

Airport Shared-Ride Taxi Programs in New York, Chicago and Boston

UMTA/TSC Evaluation Series

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16. Abstract This report summarizes the development and operation of three shared-ride taxi operations at major U.S. airports. These are: New York's LaGuardia Airport Share-A-Cab; Super Saver Taxi in Chicago; and Share-A-Cab service at Boston's Logan Airport. The Chicago operation provided service from O'Hare and Midway Airports and also, for a short time, within three downtown zones. The report presents information on ridership, costs, and special operating characteristics derived from personal interviews, on-site observations, and review of accumulated data. Special attention is paid to the institutional environment in which the services were implemented, and the special role played by institutional and operational factors in the success or failure of the services.					
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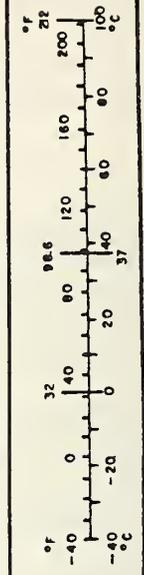
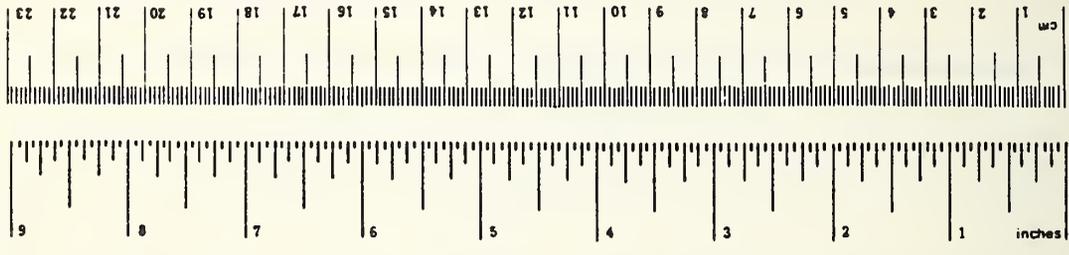
METRIC CONVERSION FACTORS

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	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square 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

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000 m ²)	2.5	acres	ac
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	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



*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, SO Catalog No. C13.10.286.

PREFACE

This report summarizes the development and operation of three shared-ride taxi services. These are New York's LaGuardia Airport Share-A-Cab, Super Saver taxi service in Chicago, and Share-A-Cab service at Boston's Logan Airport. It was prepared by COMSIS Corporation under contract to the Transportation Systems Center, U.S. Department of Transportation. The authors of the report were Michael Clarke of COMSIS and Joel Freilich of TSC.

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EXECUTIVE SUMMARY

Background: Airport Access

During the past 25 years, as the number of air travelers nationwide increased, causing roads in and around big-city airports to become increasingly congested, airport authorities have begun to devote more attention and resources to ground transportation alternatives. While airport access studies during the 1960s had examined capital-intensive transportation improvements, the focus shifted during the 1970s to making more efficient use of existing transportation facilities. The efficiency objective--namely, reducing the number of vehicle trips and on-airport parking spaces required by each air passenger journey--required the development and encouragement of higher-occupancy transportation services. Aware of the evidence that conventional mass transit would never capture a large share of air travelers' airport trips, airport authorities began to look more carefully at opportunities to shift air travelers from private automobiles and exclusive-ride taxicabs into limousines and "Airporter" coaches. Airports with parking shortages also explored private for-profit "Park-Shuttle-n-Fly" (remote parking) facilities.

An air traveler has the following ground access options. He can drive to the airport and park there. He can drive his car (or a rental car) to a privately operated remote parking facility and ride a shuttle bus to the terminal. He may be driven to the airport by someone, or he may travel by "Airporter" bus or limousine. In a few cities, rail transit serves the airport. In most cities, conventional taxicab service is available.

Each of the above alternatives has its own impact on traffic flows in and around the airport, depending on how many vehicle trips are required and on whether those vehicles are shared with other air travelers. For example, driving to the airport and parking there results in one unshared vehicle trip inside the airport and one unshared vehicle trip on adjacent roads. It also requires one long-term airport parking space. Driving to a remote parking facility and riding a shuttle bus to the terminal

results in one unshared and one shared vehicle trip on the approach roads, but only a shared vehicle trip inside the airport. Thus the remote parking option shifts congestion out of the airport and onto adjacent roads.

Being driven to the airport by someone who is not traveling results in two unshared vehicle trips inside the airport, and two unshared vehicle trips on the adjacent roads. If the companion stays with the passenger until take-off, the "kiss-ride" mode also requires one short-term airport parking space. A trip to the airport via bus or limousine results in one shared vehicle trip inside the airport and one shared vehicle trip on the adjacent roads. The rail transit mode relieves congestion on the approach roads, but still requires a shared vehicle (shuttle bus) trip inside the airport, except in those few cases (e.g., Chicago's O'Hare Airport) where rail transit vehicles go directly into terminal buildings.

From a traffic viewpoint, the efficiency of traveling by taxicab, even considering only exclusive-ride taxicab, depends on the prevailing taxicab regulations and supply/demand conditions. In most cities (e.g., New York), a taxicab driver who brings an enplaning passenger into the airport usually departs with a deplaning passenger. In these cities, the taxicab mode uses airport facilities and adjacent roadways almost twice as efficiently as the "kiss-ride" mode, since the taxicab, while more likely to use a short-term parking space, generally serves at least two passengers. In other cities, taxicab regulations induce so much dead-heading that, despite multiple loadings on some trips, the average taxicab round trip into and out of Boston's Logan Airport served only 1.84 air passengers in 1979.

Although taxicabs represent a significant proportion of vehicle-trips to and from the big-city airports (19% for Boston air passengers in 1979), and although airports had long asserted the right to control airport taxicab operations, the potential for shared-ride taxi service has been largely ignored. The fact that shared-ride taxi service is prohibited by ordinance in most U.S. cities is not sufficient to explain the neglect of this option, because exceptions for airports can be made when all

interested parties agree. Rather, the airports and the taxicab industry each had a different reason for ignoring the potential for shared-ride taxi service.

The airport authorities implicitly assumed that taxis were inherently a low-occupancy mode, and therefore, that the way to develop high-occupancy services was to initiate discussions with existing and potential limousine operators outside the taxi industry. Also, the taxi industry is such a loosely connected group that airport authorities felt it would be difficult to organize an unconventional service. The taxicab operators, on the other hand, while aware of their ability to provide shared-ride service, assumed that offering such service would not bring them new passengers, but would only reduce revenues and threaten jobs by pooling existing taxi passengers into fewer cabs. Viewing the status quo as in their best interests, taxi operators made no effort to develop and legalize shared-ride taxi service; they hoped that neither limousines nor shared-ride taxis would proliferate. Thus, for different reasons, the taxi industry and the airport authorities ignored the potential for shared-ride taxi service, even where supply and demand conditions might have supported it.

Background: Taxicab Role in Airport Access

In most U.S. cities, the taxicab's share of ground trips to and from airports has declined during the last 25 years. Increasing urban sprawl has given the "unlimited mileage" pricing of rental cars a definite advantage over the taxicab's mileage-based fares. Stiff competition among rental car companies has necessitated efficient operations and effective marketing (e.g., fly-and-drive packages), and has held prices down relative to quality of service. In contrast, local taxicab regulations generally prohibit price competition within the taxicab industry, and virtually no form of competition occurs among taxicabs at airports, where dispatching is on a first-in, first-out basis, and customers must take the first cab in line, regardless of its appearance or the conduct of its driver.

The general decline of mass transit, and increased travel by private automobile, has also made it more difficult for taxicabs to compete with rental cars at U.S. airports. As travelers become more accustomed to driving in their home cities, the driving task becomes ever less onerous, and the immediate service availability associated with having a car at one's disposal seems less a luxury and more a necessity. Thus, for more and more Americans, driving a rental car becomes the natural choice to make for local travel in a distant city.

For intercity travel as a whole, the decline of intercity rail and bus transportation in favor of air travel has also given rental cars the edge over taxicabs. Taxicabs have the edge at downtown rail and bus terminals, where high-density development means short trip distances, and where the storage of rental cars is expensive. Most airports, on the other hand, are far enough from downtown that car storage costs are low, and taxicabs can not offer long trips at prices competitive with those of rental cars.

For business travel, the rental car has some more subtle advantages over the taxicab. Corporate travel departments see it as an advantage to know in advance the cost of local travel in a distant city. Rental car companies' acceptance of credit cards is also counted a plus. Finally, business travelers are pleased that evening recreational trips are not separately itemized in the case of rental cars.

Reducing the taxicab's share of non-business airport trips is a change in the profile of the non-business air traveler. Due to the recent decline in airfares relative to income, today's air travelers are less likely to be affluent and more likely to belong to the budget-conscious middle class. Rather than take a taxicab in their home city, they are more likely to ask a friend or family member to drive them to the airport and pick them up there. At their destination, they are more likely to be picked up by a friend or relative, or to be met by a chartered bus included in a package tour. A greater number of families are

taking vacations involving air travel, and families find renting a car in the destination city far more convenient and economical than calling a taxicab for each local trip there.

In some cities, the growth of air travel has been sufficient to offset the taxicab's loss of market share, with the result that the number of taxi trips to and from airports has held nearly constant (or even increased). And since the related factors of urban sprawl, increasing auto ownership, and the decline mass transit patronage have reduced the overall demand for taxicab service, airports still account for a large fraction of all taxicab trips.* In most cities with any taxi service, the airport is well supplied with taxicabs, and passengers rarely have to wait for service.

Having read the preceding background information, readers may well understand why the taxicab industry has generally not developed or promoted shared-ride taxi service, at airports or anywhere else. The supply of taxi service, especially at airports, already exceeds the demand. The potential benefit of pooling two taxicab patrons is that the "first" taxicab and driver can serve both customers profitably and free the "second" taxicab and driver for other profitable work (either inside or outside the taxicab industry). From an economic point of view, the benefit is achieved if either of the following occurs:

- (a) The "second" driver carries a patron who otherwise would not have been served, or
- (b) The "second" driver finds profitable work outside the taxi industry.

From the taxicab industry's point of view, the shared-ride taxi program is beneficial only if (a) occurs.

In U.S. cities, other than New York, (a) would not usually occur. However, it might occur during peak demand periods, and would certainly occur during a period of unusually high demand,

*The only growth areas in the taxicab industry are package delivery and contract services: carrying elderly and handicapped persons under transit agency contracts, school children under contract to local educational agencies, etc.

such as a rainy rush hour or weekday blizzard, or an unusually big conference or tourist event. In fact, Chicago's within-downtown shared-ride taxi service, generally viewed as a failure, worked very well during a mid-December snowstorm in 1981.

Ingredients of Successful Shared-Ride Taxi Programs

Shared-ride taxi service, compared with exclusive-ride taxi service, involves several costs or penalties, each of which must be addressed in the design of a shared-ride taxi program:

- 1) Transaction costs: someone has to figure out who should ride with whom.
- 2) Wait time penalty: passenger's time is consumed when the departure must be delayed until a match is found.
- 3) Collection time penalty: except where all passengers being matched begin their trips at a single point, passenger's time is consumed while the taxicab picks up other passengers who are to travel together.
- 4) Collection cost: extra operating (especially labor) cost is required for the taxi to pick up other passengers who are to travel together, except where all passengers being matched begin their trips at a single point.
- 5) Distribution time penalty: passenger's time is consumed while the taxi drops off all the passengers at their respective destinations.
- 6) Distribution cost: extra operating (especially labor) cost is required for the taxi to drop off all the passengers at their respective destinations.
- 7) Privacy loss: passengers must share the space in the cab.

Under certain conditions, these drawbacks may be offset by shared-ride taxi service's advantages over exclusive-ride taxi service:

- 1) reduced operation (especially labor) cost per passenger-mile on the line-haul portion of the trip, thus allowing for lower fares,

- 2) slightly reduced traffic congestion, and
- 3) improved taxicab availability and reduced wait time if there is a shortage of taxicabs.

Only the first of these benefits acts as a direct incentive to a passenger to choose shared-ride service. He will reap the other two benefits of the shared-ride taxi program even if he elects exclusive-ride service.

In many ways, the trade-off outlined above is similar to the trade-off between carpooling to work and driving alone. In either comparison, the success of the shared-ride mode depends on the line-haul travel time being long enough that the resulting cost savings offsets the transaction cost, the wait-time penalty, the collection and distribution times and costs, and the privacy loss.

But certain elements are more significant in the shared-ride taxi trade-off than the carpool trade-off. The higher operating costs of taxicabs add both to the advantage of shared riding and to the costs of collection and distribution. But transaction costs are potentially much higher per trip, since taxi passengers must be matched for each trip, while carpoolers can spread matching costs over many trips. Likewise, wait-time penalties are probably less tolerable because they are not scheduled. Finally, the loss of privacy may be more onerous in the taxicab case because the passengers are unacquainted with each other.

To be successful, a shared-ride taxi service must minimize the inherent disadvantages of shared riding while maximizing its comparative advantages. Most importantly, since wait time for a match is a critical disadvantage, airport shared-ride taxi programs must serve destination zones with a high density of trips, i.e., a large number of person-trips per day (by all modes of transportation) per square mile of the zone. These densities can usually be estimated by means of an air passenger survey.

Since per-passenger line-haul cost savings are a key advantage of shared-riding, the average travel time to each zone should not be too short. Also, no shared-ride taxi program will succeed without effective marketing and the support of the taxi

industry. The most important prerequisites are summarized in Table ES-1; other factors contributing to the success of a service are found in the conclusion.

The Airports

Comparison of LaGuardia, O'Hare and Logan Airports reveals differences that help to explain the different degrees of success realized by the three shared-ride taxi programs. In 1984, Chicago's O'Hare International Airport served 45.6 million air passengers; New York's LaGuardia Airport served 20.3 million; and Boston's Logan International Airport served 19.2 million.

But the number of ground trips made by air passengers is not all that different for the three airports. O'Hare's passenger volumes overstate its ground transportation needs because its connecting passengers, most of whom do not make ground access trips, represent between 45 and 50 percent of all air passengers. Logan's transfer rate, by contrast, is about 17 percent, and LaGuardia's is well below 10 percent. Thus non-transfer air passengers trips number about 24 million at O'Hare, about 19 million at LaGuardia, and about 16 million at Logan.

The proportions of business travelers, while not very different at the three airports, is highest at LaGuardia: 60 percent at LaGuardia in 1978, 57 percent at Logan in 1979, and 47 percent at O'Hare in 1977. Table ES-2 (LaGuardia data) shows that business travelers are more likely to use taxi-cabs, although this trend is less pronounced in Manhattan, where taxi use is high among all traveler groups.

What distinguishes the three airports is the density of their service areas. Logan Airport, being the major airport for the New England region, serves a wide geographical area including parts of Rhode Island, New Hampshire and Maine. Only a third of air passenger trips originate in the five "core cities" (Boston, Brookline, Cambridge, Somerville, and Chelsea), while 46 percent originate in 152 surrounding cities and towns, and fully 21 percent originate still farther away.

TABLE ES-1. CONDITIONS NECESSARY FOR SUCCESSFUL AIRPORT SHARED-TAXI PROGRAMS

<u>Condition</u>	<u>Reason</u>
1. Trip Density: Many person-trips ¹ per day per square mile of destination zone	Minimizes detours and pre-trip delays
2. Long line-haul travel time, unless density is exceptionally high	Maximizes per-passenger cost savings
3. Taxi industry support for the program	Needed for customer service

¹ Total person-trips (all modes of transportation)

TABLE ES-2. TAXICAB MODE SHARE AT LAGUARDIA AIRPORT (1978)¹

Trip Purpose and Residency of Traveler

	Business <u>All</u>	All <u>Non-res.</u>	Business <u>Non-res.</u>	All <u>All</u>
Trip Origin	74.2	69.1	74.3	68.2
Below 60th Street	74.2	68.8	74.1	67.5
All Manhattan	49.1	52.4	62.1	40.9
Metro Area				

¹Source: Port Authority Airports: Origin by Mode, 1972 and 1978.

LaGuardia, on the other hand, is one of metropolitan New York's three airports; it ranked second during 1974-83, serving less than a third of the city's air passengers. A 1978 survey of enplaning passengers showed that only 10 percent began their journeys more than 50 miles from Manhattan. Using the remaining 90 percent as a base for other calculations, 49.7 percent originated in Manhattan, with most of these (37.5%) in lower or midtown Manhattan (defined as Manhattan south of 60th Street). These data show that LaGuardia draws virtually all its passengers from a small, densely developed area.

O'Hare is one of Chicago's two airports, but the other, Midway Airport, has not carried more than six percent of Chicago's total in any year since 1962, when O'Hare became the dominant airport. However, Midway does draw a disproportionate share of travelers to and from the downtown. Like LaGuardia, O'Hare serves the central business district of a major commercial center, but like Logan, O'Hare also serves a wider region. A 1977 survey of passengers enplaning at O'Hare showed that 5 percent of ground person trips to O'Hare originated in the central business district (CBD), 34 percent outside the CBD but within the city limits, 55 percent in the suburbs, and 6 percent farther away.

At any airport, the taxicab's mode share depends largely on which part of the airport's service area is examined. Since the taxicab mode share is greatest downtown, an airport which serves many downtown trips is likely to show a larger taxicab mode share overall. For example, as shown in Table ES-3, the taxicab mode share for travel to LaGuardia is extremely high (67.5%) in Manhattan, but only 14.6 percent in the rest of the New York metropolitan area (delineated along county lines approximating a 50-mile radius from Manhattan). But Manhattan's dominance gives LaGuardia a 40.9 percent taxicab mode share for the metropolitan area as a whole, which is very high compared to other U.S. airports.

Assuming that the mode split of enplaning passengers is not radically different from that of deplaning passengers, Table ES-4 shows that mode choice at O'Hare, too, depends on the passenger's

TABLE ES-3. LAGUARDIA MODE SPLIT BY TRIP ORIGIN (1978)¹

	<u>Taxi</u>	<u>Auto</u>	<u>Limo</u>	<u>Bus</u>	<u>Rental</u>	<u>Air²</u>	<u>Total</u>
Below 60th Street	68.2	10.7	9.0	8.7	3.3	0.2	100.1
All Manhattan	67.5	12.4	8.3	8.9	2.8	0.14	100.0
Metro Area	40.9	38.6	10.6	5.4	4.4	0.07	100.0
All	37.8	35.7	10.1	5.2	4.2	6.8	99.8

¹Port Authority Airports: Origin by Mode, 1972 and 1978, p. L 1 (1978).

²Includes helicopter passengers and air transfers.

TABLE ES-4. O'HARE MODE SPLIT BY TRIP ORIGIN (1977)¹

	<u>Auto</u>	<u>Taxi</u>	<u>Bus²</u>	<u>Rental</u>	<u>Limo³</u>	<u>Other</u>	<u>Total</u>
CBD	23.3	33.9	32.2	4.5	2.9	3.3	100.1
City/Not CBD	51.2	19.8	12.9	3.7	7.5	4.8	99.9
Suburbs	75.8	4.5	3.3	5.2	9.9	1.3	100.0
Elsewhere	50.8	0.3	22.4	15.5	7.6	3.5	100.1
Composite	63.3	10.9	9.2	5.3	8.6	2.7	100.0

¹From CATS Planning Working Paper #83-7, Table 4. Excludes air transfers.

²Fixed-route services (includes Chicago Transit Authority).

³Door-to-door services (includes suburban limos and hotel courtesy cars).

destination. The private auto predominates for all destinations except the CBD, where the taxicab ranks first. Taxicabs carry about a third of CBD-bound passengers, about a fifth of passengers bound for points within the city limits but outside the CBD, and about one in twenty suburban passengers. But since the CBD draws such a small share of O'Hare passengers, the composite taxicab mode share at O'Hare is only 10.9 percent.

In Boston (see Table ES-5), taxis carry a large fraction (45%) of the passengers from the core cities, but only a small fraction (7.9%) from the 152 surrounding cities and towns, and a still smaller fraction (4.0%) from more distant points. As a result, Logan's composite taxicab mode share is 19.7 percent.

Finally, Table ES-6 displays the distribution of trip origins of taxi passengers arriving at O'Hare Airport. To the extent that these reflect the destinations of passengers entering taxicabs at O'Hare, they are of critical importance to taxi drivers. Table ES-6 also indicates that 15.5 percent of taxi passengers had origins in the CBD; this figure will be used later to estimate the mode share of O'Hare's shared-ride taxi program.

The Experience of Three Cities

Table ES-7 summarizes the design and impacts of the airport shared-ride taxi programs in New York, Chicago, and Boston. These programs are briefly described in the sections which follow.

New York's Share-A-Cab service, initiated in July, 1979, carries passengers from LaGuardia Airport to lower and midtown Manhattan, and upper Manhattan below 96th Street, a total land area of 14 square miles. Fares (as of 1984) are \$6 and \$7, depending on the zone, of which one dollar goes to the service operator, Taxicab Dispatch Service, Inc. (TDS). TDS was founded and is funded by the Metropolitan Taxicab Board of Trade (MTBOT), a trade association representing the city's large fleet owners. Share-A-Cab operates daily except Saturday, and daily ridership

TABLE ES-5. LOGAN MODE SPLITS BY PURPOSE AND ORIGIN¹

	Transit	Limo	Taxi	Rental	Auto	Total Trips	Row Percent
All Trips	6.3	8.4	19.7	11.2	54.4	34,150	100.0
By Purpose:							
Business	5.5	7.8	23.0	15.1	48.5	19,275	56.5
Pleasure	5.9	8.7	14.5	4.8	66.1	11,025	32.3
Other	10.5	9.4	18.9	11.3	49.8	<u>3,850</u>	<u>11.3</u>
						34,150	100.0
By Origin:							
Core Cities ²	13.4	5.6	45.0	6.9	29.1	11,375	33.3
Other EMRPP ³	2.6	6.5	7.9	12.3	70.7	15,575	45.6
Other	1.8	14.9	4.0	17.2	62.0	<u>7,200</u>	<u>21.1</u>
						34,150	100.0

¹Source: Cambridge Systematics, Inc., **Logan Airport Master Plan Study: Ground Traffic and Transportation**, April 10, 1980, p. 13.

²Boston, Brookline, Cambridge, Somerville, and Chelsea.

³The 152 suburbs bounded roughly by the outer belt highway (I-495).

TABLE ES-6. ORIGINS OF TAXICAB TRIPS TO O'HARE (1977)¹

CBD	City/Not CBD	Suburbs	Elsewhere	Total
15.5	61.6	22.7	0.2	100.0

¹From CATS Planning Working Paper #83-7, Table 4.

TABLE ES-7. CHARACTERISTICS OF THREE AIRPORT SHARED-RIDE TAXI PROGRAMS

	<u>New York</u>	<u>Chicago</u>	<u>Boston</u>
Trips Served	From airport	Airport to CBD CBD to airport Within CBD	Airport to suburbs
Administering Agency	Taxi industry	Chicago Dept. of Consumer Services	Port Authority
Main Objective	Improve image and market share	Aid ailing taxi industry	Allow taxis to compete with limos
Taxi Participation required?	Yes	No	No
Best Sustained Daily Ridership	700 (6-11/82)	O'Hare--220 ¹ Midway--120	300 (1st half 1978)
Best Mode Split for Area Served	About 7%	O'Hare--16-22%	About 3% in larger service area
Second-Choice Mode of Users	No data	No data	42-60%--regular taxi 20-29%--automobile 19-27%--limo/transit
Subsidy/User	Zero in best year	No data	\$3.18 to \$4.68 ²
Successful?	Yes	Yes from airports	No
Reason For Success Or Failure	Cab shortage Focused trip ends Long line-haul Only 1 taxi queue	Focused trip ends Long line-haul	Oversupply of taxis Dispersed trip ends Downtown excluded Separate taxi queue Over-staffed program

¹Average of 12-month period from April 1982 through March 1983.

²Based on Port Authority estimate-see discussion.

averaged about 700 during its high 6-month period (June through November, 1982). Data limitations preclude a precise estimation of mode share, but 700 daily passengers is probably between 7 and 7.5 percent of all daily person trips to the Share-A-Cab service area on the days Share-A-Cab operates.

Share-A-Cab service is provided only at certain high-volume terminals. Riders are matched by a TDS dispatcher at the terminal, and matching is limited to passengers arriving at that terminal. Signs in the terminals direct prospective passengers to the TDS stand, located in most cases just a few steps from the regular taxi stand. Some travelers go directly to the Share-A-Cab stand; others are recruited from the regular stand by the TDS dispatcher. Since both stands are served by a single taxicab queue, all New York City taxicabs who pick up passengers at LaGuardia are likely to carry a Share-A-Cab trip occasionally.

The Share-A-Cab program was established with three objectives in mind: to increase the taxicab's share of the airport ground transportation market, to improve the industry's image in the eyes of the Port Authority and the public, and to use gasoline more efficiently. The industry's concerns about its image arose from the fact that there is frequently a shortage of taxicabs at New York City airports. This shortage results from a strong demand for taxicabs in Manhattan, and a tightly binding regulatory constraint on the total number of taxicab operating permits in the city.

Due to the shortage of taxicabs at the airports, and the profitability of other markets in the city, the MTBOT was not worried that Share-A-Cab would leave some drivers without passengers. The MTBOT correctly assumed a high service elasticity of demand for taxicab service in New York City; if the supply of taxi service in the city increased, so would consumption. Any drivers no longer needed at the airport would serve passengers who would otherwise not have been served.

Though generally successful, Share-A-Cab has experienced two problems. The first was solved in May 1980, when, in response to driver complaints, the voucher payment system originally used was replaced with a cash system. The second problem, which began in

1983, was a gradual dispersion of air passengers from the busiest terminals to the other terminals. For example, New York Air now shares with Eastern Airlines the market which Eastern's Air Shuttle formerly cornered. Share-A-Cab ridership at the Air Shuttle terminal fell, and since New York Air passenger volumes cannot support a Share-A-Cab stand, the program has suffered. At the main terminal, Eastern and Delta Airlines were near each other, and together they fed a successful stand. On June 19, 1983, as Delta inaugurated a new terminal, TDS opened a stand there while also staying open at Eastern. Both the new stand and the old one had to be closed due to insufficient volumes. (In 1984, Eastern was reopened at reduced hours.)

