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Shared-Ride Taxi Service in Boston, MA

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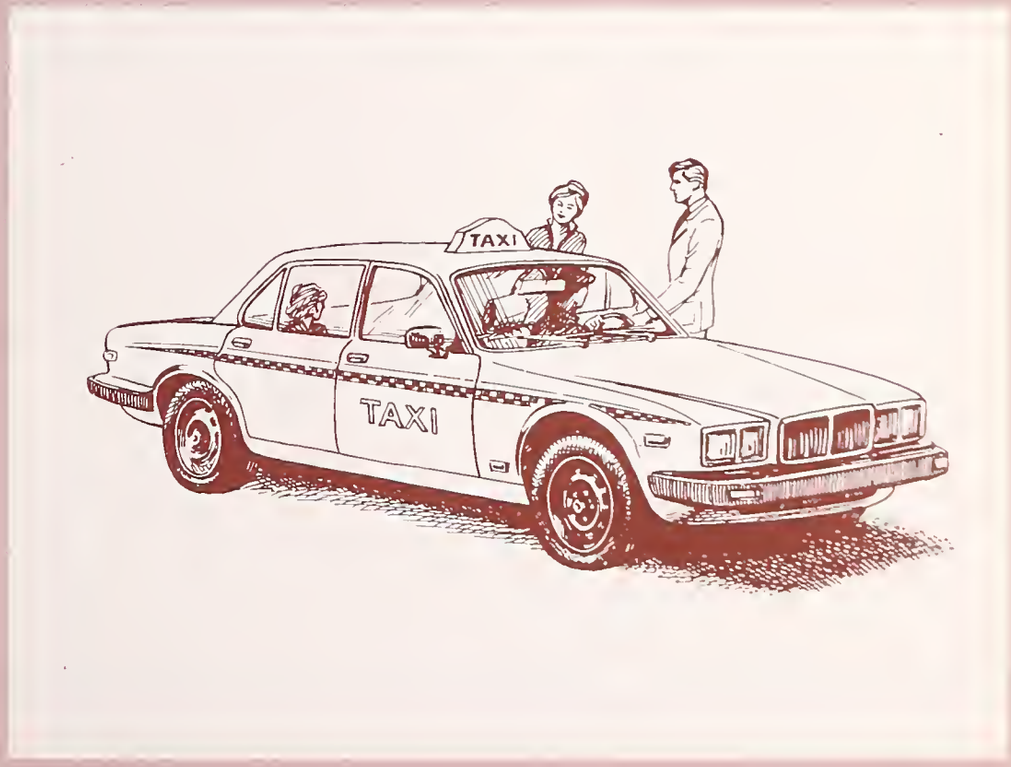

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16. Abstract

This report presents an evaluation of the Boston Shared-Ride Taxi Demonstration. The City of Boston's Traffic and Parking Department, the project grantee, designed a shared-ride service for Boston's Allston-Brighton neighborhood; Boston Cab Association, one of the City's major taxi operators, offered the service during the demonstration period and then continued to do so following the close of the demonstration. No operating assistance was provided to Boston Cab, who assumed the cost of the call-taker/dispatcher assigned to the project. The demonstration, funded in part by the UMTA Service and Methods Demonstration Program, ran from July 1982 through March 1984. The service itself, called Share and Save, was implemented in April 1983.

During the demonstration period, Share and Save was available for trips within Allston-Brighton or from Allston-Brighton to adjoining towns and other parts of Boston. Fares were based on a grid pattern designed to approximate 60 percent of the equivalent premium fare. The service could be accessed via telephone only, and 24-hour advance notice was recommended. However, even making an advance reservation did not guarantee a ride (at the shared-ride fare), because of the "single passenger rule;" this rule stated that a caller would not necessarily be given a shared-ride fare if his/her request could not be matched with another request. The final significant service guideline was that the 30 percent discount taxi coupons available to the elderly through the City of Boston would not be accepted on Share and Save.

The demonstration's major accomplishment was the actual development and implementation of a shared-ride service. However, the operational results were very disappointing: there were approximately 30 requests for service during the 11-month operational period, and, because no requests could be matched, no shared rides were provided. Several factors contributed to the low demand level, including the following: 1) the exclusion of the elderly discount coupons; 2) the single passenger rule; 3) the 24-hour advance notice recommendation; 4) the complicated fare structure; 5) the fact that service could be accessed via telephone only; 6) a budgetary restriction on marketing funds; 7) difficulties with the telephone line; and 8) the fact that no funds were provided to the operator, producing a limited commitment to the project.

While the project failed to demonstrate the true potential of the shared-ride taxi concept, it produced a number of valuable lessons concerning the development, implementation, and operation of a shared-ride taxi service. These findings should be considered carefully by other locations planning to introduce such services.

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PREFACE

The Boston Shared-Ride Taxi Demonstration was funded, in part, by the U.S. Department of Transportation (DOT) under the Urban Mass Transportation Administration (UMTA) Service and Methods Demonstration Program. As part of that program, Multisystems, Inc., under contract to the U.S. DOT's Transportation Systems Center (TSC), has prepared this Evaluation Report.

The author wishes to thank the following individuals for their assistance and cooperation in this effort:

- Stephan Chait of the City of Boston's Traffic and Parking Department, local project manager
- Leslie Barenholtz of Boston Cab Association, project service provider
- Joel Freilich and Bruce Spear of TSC, evaluation managers
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
	AREA			
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	squere meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	squere kilometers	km^2
	acres	0.4	hectares	ha
	MASS (weight)			
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
	VOLUME			
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
	TEMPERATURE (exact)			
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*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	squsre meters	1.2	square yerds	yd^2
km^2	square kilometers	0.4	square miles	mi^2,
ha	hectares (10,000 m^2)	2.5	ecres	
	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
	TEMPERATURE (exact)			
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F

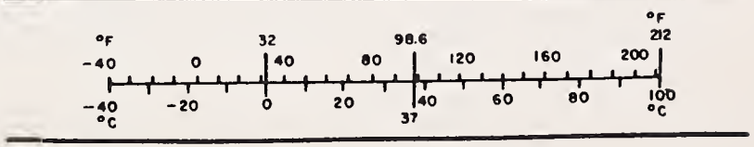

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF TABLES

LIST OF FIGURES

LIST OF EXHIBITS

Exhibit

EXECUTIVE SUMMARY

INTRODUCTION

The Boston Shared-Ride Taxi Demonstration was designed to explore the feasibility and potential of implementing and operating shared-ride taxi service within a single neighborhood in a large urban area.* Following completion of a preliminary planning study, the City of Boston's Traffic and Parking Department applied for and received a grant of $90,000 from the Urban Mass Transportation Administration under its Service and Methods Demonstration Program. This grant was intended to cover the costs of designing and implementing the proposed taxi service; a follow-on grant was to cover the costs of monitoring the service's operation and marketing the service. As it turned out, the shared-ride service was operated -- and the demonstration completed -- while the initial grant was still in effect; the follow-on funds were never awarded.

The shared-ride service, called Share and Save, was developed and implemented through a coordinated effort involving representatives of the local taxi industry, the Boston Police Department Hackney Division, and the grantee. The service was offered by Boston Cab Association, the City's second largest operator in the Allston-Brighton section of Boston. No financial assistance was provided to the operator, who assumed the cost associated with providing the service (i.e., assigning a call-taker/dispatcher to handle service requests).

Although demand for the service was very low -- and no rides were actually provided -- the demonstration produced several accomplishments and positive impacts. Furthermore, the lessons learned concerning the development/implementation process and the nature of operational barriers should prove valuable to other locations considering undertaking similar projects.

PROJECT SETTING

Allston-Brighton, the setting for the demonstration service, is a moderate-income, multi-ethnic neighborhood physically separated from most of the rest of the City of Boston. The neighborhood has a population of approximately 65,000, and features substantial elderly and young adult components: 13 percent of the neighborhood's residents are 55 and over, while approximately 52 percent are between ages 16 and 29.

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* The project planners hoped that, if the demonstration proved successful, shared-ride service could eventually be expanded to the entire city.

Allston-Brighton was selected as the demonstration setting for the following major reasons: 1) taxi service had apparently declined somewhat over the past few years; 2) public transportation in the neighborhood does not provide good cross-town service; and 3) the neighborhood has a large elderly population. In addition, more than a third of the neighborhood's households do not own an auto. Allston-Brighton is primarily residential in nature, but contains a number of small industrial/commercial areas and several shopping districts.

In terms of public transportation services available within Allston-Brighton, most residences are within 1/4 mile of a transit route and most key travel locations can be reached via transit. However, low frequencies (on most routes), short routes, and a disconnected street network make the use of transit inconvenient for many residents. In addition to bus and streetcar service, public door-to-door demand-responsive service is available to the elderly and handicapped. While no taxi operators are based in Allson-Brighton, several have cabs at local taxi stands. Most taxi service in the neighborhood is accessed via telephone.

SERVICE DESCRIPTION

During the demonstration period, Share and Save was available for trips within Allston-Brighton or from Allston-Brighton to adjoining towns and other parts of Boston. Fares for trips within Allston-Brighton were determined based on a 16-zone grid, designed to approximate 60 percent of the equivalent premium fare; fares for trips outside of the neighborhood were based on a larger grid. The service could be accessed via telephone only, and 24-hour advance notice was recommended. However, even making an advance reservation did not guarantee a ride (at the shared-ride fare), because of the "single-passenger rule;" this rule stated that a caller would not necessarily be given a shared-ride fare if his/her request could not be matched with another request. The final significant service guideline was that the 30 percent discount taxi coupons available to the elderly* would not be accepted on Share and Save.

DEVELOPMENT AND IMPLEMENTATION OF THE PROJECT

The development of the project began in July 1982, and service began in April 1983. The fact that the service was implemented was noteworthy, considering that shared-ride service was illegal beforehand, and that such service has not

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* These coupons are available from the City (they are subsidized by the taxi industry). The program, which has been in effect since 1975, is described in Chapter 2.

been made available in several other locations where it has been legalized and encouraged. Furthermore, it should be kept in mind that a taxi operator agreed to offer the service despite the fact that no operating assistance was provided. The operator's continued interest was thus crucial to the project's development and operation

The project's development centered on three complementary elements: 1) on-going design activities by the local project manager, with input from the local taxi industry as well as Federal and City officials; 2) meetings of a shared-ride subcommittee of the local Taxi Task Force, which insured representation on the part of the local taxi industry; and 3) a special two-day shared-ride taxi workshop, which enabled Boston taxi operators to learn first hand about experiences in several other locations in which shared-ride service had been provided. Those activities provided the focus for presenting, discussing and working out the service's operational guidelines -- primarily to the satisfaction of the local taxi industry.

The cooperation of the local operators throughout the development process was the key to the project's implementation, since they would be providing the service without any outside subsidy. However, this process brought out the generally conservative nature of the taxi industry; in particular, the operators were unwilling to take any kind of "risk" (e.g., such as guaranteeing the reduced shared-ride fares for single passengers where a match cannot be made).

In addition to the need to "market" the project to the taxi operators, the project marketing focused on taxi drivers and potential users. Attracting driver participation was obviously crucial, and this was by no means guaranteed by the participation of a taxi operator. Two drivers agreed to provide the shared-ride service, although one of them subsequently withdrew. Ultimately, of course, the project's success would depend on the success of the marketing effort directed at potential users. The local project manager initially took an indirect approach, focusing on working through representatives of community organizations. Once the service began, he expanded the effort to include distribution of brochures and posters to neighborhood activity centers (stores, restaurants, schools, etc.). Unfortunately, marketing efforts were limited by restrictions in the demonstration grant, and mass mailings (other than one occasion, in which project brochures were included in a mailing for another purpose) of project materials were prohibited.

In terms of the legal/regulatory issues, the local regulations governing taxi service had been modified before the demonstration to allow shared-riding; the necessary rule change was made during a planning study that preceded the City's application for demonstration funds. During the demonstration

period, it was necessary for the Police Commissioner to approve the final service guidelines before the service could be implemented. Following the requisite public hearing, the Commissioner approved the project's operational guidelines exactly as submitted.

PROJECT ACCOMPLISHMENTS AND IMPACTS

The most significant accomplishment of the demonstration project was the fact that a shared-ride taxi service was actually implemented. However, there were several other accomplishments and positive impacts as well. These are summarized below.

Despite the fact that the demand for service was very low, the Share and Save operator maintained interest in the project throughout the demonstration period and even continued to offer the service following the official end of the demonstration. Furthermore, the operator's participation in the demonstration also increased his exposure within the demonstration neighborhood and apparently contributed to an increase in premium taxi demand.

Finally, the development and implementation of the demonstration service also generated interest among Boston taxi operators to introduce a separate shared-ride service to provide service between Boston's major airport and downtown Boston. This represented something of a change in attitude among local operators toward the shared-ride taxi concept, since they had been, by and large, unhappy with the existing airport shared-ride service; most operators had opposed the Share and Save demonstration, as well.

PROJECT DISAPPOINTMENTS AND CONTRIBUTING FACTORS

Obviously, the operational results of the demonstration -- the low level of demand and the total lack of ridership -- were very disappointing. (Limited interest in the project among taxi drivers was also disappointing, but driver interest likely would have increased had the service proved profitable.) There were approximately 30 requests for service during the 11 months of the demonstration's operational period, with more than one request on only three days -- two requests were received on each of those days. However, because of the aforementioned single passenger rule and the fact that there were never two requests in close enough temporal proximity to permit formulating a service "match," no rides were provided. The single passenger rule was waived (by the operator) for a short period, but apparently there were no service requests during that time.

Several factors contributed to these results. The most important were limitations represented by service design guidelines, but the limited marketing effort, problems with the

telephone line, and the limited commitment of the service provider also served to inhibit demand. These factors are summarized below.

Several of the service design guidelines -- primarily those established to reduce the financial "risk" to the drivers -- were the major barriers to developing greater demand for Share and Save. The single passenger rule prevented the provision of any rides, but also likely inhibited demand; few people would likely call to request service again -- or tell others about the service -- after having been turned down once or twice. The recommendation that prospective riders give 24-hour advance notice basically neutralized one of the major attractions of taxi service in general -- the ability to receive service on short notice. The disincentive represented by these guidelines was compounded by the single passenger rule - i.e., the fact that calling a day ahead did not guarantee receiving a ride at the shared-ride fare.

Another design feature that was likely significant in limiting demand was the exclusion of the 30 percent elderly discount coupons; the 40 percent Share and Save discount apparently did not represent sufficient additional savings to make it worthwhile to have to call in advance and then have to share a cab.

Two other design features also likely served to limit demand: the complicated fare structure and the fact that the service could be accessed only via telephone. Many people apparently found the 16-zone fare chart and the list of fares to locations outside of Allston-Brighton difficult to understand, and some were apparently reluctant to try to use the service because they could not figure out what their fares would be. In terms of access, more people may well have attempted to use Share and Save had it been available at taxi stands or via street hail.

The budgetary restriction on marketing funds limited potential demand in that the project manager was unable to disseminate information to most of the households in the service area. The marketing effort that was carried out focused on community organizations which predominantly represented the elderly; other age groups were never reached in a comprehensive manner. One of the problems with this focus on the elderly is that because of the discount taxi coupons and the existence of less expensive alternatives (e.g., The Ride, the Senior Shuttle),* there was little reason for elderly persons to use Share and Save.

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* The Ride is a special door-to-door lift-van service for elderly and handicapped persons in the Boston area; it is sponsored by the Massachusets Bay Transportation Authority. The Senior Shuttle is a specialized service for the elderly operated by the City of Boston.

The final category of factors that contributed to the low level of demand is related to the service provider; those factors included operational problems and the provider's limited commitment to the project. There were intermittent problems with the Share and Save telephone line -- on some occasions a recording indicated that the number had been disconnected, on others the phone rang and was never answered -- and these obviously reduced the number of calls received by the Share and Save operator. Furthermore, it is unlikely that persons experiencing these problems ever called again -- or recommended the service to their friends.

The service provider's level of commitment to the project did not constitute a barrier per se, but certainly played a role in the low incidence of service requests and rides provided. The operator was actually very cooperative in terms of assisting in the project's development and agreeing to provide the service and later offering to subsidize the transporting of single passengers. However, a greater commitment to "making the service work" might well have produced substantially better results. For instance, the operator discontinued the single passenger subsidy after only a few of weeks -- and before any rides were actually provided. In addition, the operator was unwilling to instruct call-takers (for premium service) to ask Allston-Brighton callers if they would be interested in sharing a ride for a 40 percent discount. Clearly, the fact that the operator received no outside funding to provide the shared-ride service limited the effort he was willing to expend; nevertheless, a certain amount of internal marketing, such as informing exclusive-ride callers about Share and Save, could have been carried out with little extra effort and may well have substantially increased the demand for Share and Save.*

CONCLUSIONS AND TRANSFERABILITY OF RESULTS

While the development and implementation of a shared-ride taxi service represent a significant accomplishment, the low level of demand and complete lack of ridership failed to demonstrate the true potential of the concept. Nevertheless, the lessons learned from this demonstration should be of substantial value to other organizations considering the development of such services.

The ability to implement a shared-ride service will vary from one location to the next, depending on such factors as the difficulty involved in revising local taxi regulations and the extent to which taxi operators are willing to actually provide

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* Of course, it must be pointed out that, in doing this, the operator would have run the risk of reducing the market for his exclusive-ride service, thereby reducing his overall taxi revenue.

the service. However, the major findings of this evaluation should be generally applicable to any similar project. This demonstration revealed, above all else, that certain service design guidelines (e.g., exclusion of elderly discount coupons, single passenger rule) inherently limit much of the potential demand for such a service, while insufficient marketing and operational problems can further limit demand.

In order to avoid operator insistence on such guidelines -- which are seen by the operators as means of "protecting" their drivers from the risk of foregoing any potential income -- it would seem to be necessary, at least initially, to provide outside (e.g., UMTA or city) subsidies to participating operators. Such funds (e.g., to guarantee a shared-ride fare even where there is only one passenger), coupled with a comprehensive marketing effort, would test the true potential of shared-ride taxi within a particular setting. Presumably, if resulting demand were sufficient, enough requests could be matched so that, eventually, most trips would not have to be subsidized. Obviously, without a sufficient level of demand, there will be little actual shared-riding, and a system will not become "self-supporting."

1. INTRODUCTION/BACKGROUND

1.1 INTRODUCTION

This report presents an evaluation of an Urban Mass Transportation Administration (UMTA) Service and Methods Demonstration (SMD) of a shared-ride taxi project in Boston, Massachusetts. The City of Boston's Traffic and Parking Department, the project grantee, designed and implemented a shared-ride service for the Allston-Brighton neighborhood of Boston; Boston Cab Association, one of the City's major taxi operators, offered the service.

1.2 PROJECT BACKGROUND

In the past decade, there has been considerable interest -- in both the public and private sectors -- in developing more efficient forms of transportation. Public agencies have been seeking to insure the mobility of the transportation handicapped (i.e., through affordable service) without increasing the level of subsidy, while private operators have been seeking to increase revenues. One approach which can potentially promote both of these goals is shared-ride taxi (i.e., a form of service in which taxis are legally permitted to carry two or more passengers having different origins and destinations).

