Services, Custom Buses. (Check appropriate boxes. Circle your first preference.)

I now drive alone , am a Car Pool rider , Car Pool driver . (Current Car Poolers, see reverse side)

For current car poolers only

- How many are in your Car Pool, including yourself (please mark x) 2 3 4 5
- Names of other Car Pool members:

- In a typical week, how many days do you Car Pool to get to and from work: (please mark x)
 1 2 3 4 5
- Do you (please mark x):
 Drive every day
 Ride every day
 Share driving with others
- Would you be willing to take more Car Pool members in your Car Pool? Yes No

A-8 Tear-Out Ridesharing Application from Brochure

Fill out and mail the enclosed information card indicating which methods of sharing a ride is of interest to you, or (Heaven forbid) if you're not interested at all. We'll take it from there, and contact you. Easy? you bet!

Please Print:

NAME _____ Last First Inv.

ADDRESS _____ Street Number Street Name

City or Suburb Zipcode


EMPLOYED BY: _____ Name & Address

PHONE: _____ Work & Home

WORK HOURS: _____

I am interested in the following, check any or all services.
 CARPOOL BUS VANPOOL as a driver passenger
 I'M CARPOOLING, AND WOULD LIKE MORE RIDERS!
 I PRESENTLY: DRIVE ALONE BUS CARPOOL OTHER

List names of other carpool members & their employers _____



SHARE A RIDE
SAVE A BUNDLE!

Figure A-10

Carpool Match Letter



MTC/Commuter Services

4530 West 77th Street, Suite 219
Edina, Minnesota 55435
(612) 835-7755

Thanks for your interest in the Commuter Services ride sharing program.

Listed below are neighbors also interested in forming a carpool. Since you know your community better than we do, we are supplying you with the best names on our files at this time. Carpooling can be driving, riding or sharing. Why not give each a call when you get to work tomorrow? You can discuss a route to work and set a date when you'd like to begin pooling. This is a continuing program, therefore it is important that you call the people on your letter as they may not have your name.

I will be calling you to see what arrangements have been made. If you have any questions or need more information, please call me at 835-7755. If you have a change in work hours, address, phone number etc. please let me know so we can keep our records current. Thanks again and happy pooling!

Sincerely,

MTC/COMMUTER SERVICES

Stephanie Butler

Stephanie Butler
Carpool Coordinator

SLB:cas

Figure A-11

Bus Schedule Letter



MTC/Commuter Services

4530 West 77th Street, Suite 219
Edina, Minnesota 55435
(612) 835-7755

Thank you for indicating an interest in regular route bus service. Enclosed is a bus schedule that serves your neighborhood. If you need further assistance in using this route, please call Transit Information at 827-7733.

If you do not live near the bus route, you may find it convenient to drive a short distance to a park-ride lot where you may leave your car and catch the bus.

If you feel that this bus service doesn't fit your needs, there is a chance that we could arrange a car or van pool for you. If you are interested, please call Commuter Services at 835-7755.

Sincerely,

MTC/COMMUTER SERVICES

A handwritten signature in cursive script that reads "Greg Westerbeck".

Greg Westerbeck
Area Office Manager

GJW:cs

Enclosure

Figure A-12
Vanpool Driver Agreement

VAN POOL SERVICES, INC.
4510 West 77th Street
Suite 127
Minneapolis, Minnesota 55435

Van Pool Number: _____

VOLUNTEER VAN POOL DRIVER/COORDINATOR
AND BACK-UP DRIVER AGREEMENT

THIS AGREEMENT is between Van Pool Services, Inc. (Van Operator) and the Volunteer Van Pool Driver/Coordinator and/or the Volunteer Back-Up Driver.

The Van Operator desires to implement and operate, on a demonstration basis, a model van pool program in a multi-employer center. The Van Driver has his principal place of employment in the same multi-employer center.

The Van Driver desires to participate with the Van Operator as a driver in the model van pool program.

In consideration of the mutual promises and undertakings contained in this agreement, the parties mutually agree:

- 1) Notwithstanding anything to the contrary herein, Van Driver, is, and shall remain, an independent contractor and not an employee of Van Pool Services during the course of the services performed as a Van Driver under this agreement.
- 2) Van Driver represents that he has a valid Minnesota Class B driver's license. If this driver's license is not a Class B driver's license, Van Driver represents that he will obtain a valid Class B driver's license prior to performing any services under this agreement. If this Class B driver's license has any restrictive endorsements, Van Driver represents that he will comply with those restrictions. Van Driver represents that he is not addicted to the excessive use of intoxicating liquors or drugs.
- 3) Van Operator will furnish to Van Driver a twelve passenger truck-based station wagon, commonly called a van, for use in the model van pool program.
- 4) Van Pool Services will provide insurance coverage in the minimum amounts listed below through Hartford Insurance.
 - . Bodily injury and motor vehicle liability policy, \$500,000 combined single limit
 - . Personal injury protection - basic coverage, \$30,000 no-fault aggregate
 - . Property damage, \$50,000
 - . Uninsured motorist coverage, bodily injury \$25,000/person, \$50,000/accident

Van Pool Services, Inc. will be self-insured for the following claims:

- . Comprehensive (glass) coverage
- . Collision, fire and theft

Van Pool Services, Inc. will pay the total cost of collision repair resulting from an accident occurring during a regular commute trip. It will be the responsibility of the driver involved in any non-commute accident resulting in comprehensive or collision liability to pay a

\$100.00 deductible charge for repairing the vehicle.

