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BENEFIT-COST ANALYSIS OF INTEGRATED PARATRANSIT SYSTEMS
Volume 4: Issues in Community Acceptance and IP Implementation

Multisystems, Inc.
Cambridge MA 02138

SEPTEMBER 1979
FINAL REPORT

Prepared for

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Office of Technology Development and Deployment
Office of Bus and Paratransit Technology
Washington DC 20590

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16. Abstract

This study systematically estimates potential impacts of a range of integrated transit/paratransit options and policies in a variety of settings and compares them with impacts of transportation alternatives.

The study concludes that, in general, integrated paratransit with fares closer to fixed-route transit than exclusive-ride taxi will result in net paratransit operating deficits. However, in some instances, the benefits of integrated paratransit options in terms of improved service levels and mobility, reduced auto expenditures and other impacts appear to offset these operating deficits. Necessary factors for this include high paratransit productivities, possibly achieved by implementing hybrid, fixed-route/demand responsive service; and low operating costs, possibly achieved by contracting with private operators. Integrated paratransit was found to have a positive but insignificant impact in reducing automobile usage and ownership, but no measurable impact on vehicle miles travelled, fuel consumption, or emissions. Promising locations for paratransit implementation are those areas with population densities between 3,000 and 6,000 persons per square mile and limited existing transit service. The most promising paratransit concepts appear to be checkpoint many-to-many service, route deviation service, automated doorstop service with high vehicle densities and vanpool service. The results of the study further suggest that paratransit service demand is sensitive to fare; fare increases above $.25 were determined to be counterproductive, while free transfers from feeder services to line haul became an inducement to use paratransit. The study also concluded that digital communications and automated dispatching systems are potentially cost-effective technological innovations.

This is the fourth volume of the six volume series documenting this study. This volume contains analyses of factors influencing community acceptance of integrated paratransit systems.

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PREFACE

Integrated paratransit (IP) service is a concept which involves the integration of conventional fixed-route transit services with flexible, demand-responsive services in order to best serve emerging urban development patterns. Despite the emphasis that has been placed on the analysis and demonstration of paratransit concepts in recent years, there is still considerable confusion and disagreement concerning the impact of paratransit service deployment. To learn more about the capability of IP to meet the transit needs in the urban/suburban environment, the Urban Mass Transportation Administration sponsored a study to identify and define the benefits due to and the costs associated with the deployment of various hypothetical IP systems. The work was performed by Multisystems, Inc. in association with Cambridge Systematics, Inc., and Applied Resource Integration, Ltd. under contract to the Research and Special Programs Administration's Transportation Systems Center. Richard Gundersen was Technical Monitor of the study. The Final Report was edited by Larry Levine.

The results of the study are documented in a Final Report which consists of the following six volumes:

Volume 1 - Executive Summary
Volume 2 - Introduction and Framework Analysis
Volume 3 - Scenario Analyses
Volume 4 - Issues in Community Acceptance and IP Implementation
Volume 5 - The Impacts of Technical Innovation
Volume 6 - Technical Appendices.

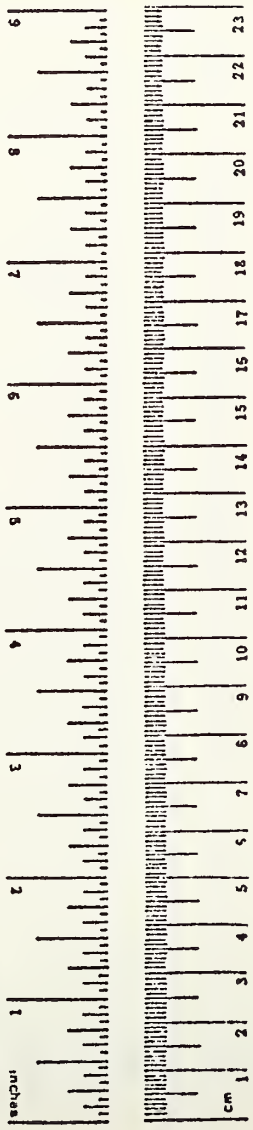
This is Volume 4 - Issues in Community Acceptance and IP Implementation. Applied Resources Integration, Ltd. had the primary responsibility for researching this area and writing the volume, with assistance from Multisystems, Inc. This volume summarizes the analysis of factors influencing community acceptance of integrated paratransit systems.

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

*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price $2.25, SD Catalog No. C13.10:286.



Approximate Conversions from Metric Measures

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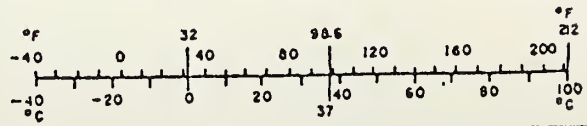

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Report Overview

Introduction

This report describes various factors which influence community acceptance of integrated paratransit (IP) systems. In order to fully explore past events in those communities which have already accepted IP, a case study approach has been used. Seven well known IP systems were selected for analysis, based on system size, extent of community acceptance, and availability of data. Given the experiences in each case study, certain generalizations have been made about factors which seem common to each site, and comparisons have been made to show the resultant influences of different policies or other factors at the local level.

Each case study is based on a detailed investigation of the events prior to and during the implementation and operation of the IP system. Generally, but not always, the following factors were investigated and detailed:

- Background and development of IP concept.
- Relevant background and history of the local transit operator.
- Political forces acting for and against the IP concept.
- Perceived reasons for community support.
- Millage or other tax elections held to generate funding for the IP system.
- Any private operator legal actions against the IP system and resultant court decisions.

- Any relevant agreements with transit labor unions.
- Any relevant subcontracting arrangements with private operators.
- Attitudinal or voter surveys pertaining to community support.
- Brief history of implementation experiences.
- Relationship of IP system to prior conventional transit services and effect of changes to prior service, if any.
- Cost of IP system and communities perception of the efficiency of the system.

The following seven IP systems were chosen for analysis in this report:

A. Ann Arbor, Michigan TELETRAN

B. Michigan Statewide DART Program

C. Rochester, New York PERT System

D. Cleveland, Ohio CRT System

E. Orange County, California (La Habra, Orange, Fullerton)

F. Santa Clara, California APT System

G. AC Transit (Richmond, Newark/Fremont)

In making this selection, an attempt was made to include "failure" (e.g., Santa Clara) as well as successes, and to include systems which were directly approved by voter referenda. Exhibit 1 summarizes some characteristics of each case study. Each IP system is briefly described below.

A. Ann Arbor, Michigan

The Ann Arbor Transportation Authority (AATA) operates a city-wide IP system which includes a well coordinated set of fixed routes and demand-responsive services called Teltran. Service began with a state funded demonstration in 1971. In 1973 voters approved a property tax millage election for city-wide IP. Since 1976, Teltran has been in full operation.

Exhibit 1: Summary of Integrated Paratransit Case Studies

CASE STUDY	GENERAL LOCATION	SPECIFIC SERVICE AREA	SPONSORING GOVERNMENT AGENCY	OPERATOR	IP SYSTEM NAME
1.	Ann Arbor	Ann Arbor	AATA	AATA	Teltran
2.	Michigan	26 locations	UPTRAN	Varied	DART
3.	Rochester	Greece	R-GRTA	RTS	PERT
		Irondequoit	R-GRTA	RTS	PERT
		Henrietta	R-GRTA	Open Bid	PERT
		Brighton	R-GRTA	Open Bid	PERT
4.	Cleveland	Cuyahoga County	RTA	RTA & Yellow Cab	CRT
		3 Selected Areas	City of Cleveland	CTS	N.E.T.
5.	Orange Cty, Cal.	La Habra	OCTD	Dave Systems, Inc.	Dial-A-Ride
		Orange	OCTD	Yellow Cab	Dial-A-Ride
		Fullerton	OCTD	Yellow Cab	Dial-A-Ride
6.	Santa Clara Co, Cal	Santa Clara Co.	SCCTD	SCCTD	APT
7.	Newark/Fremont	Richmond	AC Transit	AC Transit	None
		Newark/Fremont	AC Transit	AC Transit	Dial-A-Ride

Abbreviation:

RTA - Regional Transit Authority

UPTRAN - Bureau of Urban & Public Transportation

AATA - Ann Arbor Transportation Authority

R-GRTA - Rochester-Genesse Regional Transportation Authority

OCTD - Orange County Transit District

SCCTD - Santa Clara County Transit District

AC Transit - Alameda - Contra Costa County Transit

CTS - Cleveland Transit System

RTS - Regional Transit System

CRT - Community Responsive Transit

NET - Neighborhood Elderly Transportation

PERT - Personalized Transit

APT - Arterial/Personalized Transit

B. Michigan State

The Michigan Bureau of Urban and Public Transportation (UPTRAN) has provided first year demonstration funding to smaller cities and towns for Dial-A-Ride Transportation (DART) systems. DART services provide short notice demand-responsive services to the public. The UPTRAN program has generally resulted in the continuing operation of DART systems on a regular basis after demonstration funding ended. Many of the communities which received DART funds have held property tax millage elections, 85% of which have been successfully approved by the voters.

C. Rochester, New York

The Rochester-Genesee Regional Transit Authority (R-GRTA) sponsors a short notice demand-responsive service known as PERsonal Transit (PERT), in the suburbs of Greece and Irondequoit. PERT service was also implemented in the suburbs of Henrietta and Brighton in 1978. PERT has been funded under an UMTA demonstration grant which began in 1975 and will continue until 1979. The Greece and Irondequiot PERT services are operated by the Regional Transit Service (RTS), and operating subsidiary of the R-GRTA. The Henrietta and Brighton services are operated by a private operator, following a competitive bid process. Both RTS and private firms were allowed to bid on the new PERT services.

D. Cleveland, Ohio

Community Responsive Transit (CRT) is a county-wide, 24-hour advance notice completely demand-responsive service restricted to the elderly and handicapped. Two-thirds of the service is operated by the Regional Transit Authority (RTA), using a special labor classification, CRT operator; these operators receive 69% of the regular wage rate. One-third of the service is contracted to the Yellow Cab Company. CRT was preceded by an UMTA/HEW demonstration called Neighborhood Elderly Transportation (NET), which provided short notice demand-responsive service in three small selected areas of Cleveland. NET was sponsored by the City of Cleveland, but was operated originally by the Cleveland Transit System (CTS), the precursor of the RTA.