Since the taxi driver is carrying two or more riders, each paying more than 50 percent of the regular fare, total revenue for a particular trip may be greater than if only one passenger were being transported. Furthermore, fares are set such that passengers willing to share a ride -- and hence facing the possibility of a slightly longer trip -- are charged less than for an exclusive ride. Taxi service should then be affordable to many persons unable to pay premium fares. This should -- at least in theory -- attract new patrons to taxi service from other modes (i.e., other than from exclusive-ride taxi), thereby increasing the taxi industry's overall share of the urban transportation market.*

Despite the potential advantages for all parties concerned, however, the shared-ride concept has been introduced in relatively few locations to date. It remains illegal in

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* Many taxi operators disagree with this argument; their view is presented on the following page.

many cities, and operators in many of those locations (e.g., Seattle; Portland, OR; San Diego; Berkeley, CA; and Dade County, FL) where regulations have been modified have been slow to introduce the service.* There are several possible explanations for this latter situation: 1) many taxi operators are simply reluctant to try new approaches; 2) the grouping of rides makes shared-ride scheduling and dispatching considerably more complex than for exclusive-ride service; 3) few taxi companies have the marketing ability or resources to effectively promote a new service; and 4) most taxi operators are unwilling to accept the risk of losing revenue on trips in which a lower shared-ride fare is guaranteed but grouping of riders is impossible.

Perhaps the single most significant barrier to taxi operator introduction of shared-ride service, however, is the feeling held by many operators that the market for taxi service is relatively fixed, and that most shared-ride passengers are drawn from exclusive-ride service.** Consequently, the overall profitability of the taxi industry would decline, since the same number of riders would be carried in fewer vehicles -- and for lower fares.

These barriers notwithstanding, the taxi industry in general has recognized the need to diversify and innovate in an effort to generate additional revenue while keeping costs down. Thus, concepts such as shared-riding offer promise over the coming years, both as a means of reviving the taxi industry and as a cost-effective complement to public transit. For this reason, the Urban Mass Transportation Administration (UMTA) has considerable interest in assessing practical applications of shared-ride taxi service.

The Boston Shared-Ride Taxi Demonstration project was administered by the City of Boston's Traffic and Parking Department. The City applied for funds to conduct the demonstration following completion of a planning study (also funded by UMTA's SMD program) entitled User-Side Subsidy Shared-Ride Taxi Service for Elderly and Handicapped Citizens in Boston. This study, completed in 1982, sought to determine the conditions under which it would be feasible to implement an innovative taxi service in Boston. The planning study

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* As of this writing, no taxi companies in Seattle, Portland, Berkeley, or Dade County were offering shared-ride service, and only one company in San Diego was doing so.

** This view obviously runs counter to the theory that the lower shared-ride fares will attract riders from other modes. To date there is little empirical evidence to support or refute either argument. One of the objectives of the Boston demonstration was to address this issue; however, as is discussed in Chapter 4, this demonstration has been unable to shed further light on the matter.

recommended that a shared-ride taxi service be tested out as a pilot program within a single neighborhood. Following this recommendation, the demonstration project consisted of a design phase, followed by implementation and operation (the details of these phases are discussed in Chapter 3).

1.3 DESCRIPTION OF THE DEMONSTRATION

The Boston Shared-Ride Taxi Demonstration was designed to explore the feasibility and potential of implementing and operating shared-ride taxi service within a single neighborhood. The neighborhood selected was Allston/Brighton, a geographically distinct section of Boston with a 1980 population of over 65,000 (see Chapter 2). This area was chosen as a demonstration site for several reasons, including the following: 1) taxi service in the neighborhood had apparently declined somewhat over the previous few years; 2) public transportation does not provide adequate service within the neighborhood; and 3) there is a large elderly population in the neighborhood (see Chapter 2).

The project consisted of three major phases: design, implementation and operation. The design phase was officially inaugurated in July 1982 and was essentially completed in January 1983. This involved working out the actual structure of the pilot program. Details to be settled included who would participate, what the fare structure would be, how passengers would gain access to the program, whether a caller would be guaranteed a shared-ride fare if he/she called in advance (i.e., even if he/she could not be grouped with another rider), how return trips would be handled, how shared-ride scheduling and dispatching would be handled, and whether discount coupons for the elderly would be honored (these coupons are described in Chapter 2).

The process of working out these details and implementing the project is discussed in Chapter 3 of this report. The demonstration service, called "Share and Save," was available beginning in April 1983; the demonstration officially ran through March 1984, although Boston Cab continued to offer the service after that time. The total cost of the demonstration was $100,543, including $90,000 through the UMTA SMD grant.

1.4 PROJECT OBJECTIVES

The Boston Shared-Ride Taxi Demonstration was designed to meet both national and local objectives. At the national level, UMTA and the Transportation System Center's (TSC) primary objective was to document and assess the feasibility and impacts of shared-ride taxi service in a large urban area (i.e., does it benefit the taxi operators, the users, and the City in a cost-effective manner?). Furthermore, through the evaluation, UMTA and TSC sought to produce a case study of how shared-ride taxi service can be developed and implemented.

On the local level, the major objectives were to improve the productivity of taxi vehicles, to improve the City's system of transportation services, and to provide the City's residents with lower cost transportation alternatives. The first of these objectives was the major aim of the City's taxi operators, while the latter two were of major concern to the City government.

1.5 EVALUATION ISSUES

The evaluation of the Boston Shared-Ride Taxi Demonstration focused on: 1) documenting the process of designing, marketing and implementing a shared-ride taxi program; and 2) determining the impacts of such a program on providers, users, and the local transportation environment in general. As such, this report is addressed to three major audiences: 1) the taxi industry (i.e., the nature of benefits of shared-ride taxi service); 2) local planners (i.e., design and implementation guidelines, as well as the nature of benefits to the locality and the public); and 3) policymakers and researchers.

The major evaluation issues addressed include the following:

- How were the project design issues (of a service, political and institutional nature) resolved?
- How was the project marketed to prospective users and providers? How effective was the marketing effort?
- What was the nature of problems and barriers encountered in implementing and operating the demonstration service?
- What were the travel behavior impacts of the demonstration, in terms of demand for the service?
- What was the nature of productivity and economic impacts on the service provider?
- What type of impact did the demonstration have on Boston's taxi industry (e.g., on attitudes toward the shared-ride taxi concept)?

These issues are addressed in the report, which is organized as follows: Chapter 2 describes the demonstration setting; Chapter 3 discusses the development, implementation, and operation of the project; Chapter 4 discusses the project impacts and results; and Chapter 5 presents the conclusions and implications for other projects.

2. PROJECT SETTING

2.1 INTRODUCTION

Allston/Brighton is a moderate income neighborhood located 3-4 miles from downtown Boston (see Figure 2-1). Although situated between or adjacent to several universities and hospitals, the neighborhood is primarily residential in character. Large apartment buildings line several major streets, particularly Commonwealth Avenue, while off the main avenues, one-, two- and three-family dwellings predominate. It is among the more heterogeneous neighborhoods in Boston, including residents of varying ages, incomes, racial and ethnic groups. Yet, overall, its population is predominantly young, white and middle income.

Allston/Brighton has extensive transit services, including one major branch of the MBTA's surface light rail network, yet its circumferential bus lines offer infrequent service. Its transit services are primarily downtown-oriented, despite the fact that a large portion of the labor force works in non-downtown locations. Finally, its large elderly population makes substantial use of the MBTA's door-to-door service, "The Ride."

The population, land use and transportation characteristics of the neighborhood are described in greater detail below.

2.2 POPULATION CHARACTERISTICS

Allston/Brighton had a population of 65,264 in 1980 -- approximately ten percent of Boston's total population in a similar percentage of the total area. Approximately 84 percent of the 28,127 occupied housing units (1980) were rentals. The population included 13.1 percent senior citizens and 10.8 percent youth (under 18). The most recent statistics on college enrollment of the residents (1970) show 15.1 percent in college, or nearly twice the percentage in Boston as a whole. Indications are, however, that the percent of students in Allston/Brighton is down, as college enrollment has decreased and the portion of students in on-campus housing has increased.

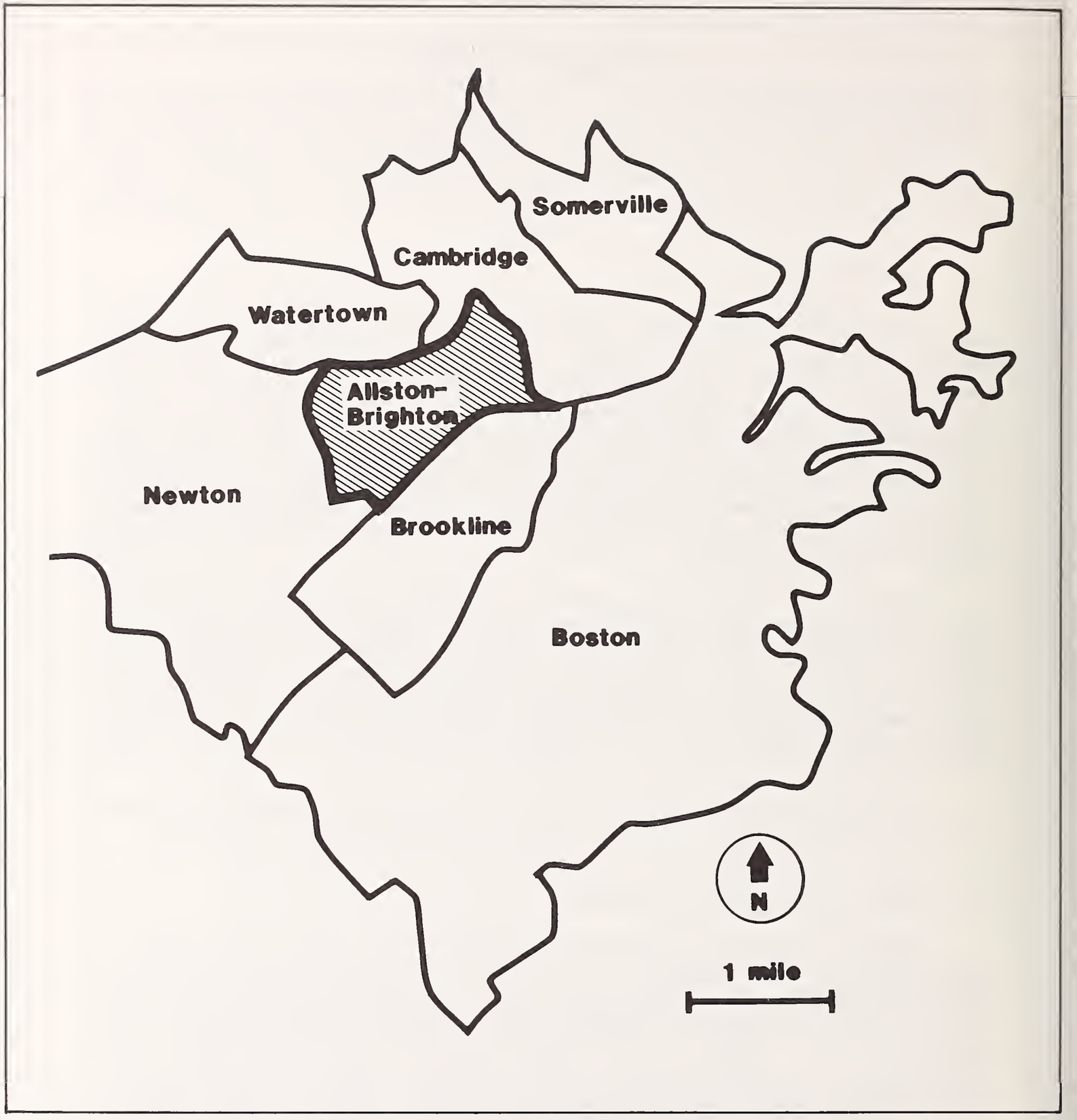

Figure 2-1. Location of Allston-Brighton

The 1980 census data showed a decreasing percentage of youth--10.8 percent as compared to 18.5 percent in 1970. Brighton's population is aging, as both the youth and college populations decline. Nevertheless, it has the largest young adult population of any of Boston's neighborhoods, with 52 percent between ages 16 and 29 (according to a 1980 household survey).*

Among Boston's 16 neighborhoods, Allston/Brighton has the twelfth largest percentage of minority residents. The neighborhood has become much more heterogeneous than in 1970 when census data showed that 95.8 percent of its residents were white; 1980 census data indicate that 87.4 percent are white. The recent BRA household survey showed an even larger minority population than did the Census: three percent Black, four percent Hispanic, and 13 percent Oriental; these compared with citywide statistics of 20 percent, six percent, and four percent, respectively.

Allston/Brighton has a large number of single people and one-person households. Only 29 percent of individuals in the neighborhood are married, compared to 42 percent citywide; 42 percent of the individuals live alone, compared to 24 percent citywide. Despite the fact that there are perceived to be many students living in the neighborhood, the household survey showed that 64 percent of the population aged 16 or over was employed, compared to 59 percent in Boston as a whole. This probably correlates with the marital and family characteristics. The neighborhood's workers are primarily clerical and professional/managerial/technical. Approximately 44 percent are in the latter category, compared to 30 percent citywide.

Allston/Brighton is frequently characterized as a transient neighborhood, with many out-of-towners and students. While 1970 census data did not support this, the more recent household survey indicates that only 18 percent of Allston/Brighton residents had been living in their dwelling units six or more years, compared with 40 percent citywide. Forty-one percent indicated that a move was extremely likely in the next three years, compared to 22 percent citywide. Allston/Brighton residents likely to move were among the most likely (of all city residents) to indicate economic reasons, and among the least likely to cite physical environment or

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* Characteristics of Boston's Population and Housing: 1980, Background Takes, prepared by the Center for Survey Research for the Boston Redevelopment Authority (BRA), February 1981.

current house or apartment as the reason for moving. They were also among the most likely to move outside of Boston and outside of Massachusetts. While condominium conversions and reduced student populations may decrease transience over the long term, over the short term it has probably caused many long-time residents to relocate.

Allston/Brighton's population is rather well-educated; 42 percent of adults 18 years and over are college graduates, compared to 22 percent citywide. Median incomes in 1980 were $9200 for singles and $12,300 for families of two or more persons, slightly higher for the former group and lower for the latter group than Boston as a whole. Only 16 percent of single individuals were low-income, compared to 22 percent citywide; yet 26 percent of families were low-income compared to 27 percent citywide. While census tracts 1, 2 and 3 (northwest/central Brighton) show 1970 incomes higher than Boston as a whole, tracts 4-8 (Commonwealth/Allston) show lower incomes. This is probably due as much to the presence of students and retired persons as to social class differences. The auto ownership data also show the greatest percentage of no-car households in the Commonwealth Avenue and Allston areas.

Auto ownership data from 1970 indicate that Allston/Brighton had more one-car households and fewer no-car households than the City as a whole. This is to be expected in a neighborhood which is dense, has a large number of apartments and small households, yet is moderate income. Nevertheless, 35.7 percent of households in Allston/Brighton had no car in 1970.

Transit use for work trips from Allston/Brighton parallels the mode choice of the rest of Boston. Approximately 50 percent drive to work, compared to 47 percent citywide; 37 percent use MBTA service, compared to 35 percent citywide. The 1980 household survey indicates that 21 percent of neighborhood residents who are employed work in Allston/Brighton and only 13 percent work downtown. This emphasizes the need for good crosstown service for intra- and inter-neighborhood travel.

2.3 EXISTING TRANSPORTATION SERVICES

2.3.1 Transit Services

The Massachusetts Bay Transportation Authority (MBTA) provides local transit service in Allston/Brighton, as well as in 57 cities and towns of eastern Massachusetts. As part of the Boston-Cambridge central core area, Allston/Brighton has considerable radial and circumferential route coverage (see Figure 2-2). Few residences are beyond a 1/4-mile walk to a transit line.

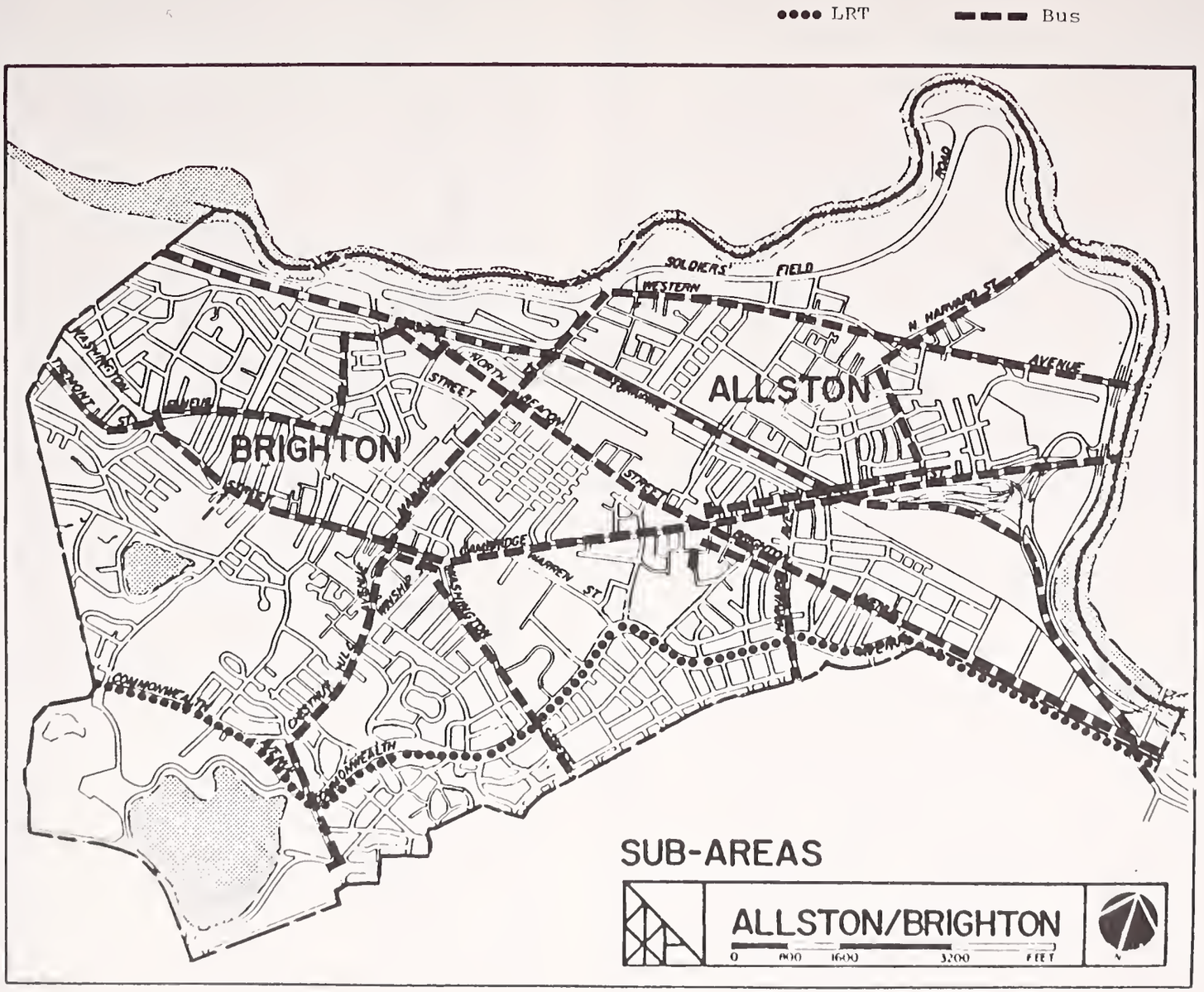

Figure 2-2. Transit Coverage

The primary MBTA route in the area is the Boston College branch of the LRT Green Line. This is a high-frequency service to downtown Boston operating in the median of Commonwealth Avenue, a major boulevard lined by apartment houses and some businesses (located at the southern edge of the neighborhood). Scheduled frequencies on this route are between five and eight minutes depending on the time of day (see Table 2-1). Service terminates at 1:00 a.m. every day. This route is characterized by crowded and "bunched" vehicles, and often slow and unreliable service.