- 5) Van Driver agrees to use this van to pick up, transport and deliver passengers assigned to ride in this van from their residences (or other location agreed to by the Van Driver and the passengers) to their work places and return each working day, on a schedule arranged by the Van Operator and agreed to by the Van Driver and the passengers assigned to the van.
- 6) Van Driver will collect, record and send to the Van Operator monthly fares owed to the Van Operator by the passengers assigned to the van.
- 7) Van Driver will notify Van Operator as soon as possible of any occurrence which may affect the Van Operator's interests including, but not limited to: accidents causing personal injury or property damage; citations for violation of motor vehicle, traffic, or parking laws; suspension, cancellation or lapse of driver's license; defects, malfunctions or breakdowns of the van; inability, for whatever reason, to provide the required services; termination of Van Driver's principal employment.
- 8) Van Driver will purchase gasoline for the van at the driver's choice of service stations, and agrees to maintain a clean vehicle both inside and out. The Van Driver will be reimbursed on a monthly basis for the commute portion of the gasoline expense at a rate commensurate with prevailing gasoline prices.

Example: Van travels 40 daily round-trip miles x 21 days = 840 miles/month
Gas allowance = 840 MPM x .09 = \$75.60
Gas allowance @ 40 daily round-trip miles = \$75.60

All minor routine maintenance (oil changes, tune-ups, etc.) will be performed at a location convenient for the driver. All major or warranty repairs will be performed at a Dodge or Chrysler dealership.

Expense incurred by the Van Driver for emergency service, or for repairs totalling less than \$25.00, will be reimbursed to the driver by the Van Operator.

- 9) In consideration of the services to be provided by the Van Driver under this agreement, the Van Operator will not charge any fare to the Van Driver for his use of the van to commute to and from work in accordance with the agreed routes and schedules.
- 10) The fare structure is designed to enable the van pool to break even with passenger fares each month, i.e. to cover all applicable costs. As an optional incentive for the Van Driver, the Van Operator will pay the Van Driver one-half of all the fare revenue collected in excess of the break-even amount, the other half will be paid to the passengers on a pro rata basis.
- 11) Van Driver may use the van for personal use at no cost except the purchase of gasoline for 200 miles per month (not accumulative) in excess of the commute miles, and thereafter at a cost of 8¢ per mile, plus gasoline.

Example: 40 daily round-trip miles x 21 = 840 commute miles
 During a month the van is driven 1,260 miles

Driven Miles	1,260	
Commute Miles	-840	
Personal Miles	<u>420</u>	
Miles at no charge	- 200	
Excess mileage charge	<u>220</u>	miles x 8¢ = \$17.60

The Van Driver will record and report the actual odometer reading and the miles driven per month.

- 12) Van Driver will not use the van to carry passengers for hire; will not install or remove accessories from the van; will not permit any person except his spouse or a back-up driver approved by Van Pool Services to drive the van; will not take or operate the van outside the continental limits of the United States; will not transport groups, other than regular van pool passengers and members of his immediate family, regularly; will not use the van for a trip beyond a 100-mile radius from his home without specific approval, in advance, from the Van Operator; will not use the van to pull trailers nor attach trailer hitches to the van; will not use the van for any illegal purposes; will drive the van only on hard surfaced public streets and highways and other normal access roads and driveways; and will return the van to the Van Operator, when required, in good condition, normal wear and tear expected.
- 13) This agreement is for a term of one year after its date but may be terminated sooner as follows: by thirty (30) days' written notice by either party without cause; without prior notice by the Van Operator for just cause.
- 13) Van Driver will cooperate with Van Operator in the promotion and expansion of van pool use and in all matters relating to the operation of the model van pool program including, but not limited to, full cooperation with the Van Operator in the defense of any actions which may arise out of the operation of the model van pool program.

VAN POOL SERVICES, INC.

VOLUNTEER VAN POOL DRIVER/COORDINATOR

 Signature/Date

 Signature/Date

VOLUNTEER BACK-UP VAN POOL DRIVER

 Signature/Date

Figure A-13
Vanpool Passenger Agreement

VAN POOL SERVICES, INC.
4530 West 77th Street
Suite 140
Minneapolis, Minnesota 55435

Van Pool # _____

Passenger Memorandum of Understanding

Van Pool Services is pleased that you wish to participate in the van pool program.

Van Pool Services will provide a commuter van which will:

- . Pick you up for transportation to work and deliver you to your home or other mutually agreeable location after work, on a regular schedule to be determined by the Driver/Coordinator.
- . Continue to operate in the event the van or the volunteer Driver/Coordinator become inoperative; a back-up vehicle and a back-up driver will be provided for this purpose.
- . Continue to operate during a 30-day grace period if and when the number of passengers has fallen below the minimum load; in this event it is expected that the Driver/Coordinator and the passengers will be able to recruit the additional passenger(s) necessary to meet minimum load before the 30 days has expired.

As a van pool participant, you will be expected to:

- . Notify the volunteer Driver/Coordinator in advance whenever you cannot meet the van's scheduled pick-up time; it is your responsibility to be on time for pick-up.
- . Understand that the van must maintain a schedule and that it cannot wait more than three (3) minutes for a passenger pick-up.
- . Arrange other means to get to and from work if you cannot meet the van schedule on a particular day.
- . Notify Van Pool Services and the volunteer Driver/Coordinator at least 15 days in advance if you elect to withdraw from the commuter van pool.
- . Pay each month's commuter fare of \$_____ in advance by personal check, made payable to Van Pool Services, Inc. and given to your volunteer Driver/Coordinator. For this you receive a guaranteed reserved seat on the commuter van.