Faced with declining patronage, TDS cut service hours in order to contain costs. During the program's zenith in 1982, three Share-A-Cab stands each operated 82.5 hours per week. By June 1985, weekly service hours had been cut 66 percent from 247.5 to only 84 hours, split (unequally) among the three stands. Keeping Share-A-Cab as close as possible to a break-even operation is important to TDS because it is funded (through the MTBOT) by the owners of only 1700 (14%) of the city's 12,000 taxicabs. Unrecovered costs represent a subsidy to non-member competitors.

No user surveys have been conducted, so ridership can be discussed in aggregate terms only. Due to the airline changes discussed above, and the resulting reductions in service hours, average daily ridership gradually declined from its 1982 peak of 700 to below 200 in the first half of 1985. It later rose and leveled off at about 325 in the first quarter of 1986.

For two months in mid-1980, the MTBOT experimented with a shared-ride taxi service to all three airports from two downtown points, selected on the basis of a survey of Share-A-Cab users. Despite fairly substantial advertising of the service, successful matching rarely occurred. Average daily ridership was about four. Realizing that the service was not viable, the MTBOT promptly discontinued it.

Chicago's Super Saver Taxi program, inaugurated on December 7, 1981, at O'Hare International Airport's Terminal 3, and on

April 26, 1982, at O'Hare's Terminal 2 and at Midway Airport, carries passengers to a 2.8 square mile destination zone corresponding very closely to the Chicago CBD. The city Department of Consumer Services, which administers Super Saver, set fares at \$12 per person from O'Hare and \$8 from Midway--about 60 percent of exclusive ride fares. Each taxicab carries either two or three passengers. Daily ridership in September 1982 was 310 at O'Hare and 160 at Midway. The highest daily ridership figures sustained as an average for a six-month period were 220 at O'Hare and 120 at Midway.

Super Saver had its origins in December 1979, when, at the suggestion of Checker Cab Company, the city council passed an ordinance authorizing the Commissioner of Consumer Services to implement shared-ride services. In 1981, the metropolitan planning organization, known as CATS (Chicago Area Transportation Study) published a report which concluded that the taxi industry was ailing due to declining demand for service. The report suggested that shared-ride service might improve the industry's economic state, and that there was a demand for such service in the CBD and at O'Hare Airport. While the program adopted had three components, including a downtown-to-airport service and a within-downtown service, only the airport-to-downtown service discussed here met with any success.

Signs in the airport terminals direct riders to the Super Saver taxi stand, located just ahead of the regular cab line. Officially, service is offered only when Super Saver dispatchers are on duty--at Midway from 7 a.m. to 9 p.m. weekdays, and at O'Hare from 6 a.m. to 11 p.m. daily. In practice, the drivers usually recruit their own customers both within and outside of the official service hours. Service is not guaranteed; a driver will not carry a lone passenger at the reduced fare. However, a driver is not supposed to wait more than ten minutes for a third passenger, and the dispatchers seem to view enforcement of this rule as their prime function.

A key operational difference between the two airports is that at O'Hare, a driver must choose between Super Saver and regular service upon arrival at the taxi pool, while at Midway,

drivers do not make that choice until they are within two or three cabs of the head of the queue. Because Super Saver trips are much more lucrative than regular service in terms of fare-per-mile, mileage, and prospects for business near the dropoff location, drivers elected the Super Saver queue at O'Hare even though it was more than twice as long a wait as the queue for regular service. The system at Midway had the advantage of allocating taxicabs more efficiently to the two services and avoiding the extremely long waits experienced in the shared-ride queue at O'Hare.

Super Saver's 220 daily passengers from O'Hare is 8.2 percent of the 2,669 passengers estimated by the CATs to leave O'Hare by taxicab. Super Saver's mode share can be estimated very tentatively by combining that estimate with the not-directly-comparable data on enplaning passengers in Tables ES-4 and ES-6. Dividing 8.2 percent by 15.5 percent (the CBD's share of taxi passengers shown in Table ES-6), one concludes that Super Saver at O'Hare carried about 53 percent of those traveling by taxicab to the area it served. Multiplying that 53 percent by 33.9 percent (the taxi's share of CBD trips shown in Table ES-4), one arrives at the most important conclusion: that during the sample period, Super Saver at O'Hare carried about 18 percent of all travelers to the area it served.

The above estimates are sensitive to the asymmetry of travel to and from airports. While the taxi's share of CBD trips in Table ES-4 is probably similar for enplaning and deplaning passengers, the CBD's share of taxi passengers (Table ES-6) is probably not. The availability of taxicab service to enplaning passengers varies greatly according to their trip origins; it is highest for trips originating in the CBD. Service availability for deplaning passengers is less dependent on their destinations. Thus, the CBD's share of enplaning passengers is probably larger than its share of deplaning passengers. This means that both mode share estimates in the preceding paragraph are more likely to be too low than too high. One can be fairly confident that

Super Saver at O'Hare carried between 50 and 63 percent of those traveling by taxicab to the area it served and between 16 and 22 percent of all travelers to the area it served.

Boston's Share-A-Cab service, initiated on April 26, 1977, carries passengers from Logan International Airport to 138 cities and towns in eastern Massachusetts. Fare zones are drawn along municipal boundaries, and fares are set at about one-half the exclusive-ride fare to the center of the zone. The Massachusetts Port Authority (Massport) is responsible for service design and operations. In its best six-month period, Share-A-Cab carried 300 daily person trips, roughly 3 percent of daily person trips by all modes from Logan to points in the Share-A-Cab service area.

Prospective passengers are directed by signs to the place in each terminal where they obtain information and request service. When the program began, this was a staffed booth with a telephone, but later it was a self-service courtesy phone. Use of telecommunications allows the Share-A-Cab dispatcher to group passengers deplaning at different terminals into the same taxicab.

Share-A-Cab's chief design flaw is that its service area excludes the whole city of Boston, where the trip density, and hence the potential for quick and convenient matches, would be highest. The matching problem was exacerbated by the fact that the service area extended far beyond the Boston urbanized area, covering about 2000 square miles of suburban and rural territory.

Another critical error was that 23 full-time personnel were assigned to administer Share-A-Cab and were instructed to charge all their time to the program. Had these individuals been given other work to perform during slow periods, administrative inefficiency and the resulting service cutbacks might have been avoided.

The indirect cause of Share-A-Cab's creation was Massport's concern with traffic congestion in and around the airport. To address the problem, Massport began actively to encourage the development of limousine services connecting the airport with key Boston-area destinations, most of them in the inner suburbs. The

taxi operators became alarmed by the rapid growth of limousine services, especially since most of the new services offered door-to-door service. This led to a week-long airport taxi strike (which eventually spread throughout the city), designed to force Massport to ban the limousines. Suddenly faced with a ground transportation crisis, Massport decided to negotiate with the taxi industry. Still unwilling to reverse its policy toward limousines, Massport agreed instead to develop and administer a shared-ride taxi service, thus allowing taxis to compete more effectively with limousines.

The compromise worked out between the taxi industry, Massport, and the Massachusetts Executive Office of Transportation and Construction called for the following:

- o At the industry's insistence, Share-A-Cab would not carry passengers to the city of Boston; both downtown Boston and the city's residential areas were excluded. The taxicab operators believed that Share-A-Cab service to Boston would draw the vast majority of its ridership from among regular taxicab customers, resulting in revenue losses for the taxi industry as a whole.
- o Share-A-Cab service would be offered in only one direction: from the airport to 21 suburbs (land area: 287 square miles) which together accounted for one quarter of all passenger destinations. Service to the airport was proposed but not implemented, apparently because of an administrative problem: such a service would have to involve a multitude of suburban taxicab companies.
- o Massport would organize and pay for service design and administration, dispatching, and advertising.
- o In exchange for Massport's acceptance of Share-A-Cab costs, the industry agreed to accept (and pass on to passengers entering taxicabs at the airport) a larger share of Massport's costs attributable to taxicab service as a whole. Thus, the administration fee paid to

Massport for admission to the taxicab pool (queue) was increased from \$.10 to \$.50, and Massport's annual taxi-related deficit increased just \$900 (0.3%) to \$287,150. (Greenbaum, p. 138).

Within the first few months, two changes were made to Share-A-Cab service to carry out other terms of the original compromise. On July 19, 1977, despite Massport's misgivings, the service area was enlarged from 21 communities to 138, in order to accommodate the industry's desire to serve the communities where taxis had low market penetration. Beginning on September 19, 1977, despite the industry's reluctance, Share-A-Cab drivers were required to carry a lone passenger at the shared-ride fare if no match had been made within 15 minutes. Though aware that average revenue per taxicab trip would suffer in the near term, Massport staff nevertheless felt that in the long run, the increased service reliability afforded by the 15-minute wait-time guarantee would build ridership, thus increasing taxicab load factors and per-trip revenues.

Although the increase in the taxicab pool fee for all taxicabs nearly offset Share-A-Cab expenses, Massport preferred to evaluate the program's cost-effectiveness separately from regular taxi service. Multiplying the \$.50 per-cab fee by the number of Share-A-Cabs dispatched, subtracting only those paltry revenues from the program's enormous administrative expenses, and dividing the resulting net cost by the number of Share-A-Cab riders, Massport calculated per-passenger subsidies as high as \$4.68. No subsidy data for other ground transportation modes were available for comparison.

Since 1978, Share-A-Cab service has been cut back to reduce administration costs. In November, 1978, by curtailing operating hours at certain booths, the staff was reduced from 23 to 13, without any major service or ridership impacts. In November, 1979, a staff cut from 13 to 3 was coupled with a service change--Share-A-Cab taxis would no longer pick up passengers at

all terminals. Instead, passengers deplaning at terminals other than D would ride a free shuttle van to Share-A-Cab's control center in Terminal D.

In August, 1981, in a final cost-cutting measure, Share-A-Cab was all but destroyed. Service hours were cut by half--the 7:30 a.m. to 3:30 p.m. shift was dropped; only the 3:30 to 11:30 p.m. shift was retained. The 15-minute service guarantee was eliminated, so that passengers no longer had any assurance of traveling at the shared-ride fare. Also, the shuttle van was eliminated, and passengers not deplaning at Terminal D had to travel at their own expense (by bus or taxicab) to the control center.

Ridership responded fairly predictably to service changes. Addition of 117 communities in 1977 produced only a slight increase in ridership; later surveys showed that most users went to the original 21 cities and towns. The 15-minute guarantee boosted patronage by at least 60 percent; average daily ridership topped 300 during each of the first two quarters of 1978. Ridership figures for that season in 1979-1982 suggest that institution of the shuttle van in November 1979 cost Share-A-Cab only about one-eighth of its riders, while the cutback in service hours in August 1981, accompanied by the withdrawal of the shuttle van, drove away nearly two-thirds of the remaining users. These two losses, combined with a 10 percent drop in patronage between 1978 and 1979, and an unexplained 30 percent drop in mid-1980, reduced average daily ridership to about 50 in 1982, an aggregate loss of over 80 percent for the four-year period. Shared-ride service is not viable at this low volume; wait-times and cancellation rates have increased geometrically, and ridership has continued to decline.*

Conclusions on diversions from other modes are based on two surveys: one conducted in July 1977, when only the 21 inner suburbs were included in the service area, and one the following

*As of mid-1986, Massport was working on a possible restructuring of Share-A-Cab. Among the options being considered were the inclusion of downtown Boston and the exclusion of the more remote suburbs.

winter, when 138 communities were included. As shown in Table ES-8, the results are very different, reflecting the fact that regular taxicabs carry a significant share of airport trips from the inner suburbs, while private and rented automobiles dominate in the farther-away communities. The first row of Table ES-8 indicates that the industry correctly perceived its self-interest when it pressed for a wide service area. On the other hand, the airport's primary interest--reducing congestion by drawing riders from low-occupancy modes (including exclusive-ride taxicabs) into shared-ride cabs--was in the smaller service area, where only 18.8 percent of Share-A-Cab uses were drawn from the highest-occupancy modes, MBTA rapid transit and bus/limo. In the larger service area, the comparable figure was 27.2 percent.

Conclusion

The shared-ride taxi services from New York's Laguardia and Chicago's O'Hare Airports proved much more successful than the service at Boston's Logan Airport. One apparent explanation for this difference is that the LaGuardia and O'Hare services went only downtown, while the Logan service went only the suburbs. The key difference between the downtown and the suburbs, trip density, played a critical role in the performance of the three services.

Table ES-9 describes the shared-ride taxi programs at LaGuardia, O'Hare and Logan Airports in terms of the three "necessary conditions for successful shared-taxi programs" copied from Table ES-1. The second row of Table ES-9 allows for the fact that Boston's Share-A-Cab service pooled passengers from all terminals, while the other two programs matched riders at each cab stand. Table ES-9 shows that LaGuardia's and O'Hare's programs passed all tests, while Logan's program failed the density test. These observations substantially account for the differences in success.

Reviewing the numbers in Table ES-9, and the experience of the three shared-taxi programs, one can draw some tentative numerical conclusions:

TABLE ES-8. SECOND-CHOICE MODE OF SHARE-A-CAB USERS

Mode	Summer 1977 (21 communities)	(138 communities)
Regular Taxi	59.7%	41.7%
Private Auto (Picked Up)	12.4	15.5
Private Auto (Parked)	3.5	6.2
Rental Car	4.1	7.0
MBTA Rapid Transit	10.5	12.3
Bus/Limo	8.3	14.9
Other	<u>1.5</u>	<u>2.4</u>
TOTAL	100.0%	100.0%

TABLE ES-9. NECESSARY CONDITIONS REVISITED

Element	LaGuardia	O'Hare	Logan
Many person-trips per day per square mile of destination zone	YES (680 ¹)	YES (430 ¹)	NO (5 ¹)
Many person-trips per day per square mile of destination zone	YES (200+) ²	YES (100+) ²	NO (5 ¹)
Long line-haul travel time	YES (20-40 min)	YES (20-40 min)	YES (15-90 min)
Taxi industry support	YES	YES	YES

¹By all modes of transportation from the entire airport

²By all modes of transportation from each shared-ride taxi stand

- 1) Airport shared-ride taxi programs must serve destination zones with at least 100 person-trips per day (by all modes of transportation) per square mile of the zone. If a high-density zone is small enough (in terms of within-zone travel time) that any two passengers going to that zone can share a cab without incurring excessive distribution time, it is a viable destination zone. If it is too large, it should be divided into smaller zones, and those without sufficient trip density should be dropped.
- 2) If one plans to match passengers from all terminals, then the density test may be applied to the airport as a whole. But if one wishes to avoid the staffing costs and complexity of inter-terminal matching, the density test must be applied to each dispatch point being served.
- 3) Average travel time to each zone should be at least 15 minutes, unless the trip density to that zone is extremely high, in which case the travel time may be shorter.

Besides pointing to the rudimentary pre-requisite for a successful airport shared-ride taxi program--a high volume of passengers traveling a considerable distance to a focused set of destinations--the experience of the three cities suggests some institutional and operational conclusions:

- 1) **The support of the taxicab industry is crucial.** This has three more specific implications:
 - (a) A shortage of taxicab service is helpful. From an institutional point of view, shared-ride taxi programs are at a disadvantage where there is an oversupply of taxicabs. In such cases, taxi operators see the program as a threat--they fear that their customers will pool their trips in

fewer cabs, new customers will not materialize to fill the void, and total industry revenues will decline.

(b) The shared-ride service should be marketed to users of all modes, not just taxi users. Taxi industry support depends on attracting new customers rather than simply reshuffling existing ones.

(c) The taxi industry should be involved in planning and day-to-day operations. The most successful program (LaGuardia) was the only one administered by the taxi industry. However, care must be taken to ensure that the public objectives of the program are not abandoned.

- 2) **Disincentives for automobile use contribute to the program's success.** Disincentives such as traffic congestion and high parking costs tend to increase the use of shared-ride taxi by discouraging the park-and-fly and "kiss-ride" modes. However, these conditions are usually present whenever the required density exists.
- 3) **Shared-ride taxi programs should be initiated in the most promising destination zone(s) first.** Initial destination zones should be those having the highest product of density and line-haul travel time. This strategy allows one to test the market and iron out any problems. It also maximizes the chance of a successful start, which is important for taxi industry acceptance and favorable publicity.
- 4) **Pooling passengers from several terminals is difficult.** Unless one bears the expense of a shared-ride taxi agent in each terminal, one must rely on signs and courtesy phones to promote the service. Given the very high visibility of regular taxi service at airports, passengers are not likely to elect a shared-ride service represented only by a red telephone.

- 5) **The physical layout of the dispatch area must be considered.** Addition of a shared-ride service can complicate curbside operations; the space for queuing and loading both regular and shared-ride taxicabs must be carefully planned.
- 6) **A completely separate taxi queue for shared-ride is not advisable.** Taxi drivers complain when the shared-ride queue is much longer than the regular queue. From an economic perspective, such complaints are not really legitimate, since drivers themselves set the queue lengths in proportion to the expected payoffs of the two types of services. Nevertheless, such complaints can still be potent in a political system. Furthermore, driver frustration can lead to discourteous service and public dissatisfaction with the program.

One disadvantage of the single queue used at LaGuardia is that some drivers might resent being "forced" to provide shared-ride service. While this is perhaps an equal specious complaint in an environment which outlaws all forms of service refusal, it is wise to sidestep such pitfalls whenever it is easy to do so. The system used at Midway Airport seems very clever; drivers there form a single queue, but as they near the head of the line, they choose between the Share-A-Cab loading area and the regular stand.

Future Developments

Airline deregulation and the accompanying fare reductions are likely to increase air travel, while the development of hub-and-spoke route networks may cause travel to become increasingly concentrated at the busier airports. Given these trends, shared-ride taxi programs may well be appropriate for more airports in the future.

1. SHARE-A-CAB TAXI SERVICE - NEW YORK'S LAGUARDIA AIRPORT

1.1 INTRODUCTION

This chapter describes a shared-ride taxi program in New York City known as Share-A-Cab. The program, operational since July of 1979, was developed and is administered by the Metropolitan Taxicab Board of Trade (MTBOT), a local trade association which represents the large taxicab fleet operators in New York City. Share-A-Cab provides door-to-door service from LaGuardia Airport to three zones in Manhattan south of 96th St. (see Figure 1-1) between the hours of 7:30 a.m. and 10:30 p.m., Monday through Friday, and from 3:00 p.m. to 10:30 p.m. on Sundays. Service from Manhattan to LaGuardia is not provided.

The MTBOT began the service in order to:

- o reduce the total amount of fuel used by fleet taxis in New York City,
- o establish a better image with the Port Authority by providing better taxi service at LaGuardia, and
- o capture a larger share of the ground transportation market.

In addition, MTBOT persuaded the Federal government to return (beginning in 1983) \$.04 of the \$.09 per gallon Federal gasoline tax to the region's taxicab operators. A Federal law allows taxicab operators a rebate of \$.04 of the federal gasoline tax if the city in which the taxicab operator is licensed has a viable shared-ride taxi service and the operator does not prohibit his drivers from providing shared-ride services. The MTBOT received a ruling stating that Share-A-Cab qualifies as a shared-ride taxi service and that all operators not prohibiting their drivers from participating qualify for the \$.04/gallon rebate.

Data for this case study of the Share-A-Cab service were obtained from sources contacted during site visits and interviews.

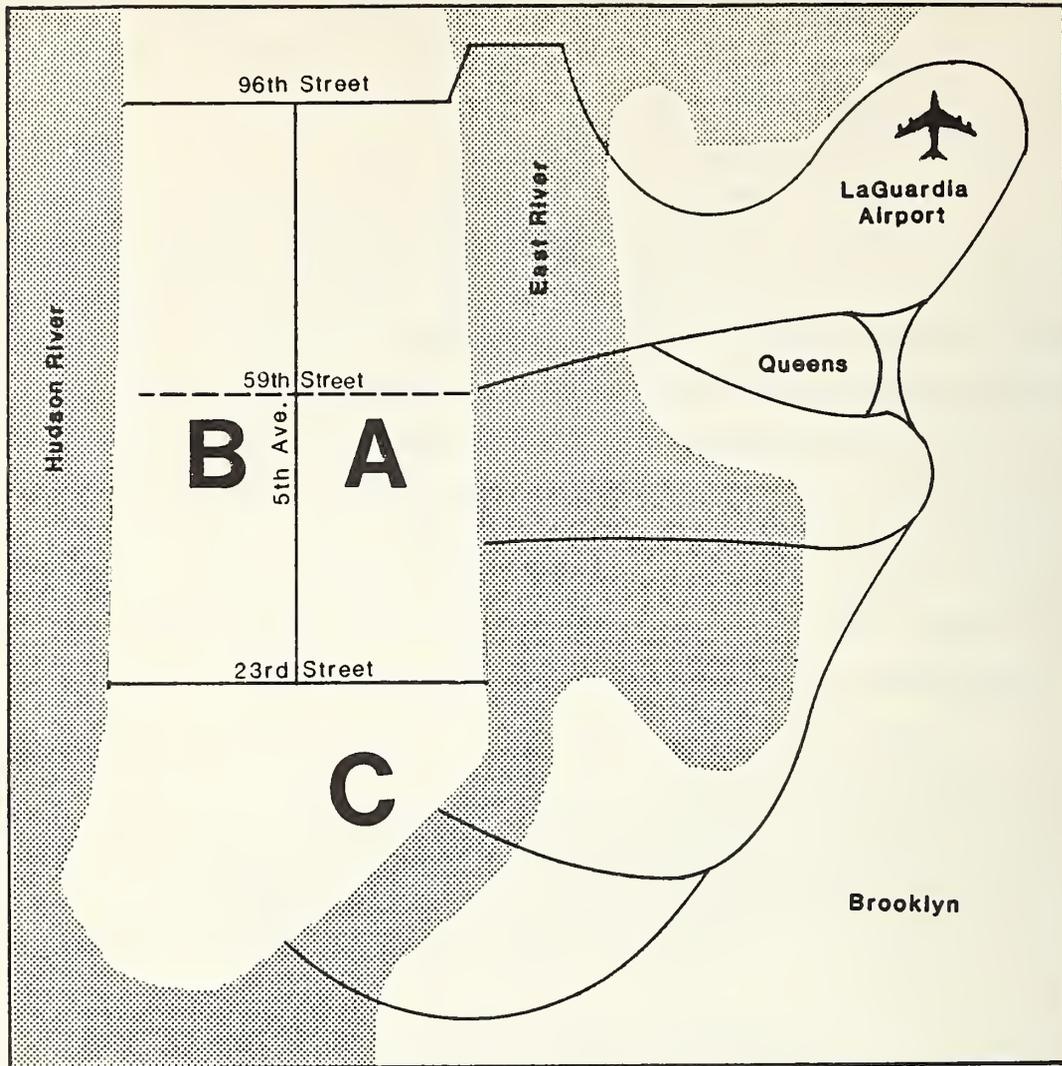


FIGURE 1-1. SHARE-A-CAB DESTINATION ZONES
EFFECTIVE DATE: JULY 1979

The chapter is organized as follows:

- o Section 1.2 describes the background and development of the program.
- o Section 1.3 describes the operation of the program.
- o Section 1.4 provides a summary of basic performance and impact data associated with the program.
- o Section 1.5 provides some conclusions.
- o Section 1.6 discusses attempts to expand the service.

1.2 BACKGROUND

The MTBOT is the operating agency for the Share-A-Cab program. This agency works as a trade association and represents the large fleet owners of the city. The MTBOT forecast that many other taxi companies would want to contribute to the Share-A-Cab system, and created a corporation known as the Taxicab Dispatch Service so other cab companies could aid in the financial support of the program. Although other owners have not participated financially, Taxicab Dispatch Service is the actual operator of Share-A-Cab. However, since it is totally supported by and acts only as an operating arm of MTBOT, this report will refer to MTBOT as the operator/administrator of Share-A-Cab.

Fleet owners constitute about 15 percent of the 11,780 taxicab medallions in New York City. Individual owner-operators possess approximately 4,900 medallions, and the remaining 5,000 are used by what has been termed "mini-fleets," which consist of two or more cabs. Some "mini-fleet" owners operate their own cabs, while others lease all the taxicabs and medallions to drivers. Within the large fleets, those represented by MTBOT, approximately one-half of the drivers are paid on a commission basis, while the remainder of the drivers lease the taxicab and medallion from the large fleet owner.

As stated previously, MTBOT set up the Share-A-Cab program with the following objectives in mind:

- o Reduce the amount of fuel consumed by fleet taxicabs in New York City.

- o Improve taxicab operators' image with the Port Authority.
- o Capture a larger share of the ground transportation market.

The following sections will provide more in-depth descriptions of these objectives.

1.2.1 Reduce Energy Consumption

At the time that this program was considered by MTBOT (1979), gas lines and rapidly increasing fuel prices were common. Members of MTBOT voiced their concerns over the gas lines and price increases and were hoping to implement the Share-A-Cab program to reduce fuel consumption and therefore reduce their operating costs.

1.2.2 Improve Taxicab Operators' Image

Although it is easy for a passenger to hail a taxicab at most airports in the United States, this is not always the case at LaGuardia. The Port Authority of New York and New Jersey has had problems encouraging enough taxicab operators to provide service to the airport, especially on Friday and Sunday nights when passenger arrivals at LaGuardia are very heavy due to high amounts of business and pleasure travel. This has been attributed to two factors:

1. Taxicab operators prefer to work the theater district on Friday nights, where trips are shorter, easier to come by, and tips tend to be higher; and
2. Many of the owner-operators prefer to remain home on Sunday evenings with their families.

The result of the situation has been a total lack of taxicabs at the airport at certain times. Although the situation was not viewed as critical by the Port Authority, it damaged the taxicab industry's reputation with both the Port Authority and with the public.