Very high-frequency bus service operates (along an old trolley route) through the center of Brighton to Kenmore Square, where passengers may transfer to Green Line subway service. Most other MBTA routes are circumferential in nature and operate at relatively long headways (15-20 minutes during the peak). Long headways mean that riders typically arrive to meet the schedule and may find transfers between these routes inconvenient. Three routes provide service to Harvard and Central Squares in Cambridge; these are key destinations, as well as transfer points to high-speed Red Line subway service (less than ten minutes from downtown). Other routes provide

TABLE 2-1. TRANSIT SERVICE

Route No.	Scheduled Frequency				
	Rush Hrs.	Midday	Evening	Sat.	Sun.
57	4	9	12	9	15
63	20	30	60	30	-
64	15	30	60	30	-
65	20	30	--	30	-
66	7	15	30	12	20
70	20	30	60	30	120
86	15	30	60	35	--
301	7/5	--	--	--	--
Boston College Green Line	5/6	7	8	7	8
Cleveland Circle Green Line	7	7	10	7	10

service to Brookline, Roxbury and the hospital complexes located between those communities. Note that all these bus routes offer service to key shopping areas located just outside the Allston/Brighton neighborhood in Cambridge, Brookline and Watertown, as well as local shopping centers in Allston, North Brighton and Brighton Center.

The MBTA charges $0.50 for local bus service and $0.60 for much of its rail service; however, streetcar service within Allston-Brighton is $0.75 round trip -- the fare is $0.75 in the inbound direction, and there is no charge for persons boarding within Allston-Brighton going outbound. Express bus service from Brighton center to downtown is $1.00; local service for the same trip would cost $1.10. Although bus fares are lower in Boston than in many other cities, bus lines are short and there are no free or discounted transfers for cash customers. Passes are offered to commuters who use bus and rail in various combinations. Generally, the pass cost is based on 16-18 round trips per month, thus offering free transit travel on 1-7 work days plus free off-peak and weekend trips. Pass users also receive a ten percent discount on collision and property damage portions of their auto insurance, which is quite costly in Boston. Half-fares are offered to children under 12, and to students (to and from primary and secondary schools). Senior citizens (65 and over) pay $.10 at all times and the handicapped ride for half fare outside rush hours.

A special door-to-door lift-van service (The Ride) for elderly and disabled people is sponsored by the MBTA; the fare for this service is $0.75 per trip. In addition, the City of Boston operates a specialized service for the elderly -- the Senior Shuttle; this service is available free of charge. The MBTA has a few lift-equipped buses, but Allston/Brighton was not among the first neighborhoods assigned these buses.

Because of the extensive network of transit in the area, there are few key travel locations that cannot be accessed by MBTA services. Nevertheless, low frequencies (on most routes), short routes and a disconnected street network make the use of transit inconvenient for many residents.

2.3.2 Taxi Services

There are currently 1525 taxicabs operated in Boston by eight fleets or radio associations and approximately 300 unaffiliated owner-operators.* Typically, drivers affiliated

* Boston's fleets and associations are as follows: Independent Taxi Operators Association (ITOA - 395 cabs), Boston Cab Association (220 cabs), Checker Taxi Company (177 cabs), Red and White Association (150 cabs), Town Taxi Company (117 cabs), United Cab Company (91 cabs), White Cab Company (50 cabs), and Mattapan Taxi Company (25 cabs).

with a fleet lease their cabs, pay a fee to the company, and keep all fares they receive; the drivers pay for their own fuel, but the company provides maintenance service.

The latest development has been the growth of radio associations for owner-operators. These provide central radio dispatching for the individual taxi operator. For instance, Boston Cab, the Share and Save operator, sold its medallions to owner-operators who then joined the fleet's radio association (maintaining the fleet colors) for a fee. Thus Boston Cab (now Boston Cab Association) no longer bears responsibility for the vehicles or their insurance.

Half of the cabs in Boston are radio equipped; these have an advantage over non-radio cabs, which are usually owned by individual owner-operators. Cabs licensed in an adjacent community may legally pick up passengers within Boston only if called on the telephone. For example, cabs licensed in Brookline are used by many residents on the border areas. Most residents of Allston/Brighton call for taxi service from their homes, since taxis typically do not cruise on the residential streets. The taxi stands located in Allston/Brighton are shown in Figure 2-3.

Taxi service in Allston/Brighton has declined over the past several years, although some operators (including Boston Cab) have been working to increase their service in the area. Although no taxi companies are based in Allston/Brighton, two list Brighton telephone numbers in the Yellow Pages and several have cabs (some illegally, because the cabs are licensed in Brookline, not in Boston) at local taxi stands.

Taxis operate primarily in exclusive-ride metered service. Taxi fares in Boston are a $.90 flag drop for the first 1/6 mile and $.20 for each additional 1/6. An elderly discount coupon program has been in effect in Boston since 1975. It allows senior citizens to purchase taxi fare coupons at a 30 percent discount (from the face value). The subsidy is derived from annual medallion renewal fees. The fee, set at $29, has generated a fund of $44,225, which is administered by the Cab Association of Boston (CAB). The CAB redeems the coupons from the operators at full face value until the fund is totally expended; once this occurs, coupons are redeemed at a 30 percent discount for the rest of that year.

Taxi operating costs have increased with gasoline prices and inflation in general. The Independent Taxi Operators Association estimates a 20 percent increase in operating costs from 1979 to 1981. In the 1980 rate negotiations, recognition of the harmful effects of increasing rates on the industry was evident. This has encouraged proponents of shared-ride taxi service.

Figure 2-3. Taxi Stands

Shared-ride taxi service (Share-a-Cab) for trips from Logan Airport to Boston's suburbs has been available for several years.* While the service is available to nearby Cambridge and Brookline, Allston/Brighton has been excluded from the program since it is in the City of Boston.

2.4 LAND USE AND TRAVEL GENERATORS

Allston/Brighton is primarily residential in character, with several small industrial/commercial areas (located primarily in the north) and several shopping districts. The highest residential densities occur in the Commonwealth Avenue corridor along the southern edge, where 4-6 story apartment houses predominate (see Figure 2-4). Elsewhere, one-, two- and three-family homes are the primary housing component. As condominium conversions have swept through the area, a process of renovation has begun in the apartment areas; many of these buildings had fallen into disrepair in the previous decade when they had been occupied by students as well as elderly persons.

Several major housing developments are noteworthy. Two public housing projects for lower income residents are located in Brighton. The Faneuil Street project in the northwest, a low-rise complex, is located in an area that is inconvenient in terms of transit; the Fidelis Way complex, located on Commonwealth Avenue, is partially high-rise and is scheduled for renovation and reduction in scale. Newer elderly housing has been built to accommodate the aging population in the area. Operated by the City and non-profit organizations, these complexes are predominantly located near Commonwealth Avenue, several within a short walk of supermarkets, churches, synagogues, and bus/streetcar service.

Since Allston/Brighton originally consisted of two separate neighborhoods, there are two administrative centers. This is reflected in separate post offices, shopping districts, Little City Halls (a program now defunct), etc. The Massachusetts Turnpike Extension, although not precisely at the boundary of the two communities, further divides the community. The key travel generators (or attractors) are discussed below. It is evident that the community is multicentric and has orientations to different adjoining neighborhoods.

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* Share-a-Cab is not available into Boston itself. However, as explained in Chapter 4, a new service is being considered that would provide trips from the airport into downtown Boston.

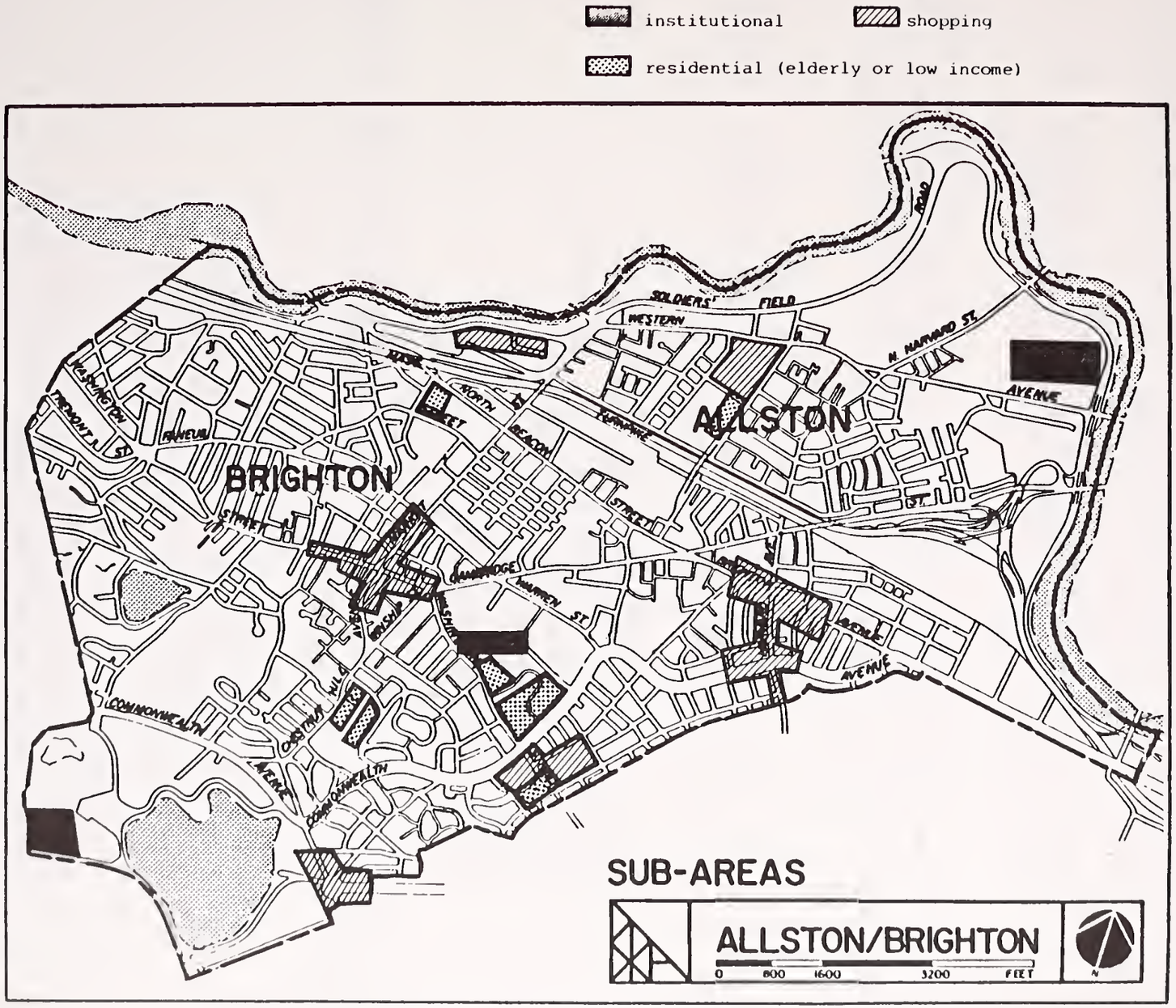

Figure 2-4. Major Travel Generators

Local shopping areas within Allston/Brighton are concentrated in a few areas (see Figure 2-4):

1. Harvard Avenue Purity Supreme (Allston)
2. Brighton Center
3. Caldor/Star Market Plaza (North Brighton/Allston)

Other shopping areas include:

4. Soldiers Field Road Extension (North Brighton)
5. Stop & Shop (Washington St./Commonwealth Ave.)
6. Cleveland Circle

Most of these areas have good transit access although there are many residential areas that have access to only a few of these shopping areas. Since the shopping areas differ in nature and in the key stores, there may be demand for travel to the distant centers within the area.

Allston/Brighton residents do shop in adjacent neighborhoods and, of course, in downtown Boston. Several adjacent shopping areas are worthy of mention due to their size, quality and/or transit connections:

1. Watertown Mall (Watertown)
2. Chestnut Hill Mall (Newton)
3. Coolidge Corner/Harvard Street (Brookline)
4. Washington Square (Brookline)
5. Harvard Square (Cambridge)
6. Central Square (Cambridge)
7. Kenmore Square (Boston)
8. Arsenal Mall (Watertown)

Aside from shopping and residences, there are several institutions that generate significant amounts of travel; these include (see Figure 2-4):

1. Boston College
2. Boston University
3. Harvard Business School
4. Brighton High School
5. St. Elizabeth's Hospital
6. YMCA
7. West End House
8. Jewish Community Center
9. Saint Columbkille's Church and School
10. Mount Saint Joseph Academy
11. Jackson/Mann Community School
12. Kennedy Memorial Hospital for Children
13. U.S. Public Health Service Hospital
14. Cleveland Circle Pool and Skating Rink

All of these are located on transit lines. Important travel attractors outside the area include the hospital complexes on Brookline Avenue (Boston). Due to the nature of their clients, the hospitals (both inside and outside Brighton) probably see the greatest use of taxis. Several of the other key travel attractors (schools and community centers) have transportation services that complement MBTA public transit services.

There are a few additional businesses in Allston/Brighton that may generate taxi travel. These include:

- WBZ
- WGBH
- Ramada Inn
- Charles River Motel
- Honeywell

3. PROJECT DEVELOPMENT, IMPLEMENTATION AND OPERATION

3.1 INTRODUCTION

The Boston Shared-Ride Taxi demonstration project was developed as a result of a planning study (funded by UMTA's SMD Program) prepared by the City of Boston in 1982.* The study's major conclusions can be summarized as follows:** (1) a shared-ride taxi service in Boston is feasible; (2) such a service would be a cost-effective means of improving the transportation services available to Boston residents; (3) such a service would provide the taxi industry with a means of increasing its vehicles' productivities; and (4) such a service would provide a lower cost service to users.

The study recommended that the operational feasibility of shared-ride taxi service be tested out through a demonstration within a single neighborhood. The ensuing demonstration project included three phases: design, implementation, and operation. This chapter documents: 1) the design phase, which involved establishing the operational characteristics of the service and the implementation guidelines; 2) the implementation itself; and 3) ongoing marketing activities and operational developments.

3.2 INITIAL PROJECT DESIGN AND SELECTION OF DEMONSTRATION SITE

The demonstration project design phase officially began in July 1982. The initial tasks were to identify the site for the demonstration and specify the actual structure and guidelines of the pilot project; the most important design details to be worked out were the following: who (i.e., which taxi operators) would participate; the nature of the fare structure; the manner in which passengers would gain access to the program; whether or not a prospective passenger would be

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* User-Side Subsidy Shared-Ride Taxi Service for Elderly and Handicapped Citizens of Boston.

** As reported in City of Boston, Shared-Ride Taxi Service for Citizens in Boston, A Proposal for a Design Study and Pilot Program, submitted to UMTA, January 4, 1982.

guaranteed a reduced (i.e., shared-ride) fare even if he/she could not be grouped with another rider; how return trips (i.e., from outside the service area) would be handled; how shared-ride scheduling and dispatching would be handled; and whether the elderly discount coupons would be honored. Other issues and concerns arose during the course of the project's development; these are addressed later in this chapter. The initial guidelines in terms of the above issues are described below.

3.2.1 Site Selection

Allston-Brighton was chosen by the City to be the site of the pilot program. This area was deemed an appropriate demonstration site for several reasons; these included the following (see Chapter 2 for more detail):

- taxi service in the neighborhood has apparently declined somewhat over the past few years;
- public transportation in the neighborhood does not provide good crosstown service;
- there is a large elderly population in the neighborhood; and
- there is no real turf problem among the taxi operators in the neighborhood.

3.2.2 Initial Guidelines

Preliminary design guidelines were initially developed in the aforementioned UMTA-sponsored planning study and specific service parameters were outlined in the proposal for the shared-ride taxi demonstration. These parameters were subsequently refined and reworked through a series of discussions among the City's project manager, the UMTA project manager, UMTA's design contractor (The Urban Institute), city officials, and local taxi operators (officials of Boston Cab Company,* Checker Cab Company, and the Independent Taxicab Owners Association). The preliminary operational details, as subsequently proposed to other area taxi operators and industry representatives for their consideration and approval (this process is discussed further in the following section), are discussed below.

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* As explained in Chapter 2, Boston Cab Co. subsequently became an association - Boston Cab Association.

In terms of who would participate in the pilot project, it was proposed that any taxi driver (licensed in Boston) would be eligible to provide shared-ride service. However, not resolved at the time was the question of how non-radio dispatched cabs would be able to take part in a program based primarily on advanced reservations. Among the solutions considered were: (1) the possibility that one of the larger operators (most likely Boston Cab) could make its dispatching service available (for a fee) to the non-dispatched cabs; and (2) that there could be a requirement that all participating drivers have dispatching capabilities. No consensus on this matter was reached in the initial stages of the design process.

Regarding the shared-ride fare structure, the proposed arrangement was a zone-based system (the actual zone structure had not yet been determined), with fares set to approximate 60 percent of the full-metered exclusive-ride fare. While the operators agreed to the 40 percent discount for shared-rides and generally supported the zone system, they saw potential problems in terms of comprehension (on the part of both passengers and drivers) and equity (i.e., for trips of different lengths). The development of the zonal structure was one of the major project planning activities; the process is described in Section 3.3.1 below.

As for gaining access to the service, it was originally proposed that persons desiring shared-ride service would be required to make telephone reservations 24 hours in advance of the desired pick-up time. This was deemed acceptable by the operators, although they were firmly opposed to the notion that everyone making an advance reservation should be guaranteed the shared-ride fare (i.e, whether or not he/she could be grouped with one or more other callers); the operators insisted that all riders who could not be matched should be charged at the exclusive-ride rate.* This position was clearly representative of the local taxi industry's general stance regarding shared-ride taxi--and innovation in general; the local operators were uniformly opposed to any type of service guideline that would expose their drivers to any risk (i.e., requiring a driver to make a trip for less than the equivalent

* This guideline, i.e., that a driver should not be required to carry a single passenger at the shared-ride fare, is known hereafter as the "single passenger" rule.

of a single full fare).* The project planners' argument that the absence of a guaranteed reduced fare for advance callers would likely restrict demand--and thus limit the potential benefit to the drivers--did not sway the operators.

Several alternatives were proposed initially for the handling of return trips (i.e., from outside the service area). One possible arrangement would involve the establishment of checkpoints outside the project neighborhood. A person wishing to return to the pilot area would call for a taxi to pick him/her up at the nearest checkpoint. The shared-ride scheduler would attempt to match the caller with others calling from the vicinity of that checkpoint. Another option would be to simply treat return trips as exclusive rides--unless a match with an additional request for that time period could be arranged. No definite proposal for resolving this issue was developed in the initial project design stage.

The actual nature of the scheduling/dispatching process remained unresolved during the early planning stages as well. One alternative which was put forth was to establish a single central scheduling office (i.e., based at one of the taxi companies) to handle all shared-ride requests for the pilot neighborhood. Another possibility would have each company take care of its own requests. A third alternative would be a combination of these two (i.e., one or two of the larger companies would make their facilities available to certain smaller fleets). The disposition of this issue was obviously dependent to a great extent on the number and nature of participating operators.