Van Pool Passenger

Date _____

Home Address

Employer's Name

City/State

Office Phone Number

Home Phone Number

Figure A-14
Vanpool Revenue and Expense Report

VAN POOL SERVICES INC.
 MINNEAPOLIS, MINNESOTA

REVENUE AND EXPENSE REPORT

VAN POOL # _____

DAILY RT MILES x 21 = MILES PER MONTH

DRIVER/COORDINATOR _____

DATE FROM _____ TO _____ WORK PHONE _____ EMPLOYER NAME _____

VAN POOL RECEIPTS		
PASSENGER NAME	REMARKS	AMOUNT
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
TOTAL PASSENGER REVENUE		
TOTAL VAN POOL COST		
INCENTIVE ALLOWANCE/(DEFICIT)		
DRIVER INCENTIVE (50% OF INCENTIVE ALLOW)		

VAN POOL COST	
FIXED EXPENSE	
OPERATING EXP. MPM x .10	
TOTAL VAN POOL COST	

VAN POOL EXPENSE	
GAS MPM x .065	
WASH & CLN. MPM x .005	
MISC. EXPENSE	
DRIVER EXPENSE	
DRIVER INCENTIVE	
TOTAL	
EXCESS MILEAGE CHARGE	
TOTAL EXP. DUE DRIVER	

MILEAGE	
ENDING	
BEGINNING	
TOTAL	
LESS COMMUTE MPM	
PERSONAL MILEAGE	
LESS PM ALLOWED @ N.C.	-250
EXCESS MILES	
EM @ .08 PER MILE	\$

DRIVER/COORD. SIGNATURE _____ DATE _____

VAN POOL SERVICES, INC. _____ DATE _____

APPENDIX B

EMPLOYEE FOLLOW-UP QUESTIONNAIRES

Exhibit

B-1 Screening Form

B-2 Telephone Questionnaire for Shared-Ride Carpoolers

(Variations of this form were used for "drive only" carpoolers, "ride only" carpoolers, drive alone commuters and bus riders)

B-3 Mail-back Vanpooler Questionnaire

(A different version of this form was mailed to all ex-vanpoolers)

Screening Form

WINONA, INC.
8200 Humboldt Ave. So.
Minneapolis, MN 55431

SHARE-A-RIDE
NO. 1620-90304
JUNE, 1979

Pentagon Park/
Normandale 1 (5)

NAME _____

NE Minneapolis . . . 2

TELEPHONE # _____

OBSERVATION

Male 1 (6)

BEST TIME TO CALL Evening Hours _____

Female 2

INT. # _____ (7-8) Saturday _____ Sunday _____

Hello, I'm _____ from Winona Research. We're doing a study for the U.S. Department of Transportation on commuting conditions in this area of the city.

1. Is your workplace or office in this immediate area?

Yes . . 1

No . . 2

PROBE. IF OUTSIDE BOUNDARIES, TERMINATE

2. Do you work here full time?

Yes . . 1

No . . 2

TERMINATE AND TALLY

3. How do you most frequently commute to work, by . . .

Car X

3a. Do you Drive alone . . . 1
or With Others . . . X

SKIP TO Q. 4

Bus 5

3b. Do you . . .

Vanpool 6

EXPLAIN THEY WILL BE MAILED A QUESTIONNAIRE AND TERMINATE.

Share the driving 4

Are you always the driver . . . 2

or Are you always the passenger. . 3

or Some other way. 7

(SPECIFY) _____

TERMINATE & TALLY

DEFINITIONS:

2-8 PERSONS = CARPOOL

9-15 PERSONS = VANPOOL

We'd like to call you some evening within the next week to ask you a few questions to find out how you feel about the way you commute to work. Would that be all right?

TALLY

REFUSED TO BEGIN _____

NOT FULL TIME _____

VANPOOL _____

SOME OTHER WAY _____

REFUSED CALLBACK _____

FOR PHONE CENTER USE ONLY

Callback Time _____

Busy _____ (19-20) Not at Home _____ (23-24) Not Qualified - Reason _____

No Answer _____ (21-22) Refused _____ (25-26) _____ (27-28)

Telephone Questionnaire for Carpoolers

SHARE-A-RIDE
#1620-90304
JUNE, 1979

TELEPHONE INTERVIEW

INT. # _____
DATE _____

MODE OF COMMUTING CARPOOL - SHARING THE DRIVING

Hello, I represent Winona Research. An interviewer talked to you a few days ago on your way to or from work. We are doing a study for the U.S. Department of Transportation to improve commuting conditions in Minneapolis and would like your opinions. Could you take a few minutes now to answer some questions about you and your commuting trip?

You told our interviewer that you usually commute to and from work by carpool, where you share the driving. Is this correct?

1. (USE THESE PROBES TO COMPLETE THE GRID BELOW.)

Did you travel to work using the same method every day last week?

(IF YES:) Is that a total of 5 days?

(IF NO:) How many days last week did you travel to work by _____?
How did you get to work on the other days last week?

	<u># OF DAYS LAST WEEK</u>	<u>MODE OF COMMUTING</u>
(8)	_____	Driving Alone
		<u>Car Pool</u>
(9)	_____	Driving Others
(10)	_____	Riding as Passenger
(11)	_____	Bus
(12)	_____	Vanpool
(13)	_____	Other (SPECIFY) _____
(14)	_____	TOTAL - Usually 5

IF RESPONDENT DID NOT
WORK A FULL WEEK LAST
WEEK, USE THE LAST
FULL WEEK HE/SHE WORKED

1a. Do/Does the other driver/drivers of your carpool also work in the (Pentagon Park-Normandale/NE Mpls) area?