1.2.3 Provide a Service that Captures a Larger Share of the Ground Transportation Market

LaGuardia Airport is used heavily by business travelers, primarily due to the large number of shuttle flights arriving from Boston and Washington. High volumes of business travelers arrive at LaGuardia and desire quick, cost-effective transportation to Manhattan, specifically the mid-town and financial districts. Since the supply of taxicabs at LaGuardia can sometimes be low, shared-riding was considered likely to succeed, since passengers would be provided service faster by sharing the ride. Adding to this theory was the fact that no other competitive form of transportation existed or was expected to be initiated at the airport. Commercial limousine services do not offer door-to-door service, private limousines cost \$25.00 or more per hour, and use of the transit system would involve information needs, several transfers, a great amount of time, and often difficulties with baggage handling.

Complaints often voiced by taxicab drivers in other cities are that instituting shared-ride services reduces taxicab turnover at the airport, and a few drivers take many passengers, leaving some drivers with no fares. But this was not a concern at LaGuardia, due to the shortage of taxicabs there.

Since the stimulus for shared-riding was present, MTBOT initiated a series of meetings with the Port Authority and the Taxi and Limousine Commission (the local regulatory body) to determine the location of the matching area and to set the hours of operation. The MTBOT also conducted a small survey to aid in their decisions. Both the Taxi and Limousine Commission and the Port Authority viewed the system favorably, and easily came to agreement on a service area, fare structure, operating policy, and an area to set up operations at LaGuardia.

1.3 SYSTEM OPERATIONS

Share-A-Cab began in July of 1979, with a single matching area at the Eastern Airlines Shuttle Terminal. During the first

16 months of operation, Share-A-Cab operated in the following fashion.

Passengers seeking any kind of taxi service would gather at the taxi dispatching area. Once here, they would notify the taxicab dispatcher, an employee of the Port Authority, of their intended destinations. Alongside the Port Authority dispatcher was a separate facility where the Share-A-Cab service was contained (see Figure 1-2). A separate dispatcher (hired and paid by MTBOT) located in this area would then talk to travelers awaiting a taxi in the exclusive ride area, explain the financial savings involved with the program, and inquire as to whether anyone desired to share-a-ride. Once a group of three to four passengers was formed, the Port Authority dispatcher would forward a taxicab out of the queue to the Share-A-Cab area. The MTBOT dispatcher decides whether three or four passengers will ride together depending on the demand for the service. Taxi queues at LaGuardia are formed near each dispatching area. Each of these queues has one line. Therefore, if a shared-ride has been formed, then the taxicab next in line must take the shared-ride.

Meanwhile the Share-A-Cab dispatcher would sell prenumbered, color-coded vouchers of either \$5 or \$6 to the passengers, depending upon the zone to which they desired to travel. Zones A and B ran as far north as 59th Street split by 5th Avenue, and went as far south as 23rd street. Zone C covered the area south of 23rd Street. Fares for Zones B and C were \$6.00/passenger, and for Zone A \$5.00/passenger (see Figure 1-3). Passengers would use this voucher as cash and present it to the driver once they reached their final destination. Drivers could exchange these vouchers for cash with \$.50 of the value retained by MTBOT to support the program (see Appendix B, p.1). The voucher system was employed to serve the receipt needs of both the taxicab operator and passenger by being a two section coupon--one-half retained by each (see Figure 1-4). Tips were not included in the price. According to informal discussions with taxicab drivers, tips per passenger for Share-A-Cab average \$1.00 to \$2.00.

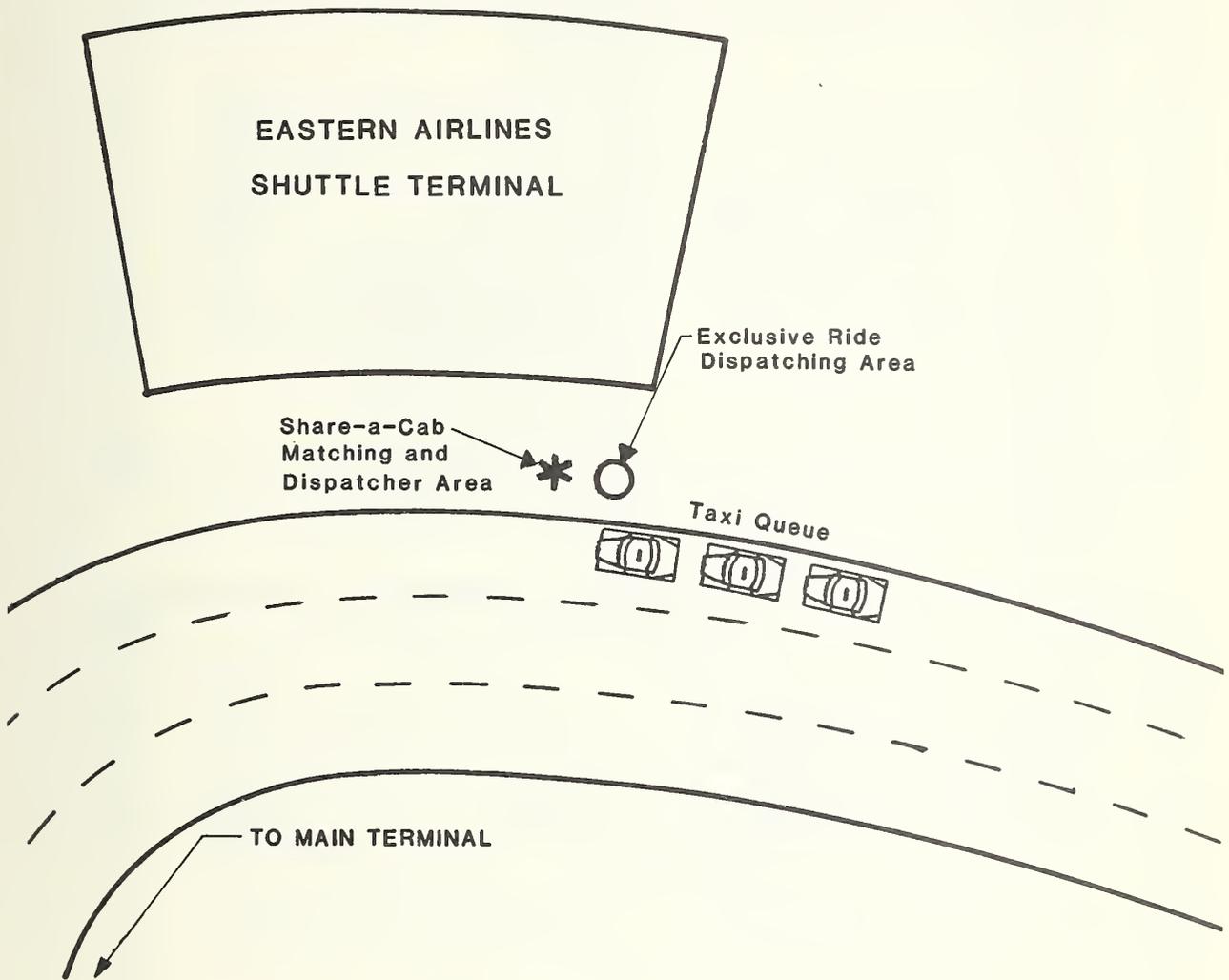


FIGURE 1-2. SHARE-A-CAB OPERATIONS
AT EASTERN AIRLINES SHUTTLE
TERMINAL

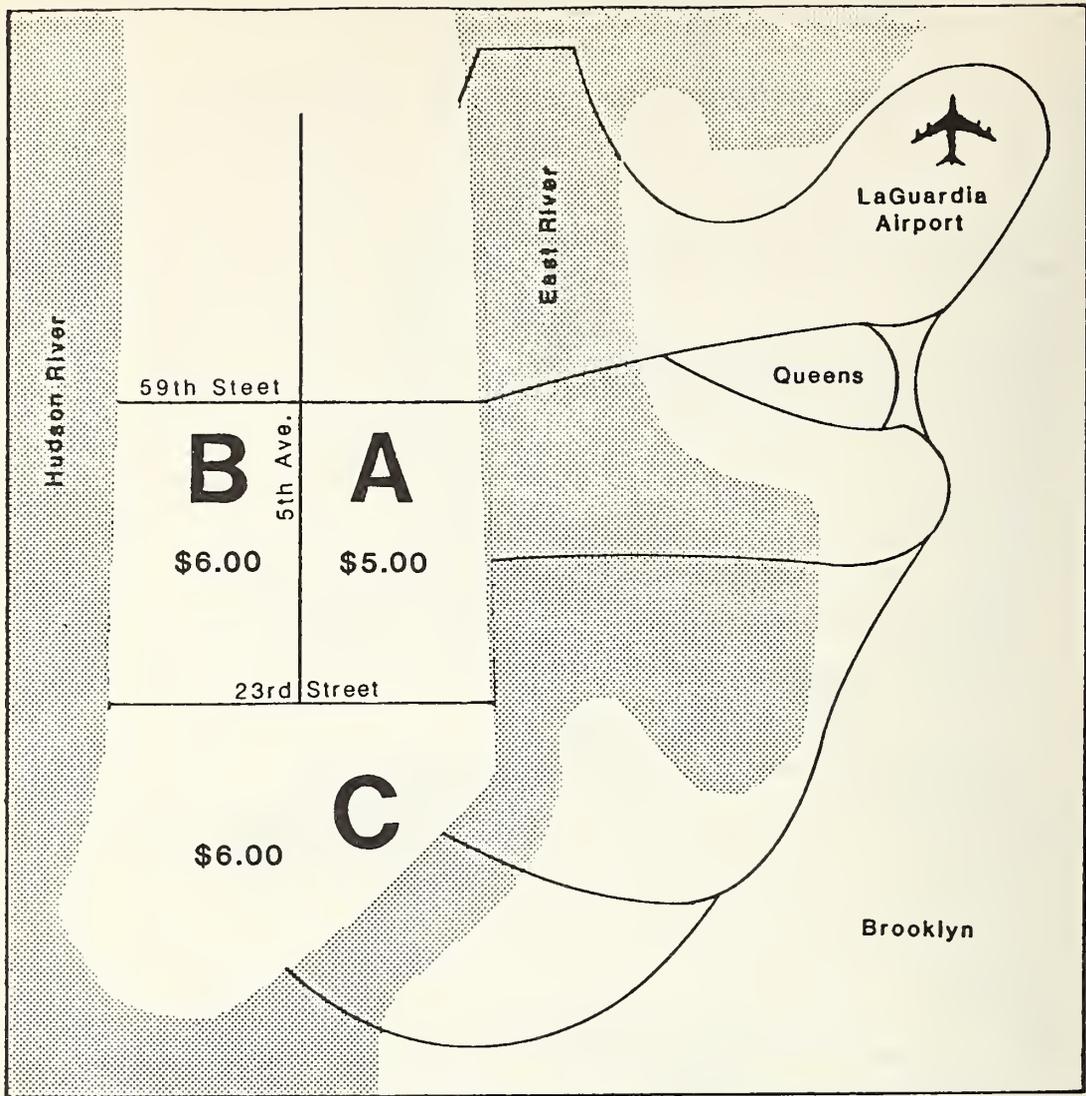


FIGURE 1-3. SHARE-A-CAB DESTINATION ZONES
 JULY 1979 - OCTOBER 1980
 FARES APPLICABLE UNTIL MAY 1980

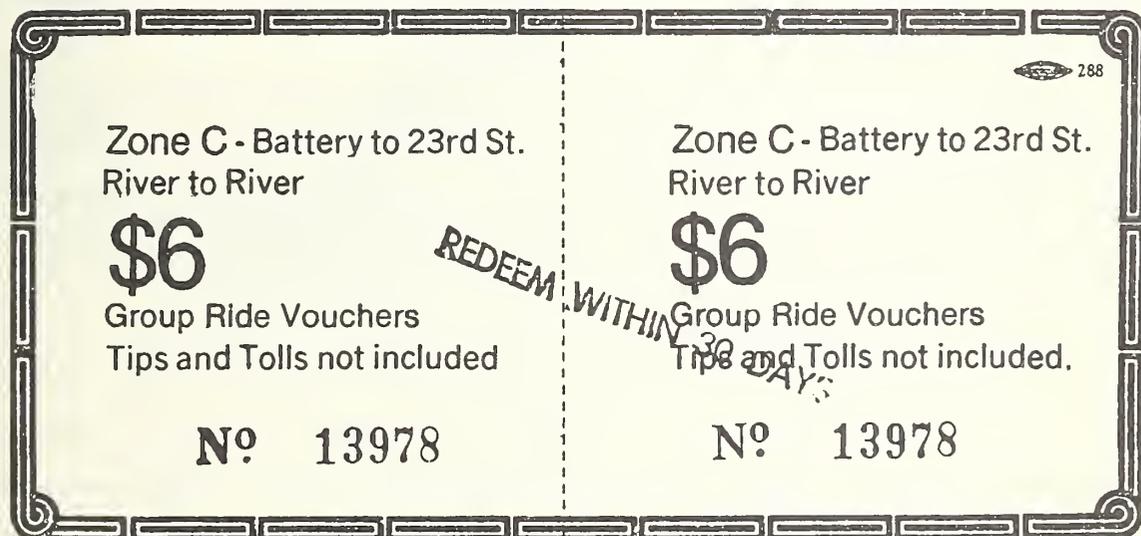
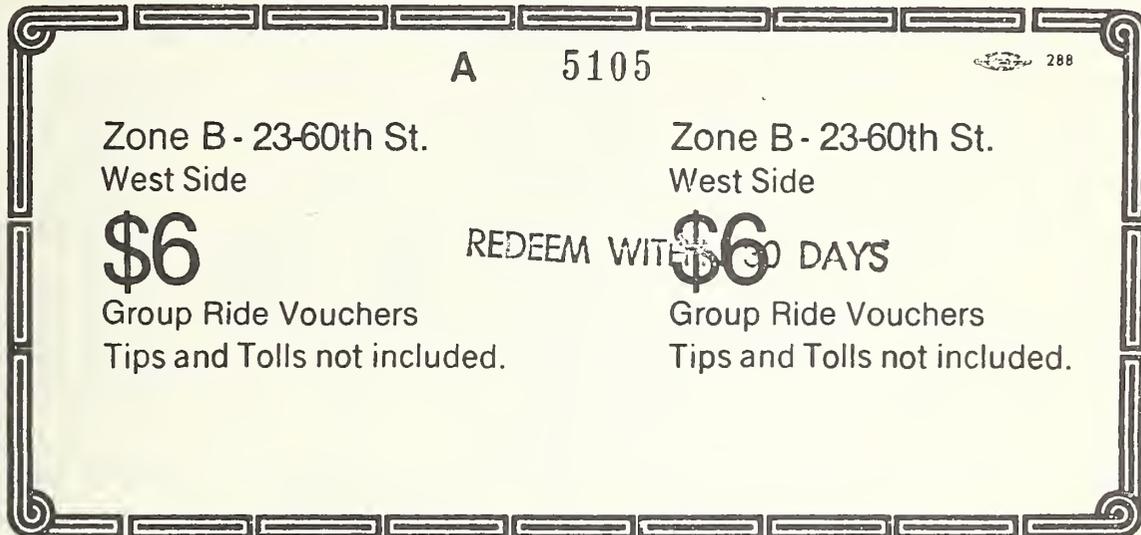
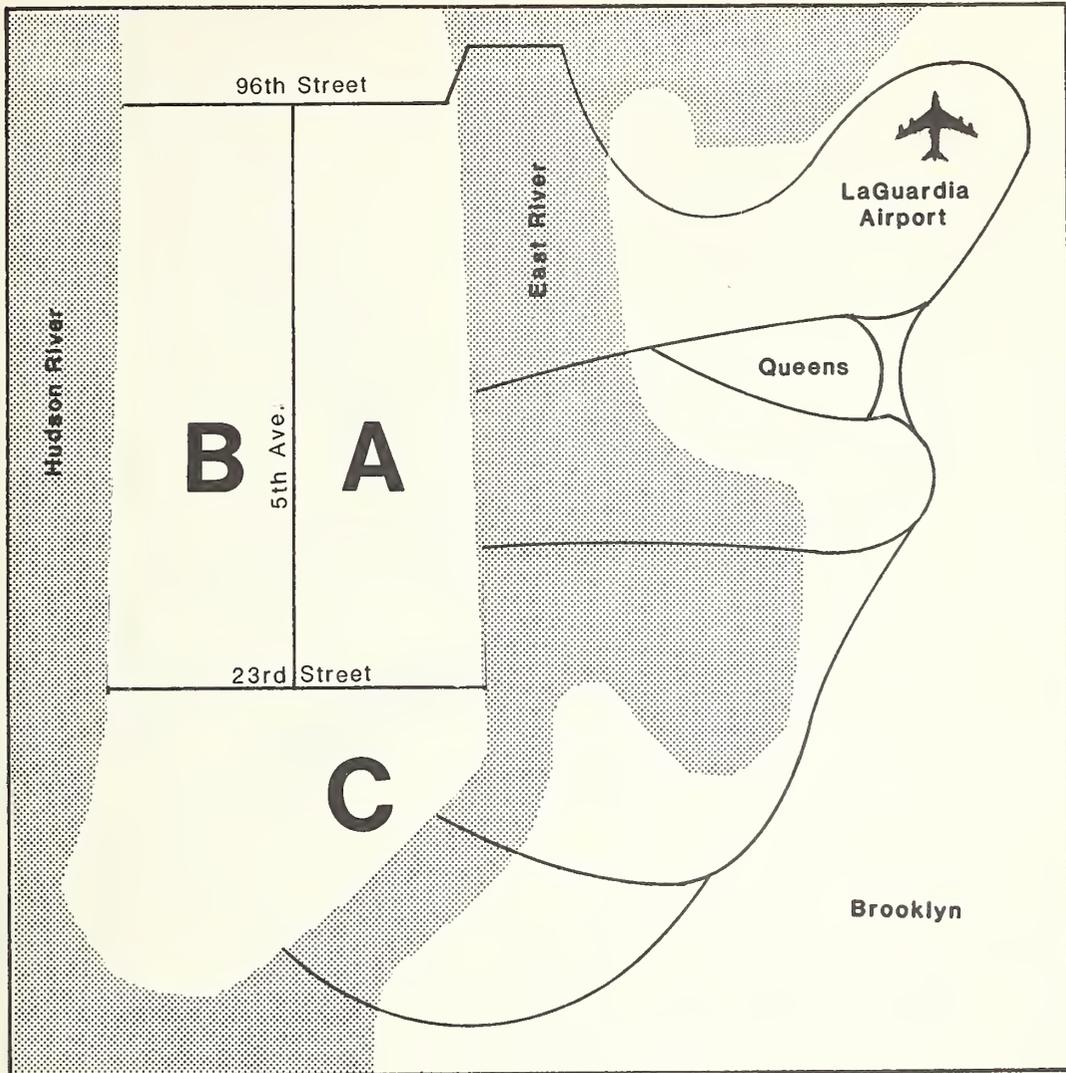


FIGURE 1-4. SHARE-A-CAB VOUCHERS
IN USE FROM JULY 1979
UNTIL MAY 1980

The program did not work well at the beginning; drivers disliked the voucher system, and ridership levels were very low. For the period July 1979 through April 1980, average monthly ridership was 4,666.¹ Although drivers could exchange the vouchers for cash at many points in the city, including MTBOT headquarters, MTBOT taxi dispatchers and large fleet taxicab companies, they disliked the time and effort required for the voucher exchange. In May 1980, MTBOT instituted a cash payment policy along with a fare increase (see Appendix B, p.2). Fares for Zone A went from \$5.00 per passenger to \$6.00, and for Zones B and C, the fare per passenger rose from \$6.00 to \$7.00. Also, instead of \$.50 of the fare going to the support of the service, \$1.00 of the fare was dedicated. The taxi dispatcher is paid \$1.00 by each passenger at the airport. The remainder is passed directly to the driver. Operators were pleased with the new fare procedures, since the new payment method eliminated the need to cash vouchers and the fare increase resulted in a \$.50 per passenger increase in income for the driver. No effects were noted on tipping.

At the end of October 1980, an additional matching area was opened at American Airlines in the main terminal. Also, the upper boundary of destination Zones A and B was moved from 59th street to 96th street (see Figure 1-5). Ridership levels were not satisfactory at American, and MTBOT decided to move the matching area from American to United Airlines in January 1981. At the same time, one other matching area was opened at Eastern Airlines at the main terminal. These changes resulted in a substantial increase in total ridership. MTBOT staff was unable to explain the increase or the reason for the low levels of ridership experienced at American except that American is located at the far end of the terminal, while Eastern and United are more centrally located in relation to the entire airport layout (see Figure 1-6). This may have allowed the program greater visibility and have led to higher ridership.

¹Taxi Dispatch Service, Fact Sheet, May 31, 1982.



**FIGURE 1-5. SHARE-A-CAB DESTINATION ZONES
NOVEMBER 1980 - PRESENT**

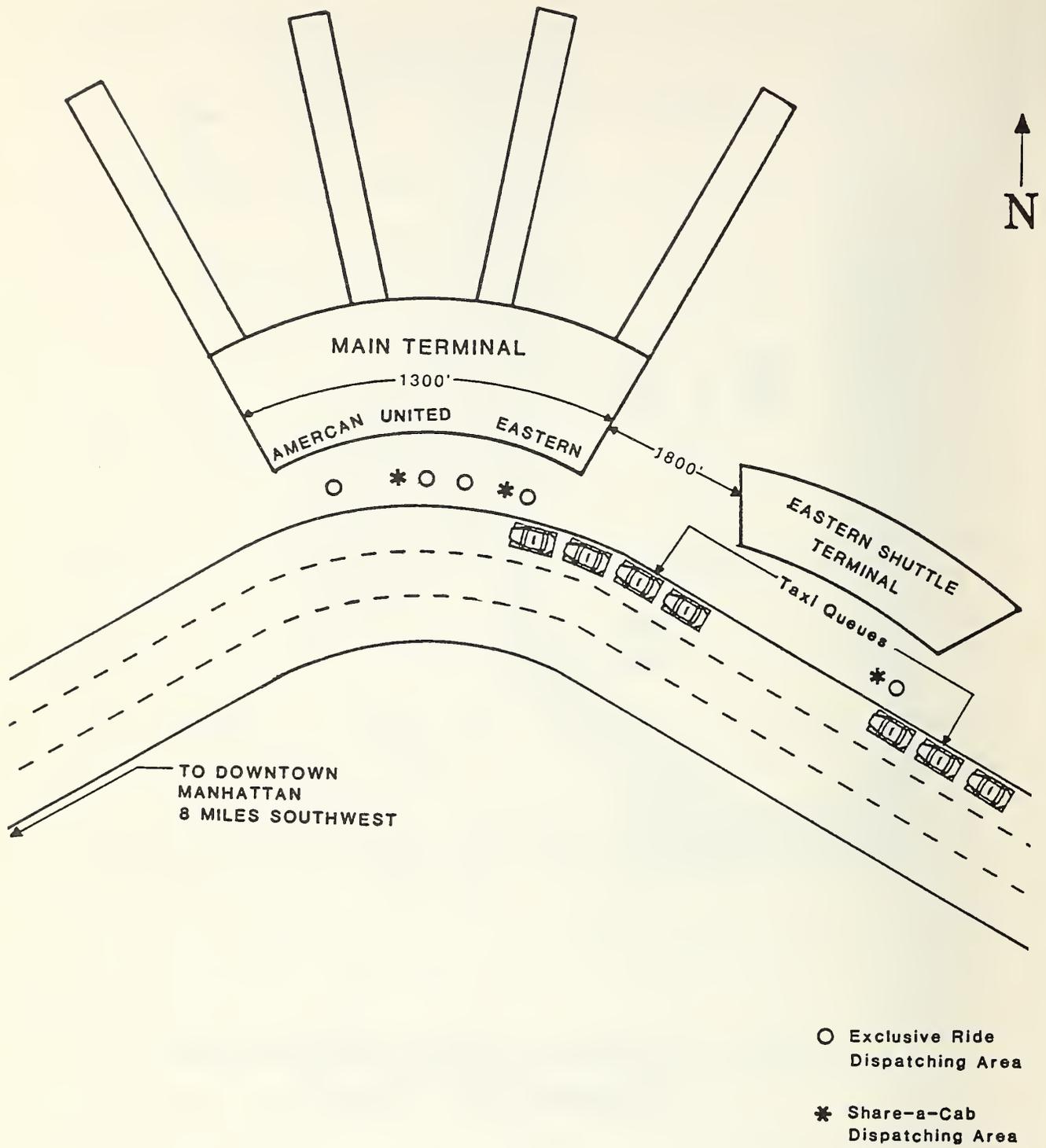


FIGURE 1-6. PRESENT SHARE-A-CAB DISPATCHING AREAS

1.4 IMPACT AND PERFORMANCE DATA

1.4.1 Level-of-Service

LaGuardia Airport has two terminals. The first of these, the main terminal, handles the majority of passenger travel. These terminals consists of four "fingers" or piers. From the far left (as shown in Figure 1-6) finger one contains American Airlines and several regional commuters. Finger two contains Air Canada, Allegheny Commuter, Braniff, Republic, United, and US Air. Finger three contains Delta and Trans World Airlines and finger four supports Delta in addition to Eastern, Northwest, and Piedmont. Eastern Airlines operates a separate terminal for its shuttle flights between Boston and Washington, D.C.

Share-A-Cab has dispatching areas located in the taxicab dispatching areas outside of fingers two, three, and four of the main terminal and one located outside of the Eastern Shuttle terminal. These dispatching areas provide access to approximately 80 to 90 percent of all deplaning passengers.

Wait time at LaGuardia for Share-A-Cab varies upon the volume of passengers demanding taxi service. If a large number of passengers desire taxi services, generally, Share-A-Cab service wait time is the same as with single rider taxi service. If taxi demand is low, Share-A-Cab wait times can be substantially higher than single ride service, since the ability to match riders in a timely manner is reduced. Both single rider and shared-ride taxi service offer wait time savings over transit.