The final major design issue was the treatment of the elderly discount coupons. The original SMD-funded planning study focused on improving service for the elderly and handicapped. Nevertheless, the taxi operators were unwilling to allow riders to receive both the elderly and the shared-ride discounts. The operators generally felt that an elderly

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* This position was based in part on the operators' experience with Share-a-Cab, a shared-ride service operating out of Boston's Logan Airport. Drivers who had participated in Share-a-Cab felt that they often lost money in providing the service. In using Share-a-Cab, passengers originally had to wait 15 minutes (or less if there were four "matched" passengers); if there were no other requests by that time, the passenger received an exclusive ride at the Share-a-Cab fare (roughly half the normal fare). The 15 minute maximum wait has now been removed; prospective passengers must wait until there is at least one match before they will receive the service. Neverthless, the operators wanted to avoid repeating the early Share-a-Cab experience.

individual should have to make a choice between using the 30 percent elderly discount or using shared-ride service with its 40 percent discount; the combination of the two discounts would produce a total reduction of 58 percent* from the full exclusive-ride fare, a figure seen as too high by the operators.

The above discussion summarizes the status of these design issues as of the first month of the design study. As explained, few of the details/issues were fully resolved at that time. As the design phase of the project progressed, many of the service details were revised and new concerns and issues arose; these are discussed below.

3.3 DESIGN/DEVELOPMENT PROCESS

As a result of the initial meetings (in July) between the City's project manager (and UMTA and Urban Institute representatives) and the three key local taxi operators, two key decisions were made regarding further development of the project:**

- The Shared-Ride Subcommittee of Boston's Taxi Task Force, made up of representatives of the taxi industry, the Police Commissioner's Office, the Hackney Division of the Police Department, and the Mayor's staff, would provide an appropriate forum for seeking input on designing and implementing the project.

- It would be helpful for Boston's taxi operators to have discussions with other taxi operators who have implemented and operated shared-ride programs.

These decisions essentially provided a framework through which the project's design details could be ironed out and accepted by the local taxi industry. The basic process of completing the project's design and development subsequently consisted of the following basic elements:

- ongoing design/development activities by the City's project manager, with input from the taxi industry, UMTA, the Urban Institute, and other City officials;

- meetings of the Shared-Ride Subcommittee; and

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* Forty percent for the shared-ride discount plus 18 percent (i.e., 30 percent x 60 percent) for the elderly discount.

** As reported in a memorandum from Carol Everett, Urban Institute, August 11, 1982, entitled "Up-Date on Boston's Shared-Ride Taxi Demonstration."

- a shared-ride taxi workshop, held in Chicago September 29 and 30, 1982, and attended by taxi operators from several cities.

These elements are discussed below.

3.3.1 Ongoing Design Activities

The City's Traffic and Parking Department had primary responsibility for the overall design and implementation of the demonstration project, although the project manager received input and feedback from UMTA and UMTA's design contractor throughout the design phase, and also worked closely with the local taxi industry. The City's intent throughout the project's development was to maintain full cooperation with the taxi industry; this was necessitated, of course, by the fact that the taxi operators would be providing the shared-ride service -- and without any outside subsidy. In this regard, the project manager expended considerable effort in discussing every aspect of the project with the operators and paid close attention to their concerns. The project manager communicated with the operators through both the Subcommittee meetings (discussed below) and discussions with individual operators.*

The project design proceeded in an iterative fashion, with the project manager (with outside input) developing initial details, presenting them to the taxi operators and representatives of the Police Commissioner's Office, then refining or reworking the details and presenting them again. This general process continued until all major details and service guidelines were ironed out and general consensus was reached among the project participants. An important element in this process was the Chicago workshop; this is discussed in Section 3.3.3.

As explained above, many of the guidelines themselves were initially developed in the earlier planning study and the project proposal, and then refined through meetings and discussions. The recommendations of the planning study therefore served as a starting point for the development of the pilot program.**

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* Representatives of the two operators who were most interested in the project--Boston Cab Company and Checker Taxi Company--were quite cooperative throughout the design/development effort in terms of willingness to meet with project personnel and provision of pre-implementation data to Multisystems for evaluation purposes.

** It should be noted, however, that the focus of the demonstration differed significantly from that of the planning study: the demonstration did not involve user-side subsidies, and the service was targeted toward the general public rather than the elderly and handicapped in particular.

The design details and service guidelines fell into several basic categories: (1) those which simply required yes or no decisions on the part of the operators (e.g., whether or not to participate in the project, whether or not to guarantee a shared-ride fare for anyone making a reservation 24 hours in advance, and whether or not to allow the use of elderly discount coupons in addition to the shared-ride discount); (2) those for which details had to be fully developed by the project planners (e.g., the nature of the zonal fare system); (3) those which required that the project planners, in concert with the operators, make decisions (e.g., how passengers gain entry into the system and how to handle return trips); and (4) those which the participating operators, with assistance from the planners, had to work out (e.g., how dispatching would be handled). In addition to developing service details, an important aspect of the ongoing design phase was working out legal/regulatory details; this effort is discussed in Section 3.4.1.

The first category of details could not be controlled by the project planners, and those in the fourth category were dictated primarily by the desires and capabilities of the participating operators. Meanwhile, the third category of details were resolved -- at least in a preliminary fashion -- following discussions with operators in other cities (i.e., at the Chicago Workshop); these details could not realistically be finalized until they had been tried out in actual practice. Thus, it was the second category of details -- the design of the zonal fare system in particular -- that required the most extensive planning effort; this effort is discussed below. (The final design parameters, as included in a proposal to the Police Commissioner, are summarized in Section 3.5.)

Development of the Fare Structure

The most complex design issue was the development of a shared-ride fare structure. Early in the conceptual stages of the project, the planners decided that a zonal system would be an appropriate approach to establishing shared-ride fares.*

A standard metered fare system would obviously be unmanageable with more than one passenger (i.e., traveling independently), and, furthermore, exclusive-ride meters are not set up to accommodate a built-in discount. Whereas a zonal system is far from perfect, it was clearly the most workable solution to the fare problem. However, stipulating the actual

* The only other feasible arrangement would involve the installation of special shared-ride meters, which would account for two or more fares simultaneously; this option was later studied as well, as is discussed below.

size and arrangement of the zones, and the fare increments associated with each, presented difficult problems in themselves.

The crux of the challenge facing the project manager was to develop a zone fare system that would simultaneously meet the following objectives: (1) shared-ride fares would approximate 60 percent of the full metered fare for most trips; (2) the fare structure would provide users with a clear economic incentive to use the service; (3) the fare structure would provide taxi drivers with an economic incentive for providing the service; (4) the fare structure would be simple to use and market -- for both operators and users; and (5) the fare structure would prevent abuse on the part of the drivers. Of course, this was clearly a difficult task, since these objectives tend to be rather mutually exclusive and dictate rather different zonal structures: for instance, a zonal system that would maximize the equitable distribution of fares (i.e., to approximate 60 percent of metered exclusive-ride fares) would consist of a large number of small zones and would therefore be more complicated to use; a system made up of a small number of large zones would be easier to use, but would prove inequitable in terms of distribution of fares.

The first step in developing a fare structure pegged to 60 percent of the full metered fare was to establish the level of metered fares for different trips within the pilot area.* To do this, one of the taxi operators (Checker) provided a cab and driver to assist in data gathering; this cab made a series of trips using the meter (but without using the time clock). Once these meter fares were recorded, each fare was increased by 15 percent (to allow for time charges) to produce the overall base fares to be used in computing 60 percent shared-ride fares. Once this base list was completed, the project manager began the process of defining the actual zones and fare increments.

The first plan examined by the project manager divided the pilot area into two large zones (see Figure 3-1). This structure essentially followed the recommendations which emerged from the Chicago workshop. In developing a fare structure for these zones the project manager first took an average of the sample trips; that figure--$1.50--became the charge for travel within the first zone, and $.50 was proposed as the additional charge for interzonal travel. Using these figures--and then repeating the exercise using $1.75 and $.75--the project manager calculated shared-ride fares for

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* The zonal fare system development is described in greater detail in a paper prepared by Stephan Chait: "Presentation of a Zone Fare System for the Shared-Ride Taxi Project, Boston."

Figure 3-1. Two-Zone System

several trips within the pilot area. The calculation of sample shared-ride trips for the two-zone system produced the following observations:*

- in some instances, short trips within a zone were more expensive than the corresponding full meter fares;
- in some instances, short trips across a zone boundary were more expensive than the corresponding meter fares;
- long trips with two passengers within one zone resulted in driver income less than the income for exclusive rides with one passenger.

Thus, despite the fact that the two-zone system was very easy to use, it did not produce a "workable" fare structure.

The next structure investigated in detail consisted of nine zones (see Figure 3-2), with a fare of $.80 for the first zone and $.50 for each additional zone. The calculation of sample shared-ride trips for this structure produced the following observations:

- short trips within zones tended to be less than 60 percent of the corresponding full fares;
- interzonal trips tended to approximate 60 percent of the corresponding full fares;
- the zone structure would present opportunities for disagreements between drivers and passengers over the shortest routes between origins and destinations.

This structure thus offered a fairly good approximation of the 60 percent fare guideline. However, this was countered by its complexity; one of the participating taxi operators suggested that such a structure would be difficult to use and to explain to prospective drivers and users. In light of this criticism, the project manager assessed two other structures--three- and four-zone systems; however, these assessments produced results very similar to those of the two-zone system, and were judged unacceptable.

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* Ibid.

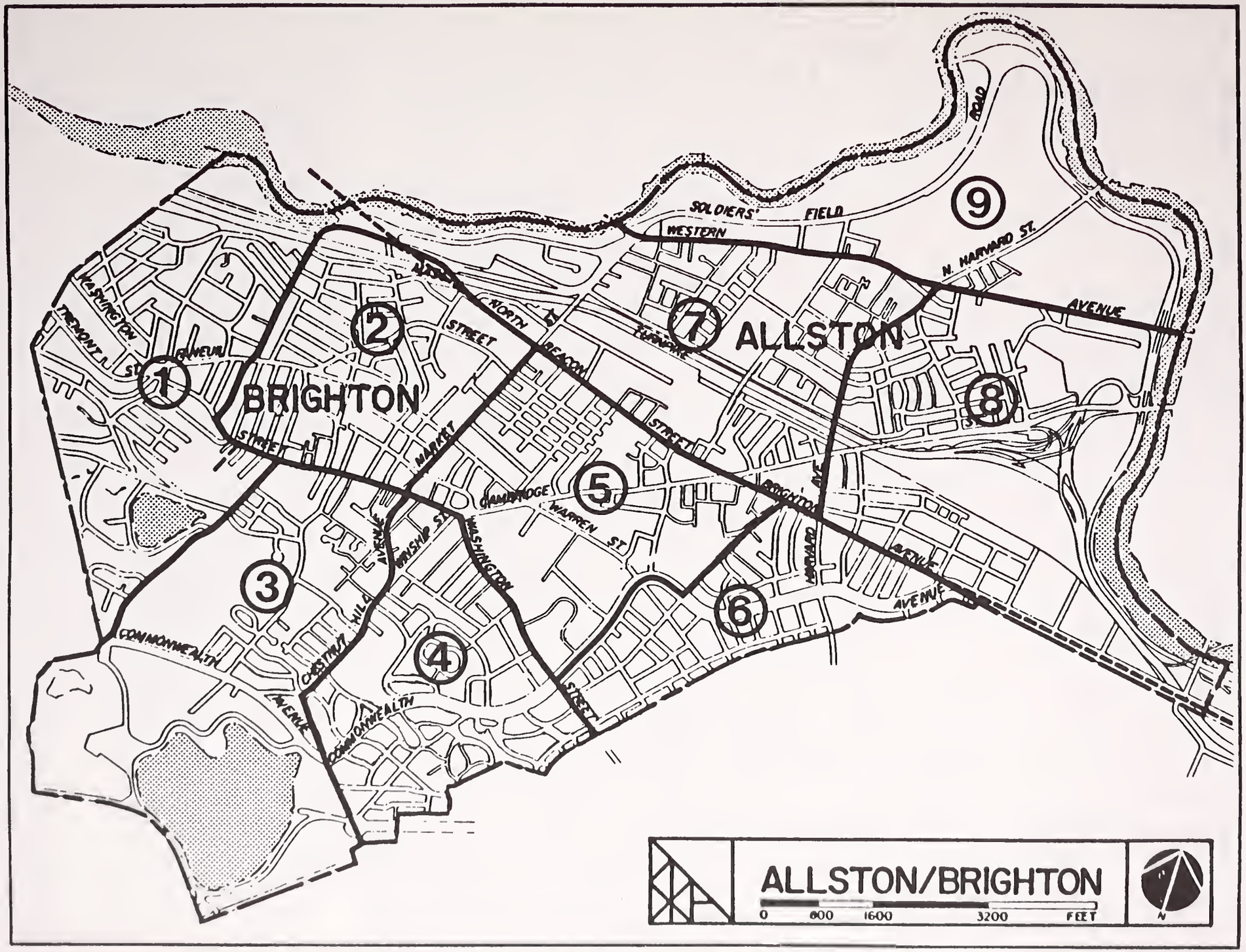

Figure 3-2. Nine-Zone System

Thus, on the basis of the initial zonal design process, the project manager settled on the nine-zone system as the best solution to the zonal fare system problem. However, after further examination of alternatives and discussion with the taxi operators, he arrived at the final design--a 16-zone grid (see Figure 3-3), with the same fare structure ($.80 and $.50) as in the nine-zone system. This structure provided the best approximation of the 60 percent fare guideline for most trips, and also allowed for ready expansion into an areawide zone structure (the nine-zone system did not), as is discussed below. The complexity of the structure represented a definite drawback, but the project manager decided that this was nonetheless the best approach; he felt that the grid structure would in fact be easier to use and understand than would a system featuring a large number of odd-shaped zones. Furthermore, he felt that a good marketing campaign would lessen any problems associated with its complexity.

The fare system selected was actually a two-tiered structure. The 16 zones (each 3,600 x 3,600 feet) cover Allston-Brighton only; fares for trips within Allston-Brighton are calculated based on adjacent zones, i.e., no diagonals are used (these fares are shown in Table 3-1). To cover trips to and from points outside of Allston-Brighton, the project manager prepared a list of fares.* This list (see Exhibit 3-1) includes fares to and from key locations in other Boston neighborhoods (e.g., Boston University, Copley Square, Logan Airport), and in neighboring communities (Brookline, Cambridge, Newton, and Watertown). These fares were calculated based on an areawide grid system (i.e., an extension of the Allston-Brighton system--55 zones in all), although in this case the listed fares represent averages of "long" and "short" trips from different zones in Allston-Brighton to each of the specified locations. The list of fares was developed because of the decision that a 55-zone system would be too cumbersome for use by dispatchers, drivers, and passengers. This zonal fare system was submitted to the Police Commissioner as part of the overall pilot project proposal.

During the course of the fare structure design, the project manager also looked into the use of special shared-ride taximeters in lieu of a zonal structure. These meters allow the simultaneous recording of separate fares for as many as four passengers traveling independently. Taximeters theoretically offer certain advantages over zone-based fare systems, including the facts that: taximeters are more equitable in that they better reflect actual distances traveled; and taxi drivers and operators are accustomed to working with meters.

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* See Chait paper.

Figure 3-3. Sixteen-Zone System

TABLE 3-1. FARE CHART FOR ALLSTON/BRIGHTON

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	.80	1.30	1.80	1.30	1.80	2.30	2.80	3.30	1.80	2.30	2.80	3.30	3.80	3.30	3.80	4.30
2	1.30	.80	1.30	1.80	1.30	1.80	2.30	2.80	2.30	1.80	2.30	2.80	3.30	2.80	3.30	3.80
3	1.80	1.30	.80	2.30	1.80	1.30	1.80	2.30	2.80	2.30	1.80	2.30	2.80	2.30	2.80	3.30
4	1.30	1.80	2.30	.80	1.30	1.80	2.30	2.80	1.30	1.80	2.30	2.80	3.30	2.80	3.30	3.80
5	1.80	1.30	1.80	1.30	.80	1.30	1.80	2.30	1.80	1.30	1.80	2.30	2.80	2.30	2.80	3.30
6	2.30	1.80	1.30	1.80	1.30	.80	1.30	1.80	2.30	1.80	1.30	1.80	2.30	1.80	2.30	2.80
7	2.80	2.30	1.80	2.30	1.80	1.30	.80	1.30	2.80	2.30	1.80	1.30	1.80	2.30	1.80	2.30
8	3.30	2.80	2.30	2.80	2.30	1.80	1.30	.80	3.30	2.80	2.30	1.80	1.30	2.80	2.30	1.80
9	1.80	2.30	2.80	1.30	1.80	2.30	2.80	3.30	.80	1.30	1.80	2.30	2.80	2.30	2.80	3.30
10	2.30	1.80	2.30	1.80	1.30	1.80	2.30	2.80	1.30	.80	1.30	1.80	2.30	1.80	2.30	2.80
11	2.80	2.30	1.80	2.30	1.80	1.30	1.80	2.30	2.30	1.30	.80	1.30	1.80	1.30	1.80	2.30
12	3.30	2.80	2.30	2.80	2.30	1.80	1.30	1.80	2.30	1.80	1.30	.80	1.30	1.80	1.30	1.80
13	3.80	3.30	2.80	3.30	2.80	2.30	1.80	1.30	2.80	2.30	1.80	1.30	.80	2.30	1.80	1.30
14	3.30	2.80	2.30	2.80	2.30	1.80	2.30	2.80	2.30	1.80	1.30	1.80	2.30	.80	1.30	1.80
15	3.80	3.30	2.80	3.30	2.80	2.30	1.80	2.30	2.30	2.30	1.80	1.30	1.80	1.30	.80	1.30
16	4.30	3.80	3.30	3.30	3.80	2.80	2.30	1.80	3.30	2.80	2.30	1.80	1.30	1.80	1.30	.80

Fares for Boston	To or From Allston	To or From Brighton
Boston University	$2.30	$2.55
Kenmore Square	2.55	3.05
Prudential Center	2.55	3.05
Copley Square	3.30	3.55
Chinatown	3.80	4.05
Charles Circle	3.05	4.05
Downtown Crossing — Government Center	3.55	4.55
Mass. General		
Aquarium	4.30	5.30
South Station	4.80	4.55
North End	4.80	5.35
North Station — Boston Garden	4.30	5.05
Boston City Hospital	4.30	4.05
Museum of Fine Arts	3.80	3.55
Fenway Park	2.30	2.55
Longwood Medical Area	3.30	3.05
Airport	5.80	6.55
Fares for Brookline		
Harvard and Beacon	$2.55	$2.80
Washington and Beacon	2.05	2.30
112 Centre Street	2.05	2.30
Brookline Village	2.80	3.05
1515 Beacon Street	2.05	2.05
50 Pleasant Street	2.05	2.05
Fares for Cambridge		
Harvard Square	$2.55	$3.80
Mt. Auburn Hospital	2.05	3.30
Central Square	2.55	3.80
Kendall Square	2.55	3.80
Fares for Newton		
Newton Corner	$2.55	$2.05
Chestnut Hill Mall	4.05	3.05
Newton Center	4.05	3.05
Fares for Watertown		
Watertown Square	$3.05	$3.05
Watertown Shopping Mall	2.05	2.55

Exhibit 3-1. Fare Chart for Other Locations

On the other hand, taximeters suffer definite drawbacks, including the following: there is a cost involved in purchasing, installing and maintaining the equipment;* the passengers do not know what their fares will be at the start of the trip, as they presumably would in a zonal system; and, related to the latter point, a taximeter would make it possible for the driver to boost fares by taking a circuitous route.