Yes . . . 1
No . . . 2 (15)

2. What Company do you, yourself work for?

(RECORD) → _____ (16-18) _____

<u>FOR OFFICE USE ONLY</u>	
SIZE	_____
TYPE MARKET	_____

3. How long have you worked in the (Pentagon Park-Normandale/NE Minneapolis) area?

_____ years, _____ months
(19-20) (21-22)

4. How long have you been commuting to the (Pentagon Park-Normandale/NE Minneapolis) area by sharing the driving in a carpool?

_____ years, _____ months
(23-24) (25-26)

IF ANSWER TO Q. 3 EQUALS ANSWER TO Q. 4, SKIP TO Q. 11

5. How did you usually travel to work in this area before you shared driving in the carpool? Did you commute by . . .

Car X → 5a. Did you . . . Drive alone . . . 1 **SKIP TO Q. 6**
or With others . . . X (27)

Bus 5

5b. Were you

Vanpool 6

**EXPLAIN THEY
WILL BE MAILED
QUESTIONNAIRE
AND TERMINATE**

Always the driver 2
Always the passenger 3

Or Some other way. . . 7 (SPECIFY) _____

6. Approximately how long did you regularly travel to the (Pentagon Park-Normandale/NE Minneapolis) area by (ANSWER FROM Q. 5) ?

_____ years, _____ months
(28-29) (30-31)

7. Why did you switch to sharing the driving?

(32-33)

(34-35)

(36-37)

IF USED TO DRIVE ALONE ("1" IN Q. 5) CONTINUE. OTHERWISE, SKIP TO Q. 11

(7a. OMITTED)

(38) N.U.

8. Is your vehicle now being used by someone else on days you are not driving?

Yes . . . 1 (39)
No . . . 2 **SKIP TO Q. 10**

9. Altogether, do you think your vehicle is now being used for more or less mileage than when you drove to work everyday?

More 1 (40)
Less 2
Same 3
Not Sure . . 4

10. In a typical week, have you found that riding in a carpool keeps you from making as many mid-day personal trips or side trips on the way to or from work as you would like to?

Yes 1 (41)
No 2 **SKIP TO Q. 11**

10a. Has this been a problem for you?

Yes . . . 1 (42)
No . . . 2

CP SHARE

11. How many miles is it from your home to work? _____ miles
(43-44)
12. How many minutes does it usually take you to get from your home to work:
 a) when you drive the carpool? _____ minutes (45-47)
 b) when someone else drives the carpool? _____ minutes (48-50)
13. Does your carpool usually get you to work more than ½ hour earlier or later than you would like to?
 Yes, earlier by more than ½ hour . . . 1 (51)
 Yes, later by more than ½ hour . . . 2
 No 3
14. Does your carpool usually leave work more than ½ hour earlier or later than you would like to?
 Yes, earlier by more than ½ hour . . . 1 (52)
 Yes, later by more than ½ hour . . . 2
 No 3
15. Do you pay any members of your carpool or do any of them pay you?
 Yes, I pay them 1
 Yes, they pay me 2 (53)
 Both 3
 No money exchanged 4
16. What would you estimate is your total average weekly cost for traveling to and from work under the current arrangement where you share the driving? (CLARIFY AVERAGE)
 \$ _____ Weekly (54-57)

IF UNABLE TO ANSWER WEEKLY, RECORD ONE BELOW	
\$ _____	Daily
\$ _____	Monthly

17. How much more do you think it would cost you per week to drive alone?
 (VERIFY THAT THE AMOUNT NAMED IS IN ADDITION TO THE AMOUNT NAMED IN Q.16)
 \$ _____ Weekly (58-61)

IF UNABLE TO ANSWER WEEKLY, RECORD ONE BELOW	
\$ _____	Daily
\$ _____	Monthly

Card 1

18. How many people other than yourself usually travel in your carpool?

_____ number of people (62)

19. How many of them are members of your household?

_____ number of people (63)

IF ANSWER TO Q. 18 EQUALS ANSWER TO Q. 19, SKIP TO Q. 27
OTHERWISE, CONTINUE WITH Q. 20

These next questions are about the times when someone else in your carpool drives you to work.

20. Going to work, does your carpool pick you up at home?

Yes . . . 1 (64)

No . . . 2 → 20a. How many minutes does it take you to get from your home to where you meet your carpool ride?

_____ minutes (65-66)

21. In the last month, how many times has your carpool picked you up to go to work more than 10 minutes later than it was supposed to?

_____ number of times. (67-68)

22. Has carpool lateness been a . . .

major problem 1
minor problem 2 (69)
or no problem at all 3

23. In the last month, how many times has your carpool not shown up to take you to work?

_____ number of times (70-71)

24. Not including members of your family, are there any members of your carpool who work at a different company than you do?