E. Orange County, California

The Orange County Transit District (OCTD) has sponsored community dial-a-ride services since 1973. All dial-a-ride services are operated by private contractors under contract to the OCTD. Service began with a demonstration in La Habra which was continued on a permanent basis. In 1975, dial-a-ride service was initiated in Orange. This service was replaced for a year with a fixed route service as a result of an injunction filed by local taxi firms. The injunction was overturned by an appeals court and the Orange dial-a-ride service was re-instituted. Service began in Fullerton in 1977. Service in additional communities is planned, and an UMTA demonstration grant is pending.

F. Santa Clara County, California

The Santa Clara County Transit District (SCCTD) operated a large scale IP system known as Arterial/Personalized Transit (APT) for six months, from 1974 to 1975. APT was the most extensive IP system ever attempted, involving about 200 vehicles in county-wide express fixed routes and 18 different demand-responsive zones. The total service are included over 1 million people. APT was terminated in responses to numerour problems, which included excessive demand, high costs, low level of service, complaints about fixed route cut-backs and a court-ordered taxi buy-out.

G. Newark/Fremont, California

The cities of Newark and Fremont, California are served by an IP system operated by AC Transit. A previous IP demonstration involving feeder service to a BART station, was operated for one year by AC Transit in Richmond. Newark and Fremont voters approved a referendum in 1974 to join AC Transit, establish property tax to support transit, and implement an IP system. Operations began in 1976 and reached full implementation in 1977.

Summary of Factors Affecting Community Acceptance

Based on the information generated in the case studies, a number of factors have been tentatively identified as influential

in influencing community acceptance. The basic findings are that:

- Many systems began with demonstrations, to gain operational experience and generate community support. Staged implementation appears to be a valuable way to achieve full area-wide coverage.

- Equity in the distribution of transit resources is important if local sales or property tax funding is involved. IP can provide this equity in a way that conventional fixed routes cannot. Staged implementation may be difficult for this reason, however.

- IP is often perceived to be primarily for the transportation disadvantaged. This perception is greatest in small urban areas and least in major urban areas. These groups, particularly the elderly, can generate substantial political support.

- Private operators have taken legal action against IP systems in some cases. Generally, the right to operate IP in the public sector has been upheld. Buy-outs may be required, depending on local legislation.

- IP systems may have a substantial effect on taxi business. Subcontracting part of the IP operation to private firms is one way to compensate for lost business, reduce overall IP cost, and prevent possible legal actions.

- Transit labor unions may be willing to sign innovative agreements designed to reduce costs. Two such agreements were noted in these case studies. One resulted in a reduced wage rate for IP operation, while the other allowed direct competitive bidding between the transit system and private operators.

- Public attitudes which contribute to political support of IP include environmental concerns, public valued concerns, and the desire to reduce the use of the auto. Actual need for and use of IP are not necessarily required for support, although an inability to use when desired is a negative influence on support.

- Changes or cut-backs of prior conventional services may have a major effect on previous users. These changes must be handled with care. In one case study, this factor resulted in great negative public pressure against the IP system.

- Costs for IP are a key negative factor and must be kept as low as possible. High costs can contribute to a negative public image and discontinuance of public support.

The extent to which these factors played a role in each case study site is noted in Exhibit 2. Each of the factors is discussed in more detail below.

Demonstration and Staged Implementation

Demonstration, or pilot programs, play a vital role in the implementation of IP systems. Of the seven case studies, six involved demonstrations. In Ann Arbor and Cleveland, full area-wide coverage was preceded by a demonstration in a small area, which served to display the service, gain operational experience, and generate public support. In the Michigan State DART Program, small systems were funded experimentally for the first year by the State before the local community took over. In Orange County, La Habra was funded as a demonstration for the first year. In Newark/Fremont, the operator had gained experience with the previous Richmond IP demonstration. Rochester's PERT has been a demonstration since 1973. Only the Santa Clara County system went directly to full scale operation, without any pilot program, with consequent negative effects.

Demonstrations are helpful for fostering community support and for insuring operator capability. However, it would be a mistake to assume that a demonstration is always required for community support. In Newark/Fremont, a direct voter election for IP was passed without benefit of a previous demonstration in those cities. The voters were exposed to the IP concept through media coverage of the nearby Richmond and Santa Clara systems, so that IP was presumably not a totally unknown idea. Nevertheless, most Newark/Fremont voters had probably never used IP service or seen an IP vehicle before they voted for the concept. In Santa Clara County, enough community support and enthusiasm was generated to commit SCCTD to an IP service without benefit of a demonstration. Negative feelings toward APT were more directed toward the poor level-of-service, low capacity, and high cost of APT then toward the concept itself.

Particularly in California, the concept of IP service appears to have become fairly well-known. For example, there are now about

Exhibit 2: Factors in Community Acceptance

IP SYSTEM	SPONSOR & DATE OF FORMATION	ROLE OF DEMONSTRATIONS	ROLE OF TAX REFERENDA	ROLE OF TAXICAB OPERATORS	INNOVATIVE LABOR UNION AGREEMENTS	PREVIOUS CONVENTIONAL SYSTEM	DEGREE OF INTEGRATION	DEGREE OF COMMUNITY ACCEPTANCE
1. CLEVELAND CRT	RTA (1975)	Preceded by SMD demo called NET. Absorbed into CRT.	Voters approved RTA formation, which allowed funding of CRT.	1/3 of CRT subcontracted to Yellow Cab.	CRT operator gets 69% of normal wage rate.	CRT has no effect on conventional system.	None	Fairly strong; community pushing for expansion of service.
2. MICHIGAN DART	UPTRAN (1972)	UPTRAN provides 1st year demo funding to local towns.	About 85% success rate for 19 different millage elections for DART systems.	About 55% of cities which have taxi firms utilize them as operators.	None	Generally none	Generally none	Strong; additional towns desire to have DART service.
3. ANN ARBOR TELTRAN	AATA (1968)	Pilot program in one part of city. Pilot preceded election.	Millage election for IP system approved.	Unsuccessful taxi suit to block TELTRAN. Taxis ruled not to be transit.	None	Very minimal conventional services	Extensive	Very strong; voters would probably pay higher taxes.
4. ROCHESTER PERT	R-GRTA (1969)	Originally local demo. Now SMD demo managed by MIT.	None	None	RTS & ATU local will bid against private operators for new PERT services.	Some conventional services in PERT service areas.	Extensive	Unclear; PERT would probably be stopped without SMD grant.
5. ORANGE COUNTY DIAL-A-RIDE	OCTD (1970)	La Habra was demo for 1st year	1% sales tax for OCTD rejected in 1974. Curtailed availablity of funds.	Taxis held to be transit by lower court. Appeals court reversed decision.	None	Minimal conventional services	Moderate	Moderate
6. SANTA CLARA COUNTY APT	SCCTD (1972)	No demo or pilot	None	Taxi buy-out ordered by courts.	None	Some conventional services	Extensive	System discontinued because of high demand, cost and low level of service.
7. NEWARK/FREMONT DIAL-A-RIDE	AC TRANSIT (ca 1955)	Richmond demo preceded. Gave AC Transit experience.	Voters approved measure to join AC Transit, property tax, and establish IP	None	None	No transit	Extensive	Good;may change due to high costs.

39 IP systems operating in California (Ewing, 1977). This large number of existing systems and the highly publicized Santa Clara, failure along with the generally growing interest in public transportation, may lessen the need for a demonstration to generate public support in the future. In most other areas of the country, demonstrations may retain their importance longer due to the lower level of public awareness of IP.

A few of the IP systems in these case studies have played important national roles in helping to diffuse information about IP. Diffusion of innovations is, of course, one of the major roles of demonstrations. Innovators tend to act as "change agents" who influence other areas to adopt the innovation. The Ann Arbor system, in particular, has played an exemplary role in the transit industry, because of its longevity, degree of integration, and wide community support. Several IP systems, such as Santa Clara and Richmond, have provided lessons to other areas in what not to do. Interestingly enough, when AC Transit designed the Newark/Fremont IP system, it was more positively influenced by the Ann Arbor system than by its own Richmond demonstration.

The La Habra system is operated by a private firm which handles the management and operations under contract to the OCTD. This particular firm also managed the Haddonfield, N.J. system, the first UMTA "dial-a-ride" demonstration. In addition, the OCTD was quite interested in the Haddonfield system and a number of OCTD Board members acutally visited Haddonfield. Thus, it is possible to infer some substantial cross-fertilization between Haddonfield and Orange County.

In Rochester, PERT is the first system to demonstrate fully computerized scheduling and dispatching. So far, this idea has not spread to other areas. However, from a theoretical point of view, computerization has much to offer and, in fact, may be the key to the success of very large IP systems. Therefore, the experience gained in Rochester may be very influential in the future. The currently pending UMTA demonstration grant for Orange County includes plans for fully computerized dispatching.

Staged implementation is a logical extension of the concept of initiating a service with a pilot or demonstration project. The major impact of staged implementation is on quality control; the system design can be "fine-tuned", adequate training of employees can be provided, and the operator can learn how to manage the system properly. These factors, in turn, impact community acceptance, since acceptance is partially based on service quality. This was demonstrated in an Ann Arbor research study, where a positive correlation was found between political support (i.e. willingness to pay taxes for the system) and satisfaction with overall service quality. In contrast, the Santa Clara system clearly suffered from its attempt to initiate areawide coverage instantaneously, although it is clear that this decision resulted from political pressures for equitable coverage.

Political Equity

The issues of demonstrations and staged implementation are related to the Santa Clara political problem of equitable coverage. The basic problem is that, in any demonstration or plan for staggered implementation, certain areas are served first and other areas later. Those areas which are not first in line for service may complain of being required to fund a demonstration from which they receive no service. Innovative local funding arrangements, as yet untried, may have the potential to alleviate this problem.