Shared-ride travel time for a particular traveler can be increased by 5 to 30 minutes over an exclusive ride given the order in which passengers are dropped off, the distances within a zone that must be traveled, and the traffic conditions that exist.

Share-A-Cab fares are two to three times less than exclusive ride fares. Average exclusive ride taxi fares from LaGuardia to Manhattan are in the neighborhood of \$12.00, exclusive of tip.

1.4.2 Ridership

The LaGuardia based shared-ride taxi service experienced increases in ridership during its first 3 1/2 years. When the system was implemented in July of 1979, ridership during the first full month totaled 5,299 passengers. Total monthly ridership peaked near 19,000 in November 1982. This rise in patronage followed forming a fairly steady pattern of increase (see Figure 1-7). During the winter months, ridership has tended to be lower than the yearly average, while during the late summer and fall seasons ridership has been above average. This corresponds to total passenger plane movements at LaGuardia.²

There is limited evidence of ridership response to fare and service changes. In May 1980, the change from a voucher payment mechanism to a cash payment, coupled with a \$1 fare increase (from \$5 and \$6 to \$6 and \$7), caused no discernable change in ridership. This change may have affected the total number of taxicabs supplying service at LaGuardia, but no data are available to support this conclusion. When service was expanded to additional matching areas, total ridership soared, and ridership per matching area remained relatively constant. This shows that additional demand was present for the service, and when the new areas were opened, MTBOT succeeded in tripling its patronage. As shown in Figure 1-7, the air traffic controllers strike had a devastating effect on patronage. This can be attributed to the lower volumes of air travelers and a resultant increase in the ratio of taxis to deplaning passengers.

1.4.3 Operator Incentives and Participation

Taxicab operators who serve LaGuardia Airport may not refuse a shared-ride. Any New York City medallion taxicab may serve LaGuardia and, hence, participate in the service. The MTBOT and non-MTBOT member cabs pay the same per passenger fee. Several attributes make the service attractive to the driver or company owner. First, only one queue is formed for both shared and

²Ridership counts supplied by Taxicab Dispatch Service.



- TOTAL RIDERSHIP
- EASTERN SHUTTLE
- AMERICAN
- - - - UNITED
- - - - EASTERN MAIN
- - - - MONTHLY PLANE MOVEMENTS (x 1000)

FIGURE 1-7. SHARE-A-CAB RIDERSHIP

Source: Metropolitan Taxicab Board of Trade

exclusive ride, therefore the wait time is identical for both, and the chances of obtaining a shared-ride fare is equal for all of the drivers. Secondly, the fare structure (since May 1980) appears to offer an incentive for shared ride. Since 3 or 4 passengers are needed to constitute a shared-ride, the driver is guaranteed a minimum payment of \$15 plus tips and a maximum of \$24 plus tips. As estimated by MTBOT the average exclusive ride fare to the financial district is \$12 plus tip. Therefore, the shared-ride driver is guaranteed a better fare. Third, additional driving time and distance encountered by the drivers taking shared rides is kept to a minimum. Though the three-zone area is quite large, dispatchers attempt to match rider destinations as much as possible. According to MTBOT, dispatchers have been successful in minimizing the operator's overall trip length, such that the extra stops made by the driver are compensated by the extra revenue. Fourth, taxicab owners receive a four-cent gasoline tax rebate as described in Section 1.1.

The taxicab industry likes Share-A-Cab because it transports more airport passengers, generating more revenue while leaving more taxicabs available for non-airport fares. Drivers are generally tolerant of Share-A-Cab. Of the drivers that were interviewed, all complained about the Share-A-Cab system to some extent. However, most of these complaints were minor and centered on downtown Manhattan traffic congestion. All of the drivers saw a purpose in having Share-A-Cab, namely to increase driver revenues and to better serve the public, and were satisfied with the additional fare which they gained by providing shared-ride services.

1.4.4 Administrative Costs

All operating and start-up costs have been paid for by MTBOT. The first year's cost was approximately \$50,000, with much of this amount spent on the production and display of advertising materials. The MTBOT pays only for its dispatchers and advertising and limited overhead costs attributed to office space rental and administrative time. No fees are paid to the Port

Authority for curb space. Since the average ridership per month for the first year was 4,900, and a \$.50 per passenger charge was collected, that means that in the first year of operation Share-A-Cab lost approximately \$20,600. This does not take into account any costs for loans, etc., and as such is limited. The MTBOT has estimated that since early 1982 they have begun to break even on the service, which requires a monthly ridership average in the 10,000 to 12,000 range. Since a \$1.00 per passenger charge is now provided to MTBOT, that means that MTBOT's estimate of yearly operating costs (mainly dispatchers' wages) is on the order of \$120,000 to \$144,000.

1.4.5 Institutional Impacts

Share-A-Cab is a privately operated business overseen by the local regulatory body--the New York Taxi and Limousine Commission. The commission has had little input into the Share-A-Cab operation except for the establishment of the following policies:

1. All New York City medallion taxicabs must be allowed to participate in the service,
2. Taxicab operators who service LaGuardia may not refuse a shared-ride, and
3. Fares and the portion of the fare used by MTBOT for Share-A-Cab support will be determined by the commission.

All other elements of operation are determined by MTBOT, hours of operation, number of passengers required to constitute a shared-ride, destination areas, etc. The commission also makes sure that passengers are served properly and that all complaints are reviewed. Fewer than 15 complaints about the system were registered between July 1979 and December 1985.³ All of these have been resolved by the commission and have concerned individual drivers.

³Interview, Metropolitan Taxicab Board of Trade, December 6, 1985.

1.5 CONCLUSIONS

The LaGuardia Share-A-Cab program has proven to be a success. Much of this can be attributed to the operational procedures employed by the administering/operating company, the MTBOT. Some of the success must also be attributed to the trip characteristics of LaGuardia users and to the layout of the airport itself. What follows is a series of reasons for the success. These will be described as they appear.

1.5.1 LaGuardia Airport Lends Itself to the Establishment of a Shared-Ride Program

According to Port Authority statistics, 60 percent of passengers using LaGuardia Airport in 1978 were business travelers. Furthermore, 42 percent of these travelers (i.e., 25% of all LaGuardia passengers) had destinations in Manhattan south of 60th Street. This explains the strong demand for taxi service to the financial and business centers of Manhattan.

LaGuardia also has a relatively small terminal that forces all deplaning passengers through several exit doors, which are located near each other. By virtue of this layout, LaGuardia needs only a few taxi dispatching areas. This allows not only for lower startup costs for shared-ride services and relatively simple service operation, but also funneling of passengers into more efficient matching groups.

1.5.2. Share-A-Cab was Approached with a Set of Realistic Objectives

Often, programs are established with far reaching, all-encompassing objectives. What MTBOT did was to set three realistic objectives:

1. Reduce fuel used by fleet taxis,
2. Establish a better image with the Port Authority, and
3. Capture a larger share of the ground transportation market at LaGuardia.

The MTBOT has achieved the first two of these three objectives. According to its figures, over 300,000 gallons of gasoline were saved during the first three years of operation. The MTBOT assumed that during this three year period, approximately 200,000 passengers did not use exclusive ride taxis, each of these saving 1.5 gallons of gasoline. There were 307,496 Share-A-Cab passengers during the first three years. MTBOT assumes an approximate occupancy rate of three passengers per Share-A-Cab taxi resulting in the 200,000 passengers.⁴ Use of this figure concludes that Share-A-Cab attracted mainly exclusive ride taxi users and not limousine, auto, or transit users. This is a reasonable assumption as is the 1.5 gallon per passenger figure.

Based on discussions with the Port Authority and the Taxi-Limousine Commission, both are pleased with the service, and it has improved the availability of taxi service at the airport.

1.5.3 Limited Destination Area

Prior to the start of Share-A-Cab, a small survey was conducted to help establish a limited destination area and to determine what method of ground transportation airline travelers use to get to New York. A limited destination area was an important feature of the plan. A compact destination is much more economical to serve, as evidenced by Boston's (Logan Airport) lack of success with a network of widely dispersed destinations. The high volume of passengers allowed dispatchers to group travelers to nearby destinations. This kept drivers and passengers happy by keeping travel times to a minimum. In addition, the program was phased in, beginning with the terminal having the highest density of travelers desiring travel to the established destination zone.

⁴Taxicab Dispatch Service, Inc., Fact Sheet, May 31, 1982.

1.5.4 Market Development

Advertising was conducted both prior to the program's opening and in the first months of operation. Advertising added legitimacy to the service and to the dispatcher asking for Share-A-Cab participation. Advertising has been reduced as ridership increased and the system accepted. The MTBOT found that once they had gained their first riders, the program soon developed through word-of-mouth advertising instead of requiring continued high cost publicity.

1.5.5 Appropriate Amounts of Government Regulation were Imposed on the Operation

A large amount of the credit for the establishment of a successful program must go to the local Taxi and Limousine Commission and to the Port Authority. Fares have been set at levels which allow both passengers and operators to gain the benefits of using the shared-ride alternative. The program evolved into an easy self-supporting payment system for passengers, drivers, and MTBOT. Additionally, the Port Authority has allowed Share-A-Cab to locate its matching areas adjacent to the Port Authority dispatcher, therefore providing high visibility and an opportunity to enlist prospective passengers into a shared ride group. Also, the Port Authority has remained with a single taxi queue policy, which forces drivers to take a chance at obtaining either a shared or exclusive ride. This has eliminated any concern that too few operators would participate, and also prevented the problem of separate queues with the resulting disparate wait times experienced in both Boston and Chicago.

1.5.6 Undersupply of Taxicabs at LaGuardia

The impetus for Share-A-Cab was the limited amount of taxicabs available at LaGuardia during peak periods. Had there been an oversupply, the taxicab industry would not have supported the program, since grouping passengers would have left some drivers without passengers.

1.6 SERVICE EXPANSION

In June 1980, MTBOT attempted to start a downtown to airport service. The MTBOT conducted a small survey (Appendix B, p.3), which was used to determine hours of operation and the location for pick-up points. (Fares and selected departure areas are shown in Appendix B, p.4.) The MTBOT advertised the system heavily through the use of posters and through the mailing of over 20,000 fliers describing the program to travel agencies and large businesses located around the country. However, the program carried an average of 4.1 passengers per day in the first two months of service.⁵ The program was discontinued shortly thereafter.

The MTBOT attributes the failure of the downtown-to-airport service to several elements. Primary was the fact that passengers had to go to one of two departure areas where a group was to be formed. Groups were not easily formed due to the random arrival of passengers, unlike what occurs at an airport when many prospective users deplane at essentially the same time. Also, travelers going to the airport tended to be under greater time pressure than passengers traveling from an airport.

The MTBOT explored the possibility of expanding the service to Kennedy International Airport. Kennedy Airport has several separate terminal buildings, and MTBOT believes that no single terminal could support Share-A-Cab service. Recognizing that interterminal communication would make the program more complex and costly, MTBOT is hesitant to expand service to JFK. Figures comparing LaGuardia and JFK passenger flow are shown in Table 1-1.

⁵Taxicab Dispatch Service Memorandum: Group Ride Program, Downtown Manhattan, August 25, 1980.

TABLE 1-1. PASSENGER FLOW ON AVERAGE DAY OF YEAR (1978)*

	<u>All Modes</u>	<u>Taxi</u>
From All Manhattan		
To LAG	10,542	7,119
To JFK	7,612	3,151
From Manhattan South of 60th St.		
To LAG	7,974	5,414
To JFK	5,086	1,975

Also, business travelers are:

60% of LAG's 23,555 daily passengers
 34% of JFK's 32,090 daily passengers

*"Train-to-the-Plane" (New York City Transit Authority Service to JFK from Manhattan) opened since 1978 survey.

Source: PANYNJ data based on 1978 survey.

2. SUPER SAVER TAXI SERVICE - CHICAGO

2.1. INTRODUCTION

This chapter describes a shared-ride taxi program in Chicago known as Super Saver Taxi. The program, operational since December of 1981, was developed and administered by the City of Chicago Department of Consumer Services. Shared-ride service is provided within three downtown zones (see Figure 2-1), as well as from O'Hare International and Midway Airports to downtown Chicago. Twenty-four hour service is provided to passengers having both their trip origins and destinations within the downtown zones, while airport service is available seven days per week between the hours of 6 a.m. and 11 p.m.

Super Saver was conceived mainly as a result of the Chicago Area Transportation Study's (CATS) comprehensive review of the regional taxi industry. CATS concluded that the city's taxi fleet was inefficiently used, that a demand for shared-ride service existed, that improvements to taxi driver income were needed, and that many of the current taxicab regulations were in need of review and possibly revision. In addition, both CATS and the city were aware of federal policies which required localities to fully consider the inclusion of private transportation providers in the transportation planning process and of the possibility of federal grants to support the operation and implementation of shared-ride services.

Super Saver Taxi required that a set of separate shared-ride taxi rules and regulations be implemented by the Chicago Department of Consumer Services to cover operating hours, service areas, fares, and guidelines regarding the number of passengers denoting a shared-ride.

CATS has served as the major evaluator of the project in conjunction with the Department of Consumer Services. Preliminary results of the CATS evaluation were that each airport-to-downtown service had been successful, due to the concentration of trips, attraction to drivers/operators, and

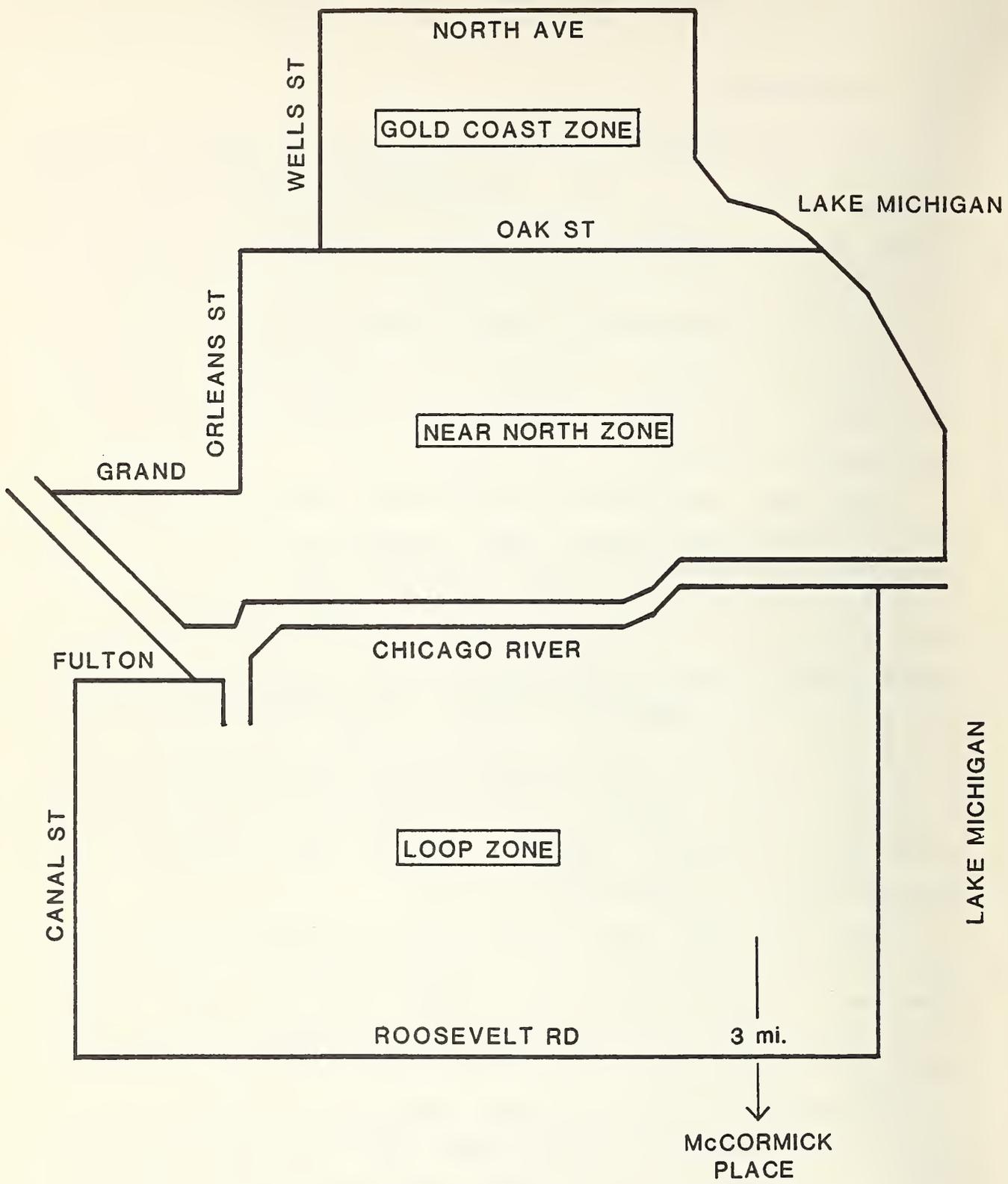


FIGURE 2-1. TAXI CAB SHARED RIDING ZONES

attraction to passengers from the standpoint of ease of use, and competitive cost and travel time.

The downtown service was judged a failure, with operator participation and ridership levels steadily falling since its inception. Failure of the downtown Super Saver was attributed to two factors: lack of financial incentives for operators and consumer confusion over usage of the system.

Data for this case study of the Super Saver Taxi program were data obtained from sources contacted during site visits and interviews.

The chapter is organized as follows:

- o Section 2.2 describes the background and development of the Super Saver program.
- o Section 2.3 describes the operation of the program.
- o Section 2.4 provides a summary of basic performance and impact data associated with the program.
- o Section 2.5 provides conclusions summarizing the data available from contacts.

2.2 BACKGROUND

Prior to the inauguration of the Super Saver Taxi program, CATS undertook a comprehensive study of the Chicago region's taxi industry.¹ CATS serves as the metropolitan planning organization for Chicago. It does not oversee any highway or transit operations. The CATS study resulted in several reports which recommended installation of a shared-ride taxi program. These recommendations were based on the following factors:

2.2.1 Inefficiently Used Taxi Fleet

Based on three indicators--coverage ratio (taxicabs per person), time that taxis operated empty, and taxi vehicle miles of travel (VMT)--CATS concluded that "slack" existed in the taxi

¹Chicago Taxi Industry: Financial Structure and Operations, Chicago Area Transportation Study, Chicago, Illinois, November, 1981.

market, which they felt had been promoted by the growth in rental automobile availability and the growing use of government subsidies for mass transit travel, particularly by low-income, elderly and handicapped individuals.

2.2.1.1 Increases in the Coverage Ratio - In 1980, 4,600 taxicabs operated in the City of Chicago, with 10,000 to 12,000 drivers employed to drive these vehicles. This corresponds to a coverage ratio of 1.53 taxis per 1,000 population in 1980, which was an increase over the 1970 average of 1.36. (Chicago's population declined from 3,369,359 in 1970 to 3,005,061 in 1980, and the number of taxi medallions remained constant.) Although the increase in the coverage ratio was not viewed as abnormally high, the data showed that a "slack" in the taxi market has come in a decade of tremendous growth in rental car availability, growth in government subsidies for mass transit, and a decline in Chicago's population.²

2.2.1.2 Increases in the Percent of Empty Operation - In addition to the increase in the taxi coverage ratio, it was found that the amount of time that taxis operated empty had also increased, from 41 percent in 1970 to 44 percent in 1980, suggesting that the taxicabs were not being fully used and, in fact, use was declining. Additional data showed that the average passenger load for taxi trips was 1.45. CATS staff felt that this was low, considering that taxis could carry 4 to 5 people.³ According to U.S. Department of Transportation figures, average taxi passenger loads on a national scale were 1.6 in 1973, 1.46 in 1975, and 1.56 in 1981.⁴

2.2.1.3 Changes in Taxi VMT - Taxi vehicle miles traveled for the Checker Taxi Company, a major taxi operator in Chicago, showed major growth between 1974 and 1978 (see Figure 2-2).

²Ibid., p. 3.

³Ibid., p. 4.

⁴Transit Operation Characteristics, Gilbert, Gorman, et al., Report #DOT-I-83-55, September 1982, pp. 27-28.

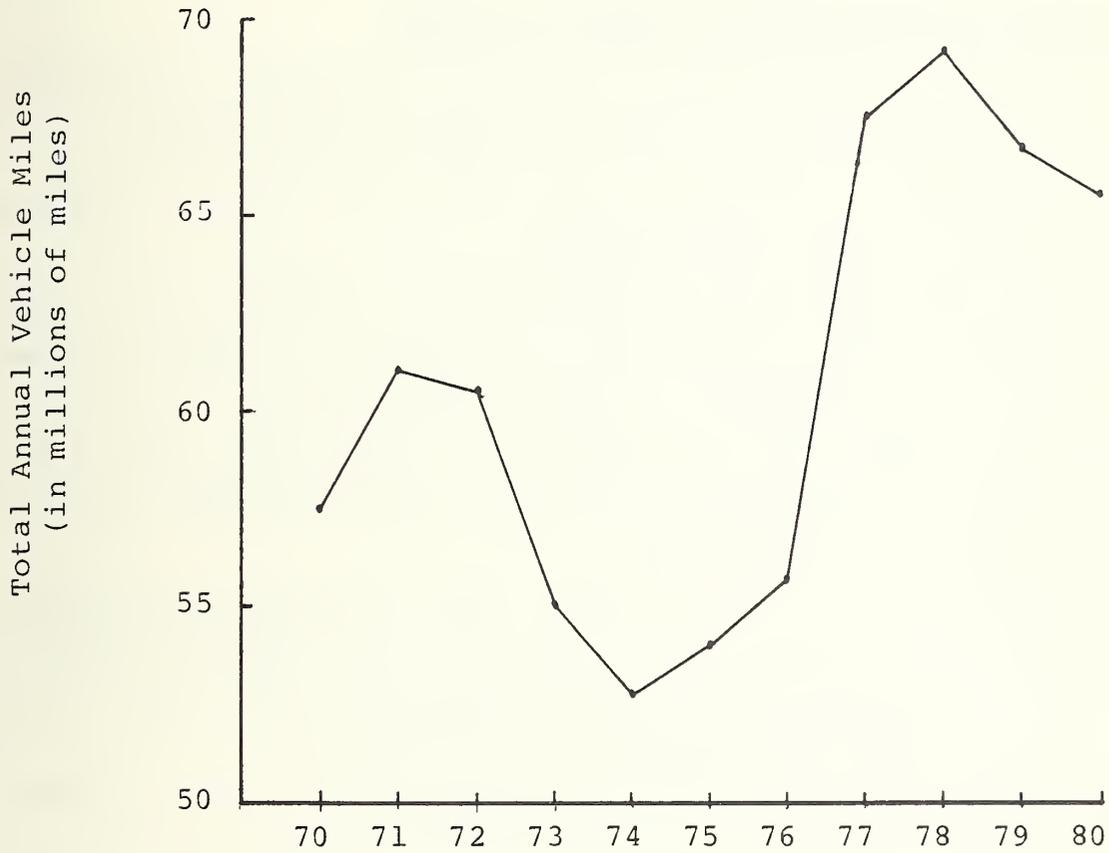


FIGURE 2-2. TOTAL ANNUAL VEHICLE MILES OF CHECKER TAXI CO.

SOURCE: CHICAGO TAXI INDUSTRY : FINANCIAL STRUCTURE AND OPERATIONS, CATS, NOVEMBER 1981

Since that time, Checker's VMT has remained at a high level in relation to the 1970-1973 period. This growth has been attributed to the rise in the number of leased taxicabs and the decline in cabs operated on a commission basis. This trend is shown in Figure 2-3. By leasing the cabs, drivers are released from any mileage controls and, therefore, have tended to roam the CBD in search of fares instead of queuing in taxi stands.

2.2.2 Demand for Shared-Ride Service Exists

CATS gathered data, which led to the following conclusions concerning potential demand levels for shared-ride service:

- o Seven percent of all trips within the Chicago downtown are presently made by taxi.
- o The majority (approximately 60%) of Chicago taxi users are affluent or out-of-town travelers. (CATS defined affluent as "people who are not financially burdened by the regular use of taxicabs and take advantage of the personalized, luxury nature of the door-to-door service offered by this mode.")
- o Sixty-three percent of all City of Chicago taxi trip destinations lie within a small area (approximately 4 sq. mi.) comprised of the loop and near northside, areas considered to be in the downtown.
- o Seven percent of all taxi trips in the City of Chicago begin or end at O'Hare Airport.⁵

These data are presented graphically in Figures 2-4, 2-5, and 2-6.

Based on its analysis of the New York and Boston airport shared-ride services, CATS felt that shared-ride services could successfully transport business travelers, the affluent, and the

⁵Chicago Taxi Industry: Financial Structure and Operations, Chicago Area Transportation Study, Chicago, Illinois, November, 1981.