What was seen as the most significant disadvantage to the use of special taximeters in this project, however, was the fact that it would limit participation in the service to those taxis in which the meters had been installed. Futhermore, the shared-ride taximeter technology was largely unproven; there had been few successful in-service applications at that time.**

These drawbacks notwithstanding, the demonstration project manager pursued the possibility of using special meters. As suggested earlier, two shared-ride taximeter manufacturers*** contacted by the project manager were willing to provide a total of 20 meters to participating operators free of charge on a 6-month demonstration basis. The project manager explored this possibility with the two operators planning to take part in the pilot project: Boston Cab Company was amenable to the proposal; Checker Cab Company balked at the idea because of the cost of installing and later removing the meters (approximately $30 per vehicle). However, despite Boston Cab's willingness, the use of special meters was shelved following discussions

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* In Boston, two manufacturers offered to provide taximeters free of charge on a demonstration basis; this is discussed further below.

** A taxi operator in San Diego has used shared-ride taximeters as part of a taxi feeder demonstration; however, the meters have been used only for record-keeping purposes (to aid in the evaluation), and not for calculating fares. An earlier demonstration--in Santa Barbara between 1978 and 1980--focused on testing out shared-ride taximeters, but equipment malfunctions prevented any successful in-service testing. On the other hand, there have been several applications in Australia, and operators in several other countries have expressed intentions to use the meters. The Santa Barbara demonstration, the Australian experiences, and the pros and cons of shared-ride taximeters are discussed in the following report: D. Newman and R. Lave (Systan, Inc.): Shared-Ride Taximeters: State-of-the-Art and Future Potential, UMTA/TSC Project Evaluation Series, May 1982.

*** Electronic Innovations, Ltd. (EIL) of New Zealand and a Boston firm, Digital Devices.

between the project manager and the UMTA project manager; the latter's chief concern was that reliance on the meters would exclude from the project any vehicles not having a shared-ride meter. Nonetheless, as of the start of the pilot project, the possibility remained that meters could be introduced into service--on a limited basis--at some later point in the project.

3.3.2 The Role of the Taxi Task Force

As suggested earlier, the Shared-Ride Subcommittee of the Taxi Task Force was established to provide a forum for the exchange of ideas among the various parties involved in the project's design, implementation and operation. As such, members included taxi operators and drivers, and staff representing the Police Commissioner's Office, the Police Hackney Division, and the Office of the Mayor.* The project manager explained at the first meeting, in August 1982, that the major role of the Shared-Ride Subcommittee was essentially to make the project "taxi-wise" not just "planning-wise."

The Shared-Ride Subcommittee meetings focused on discussion of the proposed service guidelines, and these discussions brought out the various concerns felt by the taxi operators (these concerns are discussed below). More significantly, though, the discussions pointed out the range of underlying attitudes toward the reduced fare shared-ride concept in general -- and this project in particular. The taxi industry representatives fell into three basic camps: (1) those who were steadfastly opposed to any approach which entailed offering a reduced fare, regardless of the potential for increasing revenues; (2) those who were not opposed to the concept -- or this project -- per se, but were unwilling to participate; and (3) those who were optimistic about the project and felt that the design details could be satisfactorily worked out.

There were various reasons behind the feeling of opposition: a lack of understanding of the concept; seeing only the risk and not the potential; suspicion of the City's (and UMTA's) intentions (i.e, why were they interested in pushing such a project?); and strong disagreement with certain of the design details. Perhaps the single most important underlying attitude among the project's opponents, however, was skepticism over the potential for increasing taxi revenues through shared-riding. This view was based on these operators' belief that shared-riding attracts the bulk of its riders from exclusive-ride service, rather than from other modes, thereby limiting the concept's potential for generating a net revenue

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* The executive secretary of the Cab Association of Boston was also a key participant.

increase. Indeed, the project's staunchest opponent indicated a willingness to provide shared-ride service only if he were guaranteed some economic benefit (i.e., if the service were subsidized by the City or by UMTA).

Fortunately, more prevalent than outright opposition among the Subcommittee members were concerns over details of the project's implementation and operation. Specific concerns raised at the Subcommittee meetings included the following:

- use of elderly discount coupons - the fear was expressed that allowing these coupons to be used would place a substantial burden on the local taxi industry;

- equitability of the zonal fare structure - there was concern over how the zonal system would be devised and whether it would prove equitable for all types (i.e., lengths) of trips;

- possible need for additional dispatching/call-taking capabilities - there was some concern that participating in the project would require the hiring of additional personnel;

- need for guidelines concerning the transporting of handicapped persons - it was felt that project participants (i.e., drivers) should not be required to carry more than one wheelchair-bound passenger at a time;

- identification of shared-ride vehicles and enforcement of service rules - concerns were raised over how users would be able to identify authorized shared-ride cabs, and how driver compliance with service guidelines (e.g., charging the proper fare) could be enforced;

- potential actions on the part of the MBTA - finally, there was some concern that this project might simply be a means of testing out the market for local paratransit service for the MBTA, and that the MBTA might introduce a new subsidized service if an adequate market were demonstrated.

These concerns were discussed at the Subcommittee meetings; most were either resolved through explanations and/or assurances from the project manager, or else addressed through the ongoing design activities discussed above. One of the issues--the use of elderly coupons--was still being argued following submission of the proposed guidelines to the Police Commissioner. Another--the problem of enforcement--could not be resolved prior to the start of service; the hope was that problems related to abuse of the fare system could be held to a

minimum through careful accounting for which drivers were actually providing the service.

Thus, the Shared-Ride Subcommittee meetings were a valuable element in the development of the project. Although few issues or design details were actually finalized at the meetings, the Subcommittee allowed all concerns to be voiced and discussed among all interested parties; the meetings also clearly pointed up the diversity of attitudes toward innovation within Boston's taxi industry. In terms of building interest in shared-riding among local operators, the meetings did not affect the status quo: only the two companies that had expressed interest all along--Boston Cab and Checker--continued to be interested;* certain operators and drivers declined to participate because they normally do little business in Allston-Brighton, while others declined because of opposition to the basic concept.

3.3.3 Shared-Ride Taxi Workshop

The third key element of the design/development process was the Shared-Ride Taxi Workshop held in Chicago September 29 and 30, 1983. This workshop, organized by the Urban Institute and the local project manager, was designed to bring the various participants from Boston in face-to-face contact with operators who had implemented shared-ride service in other locations. The workshop enabled taxi operators from Boston to learn first hand about the potential benefits and problems associated with shared-ride operations, while also providing the project manager with practical recommendations on service guidelines.

The two-day workshop was attended by the following: officers of the International Taxicab Association; taxi operators from Chicago; an operator from Oshkosh, Wisconsin; Boston taxi operators (one of whom is also a driver); a representative of the Boston Police Commissioner's Office; the Boston project manager; the UMTA project manager; a representative of the Urban Institute; and a taxi-industry researcher. The Chicago and Oshkosh representatives were key, in that both cities had implemented shared-ride taxi programs.**

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* Checker eventually decided not to participate. Its management decided that it was unwilling to assign a dispatcher to the service.

** However, in Chicago, unlike Boston, provision of shared-ride service was made mandatory for all taxis operating in the City. Furthermore, the Chicago shared-ride service was available throughout the City, in contrast to the situation in Boston's pilot project. (As of this writing, however, shared-ride service in Chicago was available only to and from the airports, and participation had been made voluntary.)

The project manager and the local (Boston) operators all felt that the Workshop was quite successful in meeting the objectives stated above. Specifically, a number of service and marketing guideline recommendations were produced; some of these recommendations merely reaffirmed design decisions which had already been made (e.g., the size of the discount for shared-ride fares), while others provided solutions to design questions which had been previously unresolved. The major recommendations which emerged from the Workshop can be summarized as follows:

- gaining access to shared-ride service - allow access via telephone, street hail, and taxi stand;
- advance notice - encourage prospective users to call 24 hours in advance, but provide service on an immediate response basis if requested;
- fare - institute a flat fare that approximates 60 percent of the exclusive-ride metered fare;
- zone fare system - use large zones that are easy to use and to market;
- single-passenger situation - do not require a driver to carry a single passenger at a reduced fare;
- return trips - allow for return trips (i.e., from outside the pilot area) on a shared-ride basis, to be arranged via telephone, street hail, or through special shared-ride taxi stands situated at central locations (participating cabs would carry some form of clear identification);
- encouraging driver participation - operators should reward drivers who participate in the project by giving these drivers "good" exclusive-ride trips at other times;
- public information and marketing - keep in mind that good marketing is crucial to the success of the program; the public must be adequately informed about the existence of the service and must receive clear, concise, and accurate information.

The project manager took all of these recommendations into careful consideration in developing the final design and implementation guidelines. Most were directly incorporated, although one (regarding the zone fare system) proved impractical and a second (encouraging driver participation) did not involve a design guideline. The recommendations were developed with the participation of Boston operators who

attended the Workshop; however, the recommendations were subsequently discussed further at a Shared-Ride Subcommittee meeting in Boston, allowing the development of a consensus among the remainder of the local taxi industry.

3.3.4 Summary: Design/Development Process

The design and development of the Boston Shared-Ride Taxi Demonstration, although principally the responsibility of the local project manager, with assistance from UMTA and the Urban Institute, was clearly a cooperative effort. As was his intent, the project manager maintained close contact with the local taxi industry--through both discussions with individual operators and meetings with the Shared-Ride Subcommittee of Boston's Taxi Task Force. The latter provided an important forum for the exchange of ideas and the development of consensus approval of service guidelines.

The ongoing design process was also aided considerably by the Shared-Ride Workshop in Chicago; this event brought Boston planners and operators together with operators in other parts of the country who had implemented similar services. The Workshop produced several valuable recommendations regarding the implementation and operation of shared-ride service, and also permitted the Boston operators to gain first-hand insights into the benefits and problems associated with providing innovative services.

Through this basic "three-pronged attack" (i.e., independent planning, discussions with potential project participants, and the holding of a special workshop), the project manager was able to pull together a package of service guidelines which met with the basic approval of the local taxi industry. The practicality of several of the guidelines (e.g., the zone structure and return trips arrangements and the single-passenger rule) remained to be proven in actual operation, and at least one of the guidelines--the exclusion of the elderly discount coupons--was known to be strongly opposed by the Police Commissioner's Office. Nevertheless, the design/development process represented a successful example of an iterative "community-oriented" (in this case, the taxi community) planning effort.

Once the preliminary design process had been completed (in early January 1983),* the project's focus was shifted toward marketing and service implementation. These efforts are discussed in the following sections.

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* This process was preliminary in that many of the service parameters were subject to revision once service began and unforeseen operational problems -- or new possibilities -- were revealed.

3.4. MARKETING AND IMPLEMENTATION

The process of marketing the pilot project began very early in the course of the demonstration - concurrent with the beginning of the design process, in fact. This timing was necessitated by two important aspects of this demonstration (and most other shared-ride taxi projects): (1) shared-riding was essentially illegal prior to the project's inauguration; and (2) the grantee would not be directly providing any service, but rather would have to persuade taxi operators to participate (or identify operators interested in participating). The latter fact had strong implications for the nature of the marketing effort required; namely, marketing would have to take place on three levels: (1) to the operators, to develop interest in participating; (2) to drivers, to promote interest in participating; and (3) to the public, to promote awareness of and demand for the service. The overall marketing effort, as well as the major factors influencing the project's implementation, are described below. This discussion is divided into the following elements: (1) legal/regulatory issues; (2) securing the participation of taxi operators; (3) marketing to the drivers; and (4) marketing to the public.

3.4.1 Legal/Regulatory Issues

One of the most significant obstacles to the implementation of innovative taxi services in many cities in the U.S. is the existence of legal or regulatory barriers. Local regulations in these cities often specifically prohibit shared-riding. Whereas the modification of these ordinances does not in itself guarantee the introduction of new forms of service,* it is a necessary step.

In the Boston project, the appropriate local regulation was tentatively modified before the demonstration proposal had even been submitted. The Police Commissioner approved an amendment to Rule 65 (covering Hackney Carriage Rules) of the Rules Manual of the Boston Police Department; this amendment added the following paragraphs (to section 22 of Rule 65):

> . . . In the event that a licensed hackney carriage wishes to initiate a share-ride or multiple-ride taxi program, the program sponsor shall submit, in writing to the Police

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* As mentioned earlier, the removal of legal constraints to shared-riding in a number of locations has led to no shared-riding.

> Commissioner, the routes, fares, and objectives of the program. No such program will be allowed without the written approval of the Police Commissioner.

In light of the requirement that any proposed shared-ride program be given written approval, it was necessary for the project manager to submit -- and get approval of -- the proposed service guidelines (i.e., "routes, fares, and objectives") to the Police Commissioner before the demonstration service could be implemented. Thus, in mid-January 1983, the project manager submitted a package, with a cover letter from a Boston Cab Co. official, which included operational details, definitions of key terms, a statement of the program's objectives, and a marketing plan.*

Following receipt of this package, the Police Commissioner's Office held a public hearing on the pilot project (March 10, 1983). The holding of a public hearing was legally required because the proposed project would involve a change in the taxicab rate structure. The hearing was attended by officials of the Police Commissioner's Office and the City's Traffic and Parking Department, several taxi operators (although, curiously, no Boston Cab Co. representatives), and representatives of two community groups (both representing the elderly). Following background descriptions of the project by the head of the Hackney Division and the project manager, the community group representatives (all elderly women) spoke in favor of the project. These statements were followed by a discussion of the project's actual merit and operating details, precipitated primarily by questions and comments from the president of the ITOA (the project's principle opponent), directed toward the community representatives in attendance.

This discussion revealed above all else that some people, as represented by this small group of community residents, apparently are not aware of the cost-saving potential (to each traveler) of sharing a premium taxi-ride (i.e., to and from the same location); nevertheless, despite receiving explanations of the advantages of this existing "shared-ride" arrangement, and of the fact that elderly discount coupons presumably would not be accepted in the pilot project, the community representatives did not waver in their support of the project. As two of the women pointed out, the pilot project shared-ride service is useful if only in that it provides "one more option" to residents of Allston-Brighton -- indeed, they claimed, many people are unable to find others with whom to share a (premium) taxi ride.

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* The final operational details - i.e., as of the start of service - are discussed in Section 3.5.

Within a month of the public hearing, the Police Commissioner approved the guidelines package exactly as submitted; the project manager had anticipated police insistence that the elderly discount coupons be accepted in the project, but this did not happen. Hence, the only official barrier to implementation was now overcome, and the service could legally be implemented. (Implementation is discussed in Section 3.5 below.)

3.4.2 Securing the Participation of Taxi Operators

Obviously, one of the most crucial steps in developing and implementing the pilot project was to secure a commitment to participate in the project from at least one taxi operator. The development of this project was aided considerably by the early interest in shared-riding displayed by two of the operators (Boston Cab Co. and Checker Taxi Co., especially the former). Although neither operator made a definite commitment at the beginning of the project, both operators' general enthusiasm and their cooperation during the planning phase played an important role in facilitating the project's implementation. Of course, the opposition of other operators (chiefly ITOA) did not really impede the project's development. If anything, the concerns voiced by dissenting operators and the ensuing discussions served to raise a number of valid questions - and, in most cases, produced at least tentative resolutions.

Beyond straightforward views of the project's overall merits, the operators' attitudes regarding specific issues exerted a major impact on the project as well. As mentioned earlier, even those operators who supported the project were unwilling to assume any risk on the part of their drivers (i.e., in insisting on the "single passenger" rule). These operators were thus forward-thinking enough to see the potential pay-off of shared-riding, yet ignored the fact that by not guaranteeing a shared-ride fare, they could well be inhibiting demand -- and, hence, the size of the ultimate pay-off. Similarly, the operators' position regarding use of the elderly coupons also seemed likely to limit demand for the service.

Despite the degree of cooperation and interest displayed by Boston Cab and Checker Taxi, however, their actual participation in the project was not guaranteed.* On the contrary, one particular outside event resulted in a temporary breakdown in the working relationships between the project manager and the taxi operators and threatened the project's

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* Indeed, as indicated earlier, Checker decided not to participate.

chances for success. The event in question was the City's removal of two taxi stands in downtown Boston (along Boylston Street). This was done as part of a "street-clearing" experiment; parking meters were removed as well. Because a special sightseeing bus -- operating along that same stretch of Boylston Street for part of its route -- had been introduced shortly before the street clearing, the taxi operators assumed that the stands were removed as part of the implementation of the bus service. The taxi operators claimed that they had been promised by City officials that these stands would not be affected by the new bus services; then, to make matters worse, the taxi industry was not informed in advance that the stands were being removed.*

As a result, the operators were quite upset. The head of Boston Cab -- the most enthusiastic supporter of the shared-ride taxi project -- was outraged and threatened to not participate in the pilot project unless the taxi stands were restored. The local project manager, with assistance from the UMTA project manager, was able to reestablish a working relationship with Boston Cab, but this delayed the general planning process a few weeks. Boston Cab finally agreed to participate in the project, but the incident certainly diminished the level of the operators' trust for the City and thus compounded the difficulties otherwise inherent in implementing the pilot project.**

In summary, the Boston shared-ride taxi service was implemented due in large part to the interest and cooperation of local taxi operators. Had no operators been willing to take part, there would have been no project, as shown in other locations which have legalized shared-riding. The experience in Boston further demonstrated that the relationships between the taxi industry -- a rather cautious group by nature -- and the public sector can be a fragile one; only by carefully nurturing a good working relationship from the beginning of the project was the local project manager able to overcome the ill effects of the taxi stand issue. The ongoing process of consultations and meetings -- always keeping the taxi industry informed and respecting their concerns -- was clearly an essential element in marketing, as well as designing, the project.

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* In fact, those City employees taking part in the development of the shared-ride taxi project (i.e., the project manager and the Police Department's Hackney Division staff) had not even been informed that stands were going to be removed.

** One of the stands in question was subsequently restored. However, the other stand had not been restored as of this writing, and the taxi industry reportedly remained quite angry over the whole matter.

3.4.3 Marketing to the Drivers

Getting operators to commit themselves to the project was a necessary step, but the project's actual implementation and operation ultimately would depend on the willingness of drivers to actually provide the service. Because they would not be subsidized, drivers had to be convinced of the financial benefit they stood to gain from providing shared-ride service; then, once so convinced, participating drivers had to be educated as to the rules and details associated with the service.

The driver marketing effort included several planned approaches. The first of these approaches involved including notices about the project in drivers' pay envelopes (see Exhibit 3-2); these notices were given to Boston Cab drivers in late March. The second activity was the publishing of an article in the locally-issued Taxi News Digest (March edition).* The final planned formal marketing activity was to explain the project's operation and potential benefit to drivers at meetings in the Boston Cab garage. However, no such meetings took place.

In recruiting drivers for the pilot project, the project manager's intent was to attract a corps of about half a dozen to initiate service. His plan was to start with a small group, build up a clientele, and later expand the number of drivers. An integral part of this plan was to have the original group of drivers act as "agents" of the program and encourage others to participate.

The initial driver marketing effort - including notices in the driver's pay envelopes - resulted in two drivers volunteering (approximately 200 notices were distributed) to provide shared-ride service.** The project manager was content to begin the service with this small corps, figuring that additional drivers could be recruited as demand grew.