In the Santa Clara County case, it was reported that the fifteen cities and towns constituting the county could not agree among themselves as to which areas should be served first, if a pilot program was to be held. Thus, all areas of the county were given APT service at the same time. The subsequent result was the discontinuance of all paratransit service components. It is quite possible that APT could have survived in Santa Clara County if service had been started more slowly and sufficient time was provided to allow service and system design changes as needed. In Ann Arbor, it took three years to achieve full system operation; the result was a comparatively well-run IP system.

Some of the other case studies had more varied experiences with the issue of political equity. In Orange County today, the transit system consists of a county-wide fixed route grid plus intra-community service modules (IP or fixed route) in selected cities. OCTD now pays the entire operating deficit of all transit services, so that cross-subsidization from the county to those communities with local service is taking place. Oddly enough, this does not seem to have become a source of political discontent to those areas which do not have community service. The OCTD does have plans for additional community transit modules, but funding limitation caused by the voters' rejection of a 1% slaes tax referendum in 1974 may indefinitely delay full county-wide implementation. The OCTD also has a priority list of areas in the county which sould receive community service first, based on factors such as percent elderly, income level etc. Supposedly, all cities in the county have agreed to abide by this list; if so, this would help explain the lack of political sensitivity to the present inequitable distribution of resources.

In Rochester, the suburb of Greece has been receiving PERT service since 1973, and the suburb of Irondequoit since 1976. Neither suburb pays any additional monies for the IP service. This has not caused any political problems to arise, however, because about 75% of the costs of the demonstration have been borne by UMTA, except for the first year and one-half of operation. However, it is unclear what will happen when the UMTA demonstration funding ends in 1979. The R-GRTA will then be in the position of supporting some reasonably expensive services which only cover a few suburban areas, and the problem of political equity may arise at that point. The R-GRTA is moving to meet that problem now by reducing costs through the use of private operators, and requiring that, in the future, any suburb with PERT service pay 50% of the deficit.

The Richmond demonstration was funded primarily from AC Transit's general operating funds. These funds were raised throughout the AC Transit District and, thus, another cross-subsidization was taking place. At the end of the demonstration

year, other cities and towns objected to spending more of their money on the IP project, and the service was discontinued. There has been no problem with AC Transit's operation of the Newark/ Fremont service, however, since the two cities constitute a special subarea of the AC Transit District and pay the entire cost of the IP system.

The issue of political equity in the distribution of transportation resources is not limited to integrated paratransit sytems. However, area-wide integrated paratransit can play a more visable role in this regard, becuase IP is potentially able to distribute transportation resources equally over a large area, regardless of land use patterns, in a way that fixed route service cannot.

In older urban areas, transit systems were originally self-supporting through farebox revenues. Fixed routes were established in response to demand and a land-use pattern developed which provided high density transit areas or corridors. Also, transit was generally available for certain travel markets, such as CBD-oriented work trips, but not for others, such as circumferential recreations trips. This inequitable distribution was perfectly acceptable, because those who couldn't use the transit system didn't have to pay for it. When users, or consumers, do not pay for a service, they have no a priori rights requiring that the service be available to everyone.

As urban transit ridership declined, deficit operations and public ownership became standard. Deficits were initially paid by the city, with later contributions from the states, and the Federal government. In most large urban areas, the deficit is now partially supported by the suburban areas, through their inclusion in a Transit Authority or District, with property or sales taxes levy authority.

Taxing suburbs to support central city transit systems has been justified in a number of ways. First, the transit system already exists and an additional taxation base may be needed

simply to preserve and continue the system. Second, transit systems are seen as essential to preserving the health of the central city, which is, in turn, seen as essential to preserving the health of the metropolitan area as a whole. Third, suburban residents can, and do, commute into the central city using the transit system, and, therefore, benefit from it. Finally, some suburban transit services are usually provided, although the level of service may be much lower than in the central city. All of these reasons probably contribute some measure to sustaining and justifying area-wide taxations for transit without an accompanying, equitable area-wide distribution of transit resources.

For these reasons, suburban areas have generally been acquiescent in the seemingly inequitable distribution of transit services. Recently, however, signs of change have occurred. In the Chicago RTA referendum, for example, the favorable vote percentage was very related to distance from the CBD (Soot et al. 1976). The outer suburbs in the now-RTA area were almost unanimously against RTA formation. As a result, the Chicago RTA now has a suburban paratransit demonstration program. This same theme can be seem in the Michigan DART case study. These are both examples of the move to provide a more equitable distribution of resources. The implementation of IP may increasingly be a transit authority response to more equitably serve taxed suburban areas.

The need for equitable distribution may be even more acute with a new transit system than with an existing system. In Ann Arbor, Santa Clara, Orange County, and Newark/Fremont, the transit system was being built up almost from scratch. Each of these areas decided on an integrated paratransit system and, in each case, one of the major reasons was to ensure that everyone had exactly the same access to the system.

Santa Clara's available resources allowed for a fleet of about 200 vehicles, which was too small for equitable (fixed route) deployment around the county. Adding a demand-responsive component allowed the SCCTD to believe, or at least to claim, that

each household, and each separate community within the county, would have equal resources and equal access to the system. It is obvious in hindsight, however, that the demand for APT, with its low (25¢) county-wide fare, would far outstrip the supply, and that this would create serious operational problems. However, political considerations overruled technical considerations. The need to serve everyone in Santa Clara, despite inadequate resources, led to adoption of a system which included demand-responsive service, a service which SCCTD evidently saw as "dilutable" in a way that fixed route was not: i.e., the number of vehicles needed per square mile would actually be less in demand-responsive service than in fixed route service. While the wisdom of this may be questionable, it is the consideration which seems to have made Santa Clara County decide to implement IP without a staged expansion phase.

Concern for the Disadvantaged

Concern for the disadvantaged appears to be a major reason for community support of IP in certain circumstances. Generally, the "disadvantaged," in this context, can be thought of as the elderly, with perhaps minor representation from the handicapped, youth, and the poor. This concern appeared to play a major role in the implementation of the small city/town Michigan DART systems, a moderate role in some of the Orange County systems, a minor role in the SCCTD and Rochester systems, and no role at all in the Ann Arbor and Newark/Fremont systems.[1]

The difference in the level of concern for the disadvantaged between the sites is not that simple to explain. According to information available on ridership, the elderly (and youth) show a consistently high propensity to use demand-responsive transit services. Assuming that propensity to use translates into

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[1]The Cleveland CRT system is excluded from this discussion because it is not a public IP, but is restricted to the elderly and handicapped (E/H) and belongs to an entirely separate class which we shall call special systems (which are IP systems restricted in some way to various disadvantaged groups). The relationship between public IP systems, and special systems will be discussed more thoroughly below.

political weight, we might expect concern for the disadvantaged to be a minor factor in all of the IP case studies. However, this is not the case. In the limited sample of systems covered here, a possible inverse relationship between system size and concern for the disadvantaged is suggested. Possible reasons for this may be goals of the urban area, the complexity of the IP system, or the degree of integration between fixed route and demand-responsive services within the IP. For example, there is some evidence that elderly persons may have more trouble using a larger system or handling coordinated transfers. In general, however, it can be expected that transit systems in larger areas with parking and congestion problems will serve more non transit dependent persons than systems in smaller areas. In smaller urban areas, (and in rural areas), the transportation disadvantaged will constitute a primary market group for IP service, and a desire to administer to their needs will be a primary factor in community support. On the other hand, in suburban areas ringing large urban areas, there may be few elderly persons, and many of these may have relatively higher incomes. Thus, again, the elderly may be of lesser importance than in small urban or rural areas.

The youth market generally also shows a high propensity to use IP. The case studies did not discover a large degree of concern for youth as a motive for political support, although in Ann Arbor, which has a very large student population, it may have been a factor. One Ann Arbor study (Forkenbrock, 1974) found a high correlation between the age (youth) of residents and their willingness to support the Teltran system. However, in cases where political leaders must make the decisions about IP, youth did not seem to carry potential weight equal to their likelihood to use IP.

One issue of major concern is the relationship between public IP systems and special systems catering to some restricted group of the transportation disadvantaged. Client groups typically served are the elderly, the transportation handicapped, the ecomically disadvantaged, the mentally retarded, and very young

children. Operators of special systems include both the public transit industry and a myriad of social and human service agencies which utilize HEW funds. While a full discussion of the history, extent and importance of special services is beyond and scope of this report, it is interesting to explore the impact such services may have on the community acceptance of IP systems (particularly in that special systems represent a substantial amount of financial resources which are already in place).

There can be no doubt that paratransit has been more extensively utilized for special systems than it has in public transportation. Estimates of the number of special systems are difficult to obtain, but it would not be unrealistic to expect there to be several thousand systems in place across the country, with total HEW funding now at about $1 billion per year. Considerable attention has been paid to getting the public transit industry to administer to the needs of the special groups. The HEW-funded services cover a wide variety of groups, but the "transportation handicapped" (TH) are beginning to receive specific attention from the transit industry because of: (a) their categorical exclusion from conventional transit because of barriers, and; (b) the UMT Act, Section 16, which requires "the same right" (of access) and "special efforts" for the TH.

In future years, many transit operators may possibly offer "auxiliary" or "supplemental" paratransit services for the TH. This may have profound impacts, both positive and negative, on the willingness and ability of transit operators to offer public IP systems, and on the willingness of communities to pay for IP systems. One excellent example of what could happen is the Cleveland CRT system. Originally conceived of as a "community responsive transit" service which would serve public intra-neighborhood travel desires, it became instead, an elderly and handicapped system. The ostensible justification for this restriction was the need to place priorities for scarce, and inadequate, resources. The elderly were viewed as the most important disadvantaged group, and thus, the service was restricted.

Since there are so many special services already in existance, and since the disadvantaged are an important segment of the market for public IP, some transit operators might feel little need to offer IP service, but may prefer to see an expansion and consolidation of existing human service agency programs.