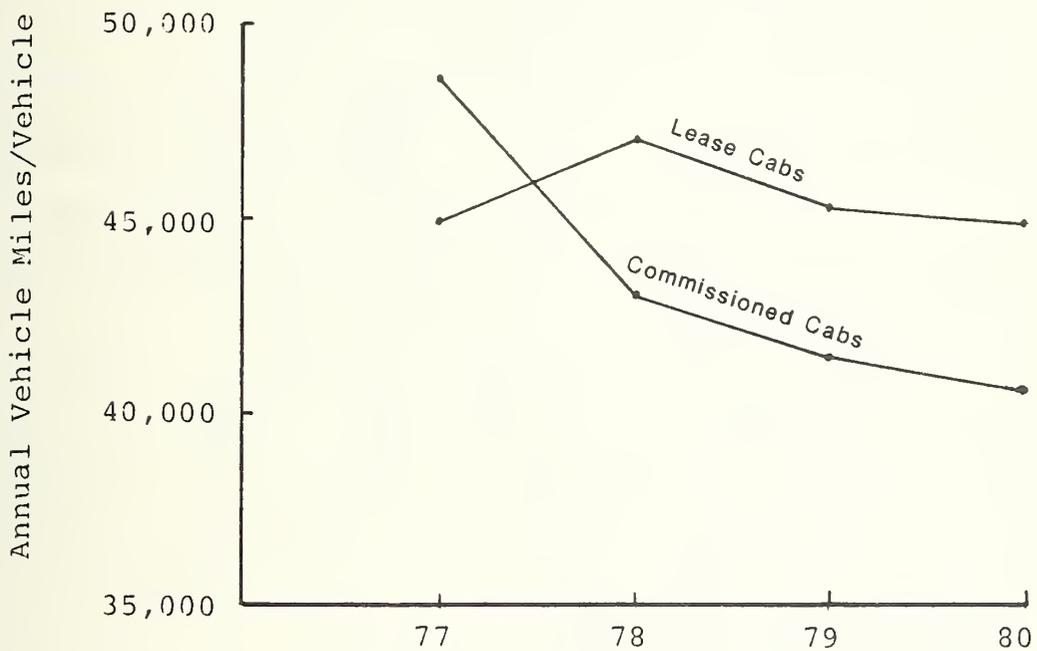


FIGURE 2-3. ANNUAL MILEAGE PER VEHICLE

SOURCE: CHICAGO TAXI INDUSTRY: FINANCIAL STRUCTURE AND OPERATIONS, CATS, NOVEMBER 1981

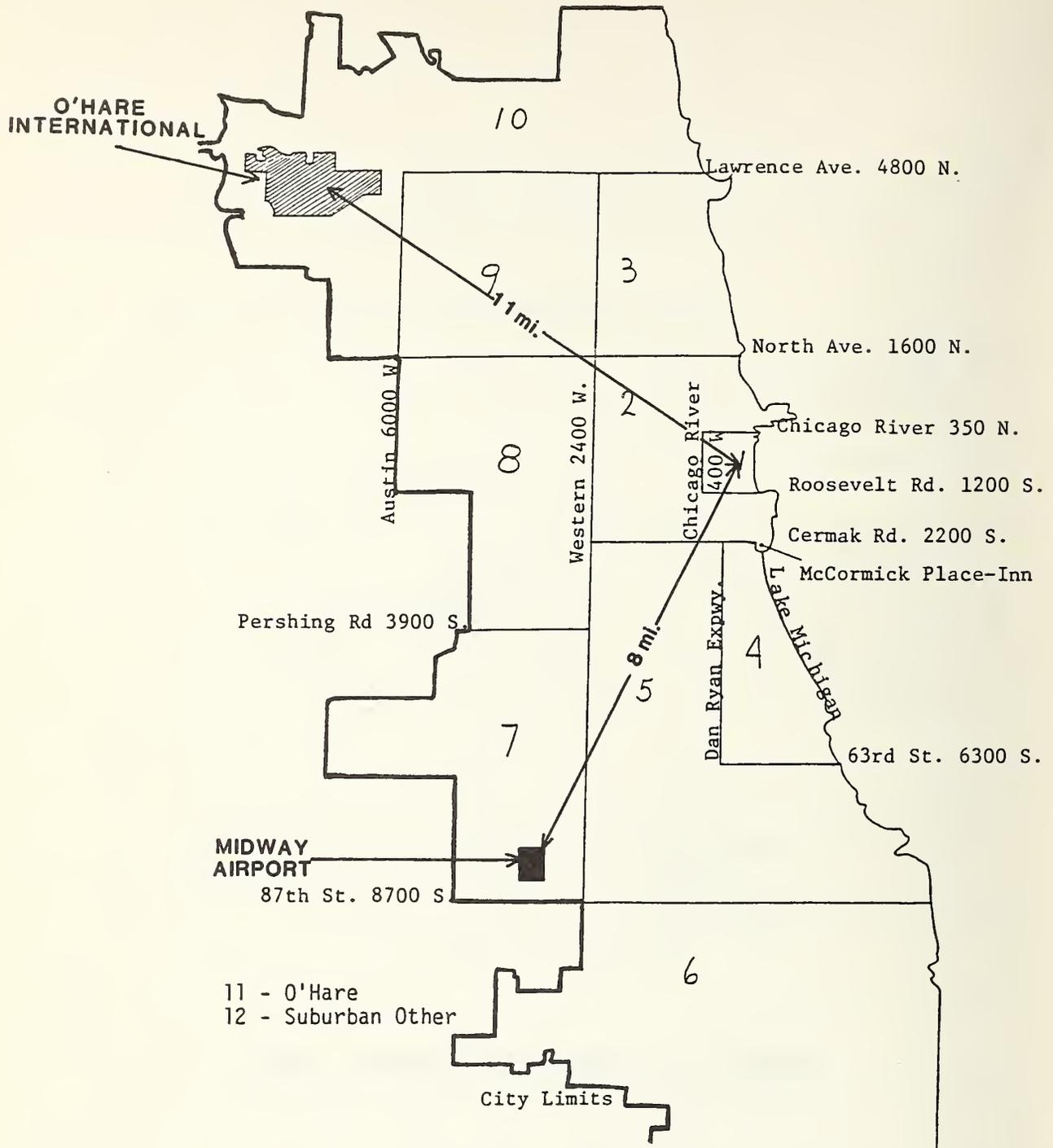


FIGURE 2-4. MAP OF CATS TAXI ANALYSIS ZONES

SOURCE: CHICAGO TAXI INDUSTRY: FINANCIAL STRUCTURE AND OPERATIONS, CATS, NOVEMBER 1981

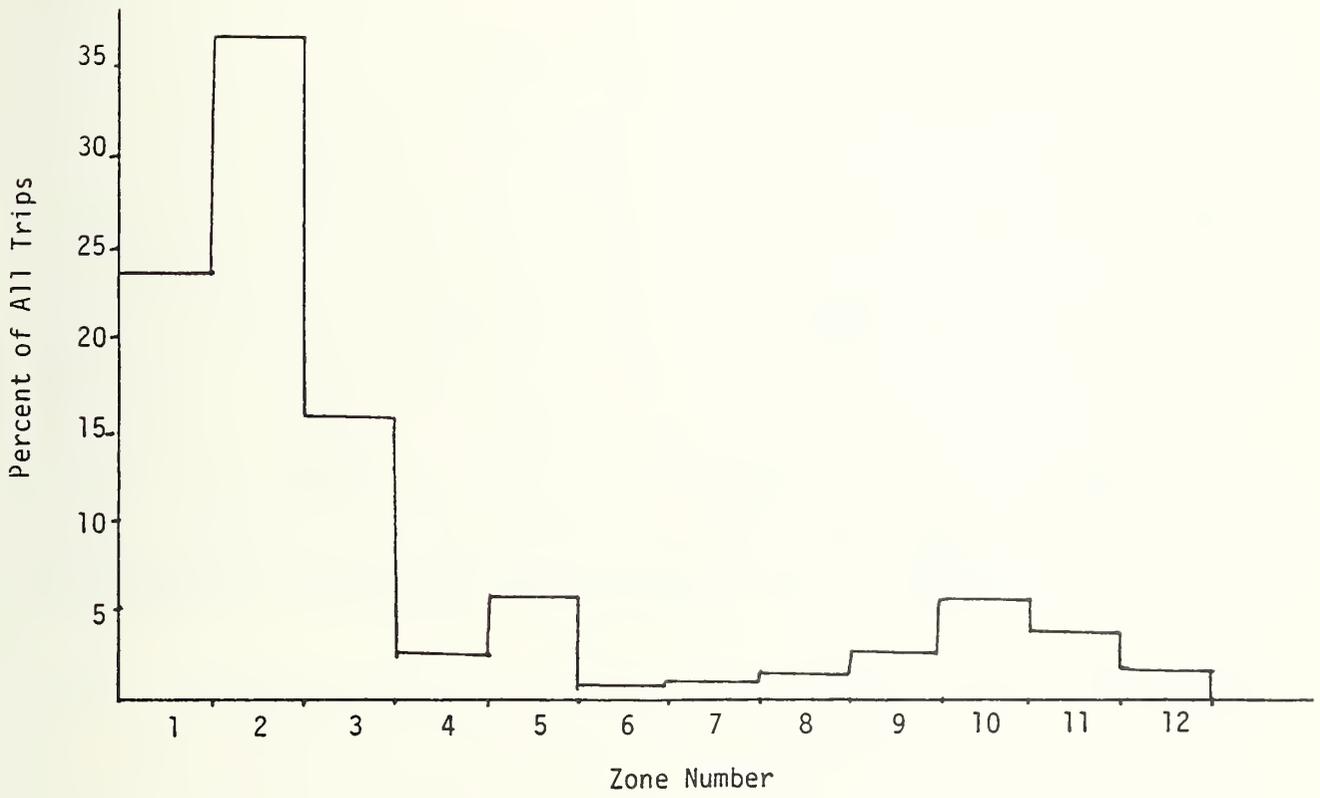


FIGURE 2-5. DISTRIBUTION OF TAXI ORIGINS

(REFER TO MAP ON PREVIOUS PAGE)

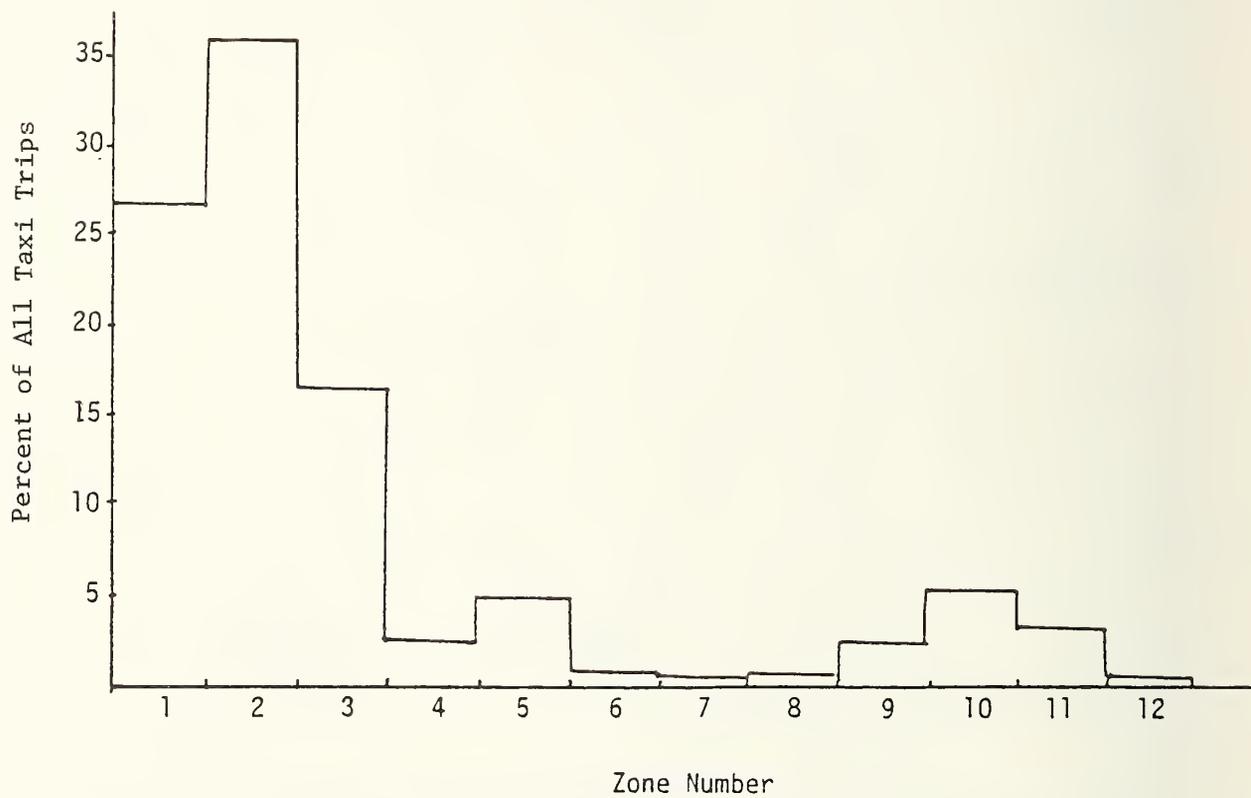


FIGURE 2-6. DISTRIBUTION OF TAXI DESTINATIONS

(REFER TO MAP ON p. 30)

transportation disadvantaged (the poor, the disabled, students, housewives, and others who did not have access to the automobile).

CATS subsequently reviewed 1970 home interview survey data to determine who uses Chicago taxi service, and estimated that business travelers and affluent residents constituted 60 percent total taxi ridership. Combined with the high volume of business travelers coming to Chicago (no specific data available), the fairly uniform locations of their destinations, and CATS's knowledge of other shared-ride services, CATS believed that demand for shared-ride taxi service in both the downtown and at O'Hare was evident.

2.2.3 Improve Taxi Driver Income

As part of its research, CATS confirmed its belief that taxi operators were earning very low incomes. A CATS survey found that drivers averaged 120 to 140 miles per day and \$70 to \$90 in daily revenue. Subtracting fuel expenses (average of \$16.06 per day) and leasing charges (average of \$43.00 per day), the driver was left with a daily income of \$26.00. Given an average shift length of 8 hours, this amounts to \$3.25 per hour. Based on these data and projected increases in fuel price and leasing rates, CATS felt that increases in taxi fares or improvements in the present competitive environment were necessary.

2.2.4 Regulatory Reform

The majority of Chicago's taxi regulations were implemented in the 1920's and 1930's and were directed toward the protection of trolley car and streetcar operations from the competition of taxi and jitney services. These regulations restricted market entry and generally affected the manner in which taxis could conduct business. The result was the typically narrow definition of the market available to taxi operators.

2.2.5 Federal Transportation Policies

Plans for cutbacks in federal transit assistance encouraged CATS and the City of Chicago to explore less costly forms of transportation. Also, federal regulations (Section 8e of the Urban Mass Transportation Act as amended - 1983) require local planning agencies to include private transportation providers in the transportation planning process. Finally, the availability of federal aid for this type of project enabled CATS and others to gain local support for the implementation of shared-ride services. After CATS and the city decided on a shared-ride plan, they applied for and were granted funding from the Federal Highway Administration (\$60,000 from the National Ridesharing Discretionary Fund) and from the Urban Mass Transportation Administration (\$72,000 from the Section 4(i) Innovative Methods Grant Program). Additionally, local funds totaling \$38,000 were obtained to support start-up and the operation of the program for a one-year period.

2.3 SYSTEM OPERATIONS

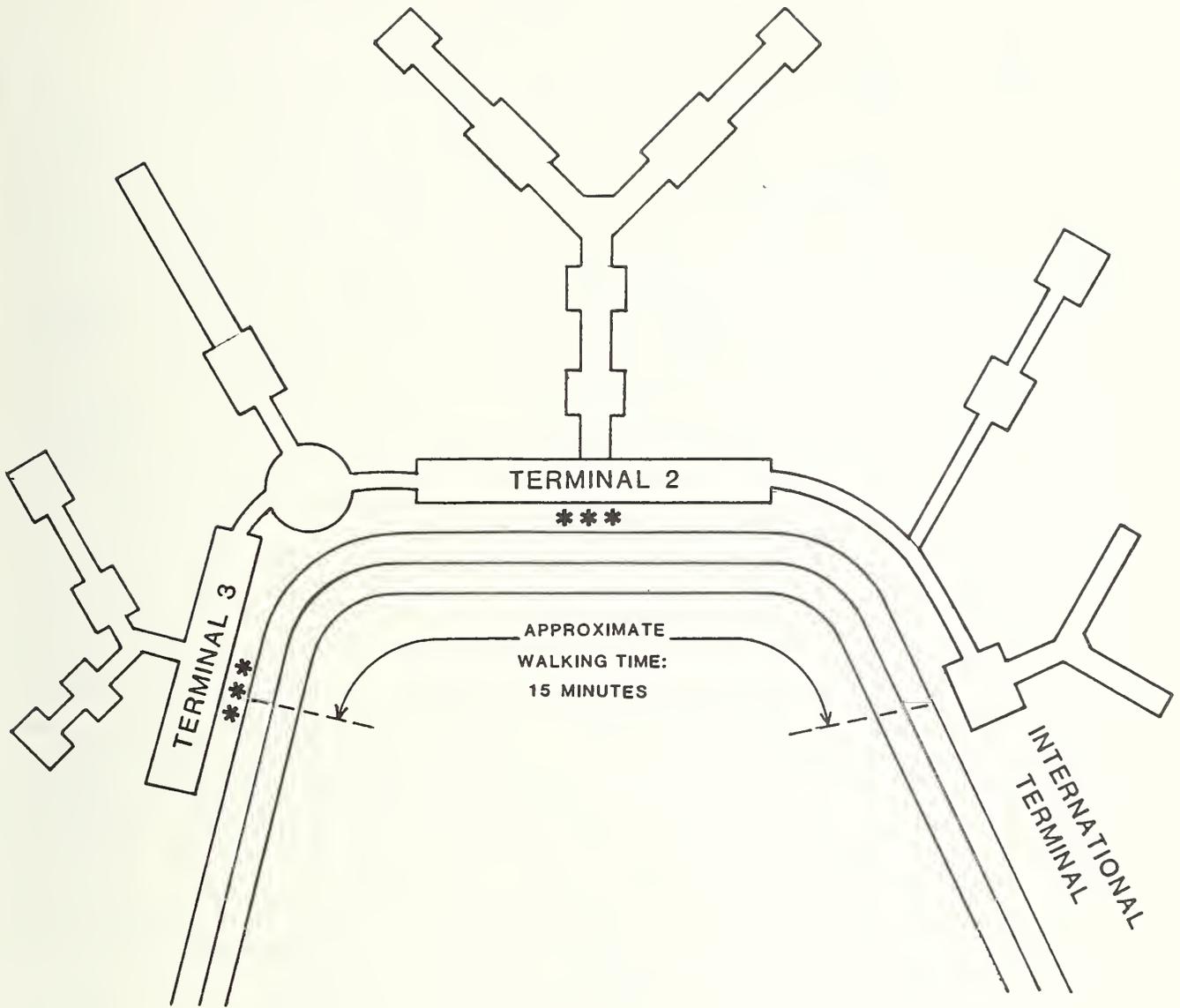
There are two distinct service areas associated with the Super Saver Taxi program:

1. O'Hare and Midway Airports to and from the downtown/loop region, and
2. The downtown/loop region.

These were different types of services, the characteristics of which are described below.

2.3.1 O'Hare/Midway Service

2.3.1.1 Travel Originating at the Airports - The Super Saver Taxi service, which carries people from O'Hare International Airport to downtown Chicago, operates in the following fashion. Passengers proceed to the ground transportation areas of either Terminal 2 or 3 (see Figure 2-7) and are directed by signs to the



***- SUPER SAVER
MATCHING AREAS

FIGURE 2-7. O'HARE INTERNATIONAL AIRPORT

Super Saver service area. There they notify the taxi starter of their desire to be matched and to participate in the service. If a shared-ride taxi is already present, the passenger is loaded into that cab. If not, the taxi starter tells the taxi dispatcher in charge of the taxi pool to send a Super Saver taxi to the terminal. Originally, the intent of the program was to have the taxi starter gather and load the Super Saver passengers. In practice, the drivers themselves "hustle" riders until a full load is acquired. The starter will, on occasion, make sure that the driver does not wait too long looking for a third passenger once he has two. When a minimum of two and a maximum of three passengers are present, the passengers are transported to the downtown/loop region. The destination is defined as one singular zone for the inbound service and is comprised of the downtown zones shown previously in Figure 2-1. According to the rules, if a driver is able to find only one Super Saver passenger within a 10-minute period, that lone passenger may demand to be taken to his destination at the taximeter fare. In practice, the rule is often ignored by cab drivers. Since the average wait in the Super Saver pool was estimated by CATS at 3-4 hours, while the exclusive-ride pool wait averages 1-2 hours, drivers generally wait until a multiple-ride arrangement materializes. Complaints regarding this practice have been minimal. Fares for the O'Hare service have remained constant since the beginning of operation at \$12.00 per passenger. This fare is the same for all travelers, since there is only one destination zone.

Taxicab drivers enter a separate shared-ride pool at O'Hare and, once they have entered, must remain and take a shared-ride load as the need arises. A taxi dispatcher is on duty during hours of taxi operations and, according to the Super Saver rules, has complete authority over decisions made concerning Super Saver operations and receives all passenger and driver complaints. Complaints are forwarded to the Department of Consumer Services, which may impose penalties on drivers up to a maximum of a 29-day license suspension. In addition, passengers may report complaints directly to Consumer Services using a phone number written on a sign located in the back of every cab.

The Midway service operates under the same rules as the O'Hare service. However, taxis at Midway queue in one single line with no separation provided between exclusive ride and Super Savers except at the head of the queue. As Super Savers are needed (the starter hails a cab when a person notifies him of his interest in sharing), they pull out of the taxi queue and park in a Super Saver loading area. This loading area and the Midway terminal configuration are diagrammed in Figure 2-8.

As of July of 1983, four dispatchers were the only full-time employees of the airport services, and their salaries were paid with the federal grant money. At one time, the major cab companies, Yellow and Checker, provided the dispatchers, but the companies cut funding for the dispatchers. Once federal monies were exhausted, the city supported their salaries.

Advertising for the O'Hare and Midway service has been directed toward informing the deplaning passenger of the existence of the service, the fare, the location of the loading point, and the general operational procedures. However, the only media used at the airport are large sign boards located in the ground transportation areas. Individual taxis registered in the City of Chicago must display a sign in the back seat describing the service (see Figure 2-9).

2.3.1.2 Airport Travel Originating in the Downtown/Loop Area - Service originating in the downtown area was operated in the following manner. Travelers using this service had to begin their taxi trips in one of the three downtown zones--most trips began at the major hotels and convention areas. Prospective users were normally matched or loaded by the doormen stationed at these facilities, who obtained shared-ride taxicabs from nearby taxi stands. Taxis participating in the shared-ride program mounted an orange pennant which notified prospective riders that the cab was operating in the shared-ride mode. The driver was responsible for loading a minimum of two and a maximum of three passengers, and could load from any location within the downtown/loop zones. Once the mandatory number of passengers had been picked up, the cab proceeded to either O'Hare or Midway Airport.

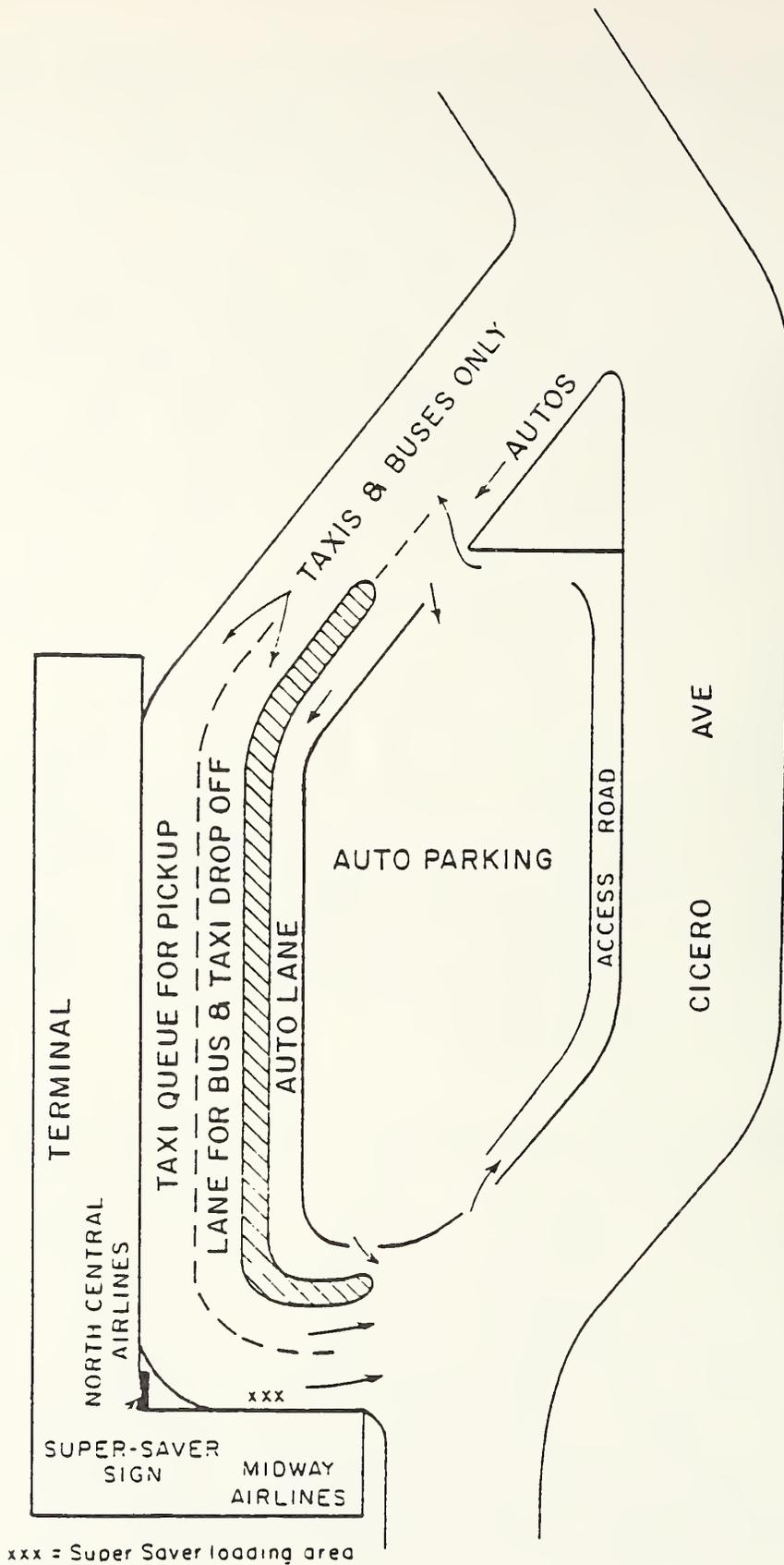


FIGURE 2-8. LAYOUT OF MIDWAY AIRPORT TAXI STAGING AREAS



An Orange Flag Means This is a Super Saver Taxi

ATTENTION: Driver will pick up other passengers in shared riding zones.