3.4.4 Preliminary Marketing to the Public

The final element of the project marketing effort involved informing the public and developing demand for the service. This process began several months prior to the pilot project's implementation, as the project manager began meeting with

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* Stephan Chait, "Introducing Share and Save Taxi Service" in Taxi News Digest, March 1983.

** One of these drivers subsequently quit Boston Cab; hence only one driver was available to provide the service.

INCREASE PROFITS & BUSINESS PARTICIPATE IN A SHARE & $AVE TAXI PILOT PROGRAM

LOCATION: ALLSTON/BRIGHTON

SERVICE: FLY A SHARE & $AVE PENNANT

PROVIDE A DOOR-TO-DOOR SERVICE REQUESTED BY TELEPHONE

PICK UP 2 to 4 PASSENGERS ON ANY SHARE & $AVE TRIP

A ZONE FARE SYSTEM IS USED TO DETERMINE THE SHARE & $AVE FARE

EACH PASSENGER PAYS APPROXIMATELY 60% OF THE REGULAR TAXI FARE

EXAMPLES: IN ALLSTON/BRIGHTON

Regular Taxi Fare
Lake and Commonwealth to
McNamara House, 210 Everett Street ..... $3.65 (app)

Share & $ave Fare
Passenger 1
Lake and Commonwealth to
McNamara House, 210 Everett Street $2.80
Passenger 2
Market and Washington to
Jackson Mann Community Center $1.30
Passenger 3
Brighton Center to
McNamara House, 210 Everett Street $1.80

SHARE & $AVE TOTAL $5.90

NET GAIN $2.25 (APP)

TO DOWNTOWN BOSTON

Regular Taxi Fare
Senior Service Center to
Mass General Hospital ..... $10.00 (app)

Share & $ave Fare
Passenger 1
Senior Service Center to
Mass General Hospital ..... $ 4.55
Passenger 2
Bellvista and Allston to
Downtown Crossing ..... $ 4.55
Passenger 3
Brighton and Commonwealth to
Chinatown ..... $ 4.05

SHARE & $AVE TOTAL $17.15

NET GAIN $7.15 (APP)

FOR MORE INFORMATION

Contact Stephan Chait, Traffic & Parking Department
Room 721, Boston City Hall, Boston, MA 02201
Telephone 725-3070 or

Leslie Barenholtz

Exhibit 3-2. Notices Included in Boston Cab Driver Pay Envelopes

representatives of various community organizations.* The project manager generally found these people receptive to the project, and most of the representatives agreed to help inform their members about the forthcoming service (e.g., through informal discussions and through the inclusion of notices in their organization newsletters). In addition, in several cases, the initial meetings with organization leaders were subsequently followed up by presentations to groups of members. The project manager expended considerable effort in marketing to community organizations, and representatives of several groups directed him to others. (This effort is discussed further in Section 3.6.)

In marketing the project to the public, the project manager felt that a good name for the service was important. He settled on Share and Save, feeling that it conveyed both the nature of the service and the fact that users could save money (i.e., over a premium fare) by using the service. The official service logo, as shown in Exhibit 3-2, would be used on all advertising, and would also be imprinted on a pennant to be displayed on participating taxicabs.

To facilitate marketing, the project manager developed a package of materials to be distributed; this package included a brochure (see Exhibit 3-3) explaining the service and a poster to be displayed in prominent locations. These materials were eventually circulated among community groups, area hospitals, at other major activity centers and at shopping locations; the distribution of the brochure and poster was held up for several months due to delays at the City's graphics department (these materials were finally printed in July 1983).

As in the case of promoting interest among the drivers, the project manager's intended strategy in building up demand was to develop a relatively small corps of users initially; the demand would then grow, hopefully, through word-of-mouth -- supplemented by ongoing marketing activities (i.e., presentations to local groups, posters, and media advertising).

An important point must be made here regarding the project marketing budget. A decision was made by UMTA and the grantee (in January 1983) to implement the project while still officially in the design phase; under the original plan, funds for implementation/operation were to be provided through a separate budgetary allocation. That phase of the grant, which

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* The term "community organizations" is used here to refer to organizations representing various constituencies (e.g., the elderly, handicapped, etc.), as well as health centers and congregate housing sites.

Fares for Boston	To or From Allston	To or From Brighton
Boston University	$2.30	$2.55
Kenmore Square	2.55	3.05
Prudential Center	2.55	3.05
Copley Square	3.30	3.55
Chinatown	3.80	4.05
Charles Circle	3.05	4.05
Downtown Crossing — Government Center	3.55	4.55
Mass. General		
Aquarium	4.30	5.30
South Station	4.80	4.55
North End	4.80	5.35
North Station — Boston Garden	4.30	5.05
Boston City Hospital	4.30	4.05
Museum of Fine Arts	3.80	3.55
Fenway Park	2.30	2.55
Longwood Medical Area	3.30	3.05
Airport	5.80	6.55
Fares for Brookline		
Harvard and Beacon	$2.55	$2.80
Washington and Beacon	2.05	2.30
112 Centre Street	2.05	2.30
Brookline Village	2.80	3.05
1515 Beacon Street	2.05	2.05
50 Pleasant Street	2.05	2.05
Fares for Cambridge		
Harvard Square	$2.55	$3.80
Mt. Auburn Hospital	2.05	3.30
Central Square	2.55	3.80
Kendall Square	2.55	3.80
Fares for Newton		
Newton Corner	$2.55	$2.05
Chestnut Hill Mall	4.05	3.05
Newton Center	4.05	3.05
Fares for Watertown		
Watertown Square	$3.05	$3.05
Watertown Shopping Mall	2.05	2.55

City of Boston
Kevin H. White Mayor

SHARE & SAVE TAXI
Pilot Program • Allston/Brighton

John A. Vitagliano,
Traffic and Parking Commissioner

Joseph M. Jordan,
Police Commissioner

SHARE AND SAVE

Save Up To 40%

Get where
you want to go for less!
Take a
SHARE & SAVE TAXI.

Exhibit 3-3. Share and Save Brochure

Share and Save Taxi Service

- A pilot program in Allston Brighton
- A door-to-door service you can request 24 hours in advance
- Go shopping, go to your doctor, go visit friends, go downtown for business or pleasure
- Share the taxi with others from your neighborhood
- Each passenger pays his or her own SHARE & SAVE FARE
- The SHARE & SAVE fare is determined by a zone fare system
- For SHARE & SAVE service call: **Boston Cab Company 277-8700**

Share and Save Fares
PER PASSENGER

In Allston Brighton
There are sixteen (16) zones; the fare for travel from any one zone to any other zone is presented in the zone fare chart. The charge for the first zone is 80 cents and 50 cents for each additional zone.

From Allston Brighton
The fares from Allston Brighton to other parts of Boston, Brookline, Cambridge, Newton and Watertown are given by areas of the City or by a major drop off point. See list of fares.

Compare the Fare

From	To	SHARE & SAVE *	Regular
Lake and Commonwealth	St. Elizabeth's Hospital	**$1.80**	$2.65
Oak Square	Harvard and Commonwealth	**$2.30**	$3.80
Warren and Commonwealth	Mass. General Hospital	**$4.55**	$7.00

* per passenger fare. If there is only one passenger, a driver is not obliged to provide an exclusive ride service at a shared-ride fare.

Fare Chart for Allston/Brighton

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1	.80	1.30	1.80	1.30	1.80	2.30	2.80	3.30	1.80	2.30	2.80	3.30	3.80	3.30	3.80	4.30	1
2		.80	1.30	1.80	1.30	1.80	2.30	2.80	2.30	1.80	2.30	2.80	3.30	2.80	3.30	3.80	2
3			.80	2.30	1.80	1.30	1.80	2.30	2.80	2.30	1.80	2.30	2.80	2.30	2.80	3.30	3
4				.80	1.30	1.80	2.30	2.80	1.30	1.80	2.30	2.80	3.30	2.80	3.30	3.80	4
5					.80	1.30	1.80	2.30	1.80	1.30	1.80	2.30	2.80	2.30	2.80	3.30	5
6						.80	1.30	1.80	2.30	1.80	1.30	1.80	2.30	1.80	2.30	2.80	6
7							.80	1.30	2.80	2.30	1.80	1.30	1.80	2.30	1.80	2.30	7
8								.80	3.30	2.80	2.30	1.80	1.30	2.80	2.30	1.80	8
9									.80	1.30	1.80	2.30	2.80	2.30	2.80	3.30	9
10										.80	1.30	1.80	2.30	1.80	2.30	2.80	10
11											.80	1.30	1.80	1.30	1.80	2.30	11
12												.80	1.30	1.80	1.30	1.80	12
13													.80	2.30	1.80	1.30	13
14														.80	1.30	1.80	14
15															.80	1.30	15
16																.80	16

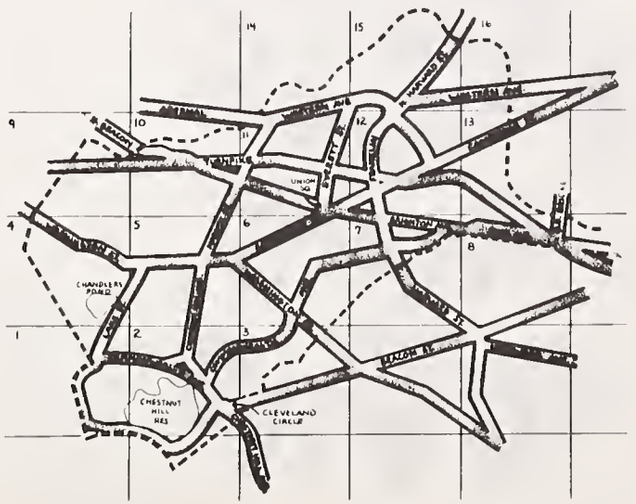

Exhibit 3-3. Share and Save Brochure (continued)

was to be awarded once the design had been completed and taxi operator commitments had been made to provide the service* -- was to contain all of the funds for project marketing. The design budget essentially allowed for marketing only indirectly, i.e., as it could be carried out directly by the project manager; it contained no funds for production and mailing of program descriptions, or the use of media advertising, for instance. Brochures and posters were developed and printed by the City of Boston through an in-kind contribution, and a mass mailing of brochures was made possible by including them in a mailing for another purpose (see Section 3.6). However, the budgetary limitation prevented a more comprehensive distribution. As explained in Section 3.6, funding for the second phase of the project was never authorized. The marketing activities that were undertaken are discussed in Section 3.6.

3.5 PROJECT IMPLEMENTATION

The shared-ride service officially began on April 22, 1983. The project manager had provided Boston Cab Association** with special project service request/dispatch slips (see Exhibit 3-4; these were designed by the evaluation contractor, with input from the Boston Cab treasurer, the local project manager, and the TSC evaluation monitor), and had reviewed the basic call-taking/dispatching procedures with Boston Cab's head dispatcher. In addition, the project manager provided the participating driver with project driver logs (see Exhibit 3-5 -- also prepared by the evaluation contractor, with input from the other parties involved); these logs were intended principally to aid in evaluating the project.

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* Award of the implementation/operation funds required a "13(c)" agreement with the local transit unions. Under Section 13(c) of the Urban Mass Transportation Act of 1964, local transit unions must "sign off" on any local project involving the expenditure of federal funds for implementing any new transportaion service. Because the design phase did not require such an agreement, it was authorized separately. As discussed in Section 3.6, the second phase was never funded.

** Boston Cab Co. became an association during the course of the project design phase. As of the start of the shared-ride service, Boston Cab still owned a small percentage of its cabs, but the vast majority of its fleet consisted of association members and their vehicles.

Date and time of call_____

SHARE & SAVE REQUEST SLIP

Date of trip_____ Req. pick-up time_____

Address_____

Name_____

Drop-off_____

Phone no._____ Fare_____

- -

Cab no._____ Driver_____

Time dispatched_____

Matched with #_____ #_____

Caller cancelled_____ Driver refused_____

Trip provided: exclusive _____
shared _____

Slip #_____

Exhibit 3-4. Request Slip

SHARE AND SAVE DRIVER LOG

Driver _____ Vehicle No. _____ Date _____

From	Time	To	Time	# Pass.	Fare

Exhibit 3-5. Driver Log

As of the start of service, the major operational guidelines were as follows:*

- gaining access to shared-ride service -- users can enter the service via telephone request only.

- advance notice -- 24-hour advance notice is encouraged, but prospective passengers can call for immediate-response service; persons calling in advance will be called back if they cannot be matched for a shared-ride (see single-passenger rule below); persons calling for immediate service may be denied shared-ride service if they cannot be matched;**

- single-passenger rule -- if there is only one prospective passenger for a particular trip (i.e., a caller could not be matched), a driver is not obliged to provide this person exclusive-ride service at the shared-ride fare; this person will be offered service at the exclusive-ride (i.e., meter) fare, unless the driver chooses to provide service at the shared-ride fare; however, once a driver agrees to transport a passenger at a shared-ride fare (e.g., in anticipation of picking-up a second passenger) he/she cannot then charge an exclusive-ride fare (i.e., if there is only a single passenger);

- return trips -- passengers wishing to return to Allston-Brighton via Share & Save will be able to enter the service by calling Boston Cab;

- hours of operation - the service will be available 24 hours a day;

- fare structure - all shared-ride fares for trips within Allston-Brighton will be determined based on the 16-zone grid; fares for trips to or from

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* "Shared-Ride Taxi Service Program Description," January 1983.

** No formal guidelines were established for matching requests. Essentially, the decision would rest with the dispatchers; they were expected to group riders if the origins and destinations "made sense" geographically and if the pick-up times were close enough so that one or more of the prospective passengers could be asked to shift their pick-up times slightly (if necessary).

points outside of Allston-Brighton are given in a list of fares to specific locations (in Boston, Brookline, Cambridge, Newton, and Watertown); the fare charts and the zone maps will be posted in all participating taxicabs;

- elderly discount coupon - the 30 percent elderly discount program will not apply to the shared-ride taxi program;

- number of passengers - a shared-ride taxi can carry three passengers in the back seat; at the discretion of the driver, a fourth passenger may be carried in the front seat.

Whereas the pilot project began on April 22 (1983), no official public announcement was issued to that effect; rather, the project manager informed representatives of the various community groups with whom he had been in contact that shared-ride service would be available beginning on that day. The project manager had decided to delay formally announcing the inauguration of the pilot project (i.e., through a "ribbon-cutting" ceremony) until the project marketing materials were completed and distributed.

3.6 ONGOING MARKETING AND OPERATIONAL DEVELOPMENTS

3.6.1 Marketing Activities

Beginning at the end of April, the project manager's activity shifted from service design and implementation to developing demand for the service. As indicated in Section 3.4, he had begun this process prior to the start of service through discussions with representatives of various community organizations. This basic approach continued to be the focus of the marketing effort throughout the operational phase of the demonstration. The project manager felt that this represented the most cost-effective method of promoting the service, especially in light of the aforementioned budgetary restriction on marketing. Through this approach he felt that he could disseminate information about the project to as many people as possible through a limited number of contacts.*

In addition to community organizations, the project manager contacted--and left brochures and posters with--neighborhood merchants (i.e., stores, restaurants, and

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* The impact of the marketing efforts is discussed in Chapter 4.

bars) and colleges (i.e., Boston University, Boston College, and the Harvard Business School). Over the course of the demonstration, the project manager distributed marketing materials to approximately 60 merchants and 40 local organizations/institutions; several retail establishments refused to display posters, due to corporate policy preventing such advertising. Finally, he sent materials to eight major employers located within Allston-Brighton, requesting that they display posters and distribute brochures to their employees.

In addition to using community organizations as mechanisms for dissemination of information, the project manager explored with several representatives the possibility of their arranging shared-rides for any of their members interested in using Share and Save; the organization would then call in these grouped requests to Boston Cab. As it turned out, no grouped trips were arranged in this fashion. However, one social service agency did express interest in using Share and Save on an institutional basis. Area II Home Care Corporation, an agency providing various types of services to elderly residents of Allston-Brighton, agreed to discuss with Boston Cab the possibility of using the service on a regular basis to transport some of its clients. While no arrangement was made during the demonstration period, Boston Cab Association planned to pursue the matter directly with Area II Home Care.

The second major thrust of the Share and Save marketing effort was newspaper advertising. An advertisement (see Exhibit 3-6) was run in the Allston-Brighton Citizen-Item, a neighborhood newspaper with a circulation of approximately 7,000 households, on a weekly basis beginning July 21, 1983, and ending October 6, 1983.

The final major marketing activity was a mass mailing (in January 1984) of project brochures to 8,000 clients of Allston-Brighton health centers. These brochures were included in a mailing providing information about local health facilities sent out by the City of Boston's Department of Health and Hospitals.

3.6.2 Operational Developments

As explained in Section 3.4, the Share and Save service began with a corps of two drivers -- i.e., all shared-ride passengers would be assigned by the Boston Cab dispatcher to these two drivers. By July 1983, however, one of these drivers had left Boston Cab. Thus, only one driver was available to provide the service. As it turned out, this did not prove to be a problem due to the low level of demand (see Chapter 4).

Exhibit 3-6. Advertisement in Allston-Brighton Citizen-Item

The call-taking for Share and Save was handled by Boston Cab's head dispatcher until he left the company in November 1983; at that point another dispatcher took over. Share and Save had its own telephone number, and there were problems with that line for at least a couple of weeks -- also in November 1983. Several people who called during that time reported getting a recording indicating that the Share and Save number had been disconnected -- although this seemed to be an intermittent situation; other people reported that the phone rang repeatedly and was never answered. To compound these problems, when some of these people had subsequently called Boston Cab's general number they were mistakenly informed (by new operators who were not aware of the service) that the service was not available. This confusion was soon cleared up, and the problems with the Share and Save number were cleared up once Boston Cab officials were made aware of them. However, in a service with such a low level of demand, such problems were doubtless detrimental to the service reputation and may well have reduced the potential for building additional demand.

As discussed in Chapter 4, the most fundamental barrier to the actual provision of rides on Share and Save was the "single passenger" rule. Although there were a number of requests for service, no rides were provided because there were never two requests in close enough temporal and geographical proximity to permit a service "match." In an effort to remedy this situation, Boston Cab decided in September 1983 to provide shared-ride service (i.e., the shared-ride fare) to single passengers; the company agreed to subsidize the Share and Save driver for providing these trips (i.e., to reimburse him for the difference between the shared-ride and premium-ride fares). However, this policy was not publicized and was revoked after a couple of weeks (Boston Cab's owner would not explain why), and apparently there were no requests for service during the period when it was in effect.

As explained in Section 3.5, the funding for the demonstration was to include a second phase to cover implementation and operation. However, in mid-1983, the funds that had been targeted for the second phase were allocated to a project outside of the SMD program.* Therefore, the demonstration ended in March 1984, when the design phase budget had been totally expended.

The service did not end with the close of the demonstration, however, as Boston Cab officials decided to continue offering it, feeling that there was some potential for the project. When they first made this decision - in November 1983 - they indicated their intention to expend some money on

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* This decision was not based on any assessment of the value of the Boston demonstration.

advertising, and to revamp the fare structure to make it easier to understand. By the end of the demonstration period, the Boston Cab officials were not sure how much money - if any - they would spend on marketing; they still planned to establish a new fare structure, but had not yet done so.* The name and telephone number of the service were to remain the same as during the demonstration.

* As of this writing, they had decided to leave the fare structure as is, at least for the foreseeable future; they had also decided not to spend any money on advertising the service.