The following possibilities could occur in response to this situation:

- Central Cities - Paratransit may not be offered except to the disadvantaged. Existing human service agency-operated special services will be coordinated or consolidated as much as possible. Public transit operators will pay a larger role in the future than they have in the past, especially with regard to service to the TH. Coordination of UMTA and HEW funds may become possible.

- Suburban and Low-Density Urban Areas - Integrated paratransit systems for the public may be initiated. They may or may not be coordinated with existing special systems in suburban areas.

- Small Urban Areas - Integrated paratransit systems for the public will be initiated, but will be seen as being oriented toward the disadvantaged. Coordination with existing special services is more possible than in suburban areas.

Role of Private Operators

Private operators play an important role in the implementation of IP. In three of the seven case studies, legal action was initiated by taxi operators who anticipated negative impacts on their businesses. In Ann Arbor, the AATA's right to operate IP was upheld by the courts, and the taxis were not reimbursed for any possible loss of business. The suit had no effect on operations. In California, buy-out provisions embodied in Transit District enabling legislation affected two IP systems. The SCCTD was ordered to buy out the taxi firms affected by APT in Santa Clara County. This anticipated cost was one of the reasons for discontinuance of the APT service. The OCTD was enjoined from IP operation in Orange because of failure to buy out an affected taxi company. This injunction resulted in the substitution of fixed route service

which offered demonstrably poorer service than the paratransit system it replaced (Holliden and Blair, 1978). An appeals court reversed the ruling and the OCTD was able to reinstitute IP in Orange.

There was no opposition of note by taxi companies in any of the other case studies. In Newark/Fremont, no taxi firms existed. In Cleveland and in the Michigan DART system, initial taxi opposition has declined, and taxis are used fairly extensively as sub-contractors. This was not done specifically to prevent legal action, but may have helped to stem it.

Subcontracting services to taxi or other private operators is generally less expensive than employing in-house transit operator employees, because of prevailing differences between public and private sector wage levels. The sponsoring government agency in each case study has apparently made a policy decision as to the extent, if any, of private firm participation. OCTD subcontracts all IP services, and specifically lets different contracts for each community so that different operators may be involved. The Michigan DART systems employ a wide variety of operators, including taxis, town governments, various human service agencies, and transit authorities. The specific choice of operator is up to the local community. One-third of the Cleveland CTR system is subcontracted to a private taxi company. The first two Rochester PERT modules in Greece and Irondequoit were operated by the RTS, which is R-GRTA's operating subsidiary. In an effort to reduce PERT's excessive costs, R-GRTA decided to solicit bids on two new modules (Brighton and Henrietta). Private firms and the transit operator were allowed to bid, with a private operator the ultimate winner. Thus, a variety of approaches have been tried by the seven sites. There is no one best solution to the question of private provider participation, and the final decision should usually be made at the local level.

Transit Labor Unions

Transit labor unions have played a key role in a few of the case studies. In particular, innovative arrangements have been worked out in both the Rochester and Cleveland systems. In

Rochester, the American Transit Union (ATU) local agreed to allow private firms to bid against the transit system for the operation of new PERT modules. This arrangement was made, in part, because UMTA was unwilling to continue the SMD grant unless costs could be reduced. In Cleveland, the ATU local and the RTA agreed to the establishment of a new job description called "CRT Operator" at a wage rate equal to 69% of a regular operator's wage rate. A "CRT Operator" is defined as a new employee who drives a bus seating fewer than 30 people. CRT operators get full benefits. This arrangement has not reduced the RTA's cost per vehicle hour of operation for CRT more than about 10-15% from what it would be otherwise. Other transit properties, such as AC Transit, have made special provisions for employees working on IP services. However, these have generally not been made with the intent of reducing costs. Instead, they typically tend to simplify operations; for example, by keeping drivers on paratransit service for one year, rather than requiring that the regular driver "pick" (i.e., the assignment of routes to drivers every few months on the basis of seniority) be imposed, with a resulting increase in training requirements.

Paratransit service is typically more expensive than fixed route service (all else being equal) because of dispatching costs. The Cleveland arrangement is one approach to modifying this situation. Direct sub-contracting to private providers is an alternative, as exemplified in Cleveland, Michigan, and Orange County. As long as existing (union) jobs are not threatened, there seems to be no reason why private contractors cannot be used more extensively than they have been so far. If IP systems are new transit systems or are implemented in addition to pre-existing fixed routes, then conditions will be favorable for private contractor participation.

The overall case study experience indicates that private contractors are used primarily for the smaller systems or for all modules within a larger system. All of the large IP systems discussed here, particularly Ann Arbor and Santa Clara County, have been operated directly by the transit property and have utilized conventional union labor. Reasons for this probably include experience, management control over the system, and maintenance of vehicles.

In addition, the private contractors are generally used for systems which do not have fixed route components (i.e. Michigan DART's; Orange County modules; and Cleveland's CRT). Where extensive integration of fixed route and demand-responsive service occurs (Santa Clara; Ann Arbor; Newark/Fremont), especially if coordinated transfers are possible, it would seem much more justifiable to have the conventional transit personnel operating all components of the IP. Thus, the final analysis of whether to employ private contractors will probably take into account factors other than cost and reliability, such as the degree of system integration, amount of feeder service, the type of demand-responsive vehicles used, etc.

Public Attitudes Toward IP

Public attitudes which give rise to political support for IP have been studied only in Ann Arbor. Unfortunately, additional attitudinal surveys have not been performed in other sites to provide a wider background of data. Although the results of the Ann Arbor studies are interesting, the population of Ann Arbor is potentially too unique to allow the confident transfer of results to other locations. Many of the attitudes expressed there may be representative of other areas, but it is simply impossible to tell with certainty.

The referenced Ann Arbor study (Forkenbrock 1977) was conducted in 1977. Respondents to a survey of Ann Arbor residents were asked whether they would continue to vote for a property tax to support the Teltran system. They were also asked a series of questions describing their use of the Teltran system, their need for transit, their socio-economic characteristics, their ability to use Teltran, their satisfaction with Teltran, and their concern for the environment. Statistically significant results were:

- Those who supported Teltran believed that gasoline should be conserved and that autos should play a reduced role in Ann Arbor's transportation system.
- Those who would be unable to use Teltran, either because of fear of crime on the buses or streets, or whose work trip could not be made on Teltran for

some reason (i.e.,work outside service area; need auto at job; work very close to home) tended not to support Teltran.

- Those who were pleased with the overall quality of the Ann Arbor transit system tended to support it.
- Political support was positively related to the level of education of the male head of household.
- Those who supported Teltran tended to believe that the system would help to stimulate business in Ann Arbor.

No evidence was found to support the contention that: the actual level of transit use affected support; the actual need for transit, measured in various ways, was related to support; or that higher income persons support transit, a hypothesis found elsewhere in the literature. An earlier Ann Arbor study (Berla, 1974), conducted in Ann Arbor in 1973 just before the actual millage referendum for Teltran, found a high correlation between the youth of respondents and their political support.

Some of the results are quite interesting. The relationship between political support for Teltran and concern for the environment is a factor which should be expected. Over the past few years, a variety of environmental issues and the "energy crisis" have contributed to a revival of interest in public transportation. However, these issues are not specific to integrated paratransit, but relate to all forms of public transit systems. A more interesting conclusion of the Ann Arbor study is the finding that those who cannot use Teltran do not support it. This finding might be more expected for fixed route service. Any fixed route system will necessarily offer better service to those who live on or near the routes. Typically, except for high density areas, many members of the community, who might be asked to vote for the system, will live quite far from the fixed routes. Thus, political support for fixed route may be eroded by voters' perceived inaccessibility to the system. Demand-responsive service, on the other hand, has none of these

drawbacks. All individuals in a given area can be served by simply establishing the service area boundaries appropriately. In practice, centrally located points may enjoy faster response times and be closer to the fixed route component of an IP system than are outlying points. However, it is quite easy for the transit operator to claim, or for the public to perceive, that service is equal everywhere. For example, one of the stated major objectives of the AATA has always been to provide transit service to 100% of the population. This design objective almost requires demand-responsive service. This clear connection between type of service and percent area coverage is one of IP's major strengths in terms of generating community acceptance.

Route Rationalization

"Route rationalization" may involve the replacement of a marginal fixed route or portion of a fixed route with some form of demand-responsive service. The theory is that below certain demand densities, demand-responsive service can be provided at fewer cost and/or with higher productivities than can fixed route service. For example, late night or weekend routes, and the outer ends of radial bus routes, may be possible candidates for route rationalization. Alternatively, paratransit service may replace certain fixed routes entirely.

A major problem with the concept is that existing fixed route users usually tend to live right along a bus route. If users schedule their arrival, waiting time is typically short. Thus, a common result of route rationalization is that some passengers previously using fixed routes tend to receive lower service/levels when they shift to a demand-responsive mode. This effect was graphically illustrated in the Greece PERT service, where route rationalization was a specific objective. Several bus routes which ran from downtown Rochester through the suburb of Greece were terminated at the Rochester/Greece town line, and a coordinated transfer point was established. To travel from Greece to downtown, a user had to call the PERT vehicle, wait for its arrival, travel to the transfer point, and wait

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16. Abstract

Integrated paratransit (IP) service is a concept which involves the integration of conventional fixed-route transit services with flexible, demand-responsive services in order to best serve emerging urban development patterns. To learn more about the capability of IP to meet the transit needs in the urban/suburban environment, the Urban Mass Transportation Administration sponsored a study to identify and define the benefits due to and the costs associated with the deployment of various hypothetical IP systems. This study systematically estimates potential impacts of a range of integrated transit/paratransit options and policies in a variety of settings and compares them with impacts of transportation alternatives. This study concludes that, in general, IP with fares closer to fixed-route transit than exclusive-ride taxi will result in net paratransit operating deficits. However, in some instances, the benefits of IP options in terms of improved service levels and mobility, reduced auto expenditures and other impacts appear to offset these operating deficits. Necessary factors for this include high paratransit productivities, possibly achieved by implementing hybrid, fixed-route/demand responsive service; and low operating costs, possibly achieved by contracting with private operators. IP was found to have a positive but insignificant impact in reducing automobile usage and ownership, but no measurable impact on vehicle miles traveled, fuel consumption, or emissions. Promising locations for paratransit implementation are those areas with population densities between 3,000 and 6,000 persons per square mile and limited transit service. The most promising paratransit concepts appear to be checkpoint many-to-many service, route deviation service, automated doorstop service with high vehicle densities, and vanpool service. The results of the study further suggest that paratransit service is sensitive to fare. Fare increases above $.25 were determined to be counterproductive, while free transfers from feeder services to line haul became an inducement to use paratransit. The study also concluded that digital communications and automated dispatching systems are potentially cost-effective technological innovations.