Rates Per Zone

1st Zone - \$1.50 per person

Each Additional Zone -

\$0.95 per person

To or From McCormick Place and:

Loop Zone -

\$2.50 per person

Near North Zone -

\$3.00 per person

Gold Coast Zone -

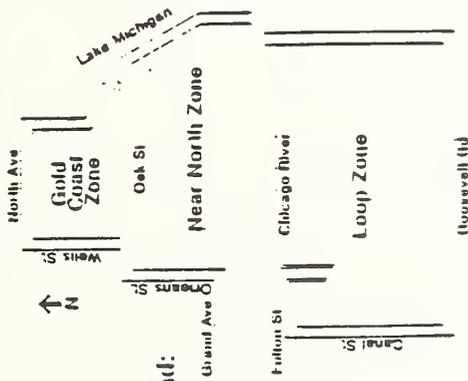
\$3.50 per person

To or From Midway Airport and:

Any Zone - \$0.00 per person

To or From O'Hare Airport and:

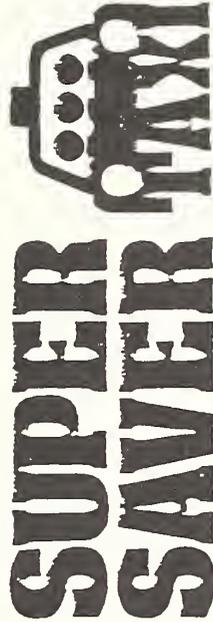
Any Zone - \$12.00 per person



No flag means an exclusive ride on the meter.
Traveling together to the same destination? It's cheaper by the meter.

All Areas Outside of Zones - Metered Rate

In case of inquiries or complaints, call 744-4091 or 744-5090



City of Chicago
Jane M. Byrne, Mayor

Department of
Consumer Services
Karen Pettite, Commission

FIGURE 2-9. SUPER SAVER SIGN DISPLAYED IN EVERY TAXI

The fare was identical to the inbound service, as were the hours of operation. If the driver could not find more than one passenger in 10 minutes, the passenger had to ride at the metered rate. Passenger complaints for this service were given either to the doorman, who reported them to the Department of Consumer Services for action, or to the department directly.

CATS staff observed the operation of the downtown to airport service for several days and concluded that although the concept was good, operational deficiencies caused the program to fail. Strongly related to its failure has been what CATS terms the "dependency on coincidence flaw." According to CATS, "For a taxi destined to either of the airports to successfully group load required at least two passengers, each traveling separately, meeting the same taxi at the same origin point within ten minutes of each other."* In addition, this portion of the program relied on the availability of Super Saver taxis in the downtown. As will be described in the following section, driver participation in the downtown was poor. Lastly, CATS staff observed that since curb space at the hotels is at a premium, hotels prohibit taxis from waiting for a second passenger. This effectively eliminated the drivers' ability to form a group within the prescribed 10 minutes.

2.3.2 Downtown/Loop Service

The downtown/loop service is operated in the following manner. Travelers using the downtown service of the Super Saver program must begin their taxi trip in one of the three downtown/loop zones or at McCormick Place (Convention Center), as shown in Figure 2-1. Normally, the destination is also located in one of these three zones, but it may be located outside of this area. Travel outside the shared-ride zones is charged the normal metered fare from the point it leaves the zone area in addition to the shared-ride fare. Regular shared-ride travel remaining within any one zone is priced at \$1.50 per person, while travel

*Based on interview conducted with CATS staff, September, 1982.

to additional zones boosts the fare an additional \$.50 per person, per zone. Travel to or from McCormick Place is priced at \$2.50 (loop zone), \$3.00 (near north zone) and \$3.50 (gold coast zone). Fares have not changed since the program's inception. As with the downtown-to-airport Super Saver, operators are required to display an orange flag notifying prospective customers that the taxi is operating in the shared-ride mode.

When the program first began, the Department of Consumer Services required all taxis to participate in the downtown service. This regulation remained in effect for approximately 30 days, when the city changed the policy to voluntary participation. This change was precipitated by the claims from taxi drivers that they were losing money. Cab drivers staged an informal boycott of the system by refusing to provide a shared-ride fare to passengers. Drivers complained that it was too difficult to find additional passengers. According to Jerry Feldman of Checker Taxi Company, the mandatory system worked well on only one day, and that was due to a heavy snowfall when many people desired cabs and the slow-moving traffic effectively reduced taxicab supply.

According to Office of Consumer Services records, passengers, especially out-of-towners, were often exploited. Drivers would pick up a party of five passengers traveling as a group and charge them individual shared fares which, when summed, could be up to four times the meter fare. Some out-of-towners did not know enough about the program to decide when to share or when to request the meter. (Newspaper articles which detail this period of the service are provided in Appendix B.) Presently, drivers load riders as they proceed around the zones, attempting to garner as many riders as possible up to a maximum of five. However, if the driver can find only one passenger, then the lone passenger is required to pay only the applicable shared-ride fare.

The service is in effect 24 hours a day, seven days per week. Drivers cruising in the downtown zones may operate as shared-ride cabs at their own discretion, but when the orange flag is displayed, the drivers cannot refuse any person

transportation in a shared-riding zone unless that person is traveling in the opposite direction of the passengers in the taxicab.

Advertising prepared by the Department of Consumer Services in this phase was increased because of the poor ridership. When the program was implemented, advertising consisted of newspaper advertisements, which the city now views as poor and non-informative. Since that time, radio commercials have been used, and half-time announcements have been made at Chicago Bears' football games.

An additional problem was that there was an oversupply of cruising cabs downtown. A passenger wishing to go downtown-to-downtown would wait for a Super Saver taxi to come by, and look in the window to see if a passenger was already in the cab. If there was a passenger, he would not hail the cab, knowing that he would be able to find another empty Super Saver taxi quickly. The passenger also realized that other passengers were equally smart so that no one would hail the cab once he was in it. In this manner, the passenger would get an exclusive ride at a discount fare.

2.4 IMPACT AND PERFORMANCE DATA

2.4.1 Ridership

2.4.1.1 Airport Service - Service from O'Hare International Airport to the downtown/loop region has been characterized by CATS as being moderately successful, with ridership from O'Hare to the loop steadily increasing during 1982 from an average daily ridership of 110 in January to 310 in September* (see Figure 2-10). CATS concluded that the number of trips originating from the downtown/loop region and terminating at O'Hare was not significant and terminated this portion of the service in 1986. Although no specific data were gathered, CATS staff reached this conclusion through review of driver surveys and field checks.

*Interview conducted with CATS staff, October 1982.

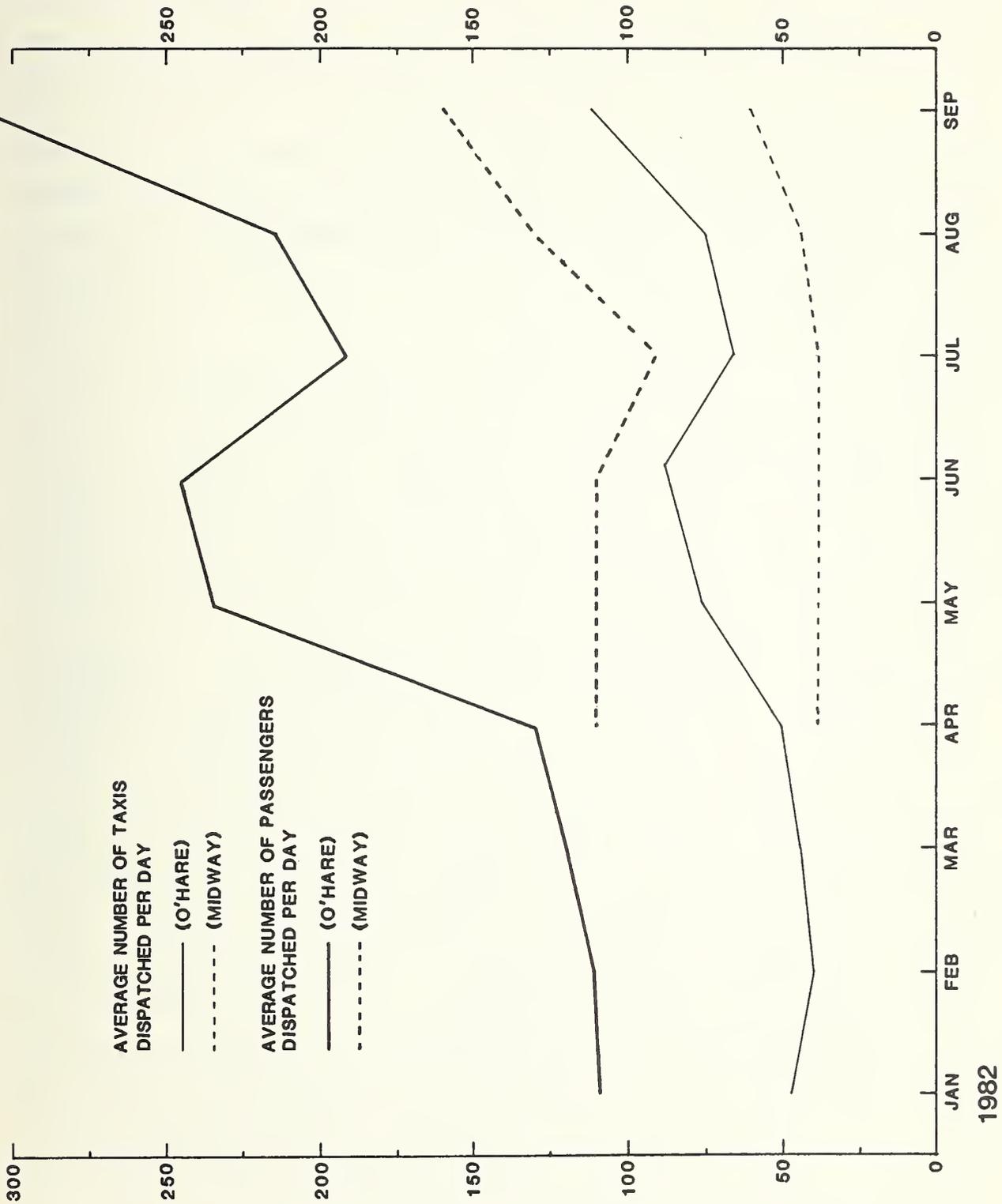


FIGURE 2-10. SUPER SAVER TAXI RIDERSHIP

CATS conducted a study to determine what percentage of the taxi market the O'Hare Super Saver Taxi service had captured. To do this, CATS tabulated records from the Department of Consumer Services and made field checks to determine the number of metered and Super Saver taxis passing through the taxi pool during three one-month periods. The months observed were January 1982, July 1982, and January 1983. Of all the taxis departing O'Hare, 3.8 percent were Super Savers. CATS observed an average passenger load of 2.8 for Super Saver and 1.44 for metered taxis. Using these load figures, CATS concluded that the O'Hare Super Saver program accounts for 7.1 percent of taxi passengers. This has reduced total taxi vehicle trips by 3.5 percent, assuming all Super Saver patrons formerly used regular taxicabs at the regular observed taxicab occupancy of 1.44. (This assumption underestimates VMT reductions because most Super Saver patrons would have traveled in a taxicab with occupancy 1.0.) No specific data concerning trips from O'Hare to downtown were collected using CATS's conservative assumption, Super Saver at O'Hare saves 26,500 gallons of gasoline and reduces VMT by 285,800 and carbon monoxide emissions by 6.2 tons per year.

The airport-to-downtown service initiated at Midway Airport in April 1982 reached a high of 160 passengers per day in September 1982. No specific data have been collected on exact downtown origins or destinations, nor on rider profiles. However, CATS conducted an analysis of metered and Super Saver departures similar to the O'Hare study and determined that Super Saver taxis account for 20 to 26 percent of the taxi vehicles and 30 to 42 percent of taxi passenger departures at Midway. CATS partially explained the difference in Midway and O'Hare market shares by determining that 69 percent of the total passengers at Midway were traveling alone, as compared to 48 percent at O'Hare. (Super Saver taxis are more attractive to passengers traveling alone.) However, even if only passengers traveling alone are considered, the Super Saver mode splits are still very different: 15 percent at O'Hare and approximately 50 percent at Midway. No further explanation was provided by CATS.

Deplaning passengers at both airports have several modes other than Super Saver available for transportation to downtown. These include rental cars, being picked up by others, Chicago transit service, limousine/bus, and exclusive ride taxi services. The impact of Super Saver on these modes has not been studied, but CATS staff members believe it to be minimal.

2.4.1.2 Downtown/Loop Phase - Data collection concerning this operation has been minimal. No ridership data have been collected, and therefore an analysis of the market penetration cannot be made. The consensus is that ridership has been minimal.

2.4.2 Operator Incentives and Participation

2.4.2.1 Airport Service - Operator participation at the airport Super Saver has been estimated at 400 to 1,800 of the approximately 4,600 Chicago-licensed taxicabs. An average of 88 taxis per day were dispatched in April 1982, at O'Hare; this figure rose to 112 in September. Midway service began with an average of 38 taxis dispatched per day, rising to 60 per day in September. More recent figures are not available, and no data have been collected concerning the number of taxis dispatched from the downtown hotel and convention centers.

The time spent in the taxi queues at O'Hare was estimated by city officials at one-half hour for exclusive ride service and two hours for Super Saver taxi service. CATS observed the queue at O'Hare during the month of January 1983. During that time, exclusive-ride cabs waited an average of 2.6 hours while Super Savers waited 5.8 hours. Discussions with CATS concluded that the actual wait time is probably somewhere in between what the city estimates and what CATS observed. This conclusion was based on the small sample used by CATS due to funding limitations. A wait time of one hour was estimated by CATS staff to have existed at O'Hare prior to implementation of Super Saver. Since taxi drivers are free to choose between the two queues, the longer waits for Super Saver are apparently compensated for by the higher revenues.

Driver participation has been good at both airports due to the guarantee of getting a trip downtown and \$24 to \$36 in revenue (exclusive of tip) for O'Hare service and \$16 to \$24 for Midway. At O'Hare, CATS estimates the average passenger load at 2.8 for Super Saver taxis, which means an average fare of \$33.60 per trip. An additional benefit is the high probability of quickly obtaining another fare downtown, after dropping off the Super Saver passengers. Exclusive-ride service averages \$20-\$22 per trip from O'Hare and \$14-\$16 from Midway to the downtown, but not all of these trips are going downtown, thus adding the risk to the driver of obtaining a small fare to an area where there is little demand for taxicabs. Based on informal interviews with taxi operators, the guarantee of a large fare serves as an effective incentive for participation in Super Saver.

CATS undertook a survey of taxi drivers to determine their views of the Super Saver airport service. CATS interviewed 96 taxi drivers at four locations in the downtown zones. When asked whether Super Saver Taxi works at the airports, 39 percent answered yes, 38 percent answered no, and the remaining 23 percent had no opinion. In addition, CATS asked participating drivers whether the program had increased their revenues. Thirty-six percent answered yes, 32 percent answered no, and 32 percent had no opinion.

2.4.2.2 Downtown/Loop Service - Operator participation levels fell sharply after the mandatory participation policy was dropped by the city. The only data available on participation are informal visual surveys of the percentage of taxis in the downtown displaying the orange shared-ride flag. Soon after the mandatory participation policy changed, a participation level of 11 percent was recorded. In October 1982, this figure had fallen to less than 1 percent, and as of January 1983 a slight rise to 2 percent was observed by CATS.

The lack of operator participation has been attributed to the following factors:

- o Drivers had difficulties obtaining passengers at the beginning of the program, and this created a pessimistic attitude among the operators.
- o The set fare often caused drivers to realize a loss in revenue due to the lack of compensation for wait time caused by traffic congestion. (When the cab is in a metered operation, delay charges are added to the fare on a time basis.)

CATS surveyed taxicab drivers and determined that 19 percent of taxi drivers participate in Super Saver. The city has given out pennants to all drivers who requested them. As of September 1982, 25 percent of the licensed drivers had been supplied a pennant. Therefore, it appears that drivers participate in the program only some of the time.

Some drivers have abused the program by charging fares which maximize revenue in the given situation. Based on newspaper articles and a review by CATS of complaints filed at the Department of Consumer Services, the number of abuses of the fare policies was significant. Generally, most of the complaints concerned the downtown fare problems. The most common problem (60 percent of complaints) was a group of passengers each being charged Super Saver fares for a trip which would have been cheaper on the meter. CATS contrasted these figures to 1976-1979 complaints (before Super Saver) and determined that only 31 percent of all complaints were fare-related in that earlier period.

2.4.3 Operational Costs

No specific cost or salary data were available from CATS or the Department of Consumer Services. The program employed four full-time dispatchers, with funds for their salaries obtained from federal grants. When these funds were exhausted, dispatcher salaries were picked up by the city. Total costs for 1982 were established by the grant budgeting as follows:

Federal funds	FHWA:	\$60,000
	UMTA:	\$72,000
Local funds		\$38,000
TOTAL		\$170,000

2.4.4 Institutional Impacts

The Super Saver Taxi program was, in part, implemented to take advantage of the available federal monies and as a method to gain private involvement in the Chicago transportation planning process, as per federal regulations.

2.4.4.1 Airport Service - The Department of Consumer Services designed a program responsive to the needs of the riders as well as taxicab operators. Since the airport matches and loadings are handled by either a dispatcher (at a cost to the city) or doorman (at no incremental cost), the program allows for great flexibility and quick rider matches. Therefore, riders are processed quickly and at low cost, pleasing both operators and users. In addition, CATS staff feels that no major changes have occurred in transit, rental car, limousine, and exclusive-ride taxi ridership, and hence no special interest group has been opposed to the program.

2.4.4.2 Downtown/Loop Service - The downtown/loop phase has been characterized by periods of government and operator failures. These problems began early in the program's introduction. For example, the service was announced by the Commissioner of the Department of Consumer Services prior to the originally planned date. This resulted in the introduction of a disorganized program, which lacked proper advertising and operational equipment. Advertising to inform the Chicago public about the downtown service was placed in newspapers throughout the city but was unclear and confusing. As a result, taxi drivers found it necessary to inform riders about the program, which led to official rules and operating procedures not being effectively transmitted. In addition, a shortage of orange flags occurred,

leaving the taxi operators without their visual signals to inform prospective riders of the cabs' mode of operation.

CATS erroneously forecast, based on its studies of other shared-ride services, that the high proportion of upper-class and business travelers would generate sufficient demand to support shared-ride services. In fact, however, cab users in central business districts generally value their time more than the small cost savings (\$2-\$3) that downtown shared-ride service has over exclusive-ride.

2.5 CONCLUSIONS

Chicago's Super Saver Taxi service is segmented into two distinct services. The Airport Service (O'Hare and Midway) has proven to be moderately successful. The Downtown Service has been characterized as a failure. Presented below are conclusions drawn about each service.

2.5.1 Airport Service

Most of the acceptance and success of this part of the Super Saver program can be attributed to:

- o A simple operating structure: One distinct origin and closely situated destinations, one dispatcher to handle both loading and matching, and only one fare.
2. Sufficient advertising: Located at the Ground Transportation area with a sign that describes the service in an attractive and easily comprehended manner.
3. Driver acceptance: Due to the guarantee of a fare which is better or at least competitive with exclusive ride operation, and the amount of compensation received in turn for the greater wait in the taxi pool.
4. Low fares: Provides the public with a 40 percent savings compared with exclusive-ride service.

The downtown/loop outbound service to the airports has been largely abandoned as troublesome logistical characteristics

caused drivers and passengers to avoid the service: hotel doormen did not allow cabs to wait for additional passengers, and it proved difficult to find several passengers going to the airports in a reasonable period of time. In addition, when shared-ride service was offered, it was used by taxi drivers as a means for charging higher fares to pre-formed groups who were unfamiliar with the Super Saver program and metered fares.

2.5.2 Downtown/Loop Service

This phase of operation failed. Ridership and operator participation levels continually declined, with the failure attributed to both basic operational and institutional problems. These problems are:

- o A poorly prepared program was implemented, leading to poor advertising and education of the public on operations. The requirement that drivers participate alienated drivers from participating.
- o Too small a difference between exclusive ride fares and Super Saver fares caused most taxi users in the downtown--including wealthy or business travelers--to avoid using the program since they tend to place a higher value on their time than on the cost of service. Though no specific data are available concerning average time trip lengths, CATS staff maintained that the difference in travel time between exclusive ride and shared-ride was significant.
- o A lack of incentive to taxi operators led to declining rates of participation. Drivers recognized that the time needed to locate several riders was high, and that the time cruising or sitting in traffic to pick up and deliver several passengers was not compensated for by the multi-rider revenue. Drivers felt that profits were better in the metered, exclusive-ride market.
- o Drivers abused the program by charging uninformed riders the fare which increases their revenue.

3. SHARE-A-CAB SERVICE - BOSTON'S LOGAN INTERNATIONAL AIRPORT

3.1 INTRODUCTION

Inaugurated in April 1977, Boston's Logan Airport Share-A-Cab service was implemented as a strategy to preserve the viability of taxi service while reducing the volumes of traffic using the access tunnels under Boston Harbor. The service was initiated and is administered by the Massachusetts Port Authority (MASSPORT). Though the system has been modified in various ways since its inception, many aspects of the operating plan have remained unchanged. The service is available only to travelers wishing to travel from Logan to destinations outside the City of Boston. Arriving air travelers notify a dispatching agent of their final destination and their desire for Share-A-Cab service. The agent logs them into the system and then relates instructions on where to await the Share-A-Cab service, the number of the cab, and the approximate waiting time. By sharing a ride, taxi users obtain a significantly reduced fare. Fares are fixed by destination and displayed in a schedule at the Share-A-Cab request booth (see Figure 3-1). The service objectives of the system are: to provide travelers with a convenient and less costly method of transportation to their final destination, to improve vehicle occupancy and reduce traffic congestion to Logan, to improve taxi operations at Logan, and to minimize the price advantages which limousine services have over taxicabs, thus preserving the viability of taxi service.

This chapter provides a description of the Share-A-Cab service, supported by existing information on operations, ridership levels, operator participation, costs, and institutional issues obtained through site contacts.

The chapter is organized as follows:

- o Section 3.2 describes the background and development of the program.



Share-A-Cab

Per Passenger Fare

Abington	\$15.95	Haverhill	\$24.35	Randolph	\$13.85
Acton	19.45	Hingham	13.15	Reading	11.05
Amesbury	26.15	Holbrook	14.20	Revere	3.75
Annover	17.35	Holliston	19.30	Rockland	13.85
Arlington	8.25	Hopkinton	20.70	Rockport	27.90
Ashland	17.80	Hudson	23.50	Rowley	20.55
Avon	13.85	Hull	16.65	Salem	10.05
Bedford	13.15	Ipswich	18.45	Salisbury	25.45
Bellingham	24.35	Kingston	25.05	Saugus	6.55
Belmont	8.95	Lawrence	20.85	Scituate	18.75
Berlin	25.30	Lexington	11.75	Sharon	17.35
Beverly	12.85	Lincoln	14.55	Sherborn	16.40
Billerica	15.25	Littleton	21.55	Somerville	4.75
Bolton	24.35	Lowell	22.25	Southborough	22.10
Boxborough	21.55	Lynn	5.85	Stoneham	10.70
Boxford	19.15	Lynnfield	9.35	Stoughton	14.55
Braintree	11.05	Malden	6.55	Stow	19.45
Bridgewater	20.85	Manchester	19.50	Sudbury	17.05
Brockton	17.35	Mansfield	20.85	Swampscott	9.70
Brookline	6.85	Marblehead	12.85	Tewksbury	18.05
Burlington	13.15	Marlborough	22.10	Topsfield	14.25
Cambridge	6.15	Marshfield	22.25	Wakefield	8.65
Canton	15.25	Maynard	17.35	Walpole	15.95
Carlsle	19.45	Medfield	18.50	Waltham	11.45
Chelmsford	19.45	Medford	6.15	Watertown	8.25
Chelsea	2.70	Medway	18.50	Wayland	13.60
Cohasset	15.95	Melrose	6.85	Wellesley	12.75
Concord	15.95	Merrimac	25.45	Wenham	14.95
Danvers	13.20	Methuen	21.55	Westborough	25.25
Dedham	11.75	Middleton	16.35	W. Bridgewater	19.45
Dover	13.70	Milford	22.70	Westford	22.95
Duxbury	25.05	Mills	17.35	W. Newbury	25.45
E. Milton	7.20	Milton	8.60	Weston	12.75
E. Bridgewater	19.45	Natant	9.35	Westwood	12.45
Easton	21.55	Natick	15.00	Weymouth	12.45
Essex	22.65	Newham	13.55	Whitman	17.70
Everett	4.80	Newbury	22.30	Wilmington	13.15
Foxboro	20.15	Newburyport	23.35	Winchester	8.60
Framingham	17.20	Newton	10.30	Winthrop	3.40
Franklin	24.35	Norfolk	20.85	Woburn	10.70
Fort Devens		No. Annover	22.25	Wrentham	22.95
(Ayer)	27.85	No. Quincy	6.85		
Georgetown	19.15	No. Reading	12.45		
Gloucester	22.30	Norwell	17.70		
Groveland	20.55	Norwood	13.50		
Halifax	24.70	Peabody	12.85		
Hamilton	19.15	Pembroke	20.15		
Hanover	18.75	Plainville	22.95		
Hanson	19.45	Plympton	27.15		
Harvard	23.65	Quincy	8.95		

FIGURE 3-1. SHARE-A-CAB PASSENGER FARES

- o Section 3.3 traces the operation of the program from its inauguration through June 1982 and summarizes basic performance and impact data associated with each phase.
- o Section 3.4 provides conclusions.