4. PROJECT IMPACTS

4.1 INTRODUCTION

This chapter discusses the impacts of the demonstration in four major areas: 1) travel demand; 2) marketing; 3) impacts on the Share and Save operator and on Boston's taxi industry in general; and 4) cost.

4.2 TRAVEL DEMAND IMPACTS

4.2.1 Demand for Service

In assessing the travel demand impact of this demonstration, it is necessary to examine demand for service separately from rides provided. There was a certain demand for Share and Save -- i.e., a number of people did call to request shared-rides. However, due to Boston Cab's requirement -- for most of the demonstration period -- that there be at least two "matched" rides before they would provide shared-ride service, the number of requests for service bore no relationship to the number of rides provided. As explained in Chapter 3, Boston Cab was willing to subsidize the carrying of single passengers for a short time, but there were apparently no requests during that period.

A total of approximately 30 calls requesting Share and Save service during the demonstration period were reported by Boston Cab.* As shown in Table 4-1, there was more than one

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* Boston Cab was instructed (by the local project manager and the evaluation manager) to record all calls on special shared-ride dispatch slips (see Exhibit 3-2). These slips were used until August 1983; Boston Cab officials could not explain why the use of these forms was stopped. Beginning in August, calls were recorded on an informal Share and Save log. However, as shown in Table 4-1, no requests for service were recorded between early September and mid-January; it is unclear whether there were indeed no requests during this period or if calls were simply not recorded.

TABLE 4-1: NUMBER OF CALLS FOR SHARE AND SAVE SERVICE (BY DATE)

Date	Day	Number of Service Requests	Number Accepting Premium Rides
June 17, 1983	F	1	
23	Th	1	
25	Sa	1	
July 5, 1983	Tu	1	1
7	Th	1	1
11	M	2	1
13	W	1	1
19	Tu	1	1
20	W	1	1
26	Tu	1	
28	Th	1	
29	F	1	
Aug. 15, 1983	M	1	1
17	W	1	1
18	Th	1	
19	F	1	
Sept. 3	Sa	1	
Oct.-Dec.	-	none recorded	
Jan. 18, 1984	W	1	
20	F	1	
23	M	2	
Feb. 3	F	1	
7	Tu	1	
9	Th	1	
15	W	1	
16	Th	1	
23	Th	1	
March 6, 1984	Tu	2	
Total		30	8+

Total by day:

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
0	5	6	5	7	5	2

per day on only three occasions, and never more than two. This low level of demand made it impossible in this case to create any matches. Hence, no rides were provided on Share and Save during the demonstration period. A number of persons seeking shared-ride service opted for an exclusive-ride instead on being informed that no match was possible; this is addressed in Section 4.4.

In addition to the calls actually requesting service, Boston Cab received approximately an equal number of calls requesting information about the program.* Thus, there were roughly 60 calls in total. It should be pointed out, though, that there was a period of at least two weeks (in November 1983) during which calls were either not getting through -- because of the problem with the Share and Save telephone line (see Chapter 3) -- or callers were being told that the service was not available. For that reason, coupled with the general recordkeeping problems discussed above, the exact number of calls could not be determined.**

4.2.2 Reasons for Limited Demand and Lack of Ridership

The "single-passenger" rule in itself is the ultimate reason why no rides were actually provided on Share and Save; had it not been for this rule, there would have been as many rides as requests. Even with the single passenger rule, a high enough level of demand would have generated some shared-rides, but the ratio of shared-rides provided to service requests would still likely be very low. Thus, a very high volume of

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* This figure had to be roughly estimated because Boston Cab did not record these calls after August 1983.

** The inconsistency of recordkeeping in the project can be attributed to two major factors: 1) there was a change in Share and Save dispatchers in November 1983, accompanied by some general confusion in the control room; and, perhaps more significantly, 2) Boston Cab was not the demonstration grantee, and their cooperation with the grantee was of a purely voluntary nature. In light of the generally hectic pace in a taxi control room, maintaining detailed records for a project for which they were not being remunerated was clearly not Boston Cab's top priority. These factors notwithstanding, Boston Cab made a good-faith effort for much of the project to comply with the grantee's requests.

demand would be necessary to produce an appreciable number of trips.*

In addition to limiting actual ridership, moreover, the single passenger rule clearly serves to inhibit demand. For, it is unlikely that many people would continue to request the service -- or to tell their friends about the service -- after having been turned down a couple of times (or perhaps even once). Thus, while the single passenger rule ensures that a taxi driver never "loses" money by having to carry one passenger who is paying only 60 percent of the full fare, it also ensures that a driver is likely never to make additional money by carrying two or more passengers each paying 60 percent of a single premium fare. In short, the single passenger rule severely limits the potential for shared-ride taxi service.

Another factor that likely limited demand for Share and Save was the recommendation that requests be made at least 24 hours in advance of the desired trip time. This guideline was instituted to enable the taxi operator to formulate matches. However, it essentially neutralized one of the major attractions of taxi service in general -- the ability to receive service on short notice. Many of those persons able to plan their trips more than a day in advance will be able to arrange for transportation by some other -- presumably cheaper -- means (e.g., a ride from a friend or relative, or through one of the available specialized transportation services such as The Ride or the Senior Shuttle). The fact that calling 24 hours in advance did not guarantee a ride further compounded the disincentive represented by advance notice.

A third -- and possibly the most significant -- factor that doubtless deterred prospective service users was the fact that the elderly discount coupons were not accepted in the program. Since they were eligible for a 30 percent discount on exclusive-ride service, elderly persons had little reason to share a cab -- and probably have to call a day in advance to do so -- for only an additional ten percent discount from the premium fare.

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* For instance, a review of Boston Cab's exclusive-ride dispatch slips for trips to/from or within Allston-Brighton for a four month period (prior to the start of the demonstration) was undertaken for the purpose of determining the potential for matching trips. Trips were matched on the basis of proximate origins as well as departure times within 20 minutes of each other. Out of 12,000 trips, 381 (approximately 3 percent) were matched.

A fourth factor contributing to the low level of demand for the service was the fact that it could not be accessed at taxi stands. Entry was restricted to telephone due to the problems inherent in administering and enforcing usage at stands (i.e., primarily, the need for some kind of "starter" at each stand to make sure that shared-riding took place only in authorized cabs.*) Furthermore, in light of the fact that only one driver was participating in the demonstration service, the taxi stand issue was essentially moot.

The final service design issue that likely contributed to the low demand level was the complicated fare structure. The 16-zone fare chart and the accompanying fare list for travel to/from locations outside of Allston-Brighton were difficult to explain to potential users, and apparently, equally difficult to understand by many people. In discussing the service with members of community organizations, the local project manager discovered that some people were reluctant to attempt to use Share and Save because they could not figure out what their fares would be.

Beyond the above design-related barriers to building demand, there were several other factors that served to limit the number of requests for Share and Save service; these were related to the marketing effort and operational difficulties. The first of these is the fact that the project marketing activities were limited due to restrictions in the demonstration grant (see Chapter 3 for an explanation of this). A more comprehensive distribution of project brochures (i.e., to the majority of -- or all -- neighborhood households) would certainly have increased exposure to the project, which, presumably would have generated additional requests for service (The impacts of the marketing efforts are discussed in the next section). The availability of additional marketing funds would also have permitted the grantee to subsidize the Share and Save driver in transporting single passengers.** While Boston Cab

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* The taxi situation in Allston-Brighton is such that the majority of cabs serving the stands in the neighborhood are Brookline-based cabs. These cabs, whose presence at these stands is actually illegal because they are not licensed in Boston, are not eligible to provide shared-ride service for that same reason (i.e., Brookline has not legalized shared-riding). The Brookline-based cabs have been allowed to sit at the Allston-Brighton stands essentially because none of the Boston-based taxi fleets have complained.

** This would be possible only if there were a 13(c) agreement in place, since the arrangement would involve federal funds going to a transportation provider.

offered such a subsidy, it was only for a couple of weeks in the middle of the demonstration.

Regarding the marketing effort that was carried out, the focus on community organizations placed too much emphasis on the elderly. While the elderly are typically major taxi users, the exclusion of the 30 percent discount, coupled with the existence of low cost or free alternatives (e.g., The Ride and the Senior Shuttle), minimized the attractiveness of Share and Save. Furthermore, persons (elderly or not) living in congregate housing can often find others traveling to the same destination -- or even arrange to go out in a group -- and can in such cases save money by splitting the cost of a premium fare taxi. The reasons for this focus were twofold: 1) the demonstration project grew out of a planning study that proposed a service targeted to the elderly and handicapped; and 2) the local project manager felt that working with community groups, health centers and housing sites (most of which tended to represent elderly residents) was the most cost-effective approach to disseminating information about the project, given the marketing limitations. Nevertheless, it is apparent that members of these organizations by and large did not see any need for shared-ride taxi service, at least as it was structured in this demonstration. The impacts of the overall marketing effort are discussed below.

The final category of factors that contributed to the low level of demand is related to the service provider; these factors included operational problems and the provider's limited commitment to the project. The problems with the Share and Save telephone line obviously reduced the number of calls received by the provider. Furthermore, it is unlikely that persons experiencing these problems ever called again -- or recommended the service to their friends.

The service provider's level of commitment to the project did not constitute a barrier per se, but certainly played a role in the low incidence of service requests and rides provided. The operator was very cooperative in terms of assisting in the project's development and agreeing to provide the service, and later offering to subsidize the transporting of single passengers. However, a greater commitment to "making the service work" may well have produced substantially better results. For instance, the operator discontinued the single passenger subsidy after only a couple of weeks -- and before any rides were actually provided. In addition, the operator was unwilling to instruct call-takers (for premium service) to ask Allston-Brighton callers if they would be interested in sharing a ride for a 40 percent discount. Clearly, the fact

that the operator received no outside funding to provide the shared-ride service limited the effort they were willing to expend; nevertheless, a certain amount of internal marketing, such as informing exclusive-ride callers about Share and Save, could have been carried out with little extra effort and may well have substantially increased the demand for Share and Save.

4.3 PROJECT MARKETING IMPACTS

As explained in Chapter 3, the Share and Save marketing effort consisted of three aspects: 1) securing participation of one or more taxi operators; 2) securing participation of drivers; and 3) advertising the service to the public and generating demand.

In terms of the first aspect -- marketing to taxi operators -- the local project manager met his goal of securing the participation of a major Boston operator. Early in the project development effort, the project manager was able to develop interest in the project among key officials of the City's second and third largest fleets (Boston Cab Co. and Checker Taxi, respectively). He was then able to maintain their interest in the face of arguments from operators opposed to the notion, as well through a development which, though not associated with the demonstration, threatened the operators' willingness to participate in the project (i.e., the taxi stand issue, described in Chapter 3).

While Checker Taxi eventually declined to provide the demonstration service, Boston Cab remained in the project. The fact that only one operator was offering the service was actually seen as an advantage by the project manager. It greatly simplified both the operation and the marketing of the project, in that there could be a single telephone number for the service, as well as a single call-taker/dispatcher -- as opposed to dispatchers at more than one company. The participation of more than one operator -- without establishing a central dispatcher -- would have further reduced the chances of formulating any ride matches.

With regard to marketing to Boston Cab's drivers, the fact that two agreed to participate enabled the project to become operational. The small number of drivers -- which soon dropped to one -- was considered sufficient to start the project. The project manager felt that if the service developed sufficient ridership, other drivers would become interested.

Finally, assessing the impact of marketing to the general public involves examining the two major aspects of the marketing: 1) disseminating information about the project; and 2) generating demand for the service. An indication of the impact of the former is provided by the results of a telephone

survey of Allston-Brighton residents.* Of the 300 people interviewed, 50 (17 percent) claimed to have heard of Share and Save. Table 4-2 summarizes the sources of information about the service indicated by these 50 people. As shown, word-of-mouth ("from a friend") was the most common source indicated, followed by "local newspaper." The remaining sources are quite evenly distributed. It should be pointed out, however, that there may be some overlap among these sources; for instance, a "brochure" may have been obtained from -- or a "poster" may have been seen in -- a "community organization;" similarly, "from a friend" may well have been through membership in a community organization.

TABLE 4-2. SOURCES OF INFORMATION ABOUT SHARE AND SAVE

Source	Number
local newspaper	10 (20%)
poster	6 (12%)
brochure	7 (14%)
community organization	5 (10%)
from a friend	11 (22%)
other	6 (12%)
don't know	5 (10%)
Total	50

Source of data: January 1984 Telephone Survey of Allston-Brighton residents.

Considering that there were only about 30 requests for service during the eleven months between the introduction of service and the close of the demonstration, the project marketing was not very effective in terms of generating demand for the service. It may be significant that of those 30 requests, 12 came in the two months immediately following the

* This survey was undertaken -- by a data collection subcontractor -- in mid-January 1984. A discussion of the survey effort, as well as the instrument itself, is included in the Appendix.

January 1984 mass mailing to City health center clients. This suggests that a more comprehensive distribution of brochures may well have produced a substantially higher level of demand.

Of course, the marketing impacts must be viewed in light of the paucity of marketing funds, coupled with the service design and operational barriers cited earlier. The project manager was reasonably successful at disseminating information to members of community organizations, but he was generally unable to contact unaffiliated neighborhood residents; furthermore, most of those persons who did find out about the service chose not to make use of it -- or rather, attempt to make use of it. Clearly, the most successful result of the project marketing efforts was simply the implementation of the service. This impact should not be downplayed, in light of the absence of any shared-ride service in several other demonstrations involving regulatory revision (e.g., Seattle, Portland, Berkeley, and Dade County). Getting a private operator to participate in such a project without providing any operating assistance can be considered a significant accomplishment in itself.

4.4 IMPACTS ON THE LOCAL TAXI INDUSTRY

4.4.1 Impacts on the Share and Save Operator

Boston Cab benefited from participating in the demonstration project chiefly in terms of increased name recognition in Allston-Brighton, since the fleet's name was included on all project posters, brochures, and advertisements. Boston Cab's Allston-Brighton ridership (exclusive-ride) increased substantially during the project.* While the increased exposure afforded by the project marketing materials probably contributed to the higher demand, a more important factor was the company's decision to deploy more taxis in the neighborhood. The taxicabs themselves, with a distinctive color scheme and bearing the company name and telephone number, are the most effective advertising medium for any taxi company.

Boston Cab did provide a number of rides to persons who called to request shared-ride service. Every caller, when denied a shared-ride, was asked if he/she wanted an exclusive-ride; roughly half chose that option. Some of these doubtless represent "new" trips to Boston Cab; however, some of

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* Boston Cab officials reported that, as of the end of the demonstration, their Allston-Brighton telephone requests were roughly twice what they had been at that time of year prior to the start of the service -- from just over 100 calls per day to approximately 200 calls per day.

these people may have called Boston Cab for exclusive-ride service in the absence of Share and Save.*

Thus, while Boston Cab benefited from the project marketing activities, it is unclear to what extent this exposure generated new ridership. Nevertheless, Boston Cab officials felt that the service was worth continuing, as evidenced by their decision to provide it following the close of the demonstration. If the Area II Home Care agreement works out, or if general demand for Share and Save grows, Boston Cab may see ridership gains as a result of the demonstration over the coming years.

4.4.2 Impacts on Boston's Taxi Industry

Despite its lack of operational results, the demonstration had a generally positive impact on Boston's taxi industry as a whole. While the project failed to demonstrate the potential of shared-ride taxi as a general approach, it did get local operators thinking more about the concept, and the possibility that perhaps it could be useful in a somewhat different setting. Specifically, Boston's operators began consideration of a shared-ride service from Logan Airport into downtown Boston largely as a result of the local project manager's efforts to develop and implement Share and Save.

The fact that such a project was initiated at all attests to something of an attitude change among local operators toward shared-riding. As explained in Chapter 3, the existing shared-ride service at the airport -- Share-a-Cab** -- had not been popular with operators and drivers, who felt that they often lost money in providing it. However, the significant growth in the number of hotels in Boston in recent years has increased the demand for transportation into the City, and the operators have been increasingly concerned with losing much of this business to a growing number of airport limousines.

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* One of the key issues associated with the introduction of shared-ride taxi service is the impact of shared-ride service (with its reduced fares) on the overall profitability of taxi operations -- i.e., does shared-ride service attract many of its riders from automobile, transit, and other modes, or do most of its riders come from the ranks of current taxi users? It was hoped that this demonstration would be able to provide solid empirical evidence as to the nature of this impact. Unfortunately, the lack of use of the demonstration service prevented any such assessment.

** Share-a-Cab provides service only from the airport to suburban locations; it does not serve Boston.

Hence, spurred largely by the marketing efforts of the Share and Save project manager, the local taxi industry took action to introduce the new service. The project was formally initiated by the Cab Association of Boston (CAB), an organization of taxi operators. In November 1983, CAB submitted a preliminary proposal to Massport (the public agency responsible for operating the airport) to establish shared-ride service from a single terminal (to be designated later)* at the airport to two zones in downtown Boston. A series of meetings was held among members of the CAB, other taxi operators and drivers, representatives of the City of Boston (Traffic and Parking Department and Police Hackney Carriage Unit), and representatives of Massport to iron out operational and administrative details. The Share and Save project manager played an important role in facilitating these meetings until the Share and Save demonstration ended, by which time the design details had been tentatively worked out and the proposed service was being considered by Massport.**

Thus, the project manager's efforts in promoting innovative taxi service resulted in the implementation of the demonstration service and also in the development (and possible eventual implementation) of a second shared-ride service.

4.5 FINANCIAL IMPACTS

All of the expenditures on the demonstration were made by the grantee -- the City of Boston -- and its data collection subcontractor -- Bernett Research Service; no project funds were assigned to the service provider. This is an important point in evaluating this demonstration, especially considering that no rides were provided. Boston Cab provided in-kind service in assigning a dispatcher to the project;*** however,

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* The Eastern Airlines terminal was eventually chosen as the origin site.

** As of this writing, Massport had not yet acted on the proposal.

*** The cost of the dispatcher's time was not significant. The Share and Save dispatcher estimated that each Share and Save call took three to five minutes. Sixty calls thus represented between three and six hours over the course of the demonstration. The dispatcher also called back each person requesting service; this represented an additional two or three hours. Thus, the total time spent on Share and Save by Boston Cab's dispatcher was under ten hours. (Boston Cab would not reveal the dispatchers' wages.)

no other operating expenses were incurred.*

The project expenditures covering the period July 1, 1982 to March 13, 1984 are summarized in Table 4-3. Of the total expenditure of $100,543, $90,000 was paid by UMTA, with the remainder contributed by the City of Boston.

TABLE 4-3. DEMONSTRATION EXPENDITURES

Wages and Fringe Benefits	$ 77,143
Travel	4,178
Consulting Services	200
Administrative Costs	2,072
Data Collection (Bernett Research)	1,950
Overhead	15,000
Total	$100,543

* The telephone line used for Share and Save was one that Boston Cab had used (and continued to use) as one of its regular call-in lines (available only through a single call-box -- not a listed number); thus, no additional expense was incurred as part of the demonstration.

5. CONCLUSIONS

5.1 INTRODUCTION

This chapter summarizes the project results and evaluation findings in terms of the following categories: project accomplishments and major impacts; major disappointments; major barriers to success; and transferability of the results.