This volume, Volume 4, contains analyses of factors influencing community acceptance of integrated paratransit systems.

17. Key Words

Benefit-Cost Analysis; Integrated Paratransit Systems; Integrated Transit/Paratransit; Paratransit

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for the fixed route bus. For the previous fixed route user, who typically lived on or near the the terminated portion of the route, a substantial decrease in level of service occurred. On the other hand, after PERT service began, many more people could be served. In Rochester, there was some public outcry against route rationalization, which resulted in a reinstitution of some of the fixed route service.

The AATA eliminated several fixed routes during the years when Teltran service was being introduced. There is no record of substantial complaints in Ann Arbor about these cut-backs. However, in Santa Clara County the situation was quite different. Here a substantial public outcry arose as a result of the eliminated fixed routes, and this contributed significantly to system termination.

There are two probable reasons for the differences in public reaction in Santa Clara, Ann Arbor, and Greece. First, the replacement IP service in Santa Clara was very inferior to both PERT and Teltran in terms of level of service, reliability, and capacity to carry the diverted trips. Second, the fixed route cut-backs and changes in Santa Clara were considerably more extensive than in the other two sites. Both Ann Arbor and Greece had fairly minimal fixed route service before going to IP. Thus, cut-backs did not affect too many users. However, Santa Clara was operating a much larger vehicle fleet in fixed route service before APT began.

Fixed route cut-backs should be made with care. Although some negative reaction from previous users is probably unavoidable, this must be balanced against the likelihood that larger numbers of people and destinations will be served when demand-responsive operations are introduced.

Costs

Cost can play an important role in a community's willingness to accept an IP system. Communities should realize that costs for IP service will generally be higher than for fixed route service. The issue is whether the community believes the higher cost is

worth the benefit. Many communities pay attention to the cost per trip as an indicator of the system cost. Available data on cost per trip for the seven case studies is shown in Exhibit 3. Costs vary widely as a function of the type of operator, service area size, and the productivity.

A tentative hypothesis suggested by these case studies is that IP systems which cost much above (approximately) $3.00 per trip may have difficulty gaining community support. Of course, this figure is definitely not intended as a absolute measure. Both the Greece and Irondequoit Dial-A-Ride services have very high costs and it is logical that community support for these two particular services is weak. The Newark/Fremond dial-a-ride trips are also quite expensive, especially in comparison to the fixed routes. Negative community reaction has not yet occurred due to the newness of the service, but concern over the high cost is a definite future possibility. This concern may take the form of a total rejection of IP, a reduction of the amount of dial-a-ride service, within the IP system, or changes in design to increase productivity. Note that the Richmond dial-a-ride service was rejected with a cost of about $3.77 per trip, which was substantially lower than the cost of the Newark/Fremont service.

Ann Arbor's cost of about $2.35 per trip is fairly low compared to the other systems. Although the community of Ann Arbor supports Teltran strongly, there is a fairly active ongoing debate over the relative merits of dial-a-ride versus fixed route and the appropriate mix of the two.[1] Cleveland's CRT sustains fairly high costs for a public IP system, but actually fairly low for a special system. Tolerance of high costs for services for special interest groups such as the elderly and handicapped seems to be much greater than tolerance for high cost services for the general public.

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[1]Following the writing of this report, paratransit service was, in fact, discontinued in Ann Arbor.

Exhibit 3: Cost per Trip Data

SYSTEM	SYSTEM COMPONENT (and year of data)	COST/TRIP
1. ANN ARBOR	Paratransit service (1977)	$2.35
2. MICHIGAN	Average of all outstate DART's (1977)	1.34
3. ROCHESTER	Greece Dial-A-Ride (1977) Irondequoit Dial-A-Ride (1977) All PERT services, including all subscriptions, fixed routes and elderly services (1977)	4.38 7.91 2.76
4. CLEVELAND	CRT in-house vehicles (1978) CRT taxi subcontracts (1978)	4.10 3.08
5. ORANGE COUNTY	La Habra (1975) Orange (1977) Fullerton (1977)	2.04 2.48 2.67
6. SANTA CLARA CO.	Demand-Responsive Vehicles (1976) Arterial routes (1976) Average of APT system (1976)	2.77 .75 1.19
7. NEWARK/FREMONT	Richmond Dial-A-Ride (1976) Newark/Fremont Dial-A-Ride vehicles (1977) Newark/Fremont fixed routes (1977)	3.77 5.19 1.40

Chapter 1

Case Study #1: Ann Arbor Teltran System

Overview

The oldest operating IP system in the U.S. is the Teltran system operated by the Ann Arbor Transportation Authority (AATA). This system began pilot operations in 1971 and represents the best example in the nation of long-term growth of community support.[1] Teltran offers city wide door-to-door service to the general public. Service is achieved with a combination of fixed route and demand-responsive services. The city is divided into a set of small zones, within which the dial-a-ride vehicles make looped tours.[2] Co-ordinated transfers between the fixed route and DRT vehicles are accomplished at specific transfer points for persons traveling downtown or between zones. At nights and on weekends, the fixed routes are reduced in length and the dial-a-ride zones are expanded.

The Teltran system has been fairly widely publicized and studied, partly due to its innovative nature, and partly because of the proximity of the University of Michigan. Several studies have been made of the reasons why the Ann Arbor community supports the system. These studies are summarized later in this case study.

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[1] As of the printing of this report (January, 1979), the demand-responsive component of this service has, in fact, been terminated.

[2] The phase "Dial-A-Ride" is used throughout this particular case study because the AATA specifically uses it to refer to the demand-responsive component of their transit system.

1.1 Background

Ann Arbor, the sixth largest city in Michigan, was founded in 1824. In 1837, the University of Michigan moved to Ann Arbor, which today has a total population of about 100,000, including about 38,000 students. Research and development firms are attracted by the University; the city is well-known as a center of culture and liberalism and may be compared to other university communities such as Cambridge, Massachusetts and Berkeley, California in terms of its life-style.

The history of transit in Ann Arbor is similar to transit's history in many other small cities. Deficits in operation were reported as far back as 1951. Six different private firms tried to sustain operations between 1951 and 1969 but each failed. Reluctantly, the public sector assumed ownership of the transit system in 1969.

The AATA was created by the city in July, 1968, in accordance with state enabling legislation, and initially contracted with private operators for service delivery. After the latest private contractor had failed to remain within the contract cost, the AATA initiated its own operation in the spring of 1969. In 1970, the Authority purchased 16 new buses with an UMTA grant. By 1972, the AATA was operating a fixed route system consisting of six radial routes which operated during the day on weekdays only.

During the period from 1968 to 1971, when the AATA was assuming the operation and expanding the city's fixed route service, a series of steps were taken to initiate a dial-a-ride demonstration project. Apparently, a desire to utilize flexibly routes services existed at the very beginning of Ann Arbor's efforts to revitalize its overall public transportation system. For example, the City Planning Commission published a "Guide for Change" in 1969 which recommended a "district center form" of city growth. It was believed that this pattern of land use would result in extensive "many-to-few" trip making patterns, with one end of most trips in the district center

and the other in a low density, residential area. In a resolution passed April 13, 1971, the AATA set forth objectives, among which was the desire to utilize

> "...vehicles operating on demand-activated schedules to serve areas of low origin density to high destination density..." (Transportation Planning Research Office, 1973)

As early as April 1968, a Citizen's Bus Committee met with representatives of Ford Motor Company to explore the feasibility of dial-a-ride service for Ann Arbor. In January 1970, the AATA signed a contract directing Ford's Transportation Research and Planning Office to develop a plan for implementing demand-responsive service. Ford initially proposed to implement dial-a-ride service in the Model Cities neighborhood. However, this idea was abandoned when negotiations between the Model Cities Policy Board and the AATA failed to reach a conclusion. Subsequently, in November 1970, the City of Ann Arbor submitted a funding proposal to UPTRAN (the Urban Public Transportation component of the State Highway Department) for a demand-responsive pilot project. In August, 1971, a one-time demonstration grant was awarded to the AATA by UPTRAN to fund the project. This support was crucial, as the AATA evidently had no other source of the funds at that time.

The demonstration began with many-to-few operation in one part of Ann Arbor in September, 1971. The service was changed and integrated into the ongoing Teltran system in later years. The demonstration was termed "moderately successful" by the pilot program evaluation (Transportation Planning and Research Office, 1973). In April 1973, after 17½ months of the dial-a-ride demonstration, a millage election to add 2½ mills annually to the property tax was held. In Michigan, property is assessed at half value, so this amounted to .125% market value for approximately $50 per household per year, generating about $1.4 million annually.

The 1973 millage election was passed by a majority of 61% indicating solid community support at that time. After passage of the 1973 tax, the AATA began a staged increase in the Teltran

service. Total city-wide coverage was finally achieved in late 1976. Table 1.1 indicates the dates of the stages of project expansion. Full implementation was not reached until 1976. This rather slow, but careful, process is interesting because, as a result, the AATA was able to "fine-tune" the system design in a reasonably meaningful way. Drawbacks of the staged implementation were loss of enthusiasm after the 1973 vote, a certain amount of consumer confusion, and inequitable service delivery to those areas served last. The AATA believes this process was warranted, however, by the need to ensure quality control. This viewpoint appears to be borne out by the fact that Forkenbrock (1977) survey found that 82.3% of the population would have voted for the millage tax.