3.2 BACKGROUND

A wide range of ground transportation services are available to and from Logan Airport: MASSPORT shuttle bus service to the MBTA subway and regional transit network, private bus lines, scheduled limousine service, shared-ride and exclusive-ride taxi service, rental cars, parking and dropoff areas for private autos, and military transportation. Passenger enplanements and deplanements have risen steadily except for slight drops in fiscal 1980 and 1981, from approximately 12 million airline passengers in fiscal 1977 to almost 16 million in fiscal 1982. An estimated 35.2 million person-trips per year are generated between the airport and the surrounding areas, 76.9 percent of which are by private automobile (including rental car), 10.9 percent by taxicab, 6.4 percent by bus and limousine, and 5.7 percent by subway. A further breakdown of Logan access is shown in Table 3-1.¹

Due to the geographic location of the airport, approximately three miles across Boston Harbor from downtown Boston (see Figure 3-2), the majority of trips to and from Logan must pass through the Sumner/Callahan Tunnels. This traffic contributes to tunnel congestion, particularly during the afternoon peak travel period. MASSPORT recognized this as a problem in terms of several effects:

- o Delays to travelers using the tunnels,
- o Diversion of tunnel approach traffic to local streets in East Boston, and
- o Increased levels of air pollution at the tunnels.

¹Cambridge Systematics, Inc., Logan Airport Master Plan Study: Ground Traffic and Transportation, April 10, 1980.

TABLE 3-1. ACCESS MODE TO LOGAN

	<u>Transit</u>	<u>Bus/Limo</u>	<u>Taxi</u>	<u>Rental Car</u>	<u>Private Auto</u>
Employees	6.5	5.6	0.2	---	87.7
Air Passengers	6.3	8.4	19.7	11.2	54.4
Companions	2.4	2.6	3.8	2.5	88.7
Overall	5.7	6.4	10.9	6.3	70.6

	<u>Transit</u>	<u>Bus/Limo</u>	<u>Taxi</u>	<u>Rental Car</u>	<u>Private Auto</u>
Business	5.5	7.8	23.0	15.1	48.5
Pleasure	5.9	8.7	14.5	4.8	66.1
Other	10.5	9.4	18.9	11.3	49.8
Total	6.3	8.4	19.7	11.2	54.4

Source: Cambridge Systematics, Inc., Logan Airport Master Plan Study: Ground Traffic and Transportation, April 10, 1980, p. 12, 13.

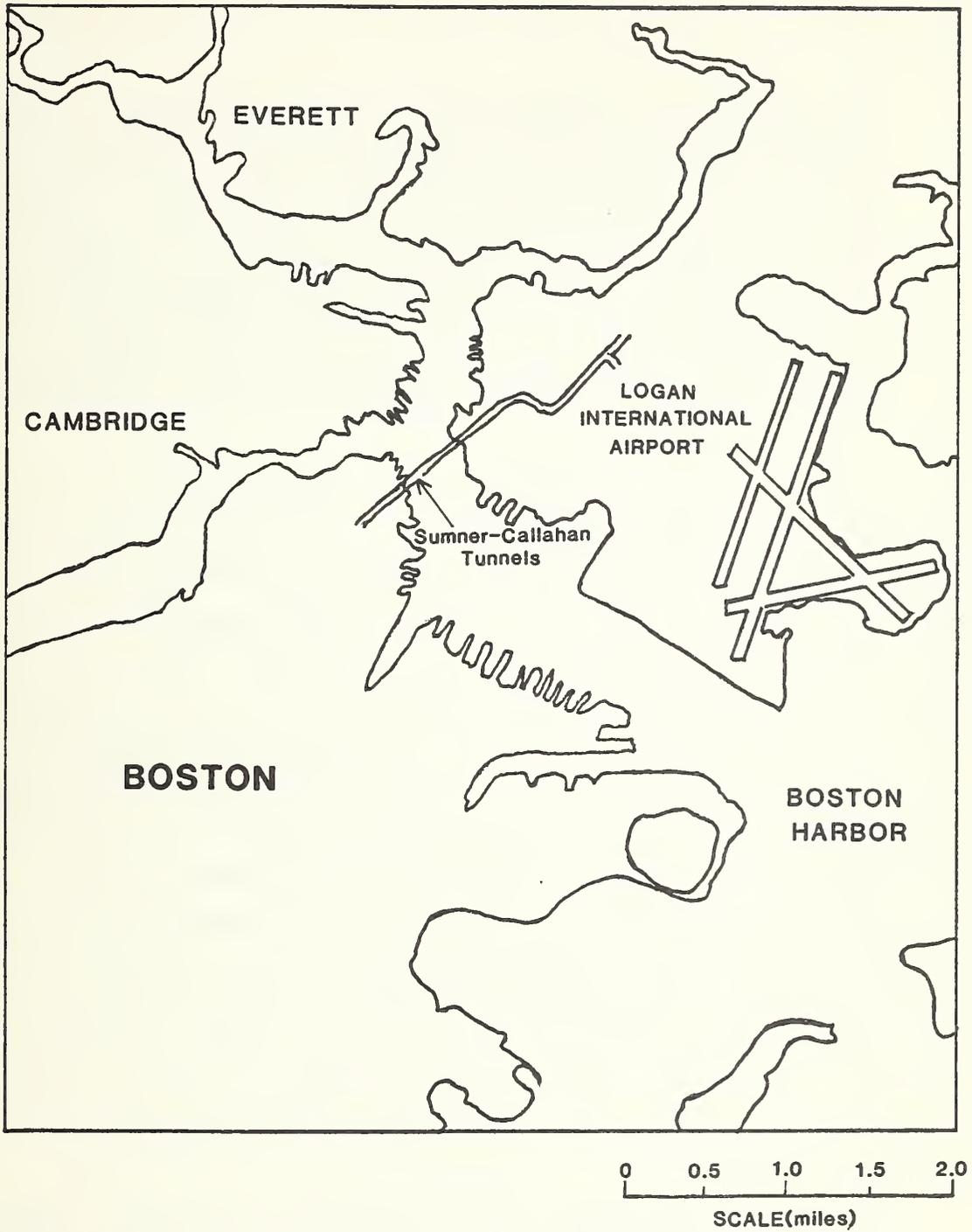


FIGURE 3-2. BOSTON-LOGAN AIRPORT LOCATIONS

In response, they initiated a policy, contained in the Logan Airport Master Plan of 1977, to encourage the enlargement of multipassenger transportation service. This policy is as follows:

The Massachusetts Port Authority will seek to reduce below present levels the number of airport-destined vehicles by encouraging people and goods to be carried in fewer vehicles for trips to and from Logan Airport, and to route vehicles in a manner to minimize disruption to surrounding neighbors. In order to accomplish this objective, MASSPORT will plan and support the development of greatly improved bus/ limousine service to Logan Airport. It will work with private bus/ limousine carriers in support of their efforts to expand service,² initiate new service and to promote these services.²

In addition to the above policy, MASSPORT went on to state that the limousine improvements " ... may bring a small reduction of patronage for taxis."³ As a result of the policy, limousine operators entered the Logan market. Taxi operators predictably protested, feeling MASSPORT was treating the taxi industry unfairly by promoting such a policy. The taxi operators also protested MASSPORT's decision to construct an additional parking facility. Sensing a decline in taxi ridership, drivers struck the airport during a 7-day period, leading to a decision by MASSPORT to implement the Share-A-Cab service.

Representatives of more than 200 independent owners and operators of Boston taxicabs participated in the planning and initiation of the Share-A-Cab service. The strategy of a shared-ride taxi program was to minimize the price advantages that limousine services have over taxicabs, and thus preserve the viability of taxis while continuing to encourage use of high-occupancy modes.

The Share-A-Cab plan was accepted by MASSPORT, representatives of the taxi industry, the Massachusetts Executive Office of Transportation and Construction (EOTC), and the City of Boston, and was inaugurated on April 27, 1977, serving 21 cities and

²Logan Airport Master Plan, Massachusetts Port Authority, April 1976.

³Ibid.

towns outside the City of Boston. Although service to the city itself was originally planned, it was never implemented. Naturally, the exclusion of Boston eliminated much of the Share-A-Cab market, and also reduced the potential for matching passengers with suburban destinations. MASSPORT and taxi industry officials offered the following explanations for the exclusion of Boston:

- o The taxi industry feared that such a service would cause a drastic reduction in total cabs dispatched at Logan. (Mr. Ted Kline of Taxi News Digest believes the demand for taxicabs would have dropped 75 percent at the airport.)
- o A Share-a-Cab service to Boston would lead to unacceptably long waits in the taxi pool.
- o It would prove to be an administrative nightmare due to the expected volume of travelers and the large numbers of operators involved.
- o It would likely divert high percentages of travelers from other modes of transportation, especially rapid transit and limousine.
- o There was a strong probability that the taxicab industry would boycott Share-A-Cab, refusing to supply cabs on a voluntary basis, thus causing the program to self-destruct.
- o There was a belief that shared-ride fare would not offer enough of an increase over exclusive ride fare to be worthwhile for the taxi operator (i.e., the taxi industry estimates that a typical exclusive ride fare to downtown is \$6.00, while three-passenger Share-A-Cab fare is estimated at \$8.00).

Although the operation has been reduced in its size and operating hours since inception, the service has proved to be a convenient, door-to-door taxicab service for a particular segment of Logan travelers, namely students and vacation travelers who have a flexible time schedule and a desire to cut costs as much as possible. Passengers using the service are charged a flat

fare, which is approximately one-half the normal exclusive-ride fare, and are normally provided service within 15 minutes of request.

An oddity of the program, associated with the exclusion of Share-A-Cab service to Boston proper, was that city regulations limited participation to taxicabs licensed in the city of Boston, although Share-A-Cab could not carry passengers from the airport to Boston, nor could Boston-licensed cabs carry return trips from the Share-A-Cab communities to Boston. This policy contributed to empty mileage and to the decline of the service.

One of the major barriers to the development of shared ride services has been the problem of coordinating the usually high numbers of small operators relative to registration and enforcement of rules. The Logan Airport Share-A-Cab service incorporates several large cab operators and numerous small operators, without significant administrative difficulty. This has provided information on resolving another key implementation obstacle.

3.3 SHARE-A-CAB OPERATIONS AND PERFORMANCE

There have been three phases of Share-A-Cab operation since its introduction. Phase-to-phase changes have included broadening of the number of destinations served and reductions in operating hours and guarantees.

Operator participation in the service is voluntary. The same restrictions (only City of Boston registered taxicabs may participate) and entry costs (\$.50 per trip charge) apply to the operators in the Share-A-Cab pool as in the regular taxi pool, the only difference being that once a driver enters the Share-A-Cab line, he cannot leave it.

3.3.1 Phase I - April 1977 to July 1977

The original Share-A-Cab was introduced as a service to 21 cities and towns lying northwest and west of Boston (see Figure 3-3). These areas accounted for approximately 25 percent of all air passengers' destinations, representing the majority of travel

outside the Boston city limits and, in the opinion of the originators of the service, constituted a good core "starter" system. Boston, which alone accounts for another 25 percent of air passenger destinations, was excluded at this time for the reasons described earlier.⁴

The initial service provided for no time guarantees to prospective riders. Taxicabs were dispatched only when a group of two to four passengers was formed. Deplaning passengers wishing to use Share-A-Cab would notify a dispatching agent in a booth in each terminal of their destinations and their desire for Share-A-Cab service. The agent would log them into the system, relay the destination to a central dispatching point, and then instruct the passenger on the approximate waiting time and where to await the Share-A-Cab service. Travelers were asked every 15 minutes whether they wished to remain in the queue or exit and secure other means of transportation. This policy was established with the hope of retaining as many riders as possible, to encourage operator participation, and to build credibility with passengers until the system reached steady-state operation.

Fares for the Share-A-Cab are zone fares, approximately one-half of the regular taxi fares, and are published in the MASSPORT Logan Airport Ground Transportation Services guide. Typical fares are shown in Figure 3-1. This guide is visible to all airport users. The operator receives the assigned fare for the trip from each rider, regardless of how many riders he is transporting. The fare is collected at the destination. Share-A-Cab fares have remained fairly constant since the service began.

MASSPORT is responsible for the administration of the service, which includes operations and enforcement. Employees were hired to dispatch vehicles and match riders, and to supervise and coordinate the program. Outside agencies or individuals were hired to handle advertising.

⁴Greenbaum, Karash, Attanucci, Bornstein, Implementation and Preliminary Impacts of a Shared-Ride Taxi Service for Boston Logan International Airport, January 1978, p. 9.

MASSPORT's operation of the Share-A-Cab service involves labor costs (salaries and benefits) and minor utility and administrative expenses. During Phase I, which lasted twelve weeks, operating costs were estimated at \$67,000. Approximately two-thirds of these costs were attributed to personnel costs. In addition to operating expenses, capital outlays peaked during Phase I. MASSPORT estimated initial capital costs at \$130,000. These outlays funded the design and construction of a special Share-A-Cab taxi pool holding area, the purchase and furnishing of a trailer for dispatching, the construction of matching booths, and the purchase of dispatching equipment including maps, time clocks, and paging equipment. In addition to these facility costs, initial marketing costs of approximately \$60,000 were expended.

Phase I of the Share-A-Cab service raised several operational and policy issues. Of primary importance were the exclusion of Boston and the lack of time guarantees to prospective riders. Although riders were apprised of their status every fifteen minutes, MASSPORT officials believed riders were dissatisfied with this facet of the operation. Taxi drivers were also not pleased with the system. First, the queue in the multi-ride pool averaged two to three hours compared to only 15-45 minutes in the regular taxi pool. Secondly, even after waiting for such an extended period, drivers were not guaranteed a full three- or four-person load. Incidences of drivers being dispatched with only one rider were most prevalent during the late night hours of operation. When drivers were given a load of only one or two passengers, the fare which they received was often less than a comparable exclusive ride, taking into account the distance and time involved in making the trip.

Driver complaints declined as drivers became more familiar with the system's advantages and disadvantages, payoffs and risks. Also, as drivers who disliked Share-A-Cab stopped participating, the wait times in the Share-A-Cab pool decreased.

Advertising in Phase I has been characterized as adequate or substantial by MASSPORT officials, but poor by taxi industry representatives. MASSPORT attempted to garner ridership by

placing large overhead signs throughout the baggage claim areas. In addition, Share-A-Cab booths, located in each matching area, served as a method of advertising in themselves. No definitive answers were available concerning the quality of the advertising. Other alternative advertising methods were available to MASSPORT, such as obtaining an agreement with the airlines to make an announcement describing the service to arriving passengers; however, MASSPORT did not, based on discussions with Mr. Ted Kline of Taxi News Digest and Dr. Stephan Chait, aggressively investigate all of the alternatives. In addition, Dr. Chait stressed the point that the "gamble" of risking a single fare versus the opportunity of gaining a full three- or four-passenger load should have been stressed to the drivers. MASSPORT did not promote this concept in any phase of the program but instead kept drivers informed of the rules and regulations to be followed when operating at Logan.⁵

MASSPORT was heavily involved in finding ways to pay for the Share-A-Cab service. Tied directly to the start-up of the service in April 1977, was an increase in the taxi pool entrance fee, which rose from \$.10 to \$.50. This fee is paid by both group-ride and exclusive-ride taxis into the airport's general operating fund. The increased pool fee almost offset the increased taxi-related expenses due to Share-A-Cab, so that overall, MASSPORT's annual taxi-related deficit increased only \$900 from \$286,250 to \$287,150.⁶ Most observers agree that, politically, MASSPORT could not have raised the pool fee except by tying it to the negotiations for Share-A-Cab.

Share-A-Cab ridership did not follow any perceptible trends in its first three months of operation. As shown in Figure 3-4, airline passenger arrivals gradually rose during Phase I.

⁵Various interviews conducted in October 1982.

⁶Greenbaum, et al., Implementation and Preliminary Impacts of a Shared-Ride Taxi Service for Boston Logan International Airport, January 1978, p. 17.

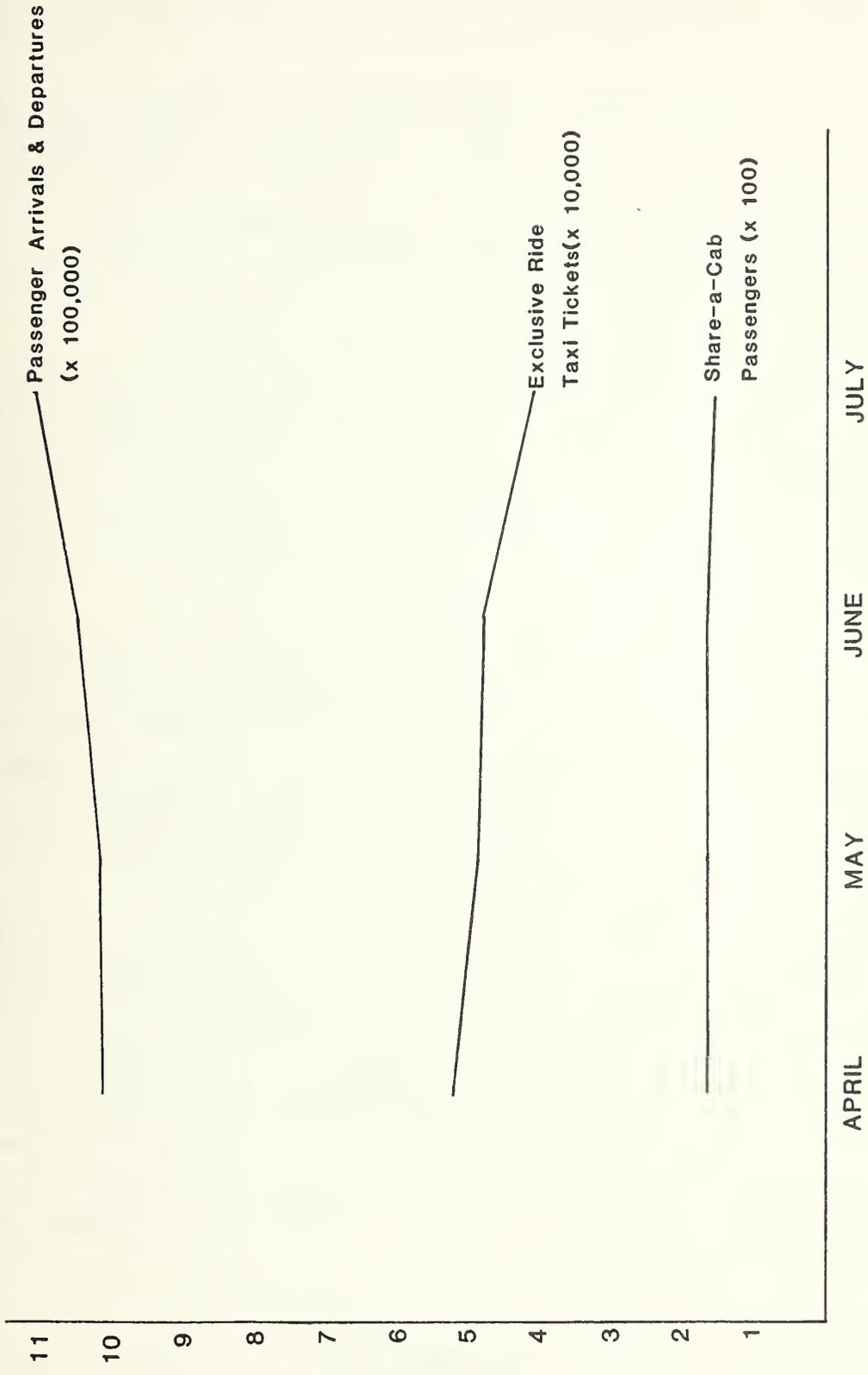


FIGURE 3-4. SHARE-A-CAB DAILY RIDERSHIP-PHASE I

Exclusive ride taxi tickets sold (a ticket is purchased by each taxi entering the Logan Airport taxi pool) showed a slight decline during the phase, while Share-A-Cab held reasonably steady.

During Phase I, MASSPORT compiled weekly statistical reports that included service requests, passengers served and cabs dispatched, cab occupancy, and frequency of destinations served. In addition, MASSPORT conducted a short, week-long user survey. The survey requested information on user mode choice in the absence of Share-A-Cab, frequency of airport use, and other items.

According to the weekly statistical reports, the initial Share-A-Cab service provided transportation to 4.2 percent of all air travelers going from Logan to the communities served. An average of 60 taxicabs per day were dispatched. Combining this figure with the observed average daily ridership of 174 yields an average Share-A-Cab occupancy of 2.9.

The survey produced the following results: 52.4 percent of Share-A-Cab passengers were traveling to a residence, 24.6 percent were going to a hotel, and 15.3 percent had never traveled through Logan Airport before. If Share-A-Cab had not been available, 59.7 percent of the respondents would have traveled by regular taxi, 20 percent by private auto or rental car, and 18.8 percent by bus, limousine, or transit.

Typical riders using Share-A-Cab were students and other persons who have a flexible time schedule and a desire to minimize costs. A large portion of total ridership was comprised of Cambridge area college students. According to Ted Kline of Taxi News Digest, other riders are often families (it would actually be cheaper for them to take an exclusive-ride taxi) and salesmen (who pay a shared-ride fare but put a regular taxi fare on their expense sheets). Mr. Kline also stated that Share-A-Cab users tend to be poor tippers.

3.3.2 Phase II - July 1977 to August 1978

On July 19, 1977, just twelve weeks after its inauguration, Share-A-Cab was enlarged to serve 138 towns and cities outside of

the City of Boston (see Figure 3-5). Nine weeks later, a guarantee of a 15 minute maximum wait period for passengers, a substantial improvement in the level of passenger service, was implemented. These two improvements resulted in an increase of approximately 100 riders per day, raising the daily average to 270 passengers. Share-A-Cab operated in the following manner:

- o Share-A-Cab operated 7 days per week outbound from Logan to 138 towns and cities located outside the City of Boston between the hours of 7:30 a.m. and 11:30 p.m.
- o Individual riders using Share-A-Cab continued to pay a fixed, published fee, regardless of the number of riders assigned to the taxicab. This fare was approximately one-half the average fare for exclusive service to the destination.
- o Prospective users accessed Share-A-Cab service by notifying an attendant at one of the booths located in each of the five terminal areas of Logan Airport. These attendants then relayed the destination to a central dispatching point where matches were made.
- o Taxicabs were dispatched to the various terminal areas, as passengers were matched or when the 15 minute time guarantee expired.
- o Taxicabs that were forced to take a single rider or left with a single or no passenger due to no-shows were given priority upon return to the Share-A-Cab taxi pool. This priority ensured the operator that the next trip would be a multiple load. This privilege was not transferable and could be used only on the same day.
- o Route and order of drop-off were recommended by MASSPORT staff; however, the ultimate decision was left to the driver. Passenger complaints, which were infrequent, were reported directly to MASSPORT officials by phone or letter, whereupon operators would be notified and reprimanded if the complaint was valid.

Staffing levels during this phase of operation were surprisingly high, leading to high costs. Each of the five Share-A-Cab booths was staffed for a 16-hour operating period (8-hour shift per attendant). The only exception was the International Terminal, where fluctuating demand required shorter operating hours, resulting in a decrease in the number of attendants needed. In addition to the booth attendants, seven

supervisors were hired to oversee daily operations and to make final matches. One supervisor matched riders' destinations on a pinboard, while the other supervisors either carried out administrative office tasks or roamed terminal areas, maintaining surveillance and assisting where necessary. Six taxi dispatchers were also employed, giving the program a total of 23 employees. According to MASSPORT, all employees performed tasks related solely to the Share-A-Cab service.

Share-A-Cab ridership levels benefited from the implementation of the 15 minute maximum wait time. Ridership rose to a peak of 312 daily riders. During most of Phase II, daily ridership averaged 270 (see Figure 3-6). This is contrasted with an average daily ridership of 170 in Phase I. The impact of the growth in service area cannot be determined. Ridership did go to areas not present in Phase I; however, the subsidy per rider also rose, and can be tied to the lower density of the increased service area. According to MASSPORT's weekly statistical reports, Phase II provided transport to 2.7 percent of all air travelers going from Logan to the destinations served. In Phase I, the figure was 4.2 percent. In addition, the reports showed that over 15 percent of all Share-A-Cab vehicle trips were single rider. Taxi occupancy dropped from an average of 2.9 in Phase I to 2.16 in Phase II. This is probably due to the higher number of possible destinations and the resultant lower density service area.

For dispatching purposes, the Share-A-Cab service area was split into seven corridors, emanating radially from Boston's city limits, as shown in Figure 3-7. Almost two-thirds (60%) of all trips terminated in one of the two western corridors, which included such areas as Cambridge, Brookline, Concord and Framingham; 21 percent of all trips went into the two northern corridors; and only 14 percent had destinations in the three southern corridors.