Yes 1 → 25. How many people (including the driver)? (72)
No 2 _____ people (73)

SKIP TO Q. 26

(IF 2 OR MORE PEOPLE, ASK:)
25a. How many companies are represented by the people in your carpool?
_____ companies (74)

CP SHARE

Card 1

26. When going to work, how many stops does your carpool usually make after you have been picked up?

_____ number of stops (75)

27. What is the longest that anyone in your current carpool group has been carpooling with you?

_____ year, _____ months

(76-77)

(78-79)

80.1

28. If you wanted to, could you drive alone to work everyday without inconvenience to other household members?

Yes . . . 1
No . . . 2 (5)

Card 2

29. How long do you think it would take you to drive straight from your home to work if you were driving alone?

_____ minutes (6-8)

30. How long do you think it would take you to get to work if you were to travel by bus?

_____ minutes (9-11)

Not sure 1 (12)

No bus service is available from home to work 2 — SKIP TO Q. 34

31. How many blocks is it from your home to the nearest bus stop that you could use to get to work?

_____ number of blocks (13-15)

IF UNABLE TO ANSWER IN BLOCKS, RECORD BELOW
_____ number of miles (16-17)
_____ "X" if no idea

32. How many blocks is it from work to the nearest bus stop that you could use to get home?

_____ number of blocks (18-20)

IF UNABLE TO ANSWER IN BLOCKS, RECORD BELOW
_____ number of miles (21-22)
_____ "X" if no idea

33. Would traveling by bus to or from work require transfers?

Yes 1 (23)
No 2
Don't Know . 3

(24-26 N.U.)

Card 2

34. The Share-A-Ride program promotes carpooling and vanpooling in your working area. It is sponsored by MTC - Commuter Services. Have you ever heard of this program or organization?

Yes . . . 1
 No . . . 2 — **SKIP TO Q. 42** (27)

35. Where did you hear or learn of this program or organization? Any others?

IF UNABLE TO ANSWER,
 READ BOXED LIST AND
 "X" HERE

- Share-A-Ride Brochure 01 (28-29)
- Poster or Sign in Building 02 (30-31)
- Information display at your company 03 (32-33)
- Presentation to employees at your company 04 (34-35)
- From a Friend 05
- Share-A-Ride Newsletter 06
- Company Publication 07
- Newspaper 08
- Radio 09
- Management letter to employees . . 10
- Saw a Van 11
- Vanpool Driver 12
- Other (SPECIFY) _____ 13
- D.K. AFTER READING BOXED LIST . . . 14

36. Have you ever requested assistance or information from Share-A-Ride or Commuter Services?

Yes . . . 1
 No . . . 2 — **SKIP TO Q. 42** (36)

37. Did you request information in regard to carpool matching, vanpool, or bus information? (RECORD IN GRID BELOW.)

38. (ASK FOR EACH MENTIONED IN Q. 37:)

For (ANSWER IN Q. 37) did you receive literature, a list of names, or a phone call in response to your request? (RECORD BELOW)

	Q. 37	Q. 38		
	INFORMATION REQUESTED	RECEIVED LITERATURE	LIST OF NAMES	PHONE CALL
Carpool Matching	(37) 1	1	2**	3 (38)
Vanpooling Information	2	1	2	3 (39)
Bus Information	3	1	-	- (40)

39. **ASK ONLY IF LIST OF NAMES FOR CARPOOLING IN Q. 38 (**)**

When you received a list of names for carpool matching, did you contact anyone from that list?

Yes . . . 1
 No . . . 2 (41)

IF CARPOOL CONSISTS ONLY OF MEMBERS OF A FAMILY (Q. 19) SKIP TO Q. 41

CP SHARE

40. Do you feel that you or any member of your current carpool joined because of lists or assistance provided by Share-A-Ride or Commuter Services?
- Yes, I did 1 (42)
 - Yes, others did. . . 2 → How Many? _____ (43)
 - No 3

41. Would you rate the services performed by Share-A-Ride or Commuter Services as . . .

READ LIST

- Good 1
- Fair 2 (44)
- Poor 3

DO NOT READ

- No Opinion . 4

The following questions are about you and your family.

42. Please stop me when I read the category which includes your age . . .

- 16-25 1
- 26-35 2 (45)
- 36-45 3
- 46-55 4
- 56-64 5
- 65 and over . 6

DO NOT READ

- REFUSED . . . 7

(Q. 43 OMITTED)

(46) 1

44. How many people live in your household?

_____ number of people (47-48)

(IF "1" SKIP TO Q. 47)

45. Including yourself, how many people in your household have full-time jobs (over 30 hours per week)?

_____ number of people (49)

46. Including yourself, how many people in your household have a driver's license?

_____ number of people (50)

47. How many autos, vans, or pickups are currently owned or leased by your household?

_____ total number of vehicles (51)

48. How many autos, vans or pickups were owned or leased by your household on January 1, 1978?

_____ number of vehicles (52)

49. What is your home ZIP code?

_____ (5 digits) (53-57)

57. Now lets talk about how you feel about four possible ways of getting to work. Specifically I'm talking about driving alone, riding with others in a carpool, riding in a vanpool, and going by bus.

IF EXPLANATION OF VANPOOL IS NECESSARY, READ:

A vanpool is riding with 10 other passengers who each pay a monthly fee and are picked up at home and work by a regular driver.

In your opinion

ROTATE, STARTING WITH REASON "X'd" IN RED.

- () Which of these four (driving alone, carpooling, vanpool or bus) do you feel is most dependable? Which is second most dependable? Which is least dependable? (RECORD "3" BY REMAINING MODE.)
 Driving Alone _____ Carpool _____ Vanpool _____ Bus _____ (8-11)

- () Which of these four (driving alone, carpooling, vanpool or bus) do you feel is the safest, especially in winter driving conditions? Which is second safest? Which is the least safe? (RECORD "3" BY REMAINING MODE)
 Driving Alone _____ Carpool _____ Vanpool _____ Bus _____ (12-15)

- () Which of these four (driving alone, carpooling, vanpool or bus) takes the least travel time to get between home and work? Which takes the 2nd least travel time? Which takes the most travel time? (RECORD "3" BY REMAINING MODE)
 Driving Alone _____ Carpool _____ Vanpool _____ Bus _____ (16-19)