The Taxi Suit

Prior to the commencement of dial-a-ride service in Ann Arbor in September, 1971, rather clear indications existed that the local taxicab industry regarded the program with fear and suspicion. In an effort to cooperate with the taxicab industry, and to alleviate its fears, the dial-a-ride program was specifically designed so that taxicab companies could bid to become the operator of the system. No bids were received, however, and the AATA proceeded with plans to operate the system itself.

A law suit seeking an injunction against operations was filed by Ann Arbor's two major taxicab companies just a few days prior to the scheduled commencement of the demonstration. The taxicab companies contended that the establishment of dial-a-ride would be unlawful for three reasons:

1. Dial-a-ride vehicles were really taxicabs, and were therefore required to obtain licenses under the Ann Arbor taxicab ordinance;

2. the granting of licenses to existing taxicabs by the City constituted an implied agreement by the City that it would not engage in a competing business, or, alternatively, that if it did engage in such a business it would do so on terms identical to the terms under which the taxicab industry operates; and

Table 1.1: Staged Increases in ATA Teletran Service

July 1973 Decrease in fares to 25-cent flat rate (from 35 cents on line-haul bus and 60 cents on dial-a-ride).
September 1973 Expansion of school subscription service.
October 1973 Withdrawal of fixed route in original dial-a-ride area and institution of a new fixed route to the Briarwood shopping center (this eventually became part of the loop routes).
November 1973 Launching of citywide dial-a-ride for handicapped persons.
December 1973 Launching of citywide evening and weekend dial-a-ride service.
March 1974 Beginning of fixed-route service in Ypsilanti (not part of the plan funded by the Ann Arbor property tax).
January 1975 Beginning of Northside weekday dial-a-ride zone (two vehicles).
March 1975 Withdrawal of Northside local line-haul bus, extension of the loop route to Plymouth Mall, and institution of Northside coordinated transfer service and the original southwest dial-a-ride sectors.
June-July 1975 Phasing in of southeast dial-a-ride in four incremental zones (eight vehicles) over a 6-week period, revision of the Washtenaw route to avoid duplication, and completion of the express loop route.
August 1975 Addition of Plymouth (far-northeast) dial-a-ride zone (three vehicles) and withdrawal of local line-haul bus.
September 1975 Addition of 15-min service on Packard and Washtenaw and a fifth local route in Ypsilanti.
November 1975 Addition of far-northwest dial-a-ride zones (three vehicles) and increase in the frequency on the Miller/Huron route to 15 min during peak hours.
January 1976 Addition of near-northwest dial-a-ride zones (six vehicles in two stages).
March 1976 Completion of the weekday dial-a-ride with addition of the near-southeast zone (three vehicles).

Source: Transportation Research Record No. 608, paper by Karl Guenther.

3. Ford Motor Company (which was sued as a co-defendant) was being greatly enriched by the program without giving adequate consideration in return, and the public was thereby defrauded.

The City answered the taxi firms allegations in the following manner:

1. Because the Dial-A-Ride vehicles were not subject to the specific directions of their passengers, because they furnished mass transportation service, and because they partially operated over a fixed downtown loop, the vehicles were not "taxicabs" under the provisions of the City Code, and therefore need not conform to that Code.

2. The taxicab companies' claim that municipal licensees status gave them standing to prevent the city from instituting the Dial-A-Ride system was groundless. A remarkably similar contention had been advanced by the operators of private streetcar systems which had been municipally-franchised when the City of San Francisco proposed to construct a municipal system; the battle progressed through the federal courts and up to the United States Supreme Court, and at all levels, the power of the municipality to create its own transportation system was previously upheld. [United Railroads v. San Francisco, 239 F. 987 (N.D. Calif. 1917); affirmed, 249 U.S. 517 (1918) (Holmes, J., for a unanimous Court).]

3. While it was true that Ford would obtain data which would be useful to it in developing Dial-A-Ride systems in other localities, the information to be obtained from the Ann Arbor experiment would be public information, usable not only by Ford, but by all other interested parties. The court was inclined to consider that the citizens of Ann Arbor were being treated fairly.

The court ruled that what was true in the case of San Francisco streetcars in 1917 was even more true in today's crowded urban environment, and that the municipality must be permitted to further the public interst by improving the system of public transportation. Particularly in a case like this, the court felt that where the proposed improvement is experimental in nature the covers only a small part of the city, the speculative fears of the taxicab industry provided no basis for equitable relief. The court granted the city's motion for summary judgement, thereby dismissing the case. The taxicab companies subsequently filed an appeal, but the opinion was upheld.

1.2 The Nature of Political Support for Teltran

It is clear that the community of Ann Arbor has accepted the Teltran system, and gives it powerful support. This is one reason for its success. The nature of the political support and the reasons for it have been examined by two authors. Berla (1973) conducted a survey which asked households both within and without the deomonstration service area if they would tax themselves at $5.00 per head per year. Forkenbrock (1977) constructed a model which attempted to discover the exogenous and endogenous variables affecting the Ann Arbor population's support for their transportation system.

In the Berla work, the follwing question was included in a household interview:

> "Suppose that the transportation Authority could provide Dial-A-Ride service throughout the city--from any point within the cit limits to any other point, at a cost of $5 per person per year plus the money collected in fares. In other words, one half million dollars per year in city subsidies for city-wide Dial-A-Ride service. Would you vote <u>for</u> or <u>against</u> such a proposal?"

Support for this question was voiced by 63% of those within the Dial-A-Ride demonstration service area and by 67% outside the area. The most powerful predictor variables were found to be attitudinal variables which were also powerful in predicting use of the system. The most important five variables are shown in Table 1.2. The persons who indicated a willingness to support the transit system were those who believed that:

- Their family would be wiling to replace some auto trips with transit trips;
- Ann Arbor did need a transit system;
- Ann Arbor is threatened by auto growth;
- Parking rates should be raised to pay for the transit system.

Additionally, support was positively correlated with the educational level of the male head of household.

Table 1.2: Best Predictors of "Willingness to Vote Additional Taxes to Support Public Transportation in Ann Arbor"

Variable Description	Correlation Rank
My family would be willing to replace some of our trips by private auto with trips by public transit.	1
Ann Arbor really doesn't need a public transit system.	2
Ann Arbor's future is seriously threatened by the growth of private automobile ownership.	2
Education of male head of household: (pre-service questionnaire; N=200) 8-point scale.	4
Ann Arbor should raise its hourly rate for parking and put that money into a better busy system (0-4).	5

Note: N = 495; "Don't Know" responses omitted.

Berla also reported on a survey conducted in February, 1973 by a class in Urban Affairs at the University of Michigan's Residential College. In response to the question,

> "In the past few weeks, you may have heard or read something about the Ann Arbor Transportation Authority's proposal for a new public transit system. It would provide door-to-door bus service throughout the city, by simply calling a central office and ordering your trips. the cash fare would be 25¢ and the Authority is asking for an increase in the city property tax of 2½ mills to cover the operating costs. That comes to $35 per year for the average home in Ann Arbor, assessed at a market value of $28,000. From what you know about the proposal, do you think you would vote for or against it?"

About 58% answered "yes," when the "don't know" responses were discarded.

Tables 1.3-1.6 show the vote distribution related to some key variables from the 1973 Berla survey. Age was definitely related to support, with those born after 1929 being highly in favor of the system. There was a clear correlation of political support with intent to use the system. There was also a correlation with the respondent having children who had difficulty getting around town. Finally, supporters of the tax tended to believe that door-to-door services would take care of their transportation problems.

The above survey was actually used by the AATA and its volunteer campaign group to generate strategies for gnerating popular support. For example, they tried to encourage youth to vote because of the overwhelming orrelation between youth and support. The campaign stressed th utility of the proposed system, particularly to mothers who might have children dependent upon them for transportation.

Forkenbrock's work deals extensively with the factors affecting support for the AATA system. Of the 1,175 city residents he interviewed, 82.3% ored continuation of the millage tax. Since so large a percenta of the respondents supported the millage, there was less variance or his model to explain than would have been the case if the margin of support had been closer. As things were, the model that he developed explained only approximately 15% of the variance.

Table 1.3: Distribution of Vote on Millage by Age

Birth Date	For	(%)	Against	(%)	Total	(%)
Before 1908	4	(36)	7	(64)	11	6.1
1909-18	7	(44)	9	(56)	16	8.9
1919-28	8	(42)	11	(58)	19	10.6
1929-38	20	(60)	13	(40)	33	18.3
1939-48	32	(68)	15	(32)	47	26.1
1949-55	34	(63)	20	(37)	57	31.6
	105	(58.3)	75	(41.7)	180	100.0%

Table 1.4: Distribution of Vote Intention by Whether Respondent Would Use Teltran System

	Would Vote					
	Yes		No		Don't Know	Total
Would Use	N	(%)	N	(%)		
Yes	75	(77)	22	(23)	17	114
No	25	(33)	51	(67)	10	86
Don't Know	5		3		2	10
	105	(58)	76	(42)	29	210

Table 1.5: Distribution of Vote Intention by Whether Respondent Has Children Experiencing Difficulty Getting Around Town

		WOULD VOTE					
		Yes		No		Don't	Total
		N	(%)	N	(%)	Know	
Difficulty with children's transportation?	Yes	24	(75)	8	(25)	3	35
	No	18	(39)	28	(61)	1	47
	No Children	63	(61)	40	(39)	25	128
	Total	105	(58)	76	(42)	29	210

Table 1.6: Distribution of Vote Intention by Whether Door-to-Door System Would Take Care of Any Local Transportation Problems

		WOULD VOTE					
		Yes		No		Don't	Total
		N	(%)	N	(%)	Know	
Would System help you?	Yes	81	(83)	17	(17)	15	113
	No	21	(29)	52	(71)	14	87
	Don't Know	3	(30)	7	(70)	0	10
	Total	105	(58)	76	(42)	29	210

The first hypothesis tested was that support is related to transit use. Level of use was defined by the responsent's total number of transit trips in the 30 days preceding the interview. No statistically significant relationships were uncovered, in contrast to the Berla results. While over 60% of the sample have used the system during the past three years, only 30% had done so in the 30 days preceding their interviews. With only 30% of those interviewed currently making use of the transit service, and 82% supporting local expenditures on it, clearly reasons other than personal use are at play.