Taxi operators were concerned about the implementation of the 15-minute passenger guarantee. In practice, drivers were given more single passenger fares in the Share-A-Cab queue than

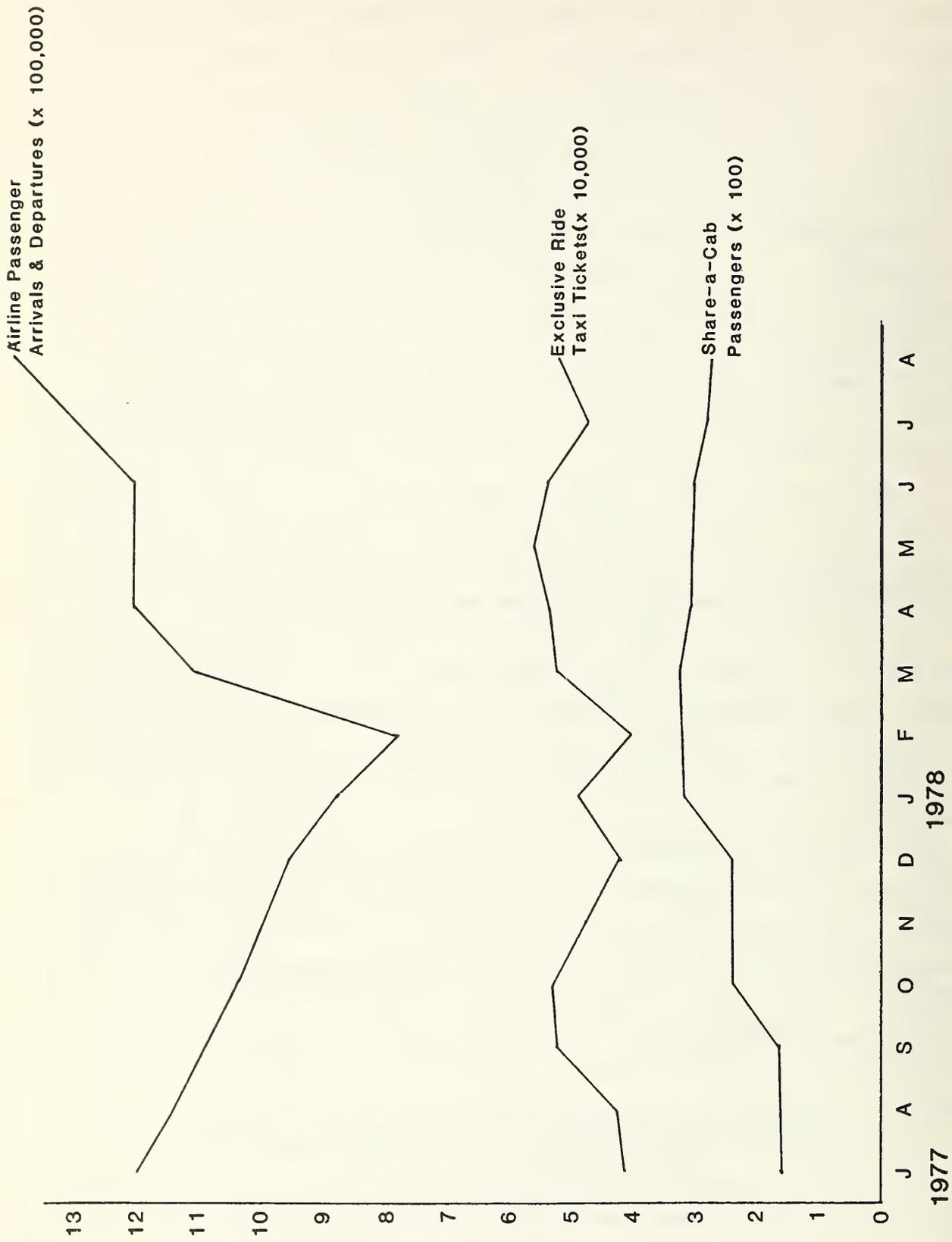


FIGURE 3-6. SHARE-A-CAB DAILY RIDERSHIP--PHASE II
 JULY 1977 TO AUGUST 1978



FIGURE 3-7. SHARE-A-CAB DESTINATIONS-PHASE II
JULY 1977 TO AUGUST 1978

in Phase I. With the increase in the number of single passenger fares, the gamble taken by the driver when entering the Share-A-Cab pool shifted away from the chances of obtaining a full load. The result was an observed decline in the number of drivers participating in the Share-A-Cab program. A survey undertaken by the EOTC determined that approximately 60 drivers "played" Share-A-Cab regularly. However, there was always an adequate supply of Share-A-Cabs to serve the passengers.

Phase II showed an increase in ridership, a wider variety of passenger destinations, and passengers more satisfied with the service, primarily due to the 15-minute maximum wait guarantee. MASSPORT was pleased with the gains in ridership but the costs of the program, specifically the rising subsidy per passenger cost, led MASSPORT to ask the EOTC to study the program to determine where budget cutbacks could be made without seriously damaging the Share-A-Cab service. The EOTC study recommended significant cuts in staffing and the introduction of telecommunications equipment. These changes were implemented in Phase III.

3.3.3 Phase III - September 1978 to June 1982

Following the issuance of the EOTC report, Share-A-Cab staff was cut from 23 employees to 13 by October 1978. Five supervisors and eight dispatchers were retained. Later the system was cut down to a skeleton work force of only three full-time employees. This reduction in force took place through a combination of attrition and transfer of employees to aid the exclusive-ride service.

As the number of employees declined, MASSPORT either reduced the operating hours of individual booths at each terminal, or suspended their use entirely. Later and most significantly, in August 1981, the wait-time guarantee was discontinued.

The policy of taxi pickup at each terminal was also replaced by a single collection area located in Terminal D (see Figure 3-8). Terminal D was where a large fraction of Share-A-Cab participation had been centered. This was a major change in the quality of service for passengers deplaning at other terminals.

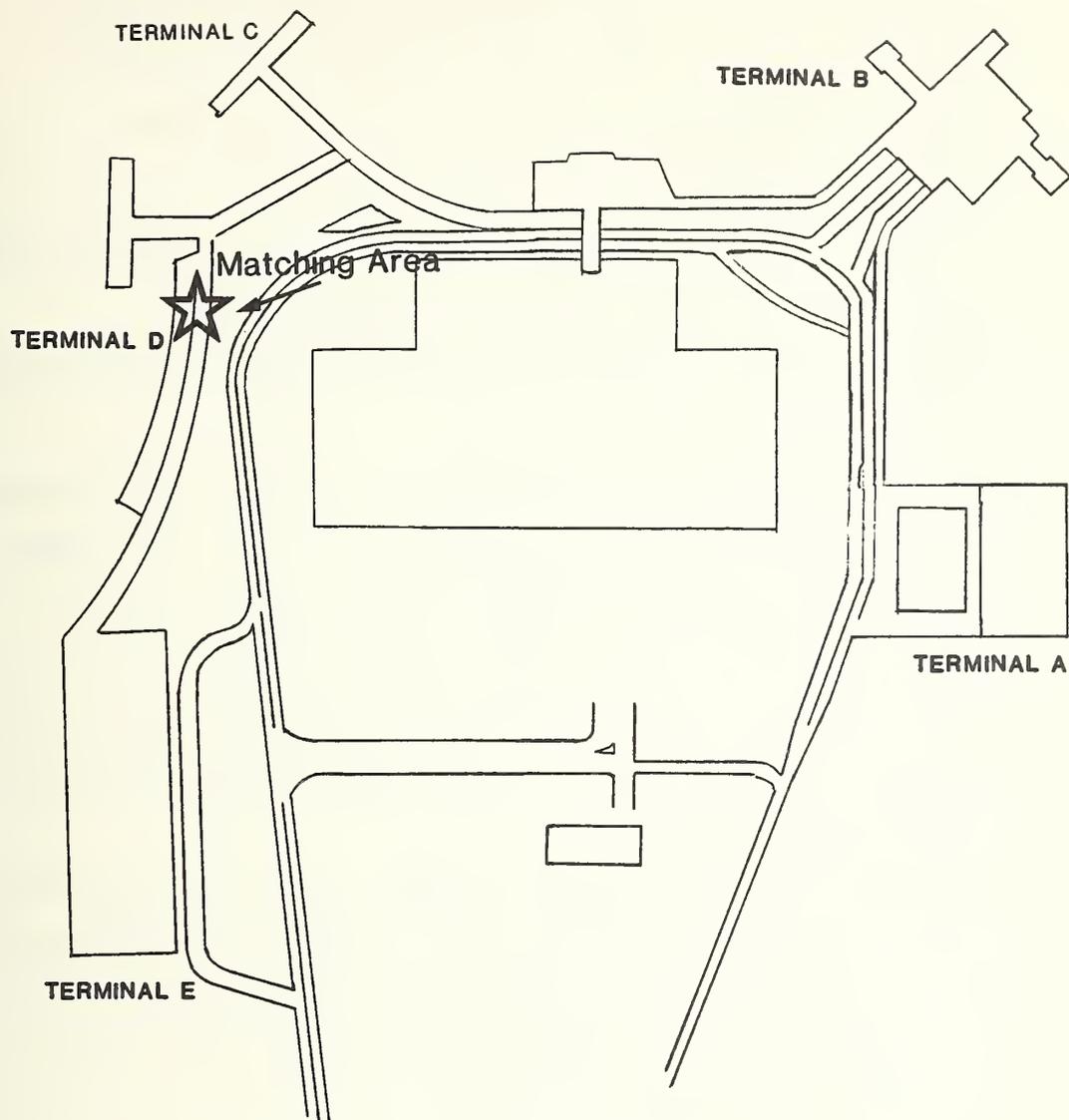


FIGURE 3-8. SHARE-A-CAB MATCHING AREA-PHASE III
SEPTEMBER 1978 - JUNE 1982

Except for a short time period when a van transported Share-A-Cab patrons to the Share-A-Cab loading point, riders were responsible for getting there on their own, using one of three methods:

- o Walk: infeasible with baggage, poor sidewalks, and no signs to indicate which way to go.
- o MASSPORT bus: awkward with baggage; need to choose correct bus from several routes; need to pay \$.25 fare (until bus was made free in November 1984)
- o Taxi: cost of about \$2.00 and no credit toward Share-A-Cab fare.

Combined with a lack of guaranteed service, these changes meant that a traveler with baggage could actually pay more by choosing Share-A-Cab than choosing regular taxi service. To choose Share-A-Cab, a traveler might pay a \$2.00 cab fare to get to the loading point, and then, if no match materializes within an hour or two, take a regular taxi at full fare. The affluent traveler does not need to share a cab, and the cost-conscious traveler cannot afford the risk.

In place of the Share-A-Cab booths, several Share-A-Cab phones, as recommended by EOTC, were installed within each terminal, and a main matching and departure booth was constructed in Terminal D. Under this new operation, prospective Share-A-Cab riders were directed by signs to a Share-A-Cab phone, located in each of the five terminal lobbies, to call the central dispatching unit, which would record their destination and request time and instruct them on where and how to proceed. Waiting participants were updated on their status every 15 minutes by the dispatcher, and were allowed to withdraw from participation at any time. Operating hours were cut in half to 3:30 p.m. to 11:00 p.m. from the previous hours of 7:30 a.m. to 11:30 p.m.

Fares remained steady during Phase III; however, the withdrawal of the 15-minute time guarantee and the reduction in operating hours and pick up points delivered a strong blow to ridership levels. Figure 3-9 shows that ridership fell from a Phase II daily average of 280 in early 1980 to 82 by late 1981.

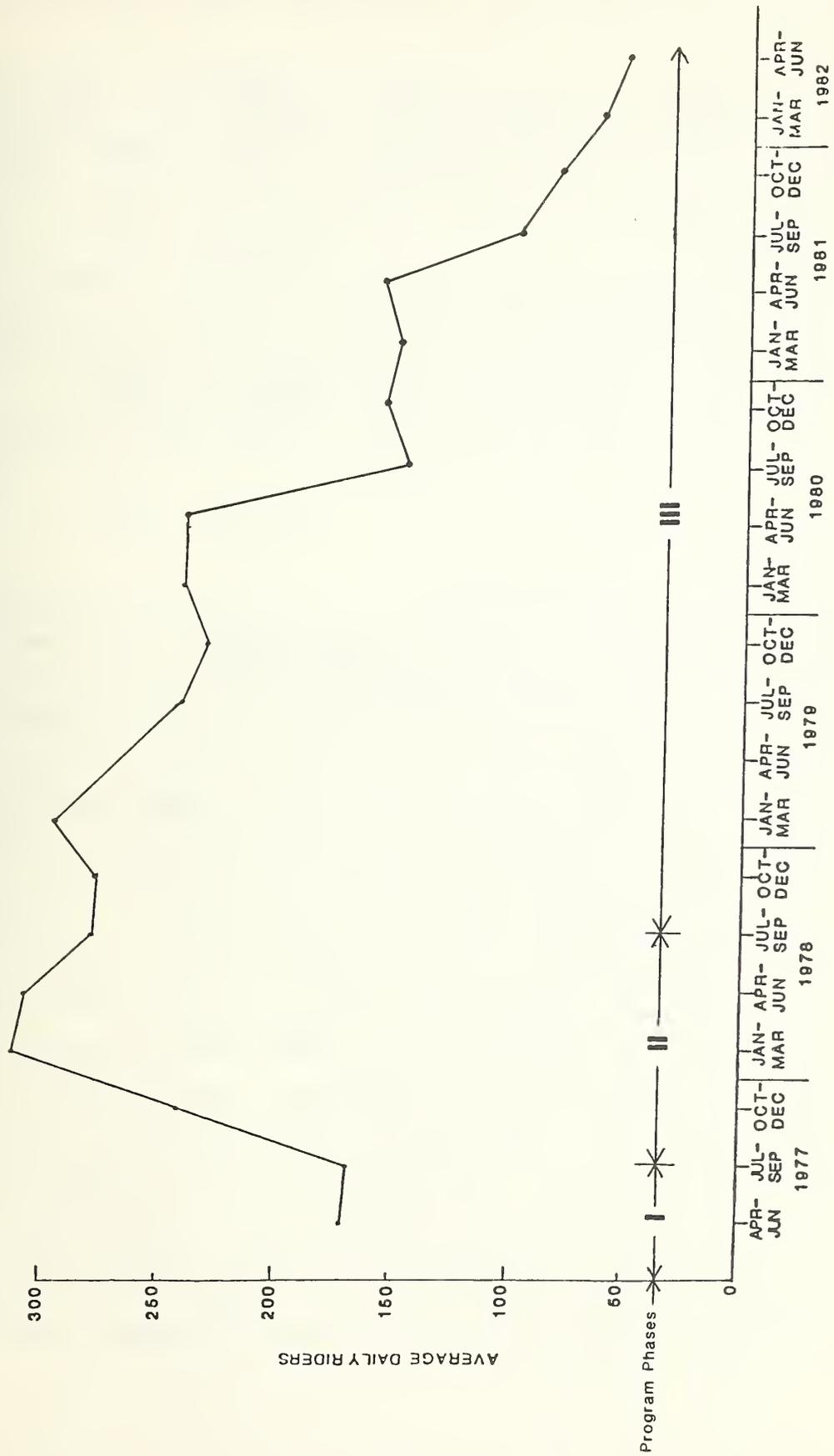


FIGURE 3-9. DAILY SHARE-A-CAB RIDERSHIP (QUARTERLY AVERAGE)

The reduced ridership lengthened the wait for a match, so ridership continued to decline. As of June 1982, the average daily ridership had fallen to 58.

Directly tied to the cutbacks in staffing, MASSPORT operating costs fell to \$48,000 for fiscal 1982. MASSPORT estimated the 1982 per passenger subsidy at \$3.18. Coincidentally, this was the same subsidy level that existed in Phase I.

As a result of dispatching being now limited to one point, advertising has dropped substantially. Small blue signs accompanied by telephones are all that remain in terminals other than at Terminal D where the dispatching area is located.

Table 3-2 summarizes the attributes of each phase of Share-A-Cab.

3.4 CONCLUSIONS AND RECOMMENDATIONS

MASSPORT's Share-A-Cab service at Logan Airport was a short-lived success. It was welcomed by riders who had destinations outside the City of Boston and saw it as an inexpensive means of travel. However, the principal shortcomings of the service--no service to the City of Boston and lack of quick rider matches--discouraged or ruled out major travel market segments, particularly business travelers. Also, being a one-way service, it could not compete with the drive and park mode; to attract travelers who generally drive to the airport and park there, one would have to provide an affordable fare in both directions. Ridership acceptance of Share-A-Cab has been steadily eroded by budget cuts which caused service reductions, consolidation to a single terminal, and, most importantly, the abandonment of the 15 minute wait time guarantee. Ridership levels have dropped since those who were originally attracted to the program by the exchange of a small amount of time for monetary savings could not be assured prompt transportation under the new policy. Furthermore, as ridership dropped, the incentive to operators and the

TABLE 3-2. SHARE-A-CAB ATTRIBUTES BY PHASE

<u>Phase</u>	<u>Dates</u>	<u>Weekly Operating Hours</u>	<u>No. of Pickup Points</u>	<u>No. of Communities Served</u>	<u>15 Min. Guarantee Y or N</u>	<u>Avg. Daily Riders</u>	<u>Subsidy Per Passenger¹</u>
I	5/77- 7/77	7:30 AM - 11:30 PM 7 Days	5	21	N	174	\$3.18
II	8/77- 8/78	7:30 AM - 11:30 PM 7 Days	5	138	Y	270	\$4.68
III	9/78 6/82	3:30 PM - 11:00 PM 7 Days	1	138	N	82	\$3.18

¹Subsidy is calculated at MASSPORT in the following manner:

$$\frac{\text{Operating Cost} - \text{Taxicab Entrance Fees}}{\text{Total Ridership}}$$

probability of convenient matches has declined as well. Limousine services have also proven to be competitive to destinations served by Share-A-Cab.

Share-A-Cab now appears to be the dying ember of what may have been a good idea, and is likely to be eventually phased out. Chief among its many problems was the fact that it was not planned and executed to elicit its full potential, but rather was the final, filtered-out product which resulted from compromising diverse institutional interests, chief of which are:

1. city taxi regulations which limited participation in the program to taxicabs licensed by the city of Boston, although Share-A-Cab could not carry passengers from the airport to Boston, nor could Boston-licensed cabs carry return trips from the Share-A-Cab communities to Boston; and
2. the taxi industry itself, which resisted limo-type operations to or from Logan.

In addition, the program was never wholeheartedly supported or marketed. In some sense, it is surprising that it worked as well as it did, and that is probably due to the relatively poor alternatives to and from Logan. Mass transit from Logan to most destinations served by Share-A-Cab requires three or more transfers (i.e., four or more vehicles).

APPENDIX A

RESOURCE CONTACTS



LAGUARDIA AIRPORT SHARE-A-CAB CONTACTS

- o Metropolitan Taxicab Board of Trade
Ms. Betty Lawrence
Mr. Bernard Lerner
24-16 Queens Plaza South
Long Island City, NY 11101
718-784-4511

- o Taxi and Limousine Commission
Mr. Jay Turoff, Chairman
221 West 41st Street
New York, NY 10036
212-382-9307

- o Port Authority of New York and New Jersey
LaGuardia Airport, Flushing Station
Flushing, NY 11371
Attn: Mr. Thomas Lewandowski
718-476-5000

CHICAGO SHARE-A-CAB CONTACTS

- o Mr. Jerry Feldman
Yellow Cab
312-421-1300

- o Mr. Tom Sharp
City of Chicago Department of Consumer Services
City Hall
121 N. LaSalle Street
Chicago, Illinois 60602
312-744-5092

- o Mr. Joseph Ligas
Chicago Area Transportation Study
300 W. Adams Street
Chicago, Illinois 60606
312-793-3456

- o Mr. Roy Bell
Chicago Area Transportation Study
300 W. Adams Street
Chicago, Illinois 60606
312-793-3456

LOGAN AIRPORT SHARE-A-CAB CONTACTS

- o Mr. Ted Kline
Manager, Taxi News Digest
253 Summer St.
Boston, Massachusetts 02210
617-426-2068
- o Ms. Karla Karash
Executive Office of Transportation and Construction
Boston, Massachusetts 02210
617-973-7000
- o Dr. Stephan Chait
Transportation Consultant
18 Brattle Street, Suite 353
Cambridge, MA 02138
617-547-3332
- o Mr. Les Barenholtz
Boston Cab Company
Boston, Massachusetts
617-266-0875
- o Mr. Pat Russell
Checker Cab Company
Boston, Massachusetts
617-536-7500
- o Mr. Joseph Greene
Mr. James White
Ms. Kathleen Scannell
MASSPORT
Boston Logan International Airport 02128
617-561-1617



APPENDIX B

**MISCELLANEOUS BACKGROUND LITERATURE
RELATED TO LAGUARDIA'S SHARE-A-CAB PROGRAM**



THIS OFFICE IS A
REDEMPTION CENTER
for
GROUP RIDE VOUCHERS

ALL VOUCHERS PRESENTED BY DRIVERS MUST BE REDEEMED AT THEIR
FACE VALUE LESS FIFTY CENTS .

REDEMPTION HOURS:

9:30 A.M. - 3:00 P.M.

MONDAY - FRIDAY

All vouchers to be redeemed must bear a raised seal, as the attached sample has; you must be able to feel this raised area when you run your fingers over the voucher. IF SEAL IS NOT PRESENT, please call Taxicab Dispatch Service at 784-4511 immediately.

TAXICAB DISPATCH SERVICE, INC.
24-16 Bridge Plaza South
Long Island City, New York 11101
212 784-4343

ATTENTION ALL DRIVERS - PLEASE - READ IMMEDIATELY!

EFFECTIVE MONDAY, MAY 19TH, THERE WILL BE AN INCREASE IN THE RATE OF FARE FOR GROUP RIDES. In addition, the METHOD OF PAYMENT WILL BE CHANGED TO A CASH BASIS, rather than the current voucher system.

DRIVERS WILL RECEIVE PAYMENT AS FOLLOWS: (Tips and tolls not included)

Zone	Current payment per passenger	New Payment per passenger	Net fee to driver, Group of 3 passengers
A	\$4.50	\$5.00	\$15.00
B & C	5.50	6.00	18.00

This means that drivers will receive \$1.50 more on each group of three passengers, but more importantly, because of the change-over to cash payments, your valuable time will be saved by the elimination of the need for voucher redemption!

The Group Ride Dispatcher at the airport will receive payment from each passenger, will issue the passenger a receipt for their fare, and will then give each driver his fare IN CASH on the spot, when he has loaded the passengers into your cab. We hope that this will eliminate the problems you have had in the past with voucher redemption.

However - ALL OUTSTANDING VOUCHERS MUST BE REDEEMED WITHIN THIRTY DAYS; NO VOUCHERS WILL BE ACCEPTED FOR REDEMPTION AFTER JUNE 18TH. Please be sure to turn in all vouchers in your possession to a Redemption Center prior to that date.

We would like to take this opportunity to thank all of you for your cooperation in making the Group Ride program the success it has become.

Dear Share-A-Cab Passenger:

We're very happy that you and over 300,000 other passengers have participated in our group taxi riding program over the past three years. We've had many positive comments about this program, and also many requests for comparable service from Manhattan to the airport.

In response to those requests, we are looking into the feasibility of service from the city to the three airports serving the city, and we need your help. You will find some suggestions for group taxi departure points in Manhattan. We would appreciate it if you would indicate one or two points which would be convenient for you if you were taxiing to the airport. Please indicate your first and second choice of location below by inserting the numeral 1 or 2 on the line next to the location.

46th St. and Park Avenue
(Near Grand Central) _____

38th St. and Broadway
(Garment Center) _____

53rd between 6th & 7th Ave.
(Area of Hilton & Sheraton Centre) _____

One World Trade Center _____

55 Water Street _____

One Chase Manhattan Plaza _____

We'd also like to know the hour you would usually take a taxi to the airport:

1 P.M. _____ 2 P.M. _____ 3 P.M. _____ 4 P.M. _____

5 P.M. _____ 6 P.M. _____ 7 P.M. _____ 8 P.M. _____

Please hand this form to any Share-A-Cab Dispatcher on your next trip out of La Guardia Airport before July 10, 1982, or mail to:

TAXI TOGETHER



SHARE A CAB

SAVE YOUR VALUABLE TIME!

TAKE A GROUP TAXI RIDE TO THE AIRPORT -

FAST, ON-DEMAND SERVICE!

BEGINNING JUNE 23RD

GROUP RIDES DEPART FROM:

1. 55 Water Street (operating hours 2:00 - 6:00 P.M.)
2. Five World Trade Center - Church & Vesey Streets (12 Noon - 6:00 P.M.)

RATE OF FARE STRUCTURE: (Tips and tolls not included)

Destination	# of passengers	group rate per passenger	Average meter fare	potential savings to each passenger
La Guardia	3	\$ 7.00	\$16.50	\$ 9.50
"	2	10.00	16.50	6.50
JFK	3	12.00	29.00	17.00
"	2	16.00	29.00	13.00
Newark	3	13.00	39.00*	26.00
"	2	17.50	39.00	21.50

*Average meter fare for Newark Airport reflects double the meter reading, as required by Taxi and Limousine Commission regulations for out-of-town trips.

ALL FARES BASED ON DROP-OFF AT PASSENGERS' EXACT DESTINATION - I.E., TERMINAL OF CHOICE AT THE AIRPORT.

See the Dispatcher at either of the above locations; he will form a group for you and give you a receipt for your fare when he loads the taxicab.

For further information, call Taxicab Dispatch Service, Inc. - 784-4343

REFERENCES

1. Cambridge Systematics, Inc., LOGAN AIRPORT MASTER PLAN STUDY: GROUND TRAFFIC AND TRANSPORTATION, April 10, 1980.
2. Chicago Area, Transportation Study, AN ANALYSIS OF GROUND TRANSPORTATION TO CHICAGO-O'HARE INTERNATIONAL AIRPORT, Planning Working Paper #83-7, March 1983.
3. Chicago Area Transportation Study, CHICAGO TAXI INDUSTRY: FINANCIAL STRUCTURE AND OPERATIONS, November, 1981.
4. Chicago Area Transportation Study, SUPER SAVER TAXI PROGRAM EVALUATION REPORT, Technical Memo 83-07, June 1983.
5. Gilbert, Gorman, et al., TRANSIT OPERATION CHARACTERISTICS REPORT: DOT-I-83-55, September 1982.
6. Greenbaum, Karash, Attanucci, Bornstein, IMPLEMENTATION AND PRELIMINARY IMPACTS OF A SHARED-RIDE TAXI SERVICE FOR BOSTON LOGAN INTERNATIONAL AIRPORT, January 1978.
7. Greenbaum, Daniel S., et al., "Implementation and Preliminary Impacts of Shared-Ride Taxi Service at Boston Logan International Airport," URBAN TRANSPORT SERVICE INNOVATIONS, Special Report 184 (Washington: Transportation Research Board, National Academy of Sciences, 1979), pp. 135-42.
8. Port Authority of New York and New Jersey, Aviation Department, Aviation Economics Division: "Airport Statistics."
9. Port Authority of New York and New Jersey, PORT AUTHORITY AIRPORTS: ORIGIN BY MODE, 1972 AND 1978.
10. Taxicab Dispatch Service, FACT SHEET, May 31, 1982.
11. Taxicab Dispatch Service, MEMORANDUM: GROUP RIDE PROGRAM, DOWNTOWN MANHATTAN, August 25, 1980.



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