- () Which of these four (driving alone, carpooling, vanpool or bus) do you feel is the most relaxing? Which is second most relaxing? Which is least relaxing? (RECORD "3" BY REMAINING MODE)
 Driving Alone _____ Carpool _____ Vanpool _____ Bus _____ (20-23)

- () Which of these four (driving alone, carpooling, vanpool or bus) would be the least expensive for you to get to and from work? Which is 2nd least expensive? Which would be the most expensive? (RECORD "3" BY REMAINING MODE)
 Driving Alone _____ Carpool _____ Vanpool _____ Bus _____ (24-27)

- () Which of these four (driving alone, carpooling, vanpool or bus) would give you the greatest flexibility -- including the ability to leave and arrive exactly when you want and the flexibility to stop on the way to and from work? Which would give you the second most flexibility? Which would give you the least flexibility? (RECORD "3" BY REMAINING MODE)
 Driving Alone _____ Carpool _____ Vanpool _____ Bus _____ (28-31)

Now, just for classification purposes . . .

58. What type of work do you do? (DO NOT READ CHOICES)
- | | | |
|----------------------------------|---|------------|
| Secretarial/Clerical | 1 | |
| Professional/Technical | 2 | |
| Salesperson | 3 | (32) _____ |
| Production Worker | 4 | |
| Craftsman or Foreman | 5 | (33) _____ |
| Manager/Administrator | 6 | |
| Service Worker | 7 | |
| Other (SPECIFY) _____ | 8 | |

59. Please stop me when I read the range in which your total annual household income falls?
- | | | |
|---|---|------|
| More than \$30,000 | 1 | |
| \$20,000 to \$30,000 | 2 | (34) |
| \$16,000 to \$20,000 (\$19,999) | 3 | |
| \$12,000 to \$16,000 (\$15,999) | 4 | |
| \$8,000 to \$12,000 (\$11,999) | 5 | |
| Under \$8,000 | 6 | |

Mail-back Vanpooler Questionnaire



MTC/Commuter Services

4530 West 77th Street, Suite 219
Edina, Minnesota 55435
(612) 835-7755

August 20, 1979

Dear Vanpool Commuter:

The U. S. Department of Transportation and MTC/Commuter Services are cooperating on a project to improve commuting conditions to this area. An important part of this study is to find out how you feel about your commute to work. This questionnaire is for commuters who use a vanpool to travel to work. The number of people being asked to participate is relatively small, so your answers are very important.

We hope that you will take a few minutes in the next day or two to fill out the questionnaire. For your convenience, we have attached a self addressed stamped envelope for you to return your completed questionnaire.

Please do not put your name on the questionnaire. Your responses will be kept strictly confidential. If you have any questions while answering this survey, please call Share-A-Ride representative Steve Pederson at 831-2865 during work hours.

We greatly appreciate your cooperation.

Sincerely,

A handwritten signature in cursive script that reads "Steven C. Pederson".

Steven C. Pederson
MTC/COMMUTER SERVICES

SCP/dvb

B-3 Continued

PLEASE ANSWER THE FOLLOWING QUESTIONS ABOUT YOUR TRIP FROM HOME TO WORK:

1. Last week, how many days did you travel to work by vanpool?
 days
2. If, last week, you travelled to work by any other means, please indicate how often you got to work by each of the following ways:
 # of days last week
- Drove a car alone
- Drove a car with passenger(s)
- Rode in a car driven by someone else who works in the same vicinity
- Dropped off by someone not working in the same vicinity
- Bus
- Bicycle, walking, taxi, or other means
3. How long have you been commuting to work by vanpool?
 years and ¹⁰ months
4. How did you usually travel to work before you began vanpooling? (CHECK ONE):
- 1 Bus
- 2 Drove alone
- 3 Drove with passenger(s)
- 4 Rode with someone else
- 5 Shared driving in a carpool
- 6 Bicycle, walk, taxi, or other means
5. Approximately how long did you commute to work by the above means of travel?
 years and ¹⁵ months
6. What were the one or two most important reasons why you decided to vanpool?

7. If you feel there is a disadvantage or problem for you in travelling to work by vanpool, what is it? (IF THERE IS NO PROBLEM, GO TO QUESTION 8).
- _____ This is a (CHECK ONE):
- 1 minor problem
- 2 major problem
- _____

8. If you used to drive to work, is the vehicle that you used to drive now being used by other household members on days you are vanpooling?
 1 YES
 2 NO (SKIP TO QUESTION 10)
9. If YES, do you think that the vehicle you formerly drove to work is now being used for more or less mileage than when you drove to work? (CHECK ONE):
- 1 More
- 2 Less
- 3 The same
- 4 Not sure
10. In a typical week, have you found that riding in a vanpool keeps you from making as many mid-day personal trips or side-trips on the way to or from work as you would like to?
 1 YES
 2 NO (SKIP TO QUESTION 12)
11. Has this been a problem for you?
 1 YES
 2 NO
12. If the vanpool program were stopped and you could no longer ride in the van, how would you travel to work? (CHECK ONE):
- 1 Drive alone
- 2 Carpool
- 3 Bus
- 4 Other
13. How many miles is it from your home to work? miles
14. How many minutes does it usually take you to get from your home to your workplace by vanpool?
 minutes
15. Does your vanpool usually get you to work more than half an hour earlier or later than you would like to arrive? (CHECK ONE):
- 1 YES, earlier
- 2 YES, later
- 3 NO
16. Does your vanpool usually leave from work more than half an hour earlier or later than you would like to leave? (CHECK ONE):
- 1 YES, earlier
- 2 YES, later
- 3 NO