Forkenbrock's next major hypothesis was that "redistribution" is important. This means that the benefit an individual receives from <u>others'</u> use of the transit system may impact support for Teltran. To investigate the motivations of those supporting transit for others' use, four measures were included:

1. Service for the poor
2. Business stimulation
3. Private benefits
4. Low fares

Supporting transit for others' use is dependent upon perceived receipt of some form(s) of public benefit. Those who feel transit should exist mainly to meet the mobility needs of the poor were hypothesized to support local expenditures for providing transit, because they receive various forms of redistributional benefits. One additional form of redistributional benefit is "silent trade," or the hope that one will reap benefits in return from others. A hypothesis based on silent trade as a motivation for support is that respondents who believe transit helps stimulate business within the city tend to support expenditures for its provisions.

It may be that redistributional benefits are relatively unimportant to some respondents, who are of the opinion that personal use of transit is the primary reason why transit is supported. An even narrower view toward the benefits brought about by transit may exist for some individuals, such that they feel that fares

should be raised to cover a greater portion of the cost involved in providing transit. Both of these groups of respondents were hypothesized to be generally unwilling to support a tax aimed at public financing of transit.

The results tended to confirm the importance of public benefits. Those who supported the system did not, however, feel it should exist to help the poor, thereby demonstrating their belief that Teltran should be available to everyone. System supporters also tended to agree that transit helped to stimulate business in Ann Arbor. Supporters did not agree that others would support public transit solely for their own use (although this result was not statistically significant). Finally, supporters were very much in agreement that low fares should be maintained.

Forkenbrock next hypothesized that the need for transit would be causally related to support. "Need" was defined four ways, including whether the household had more drivers than autos, the number of non-drivers in the household nine years or older, whether all the parents in the household worked and at least one child of age nine was present, and an attitudinal variable describing how difficult the respondent believed it would be to get around without Dial-A-Ride. Forkenbrock found that none of these measures was significantly related to support for the system.

Forkenbrock tested the effect of several socio-economic variables on support. It had been previously believed that a "U" shaped curve existed between income level and support for transit subsidies, with both high and low income groups supporting subsidies and middle income groups not supporting subsidies. Supposedly, low income persons perceive personal benefits from transit, high-income persons perceive public valued benefits, and middle-income persons perceive a tax burden. The Forkenbrock data did not entirely support this theory, because high income groups were negatively associated with support, although not at a significant level. Housing tenure, however, was significantly associated with non-support, implying that those who own houses perceive the property tax as more onerous than do those who do not own houses. In addition education level was positively and significantly associated with support.

Accrual of nonredistributional public benefits is also an important incentive to support Ann Arbor's transit millage. Both the belief that transit use should be encouraged (since it can help reduce fuel consumption) and the belief that the urban environment would be improved if the role of the auto were reduced, have highly significant positive effects on support according to the analysis results. The opinion that auto use should be restricted is of particular note, since those favoring such restrictions would themselves be directly affected. Presumably, either such individuals would be amenable to making greater use of transit, in the event such restrictions were imposed, or believed that their personal auto use would be made earier if large numbers of "competing" auto users made greater use of public transportation.

The next to last hypothesis was that inability to use the transit system would be a disincentive for support. Forkenbrock defined inability to use in three ways: fear of crime while on transit; a work situation ruling out the possibility of using transit to get to work; or, a belief that it is difficult to carry packages on transit. The first two of these relationships were borne out at statistically significant levels. Persons who are afraid of transit do not support it, and neither do those who would have no chance to use it for work travel. No statistically significant relationship was found between a belief in transit's inconvenience for shopping and lack of support for the Teltran system.

Finally, respondent satisfaction with the quality of the integrated paratransit service was hypothesized to be related to the willingness to support transit. Respondents were asked about their individual satisfaction with both the fixed-route and demand-responsive components. A statistically significant relationship was found between those who are satisfied with the overall service and those who are willing to support the service.

1.3 Implementation of the AATA System

Ann Arbor, as a university town, is perhaps a logical place to find an innovative transit system. However, in contrast to some

other centers of education, Ann Arbor is not part of a major metropolitan area and does not have a large, and old, transit operation controlling its transportation system. Ann Arbor was essentially building its transit system from scratch after 1969, and was, therefore, institutionally free to do whatever it decided.

Several people have played key roles in the Ann Arbor experience. Among them are Karl Guenther, the director of AATA and formerly the head of Ford's Dial-A-Ride program and consultant to AATA; Robert Harris, the former mayor of Ann Arbor who supported the concept of Dial-A-Ride in its inception phase; and Michael Berla and William Drake, professors at the University of Michigan and also members of the AATA Board. It is often hypothesized that individuals can play decisive roles in the implementation of innovative concepts; this is certainly borne out in the case of the AATA, which had a variety of supportive individuals. According to Karl Guenther, no one person, however, was indispensable; the presence of each key person could be described as necessary, but not sufficient for Dial-A-Ride adoption.

According to Mr. Guenther, the AATA had consistently tried to emphasize the human aspect of things, rather than the technical. For example, he credits much of AATA's success to having a fundamental committment to human concerns and an ongoing willingness to work with the public. According to Robert Harris, Mayor of Ann Arbor at the time that Teltran was started, the prevalent attitude in Ann Arbor of "public-valueness" was crucial. According to him, Ann Arbor has a history of supporting and pushing for aesthetic, public-valued types of services. Fifteen years ago, for example, Ann Arbor had more parkland per capita than any other city in the country. There were other efforts to protect the environment and to beautify the city by, for example, holding a bond issue to replace dams and to build new parks. Harris sees the Teltran system as "cute"[1] and, therefore, viewed and supported by

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[1]The Teltran vans are painted bright purple, thus enforcing the aesthetic "cute" image. Note also that vans rather than small buses are used. This quote from Mr. Harris was obtained in a January, 1978 telephone conversation.

the public from an aesthetic point of view, rather than from a transportation analysis point of view.

Harris pointed out that dial-a-ride service was supported by volunteer groups primarily motivated to protect and improve the environment. According to Harris, the support of these groups was crucial. It may be that without such community-bases support, Teltran service would not have become so permanently entrenched.

1.4 Summary

The AATA's Teltran program is the most developed integrated paratransit system in the United States. There has been substantial political support for the concept of Teltran within Ann Arbor. Key reasons for political support are concern for the environment (reducing fuel use and dependence on the auto), the belief that the service stimulates business, and satisfaction with the service. Political support is not related to either actual transit use or actual need for transit, although inability to use transit acts as an indicator of lack of support. Supporters do not believe that transit is just for the poor, but do favor continuance of low fares. Low income and highly educated persons tend to support Teltran, whereas homeowners tend to exhibit lack of support.

The Teltran system was preceded by a demonstration, or pilot program, in one part of the city. A referendum was held to increase the property tax after the domonstration. The vote was successful and, thereafter, the Teltran system was expanded slowly until it covered the entire city. Taxi firms were originally invited to operate the domonstration, but they refused. A subsequent lawsuit by the taxis was decided in favor of the AATA on the ground that dial-a-ride did not constitute a taxi service.

Ann Arbor is a university city, and is known for a liberal and innovative lifestyle. Simultaneously, it is not connected to a major urban area's existing transit system, and was therefore institutionally free to experiment with its transit system. Additionally, certain individuals were key to the Teltran system design and implementation.

Chapter 2

Case Study #2: Michigan DART Program

Overview

The Michigan State DART (Dial-A-Ride Transportation) program is sponsored by the State Bureau of Urban & Public Transportation (UPTRAN) and provides one-year demonstration funding for the start-up of demand-responsive systems in local areas. Originally, the DART program was restricted to small cities and towns of less than 50,000 population which were located in the outstate region (i.e. outside the Detroit Metropolitan or SEMTA area). However, the entire program has now been expanded in scope, and is called the "New Transportation Service for Urban And Rural Areas" program. Any kind of public transit can now be funded (in any area) but, in fact, all systems which have been started to date have had at least some component of demand-responsive service.

There are three different kinds of local DART systems, all of which are similar in terms of operations and funding:

- Outstate DART systems are implemented throughout the state in small cities/towns outside the SEMTA region. These include the original DART systems.
- Rural DART systems are generally implemented on a county-wide basis in rural areas.
- SEMTA DART systems are implemented inside the SEMTA region. Suburbs, towns, or subregional areas are eligible for DART program funding, which is passed through SEMTA. There are no population restrictions on the size of the areas which are eligible.

UPTRAN's involvement in the DART program consists of providing a first-year demonstration grant to the local community to cover all capital and operating expenses (except for a $1,000 nominal

contribution). After the first year, the community must find its own way to finance the system. The community can utilize the farebox, the standard state formula transit operating assistance (TOA), locally generated tax revenues, or Federal funds (such as CETA[1]). In all outstate systems (including rural), UPTRAN normally pays one-third of the ongoing operational cost through the TOA program. Within the SEMTA region, systems receive both UPTRAN and Federal (Section 5) funds for ongoing operations.

The first DART system began in February, 1974. During that year, 14 systems began operation; during 1975, 15 additional systems were implemented. The rate of implementation slowed in 1976 and 1977 (to 7 and 4 news systems respectively) because of funding limitations at the state level. Nevertheless, the program is now a regularly programmed part of UPTRAN's yearly budget. Current (FY1978) fundings are strictly continuations, but beginning in FY1979 UPTRAN hopes to start about 6-8 new systems per year. There are presently 9 proposed systems in the outstate region which are awaiting funding.