5.2 PROJECT ACCOMPLISHMENTS/MAJOR IMPACTS

The project's accomplishments and positive impacts can be summarized as follows:

- Implementation of a shared-ride taxi service - The fact that service was made available is noteworthy, considering that shared-ride taxi service has yet to be offered in several locations where it has been legalized and encouraged. The development and implementation of the service required changing the local taxi regulations, getting a taxi operator to participate, and getting drivers to participate. The fact that a major local operator was interested in the project was essential.

- Share and Save operator's continuing interest in the project - Once the service was introduced, the Share and Save operator maintained his interest in the project despite the low level of demand for the service. His support of the concept was strong enough to offer to subsidize single-passenger trips (i.e., for which there is no match) for part of the demonstration period, and then to continue offering the shared-ride service following the end of the demonstration.

- Generation of additional service for Share and Save operator - The Share and Save operator's participation in the demonstration increased his exposure in the demonstration neighborhood and contributed to an increase in regular (i.e., exclusive-ride) ridership over the course of the project.

- Generation of interest in another shared ride service - The development and implementation of the demonstration service influenced the taxi industry's decision to propose a new shared-ride service, to operate between Boston's Logan airport and downtown Boston. The initiation of this project represented a change in attitude toward the shared-ride taxi concept among the local taxi operators; they had been generally unhappy with the existing airport shared-ride service, and had, with a couple of exceptions, opposed the demonstration service.

5.3 MAJOR PROJECT DISAPPOINTMENTS

The operational results of the project were obviously disappointing. These results can be summarized as follows:

- Lack of ridership - No rides were provided on Share and Save during the demonstration period. For most of the demonstration (all but a few weeks), the "single passenger rule" was in effect, and there were never two requests for service in close enough temporal proximity to allow for a service match. There were no requests for service during the brief period in which the Share and Save operator agreed to waive the single passenger rule (and reimburse the driver for the difference between the shared-ride fare and the exclusive-ride fare).

- Low level of demand - Beyond the fact that no rides were provided, the level of demand (i.e., the number of requests for service) was quite low. According to the Share and Save operator's records, there were approximtely 30 service requests during the 11 months of the demonstration period; there was more than one request on only three days, with a maximum of two on any day. (The major reasons for the low demand level are presented in Section 5.5.)

5.4 MAJOR BARRIERS TO THE SUCCESS OF THE PROJECT

This section summarizes the major factors contributing to the low level of demand and lack of ridership:

- Limitations of service design - Several service design features likely served to limit the demand for Share and Save. The single passenger rule, in addition to effectively preventing the provision of rides, likely inhibited demand; it

is unlikely that most people would request service again -- or tell their friends about the service -- after having been turned down once or twice. The 24-hour advance notice recommendation also served to suppress interest in Share and Save. This guideline essentially neutralized one of the major attractions of taxi service -- the ability to receive service on short notice. The fact that calling a day ahead did not guarantee receiving a shared-ride further compounded the disincentive represented by advance notice. The fact that the 30 percent elderly discount coupons could not be used in the program also reduced potential demand in that use of Share and Save represented only a 10 percent additional saving.

This likely represented insufficient incentive to share a cab. The fact that Share and Save could be accessed only by telephone also probably limited demand; if the service had also been available at taxi stands or via street hail, more people likely would have attempted to use it. The final service design barrier was the complicated fare structure. The 16-zone fare chart and the accompanying fare list were difficult to understand by many people; a number of people were apparently reluctant to try to use the service because they could not figure out what their fares would be.

- Limited marketing - The fact that marketing activities were restricted prevented a comprehensive mailing of brochures (e.g., to a majority of households in Allston-Brighton), which would have significantly increased neighborhood knowledge of the project. The authorization of additional marketing funds would also have permitted the grantee to subsidize the transporting of single passengers (i.e., for a longer period than was done by the Share and Save operator). The marketing activities that were undertaken placed too much emphasis on the elderly. Although this was largely unavoidable in light of the type of marketing permitted, the elderly did not actually represent a likely user group; the existence of the elderly discount coupons, as well as the availability of low cost alternatives (i.e., specialized transportation services) produced little incentive for the elderly to use Share and Save. While the local project manager did a good job of developing and maintaining contacts within various types of community organizations, his efforts failed to produce the desired results.

- Operational problems - The fact that there were problems with the Share and Save telephone line for a period of time obviously reduced the number of calls received during that period. Furthermore, these problems probably dissuaded any of the callers from trying again, and from recommending that their friends call.

- Limited commitment of taxi operator - Although the Share and Save operator supported the shared-ride concept and was willing to provide the service -- and even agreed to subsidize the transporting of single passengers -- his commitment to making the concept work was limited. The operator discontinued the subsidy offer after only a couple of weeks -- and before any rides were actually provided. In addition, the operator was unwilling to ask callers requesting exclusive-ride service if they were willing to share the ride for a 40 percent discount. Of course, the real barrier here was the fact that the operator received no funding as part of the demonstration; his participation was purely voluntary, and he would have promoted the service only if he saw a definite benefit in doing so.

5.5 CONCLUSIONS/TRANSFERABILITY OF RESULTS

While the operational results of this demonstration were quite disappointing, the project produced a number of valuable lessons concerning the development, implementation, and operation of a shared-ride taxi service. Certain details and situations will differ in other locations -- e.g., the difficulty involved in revising local taxi regulations, the willingness of taxi operators to provide the service, etc.; however, many of the findings from the Boston experience should be generally applicable to any such project.

The Boston project demonstrated the importance of working closely -- and developing good relationships -- with the local taxi industry, as well as with city officials and community representatives, in designing and implementing an innovative service. However, while this process produced an operational service, the results demonstrated some of the problems inherent in allowing the taxi operators to insist on service guidelines aimed at "protecting" them or their drivers from "losing" revenue. Guidelines such as the single passenger rule and the exclusion of elderly discount coupons insure that a driver will never make a trip which produces less than the full premium fare, but they also limit much of the potential demand for the

service, as well as the likelihood of providing any rides at all. While these barriers can be overcome through the development of a high enough demand volume (i.e. chiefly among the non-elderly), factors such as budgetary restrictions on marketing and operational difficulties can effectively thwart such an effort.

Therefore, in order to test the true potential of shared-ride taxi (at least where it is initiated by a public agency), it is necessary to provide a service free of restrictive guidelines, and to expend sufficient marketing funds to insure widespread knowledge and understanding of the service. The former condition may require the provision of outside (i.e., government) funds to the shared-ride taxi operator -- i.e., to subsidize the transporting of single passengers -- at least until demand is sufficient to allow matching of trips. This condition also requires the acceptance of any kind of widely-used discount coupons in the shared-ride service; where this is not acceptable to prospective service providers (as in Boston), then implementation of such a service should perhaps be avoided.

Obviously, any type of shared-ride service requires a high level of demand to facilitate consistent matching. It may take a relatively long period of time to develop this volume even where the above conditions are met. Unfortunately in the Boston demonstration, the prevailing conditions did not permit a true test of the concept's potential.

APPENDIX A

GENERAL PUBLIC TELEPHONE SURVEY

As part of the data collection/evaluation process, a telephone survey of the general population was undertaken in mid-January 1984. The survey (see Exhibit B-1) was administered to 300 randomly-selected Allston-Brighton households by the grantee's data collection subcontractor, Bernett Research Service. The households/telephone numbers were generated from the City of Boston's residential file (compiled from the City Census undertaken in May 1983). In order to maximize the randomness of the survey, a "decision table" format was used, in which the specific person interviewed within a particular household was selected based on the total number of adults and the number of each gender within that household (see Exhibit A-1); four different decision tables were used.*

The purpose of the survey was to ascertain the level of awareness of the shared-ride service, as well as the extent of taxi use (and use of other modes), among the service area's residents.

Survey Results

The results regarding awareness of Share and Save are discussed in Chapter 4. In terms of the other survey questions, the key results can be summarized as follows:

- number of times during the past month respondents have used taxis to travel in Allston-Brighton:

category	frequency
0	226 (75.3%)
1	25 (8.3%)
2	17 (5.7%)
3	13 (4.3%)
4-7	12 (4.0%)
10 or more	7 (2.2%)

* The subcontractor maintained that this procedure was followed carefully, despite the fact that virtually no call-backs were necessary (i.e., the person who was supposed to be interviewed was available in almost all cases).

- taxi company used most often:

category	frequency	
	current use	use before April 1983
Red Cab	30 (10.1%)	8 (4.6%)
Boston Cab	22 (7.4%)	13 (7.5%)
Bay State	20 (6.7%)	5 (2.9%)
Red & White	8 (2.7%)	3 (1.7%)
ITOA	3 (1.0%)	2 (1.2%)
Ambassador Brattle	3 (1.0%)	--
Town Taxi	2 (0.7%)	2 (1.2%)
Checker Taxi	1 (0.3%)	--
other	43 (14.5%)	11 (6.4%)
don't know	35 (11.8%)	22 (12.7%)
never use taxis	130 (43.8%)	107 (61.8%)
missing	3	127

- most frequent means of travel:

category	frequency	
	work or school	other trips
drives car	110 (36.7%)	120 (40.3%)
MBTA	102 (34.0%)	54 (18.1%)
walk	13 (4.3%)	42 (14.1%)
bicycle	5 (1.7%)	4 (1.3%)
rides with someone	2 (0.7%)	13 (4.4%)
taxi	1 (0.3%)	3 (1.0%)
The Ride	1 (0.3%)	--
combination of modes	10 (3.1%)	58 (19.5%)
doesn't travel	55 (18.3%)	4 (1.3%)

- number of vehicles in household available for personal use:

category	frequency
0	81 (27.6%)
1	126 (42.9%)
2	63 (21.4%)
3 or more	24 (8.2%)
missing	6

- availablility of auto for personal use:

category	frequency
usually	174 (64.4%)
sometimes	21 (7.8%)
rarely	10 (3.7%)
never	65 (24.1%)
missing	30

- employment status:

category	frequency
employed full-time	139 (48.6%)
employed part-time	25 (8.7%)
student	38 (13.3%)
homemaker	23 (8.0%)
retired	54 (18.9%)
unemployed	7 (2.4%)
missing	14

- age:

category	frequency
65 or older	56 (18.9%)
55-64	27 (9.1%)
45-54	28 (9.5%)
35-44	24 (8.1%)
25-34	95 (32.1%)
18-24	65 (22.0%)
14-17	1 (0.3%)
missing	4

- annual household income:

category	frequency
$10,000 or less	49 (16.6%)
$10-20,000	75 (25.3%)
$20-30,000	54 (18.2%)
$30-40,000	27 (9.1%)
over $40,000	29 (9.8%)
doesn't know/ refuses	62 (20.9%)
missing	4

- sex of respondent:

category	frequency
male	116 (39.9%)
female	175 (60.1%)
missing	9

Use of Taxis

As indicated by the responses to the questions regarding use of taxis and most frequent means of travel, taxi use is apparently rather infrequent among Allston-Brighton residents. Roughly 16 percent of the survey respondents reported having used taxis more than once during the month preceding the survey; only one respondent cited taxi as the most frequent means of travel to work/school, and only three gave taxi as the most frequent means of travel for other types of trips.

BOSTON TAXI GENERAL PUBLIC TELEPHONE SURVEY

ADDRESS _____

PHONE NUMBER _____

CONTACT RECORD

	DATE	TIME	RESULT*	INTERVIEWER
FIRST ATTEMPT				
SECOND ATTEMPT				
THIRD ATTEMPT				
FOURTH ATTEMPT				

(Please note: A busy signal does not count as an attempt; call back half an hour or more later.)

*Result: C = Completed survey,
R = Refused to participate,
N = No answer, and
D = Designated person not available (call back).

Hello, my name is _____ and I am conducting a survey of Allston-Brighton residents for the City of Boston. This will only take a few minutes. The survey concerns transportation in Allston/Brighton. Your household has been selected at random to participate in this survey.

First, I would like to find out a little information about your household, then direct the remaining questions to a certain household member.

A. How many people presently live in your household, including yourself? (EXPLAIN THAT "HOUSEHOLD" INCLUDES ROOMMATES AND/OR FAMILY MEMBERS LIVING WITH THE PERSON.)

_____ People (IF ANSWER IS ONE, GO TO QUESTION 1)

B. How many of these people are 14 years or older?

_____ People (IF ANSWER IS ONE, GO TO QUESTION E)

CIRCLE CORRECT ROW IN DECISION TABLE

Exhibit A-1

C. How many of the people 14 or over are male?

_____ People

CIRCLE CORRECT COLUMN IN DECISION TABLE

CIRCLE CORRECT CELL IN DECISION TABLE

NUMBER OF MALES IN HOUSING UNIT

NUMBER OF ADULTS IN HOUSING UNIT

	1 adult	2 adults	3 adults	4 or more
0 Males	Adult	Oldest Female	Oldest Female	Youngest Female
1 Male	Adult	Female	Youngest Female	Male
2 Males		Youngest Male	Youngest Male	Youngest Female
3 Males			Oldest Male	Female or Youngest Female
4 or More				Youngest Male

D. According to the research method used in this study, I have to ask a few questions of the (CITE PERSON SELECTED FROM TABLE) in your household. Is that person available to come to the phone?

1) yes, I'm that person (GO TO QUESTION 1)

2) yes (ASK TO SPEAK TO HIM/HER; GO TO QUESTION J WHEN THAT PERSON COMES TO THE PHONE)

3) no (GO TO QUESTION F)

E. IF THE PERSON WHO ANSWERED THE PHONE SOUNDS OLDER THAN 14, GO TO QUESTION 1.

IF THE PERSON WHO ANSWERED THE PHONE MAY BE YOUNGER THAN 14, ASK:

May I speak with the oldest person in your household?

1) yes, I'm that person (GO TO QUESTION 1)

2) yes (ASK TO SPEAK TO HIM/HER; GO TO QUESTION J WHEN THAT PERSON COMES TO THE PHONE)

3) no

F. When is the best time to reach that person?

Day: _____ Time: _____

G. Whom should I ask for when I call again?

_____

Thank you very much. Good-bye.

H. WHEN MAKING A SECOND (OR SUBSEQUENT) ATTEMPT TO REACH THE SPECIFIED PERSON, SAY:

May I speak with _____?

1) yes (GO TO QUESTION J)

2) no

I. When is the best time to reach him/her?
Day: _____ Time: _____

Thank you very much. Good-bye.

J. Hello, my name is _____ and I am conducting a survey of Allston-Brighton residents for the City of Boston. This will only take a few minutes. The survey concerns transportation in Allston-Brighton. We would greatly appreciate your help in answering the following questions. (GO TO QUESTION 1).

1. During the past month, how many times have you used a taxi to travel in Allston/Brighton? _____ (IF NONE, WRITE 0)

2. Which taxi company do you use most often? (DO NOT READ ANSWERS)

   1) Boston Cab 2) Red & White 3) Bay State 4) ITOA
   5) Ambassador Brattle 6) Checker 7) Red Cab
   8) Town Taxi 9) Other: _____
   10) Don't Know 11) Never use taxis (GO TO QUESTION 4)

3. Which taxi company did you use most often before last April? (DO NOT READ ANSWERS)

   1) Boston Cab 2) Red & White 3) Bay State 4) ITOA
   5) Ambassador Brattle 6) Checker 7) Red Cab
   8) Town Taxi 9) Other: _____
   10) Don't Know 11) Didn't use taxis 12) Didn't live here then 13) Same as in 2.

4. Have you heard about Share 'n Save, the new Shared-Ride Taxi service which has begun in Allston-Brighton? I am not referring to Share-A-Cab from the airport.

   1) yes 2) no (GO TO QUESTION 12)

5. How did you first learn about Share 'n Save? (DO NOT READ ANSWERS)

   1) local newspaper (name: _____)
   2) poster (where: _____)
   3) brochure (where: _____)
   4) through a community organization (name: _____)
   5) from a friend or relative
   6) other: _____
   7) don't know (or can't remember)

6. Have you ever called Share 'n Save for information?

   1) yes 2) no

7. Have you ever requested Share 'n Save service?

   1) yes 2) no (GO TO QUESTION 12)

8. Have you ever used Share 'n Save?

   1) yes 2) no (GO TO QUESTION 12)

9. How many times have you used Share 'n Save?

   _____ times (IF MORE THAN ONCE, GO TO QUESTION 11)

10. Why didn't you use it again? (DO NOT READ ANSWERS)

1) I didn't like sharing the cab with someone I didn't know.
2) The trip took too long.
3) It was too difficult to arrange.
4) I tried again, but was told that a shared-ride couldn't be arranged.
5) I used it very recently -- yesterday or today.
6) I have not had any use for it since then.
7) No particular reason.
8) other: _____

11. Would you rate Share 'n Save

1) excellent, 2) good, 3) fair or 4) poor?

(READ ANSWERS AS PART OF QUESTION)

12. Think about the trips you made yesterday. How many one-way trips did you make by any means of travel yesterday? (EXPLAIN THAT A ROUND TRIP IS TWO ONE-WAY TRIPS.)

_____ one-way trips

13. What is your most frequent means of travel to work or school?
(CIRCLE MORE THAN ONE IF SO INDICATED. IF PERSON SAYS "CAR", ASK IF HE/SHE DRIVES OR RIDES WITH SOMEONE ELSE. DO NOT READ ANSWERS)

1) taxi 2) MBTA 3) the Ride 4) drive a car
5) get a ride from someone else 6) walking 7) bicycle
8) other: _____
9) don't go to work or school

14. How do you most frequently make other local trips? (CIRCLE MORE THAN ONE IF SO INDICATED. DO NOT READ ANSWERS.)

1) taxi 2) MBTA 3) the Ride 4) drive a car 5) get a ride from someone else 6) walking 7) bicycle
8) other: _____ 9) don't go out much

READ THIS: The following questions are for statistical purposes only; the answers will be kept totally confidential.

15. How many motor vehicles are available for the personal use of the people in your household?

(EXPLAIN THAT "HOUSEHOLD" INCLUDES ROOMMATES AND/OR FAMILY MEMBERS LIVING WITH INTERVIEWEE.)

1) one 2) two 3) three or more 4) none

16. Is an automobile available for your personal use

1) usually, 2) sometimes, 3) rarely, or 4) never?

(READ ANSWERS AS PART OF QUESTION)

17. Which of the following best describes your work situation? (READ THE ENTIRE LIST; CIRCLE ALL THAT APPLY)

1) Employed Full-Time
2) Employed Part-Time
3) Student
4) Homemaker
5) Retired
6) Unemployed

18. Would you please tell me your age? _____

IF RESPONDENT DOES NOT WANT TO ANSWER, SAY:
I understand. Let me read a range of ages. Please stop me at the right one. (READ THE LIST UNTIL STOPPED BY RESPONDENT; CIRCLE THE ONE THAT APPLIES)

1) 65 or older
2) 55 to 64
3) 45 to 54
4) 35 to 44
5) 25 to 34
6) 18 to 24
7) 14 to 17
8) 13 or under

19. What is the total annual income of all the people living in your home? I will list a range of amounts. Please stop me at the right one. (READ THE LIST UNTIL STOPPED BY RESPONDENT; CIRCLE THE ONE THAT APPLIES)

1) 10,000 dollars or less
2) 10,001 to 20,000 dollars
3) 20,001 to 30,000 dollars
4) 30,001 to 40,000 dollars
5) more than 40,000 dollars

CONCLUDING REMARKS:

Thank you very much for participating in this survey.

20. INDICATE THE SEX OF THE RESPONDENT:

1) Male 2) Female

REMINDER TO INTERVIEWER: COMPLETE CONTACT RECORD ON THE FRONT OF THIS SURVEY.

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