B-3 Continued

35 17. How many people other than yourself are currently in your vanpool?
 people

37 18. How many of them are members of your household?
 people

39 19. Not including members of your household, is there anyone in your vanpool who works at a different company from you?
 1 YES
 2 NO (SKIP TO QUESTION 22)

40 20. How many of them? people

42 21. How many different companies do these people represent? companies

44 22. Altogether, what would you estimate is your current monthly cost for travelling to and from work?
 Latest vanpool fee paid \$
 Other costs, if any \$

52 23. Do you think recent changes in vanpool fees are fair in light of increases in the price of gas?
 1 YES
 2 NO
 3 NOT SURE

53 24. How much money are you saving this month by vanpooling instead of commuting to work by your former means of travel?
 \$ This month

57 25. How long do you think it would take you to drive straight from your home to work without picking up or dropping off anybody on the way?
 Minutes

59 26. How long do you think it would take to get to work if you were to travel by bus? (FILL IN OR CHECK ONE):
 Minutes
 1 Not sure
 2 No bus service is available from my home to work (SKIP TO QUESTION 30)

61 27. How far is it from your home to the nearest bus stop that you could use to get to work? (FILL IN OR CHECK ONE):
 Miles
 Blocks
 1 Not sure

67 28. How far is it from work to the nearest bus stop that you could use to get home? (FILL IN OR CHECK ONE):
 Miles
 Blocks
 1 Not sure

71 29. Would travelling by bus require transferring? (CHECK ONE):
 1 YES
 2 NO
 3 Not sure

72 30. How did you learn about the Share-A-Ride/Vanpool Services Program? (CHECK ONE OR MORE):
 01 Brochure or flyer
 02 Company newsletter
 03 Share-A-Ride newsletter
 04 Newspaper
 05 Poster or sign in building
 06 Radio
 07 Letter from company management to employees
 08 Information table or display at your company
 09 Presentation to employees at your company
 10 Saw a van
 11 Vanpool driver
 12 From a friend
 13 Other (Specify) _____

73 31. How would you rate the services performed by the Share-a-Ride/Vanpool Services Program?
 1 Good
 2 Fair
 3 Poor

75 32. If you wanted, could you drive alone to work every day without inconvenience to other household members?
 1 YES
 2 NO

B-3 Continued

THE FOLLOWING QUESTIONS ARE ABOUT YOUR JOB AND WORKING HOURS:

33. Do you work a rotating shift which changes from week to week?

- 77
 1 YES
 2 NO

34. IF NO, what are your work hours on a typical workday?

78
 : 1 am
 2 pm START TIME

83
 : 1 am
 2 pm END WORK TIME

35. In a typical week, how often do you work overtime?

88
 Days per week

36. On a day-to-day basis, can you start and end your job more than 30 minutes earlier or later than you currently do without making arrangements in advance? (CHECK ONE):

- 89
 1 YES, could vary my work hours on a day-to-day basis
 2 NO, work hours are fixed

37. On a permanent basis, do you think you could arrange to start and end your job more than 30 minutes earlier or later than you currently do? (CHECK ONE):

- 90
 1 YES, could change my work hours if I wanted to
 2 NO, work hours are fixed on a permanent basis

38. In a typical week, how many days do you need a car at work to perform your job (for example, make deliveries, attend meetings, etc.)?

91
 Day(s) per week

39. What type of job do you have? (PLEASE CHECK ONE CATEGORY. IF YOUR JOB DOESN'T FIT ONE OF THESE CATEGORIES, CHECK 'Other' AND DESCRIBE WHAT YOU DO.)

- 92
 1 Secretary/clerical
 2 Professional/technical
 3 Salesperson
 4 Production worker
 5 Craftsman or foreman
 6 Manager or administrator
 7 Service worker
 8 Other (specify) _____

40. For what company do you work?

93

 NAME OF ESTABLISHMENT

41. How long have you worked there?

94
 Years and months

PLEASE ANSWER THE FOLLOWING QUESTIONS ABOUT YOURSELF AND YOUR FAMILY

42. What is your age? (CHECK ONE):

- 12
 1 Less than 16
 2 16 - 25
 3 26 - 35
 4 36 - 45
 5 46 - 55
 6 56 - 64
 7 65 and over

43. Are you:

- 13
 1 Male
 2 Female

44. Are you a licensed driver?

- 14
 1 YES
 2 NO

45. How many people live in your house or apartment (including yourself)?

15
 People

46. Including yourself, how many people in your household have full-time jobs (over 30 hours per week)?

17
 People

47. How many people in your household (including yourself) have a driver's license?

19
 People

48. How many autos, vans, or pickups are currently owned or leased by your household?

21
 Vehicle(s)

49. How many autos, vans, or pickups were owned or leased by your household on January 1, 1978?

23
 Vehicle(s)

50. What is your home zip code?

25

51. In what range is your annual household income (YOUR RESPONSE IS STRICTLY CONFIDENTIAL)

- 30
 1 \$0 - \$7,999
 2 \$ 8,000 - \$11,999
 3 \$12,000 - \$15,999
 4 \$16,000 - \$19,999
 5 \$20,000 - \$29,999
 6 \$30,000 or more

THIS COLUMN IS FOR VANPOOL PASSENGERS AND ALTERNATE DRIVERS:

52. Going to work, does your vanpool pick you up at home?
 1 YES
 2 NO
53. IF NO, how many minutes does it take you to get from your home to where you meet your vanpool ride?
 Minutes
54. Going to work, how many other people does your vanpool usually pick up after it picks you up?
 People
55. In the last month, how many times has your vanpool picked you up to go to work more than 10 minutes later than it was supposed to?
 Days
56. Has vanpool lateness been a... (CHECK ONE)
 1 Major problem
 2 Minor problem
 3 No problem
57. In the last month, how many times has your vanpool not shown up to take you to work?
 Days
58. Are you an alternate driver? (CHECK ONE)
 1 YES
 2 NO
59. How many days in the past month did you drive the vanpool?
 Days
60. Would you be willing to pay an extra \$2 every month to be guaranteed your seat in the van after returning from a two-week vacation? (You would not be required to pay for the two weeks you did not ride.)
 1 YES
 2 NO

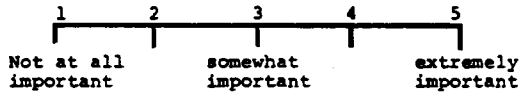
THIS COLUMN IS FOR VANPOOL DRIVERS ONLY:

61. Why did you sign up to be a vanpool driver?

62. How many work days in the past month did you not drive the vanpool?
 Days
63. Why was this? List the number of days next to the appropriate reason:

# of days	
<input type="text"/>	Out sick
<input type="text"/>	On vacation
<input type="text"/>	On business trip
<input type="text"/>	Company holiday
<input type="text"/>	The van was broken
<input type="text"/>	Our vanpool just started
<input type="text"/>	Other (Specify) _____
64. If a passenger is not ready at the agreed-upon pick-up time, how long do you wait?
 Minutes
65. Has waiting for people been... (CHECK ONE):
 1 a major problem
 2 a minor problem
 3 no problem
66. Do you change the monthly fee for a passenger if he/she does not ride in the vanpool for a while due to illness or vacation?
 1 YES
 2 NO
- Are there any agreed-upon rules in your vanpool concerning:
67. Making extra stops on the way to or from work? YES NO
 1 2
68. Smoking in the van? YES NO
 1 2

IN CHOOSING A TYPE OF TRANSPORTATION TO WORK, CERTAIN FEATURES MAY BE MORE IMPORTANT TO YOU THAN OTHERS. WE WOULD LIKE TO LEARN WHICH FEATURES ARE MOST IMPORTANT FOR YOUR WORK TRIP. PLEASE RATE THE IMPORTANCE OF EACH FEATURE BELOW IN TRAVELLING TO WORK BY ASSIGNING A RATING NUMBER FROM 1 TO 5 AS SHOWN ON THE SCALE BELOW. YOU MAY REPEAT RATING NUMBERS AS OFTEN AS YOU WISH.



69. In choosing a means of travel to work, how important for you is:

- | | Rating # |
|---|--------------------------|
| 68 • <u>Dependability?</u> | <input type="checkbox"/> |
| 69 • <u>Safety, particularly in winter driving conditions?</u> | <input type="checkbox"/> |
| 70 • <u>Getting between home and work quickly?</u> | <input type="checkbox"/> |
| 71 • <u>Having the chance to talk with friends on the way to and from work?</u> | <input type="checkbox"/> |
| 72 • <u>Relaxing on the way to and from work?</u> | <input type="checkbox"/> |
| 73 • <u>Cost?</u> | <input type="checkbox"/> |
| 74 • <u>Ability to leave and arrive exactly when you want to?</u> | <input type="checkbox"/> |
| 75 • <u>Having the option to make stops on the way to and from work?</u> | <input type="checkbox"/> |
| 76 • <u>Privacy?</u> | <input type="checkbox"/> |

NOW WE WOULD LIKE YOUR OPINION ON DIFFERENT MEANS OF TRAVEL FOR GETTING TO WORK. BELOW WE HAVE LISTED SEVERAL FEATURES SOME PEOPLE FIND IMPORTANT IN CHOOSING A MEANS OF TRAVEL.

FOR EACH FEATURE BELOW, PLEASE RANK THE FOUR MEANS OF TRAVEL TO WORK USING A NUMBER FROM 1 TO 4:

- | |
|-----------------|
| 1 = BEST |
| 2 = SECOND BEST |
| 3 = THIRD BEST |
| 4 = WORST |

70. Please rank each means of travel even if you have never used it.

• Dependability:

- 77 Driving Alone 79 Carpool
 78 Vanpool 80 Bus

• Safety, especially in winter driving conditions:

- 81 Driving Alone 83 Carpool
 82 Vanpool 84 Bus

• Getting between home and work quickly:

- 85 Driving Alone 87 Carpool
 86 Vanpool 88 Bus

• Relaxing:

- 89 Driving Alone 91 Carpool
 90 Vanpool 92 Bus

• Inexpensive:

- 93 Driving Alone 95 Carpool
 94 Vanpool 96 Bus

• Flexibility to make stops, leave, and arrive when you like:

- 97 Driving Alone 99 Carpool
 98 Vanpool 100 Bus

Thank you very much for your cooperation!

APPENDIX C

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APPENDIX

Report of New Technology

A thorough review of the work performed under this contract has revealed no significant innovations, discoveries, or inventions at this time. In addition, all methodologies employed are available in the open literature. However, the findings in this document do represent new information and should prove useful throughout the United States in designing and evaluating future transportation demonstrations in general, and ridesharing brokerage programs in particular. Major elements of the report which bear on performing a comprehensive evaluation include the development of measures of marketing effectiveness, techniques for measuring travel demand shifts, and the utilization of a survey research strategy.

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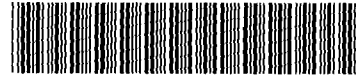
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