As of February, 1978, there were approximately 26 different DART outstate and rural systems and 11 SEMTA DART systems in operation. Only 3 systems have ceased operations after the demonstration period for lack of community support or funding. There have been a total of 19 different local millage elections to support DART systems, 16 of which were passed. Tables 2.1 and 2.2 give some summary data on the DART outstate and SEMTA systems.

2.1 Origins of DART Program

The origins of the DART program can be traced to the 1972 Michigan state legislative session when, after much debate, the Legislature diverted 5¢ of the state's 9¢ per gallon sales tax into an exclusive fund for transit purposes. At the same time, UPTRAN was created, augmenting the State Highway Department. There were only nine transit systems in the state at that time, of which Detroit's was by far the largest, so that transit funds were not

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[1]Comprehensive Employment and Training Act

TABLE 2.1: DART Outstate Urban Statistics

System	Start of Service	Service Area Pop.	Population Density/ Sq. Mi.	Operator	Trips/1,000 Pop./mo.	Pass/Veh Hours	Average Monthly Ridership	Percent Elderly Ridership
Adrian	04/07/76	23,382	4,330	Taxi Co.	320	7.7	7,492	31%
Alma	06/30/75	9,790	2,128	City	459	6.8	4,497	20%
Alpena	07/29/74	19,805	1,904	Taxi Co.	296	6.0	5,854	42%
Belding	04/14/75	5,121	1,219	City	452	7.0	2,317	30%
Benton Harbor	09/30/74	46,557	1,127	T.A.*	258	6.6	14,669	36%
Big Rapids	03/31/75	11,995	2,352	City	566	7.1	6,794	35%
Cadillac	12/09/74	10,490	1,720	Taxi Co.	614	7.3	6,445	35%
Davison	08/17/76	5,259	3,287	City	958	6.7	5,040	13%
Dowagiac	06/16/75	6,583	1,923	City	261	5.9	1,721	29%
Eaton Rapids	06/21/76	4,494	1,664	City	234	4.5	1,050	55%
Gladwin	05/13/75	2,071	1,294	H.C.*	1,146	6.4	2,374	23%
Grand Haven	08/18/75	17,074	2,277	T.A.*	369	6.7	6,300	23%
Hillsdale	02/10/75	7,728	1,797	City	487	6.6	3,765	49%
Holland	02/04/74	27,137	1,911	Taxi Co.	214	6.4	5,804	45%
Houghton**	07/22/74	(12,287)	(2,997)	T.A.*	(529)	(7.5)	(6,503)	(52%)
Ludington	02/19/74	9,521	2,214	T.A.*	564	8.5	5,367	55%
Marshall	11/21/74	7,253	1,577	City	455	6.9	3,299	34%
Midland	06/25/74	35,176	1,413	City	286	5.4	10,057	17%
Mt. Pleasant	03/18/74	20,504	4,020	City	403	8.1	8,253	20%
Niles	11/04/74	12,988	2,498	Taxi Co.	471	5.9	6,122	30%
S.S. Marie	04/29/74	15,136	964	C.A.A.*	526	5.9	7,966	40%
Traverse City	05/20/74	26,321	1,479	Taxi Co.	219	5.1	5,766	53%
Totals of operating systems	—	324,385	1,707	—	373	6.5	120,952	34%

* See Table 2.2 for key
** no longer operating

Table 2.2: DART Semta Urban Systems Statistics

System	Start of Service	Service Area Pop.	Population Density/ Sq. Mi.	Operator	Trips/1,000 Pop./mo.	Pass/Veh. Hours	Average Monthly Ridership	Percent Elderly Ridership
Birmingham	07/07/75	26,170	5,689	Taxi Co.	141	5.2	3,699	34%
Ferndale	04/14/75	30,850	7,910	City	171	7.0	5,270	41%
Harper Woods	05/05/75	20,186	8,252	City	137	9.0	2,768	62%
Lakes Area	04/04/77	3,759		Twp	42	0.9	156	57%
Monroe	05/09/77	23,894	2,811	T.A.	N.A.	N.A.	N.A.	N.A.
Mt. Clemens	03/31/75	20,476	5,388	City	333	8.3	6,826	32%
N.E. Oakland Co.	09/08/75	173,200	795	H.S.A.	15	2.7	2,576	26%
Port Huron	09/01/76	56,114	1,305	T.A.	449	7.8	25,218	9%
Redford Twp.	07/10/75	71,901	4,551	T.A.	67	5.4	4,823	29%
Trenton	08/19/74	24,127	3,351	City	203	6.3	4,906	23%
Waterford Twp.	11/15/76	59,123	1,991	Twp.	89	4.3	5,249	9%
Totals of Operating Systems	—	509,800	1,513	—	121	5.7	61,491	32%

T.A. = Transportation Authority
H.S.A. = Human Service Agency
H.C. = Housing Commission
C.A.A. = Community Action Agency

perceived as being equitably distributed. To help ensure outstate legislators' continued support, the state formally approved the $1.2 million DART demonstration program on July 11, 1973. Thus, a distinct political basis existed for the formation of the DART program; it was a counter-balance to the state support for the SEMTA area.

The major reason why demand-responsive systems were specified in the DART program was that UPTRAN was to provide all planning, training, and hiring support for the local areas. At that time, the UPTRAN staff was very limited and they sought to have a type of system which would be simple and easy to set up and which would not vary from site to site. The UPTRAN staff believed that demand-responsive services were a good solution to the needs of the smaller outstate communities, and simply did not feel capable of offering the local areas additional options. UPTRAN was heavily influenced by the Ann Arbor integrated paratransit system, which had begun operations in 1972 with a demonstration grant from UPTRAN.

Initially, UPTRAN did have to do quite a bit of "selling" to generate sufficient interest on the part of localities. Eight systems were awarded funds during the first year of appropriations. UPTRAN officials met with individual cities and towns and also with the Michigan Municipal League. A few applications were deferred to the second year becuase of the first-year funding limitations. During the second year of the program, it became well-known that UPTRAN stopped actively trying to market the program. Since that time, demand has exceeded the available funds.

2.2 Community Support of DART

Most communities which have had a DART demonstration have continued to support the system. Of 25 outstate and rural DART systems for which data were available in June, 1977, 16 had successfully approved millage elections, three were continuing to operate with locally apportioned Federal funds (revenue sharing, etc.), three were using local general funds (no election

involved), and in three communities DART systems had been defeated im millage elections. In some communities, there have been two millage elections with opposite results. For example, in Alpena, DART was approved by a 65% vote in November of 1975. Two years later, after a suprise negative vote, service was suspended. This apparently did not reflect dissatisfaction with DART, but was rather a by-product of an unpopular school millage vote held at the same time.[1] In Hillsdale, the opposite occurred. DART was first defeated by 21 votes in November of 1976, then later approved by 500 votes in February of 1977.[2] There have been two millage elections within the SEMTA region, both successful. See Table 2.3 for a summary of all millage elections.

Although not all local sites with DART systems have held millage elections, this technique has been the most common one employed for raising local funds. There are apparently two reasons for this approach. First, the city manager or city council can bypass making a unilateral decision as to whether to continue to support a DART system, by passing the actual tax-committing decision to the local citizens. Secondly, some cities/towns have statutory limits on town spending based on a maximum property tax rate. If the town is already spending the maximum amount of taxes allowed (and most are), any new programs requiring an increase in the property tax rate are only possible if an election is held on the property tax increase.

The roughly 85% rate for successful passage of DART millage elections is a strong indication that smaller cities/towns will pay to support flexibly routed transit when the service is properly demonstrated and the benefits are made clear to the community. These figures demonstrate a strong public support for, and acceptance of, flexibly routed services in areas which have had demonstrations. Due to the fact that UPTRAN's funding has been limited, and that some proposed systems have not been started,

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[1] Telephone Interview with James Birch, city manager of Alpena, January, 1978.

[2] "Millage Elections", UPTRAN, June 16, 1977.

Table 2.3: Summary of Michigan State DART Millage Elections

Outstate Sites	Date	Amount	Favorable Vote Percentage	Comments
ALMA	May 18, '76	1 mill	53% (n=2091)	
ALPENA	Nov 4, '75	½ mill	65% (n=3198)	Good from 7/1/76 to 7/1/78
BELDING	May 18, '76	½ mill	78% (n=1103)	Good until 5/18/78
BIG RAPIDS	Feb 3, '76	1 mill	80% (n=1100)	Good from 7/1/76 to 7/1/78
CADILLAC	Nov 4, '75	1 mill	55% (n=1701)	Good until 12/31/80
DAVISON	May 10, '77	N.A.	88% (n=621)	Advisory vote only: funds to come from revenue sharing
DOWAGIAC	Nov 4, '75	1 mill	61% (n=839)	Good indefinitely as long as costs don't exceed 1 mill
EATON RAPIDS	April 26, '77	1 mill	68% (n=752)	Good indefinitely
GRAND HAVEN				
(Spring Lake)	Feb 17, '76	1 mill	75% (n=492)	Charter revision
(Grand Haven)	May 18, '76	1 mill	75% (n=3631)	Charter revision
(Ferrysburg)	June 14, '76	N.A.	73% (n=418)	Charter revision
HILLSDALE	Nov 2, '76	.75 mill	49.6% (n=2551)	Defeated by 21 votes
	Feb 15, '77	.75 mill	65% (n=1558)	Good for one year only
HOLLAND	Nov, '74	½ mill	73% (n=8849)	Good from 7/1/75 to 6/30/78
HOUGHTON/HANCOCK				
(Houghton)	July 16, '75	1.5 mill	74% (n=705)	Both towns had to approve
(Hancock)	July 16, '75	1.5 mill	49% (n=1248)	System discontinued
ISABELLA CO. (includes Mt. Pleasant)	May 18, '76	.7 mill	59% (n=7100)	Combined city/county system. Good from 7/1/77 to 1/1/81
LUDINGTON	Dec 8, '74	1 mill	58%	Good until 12/31/78
	Aug 2, '77	1 mill	72% (n=1393)	Good from 1/1/79 to 12/31/82
MANISTEE CO.	Nov 2, '76	.35 mill	50.1% (n=8901)	Good from 2/1/77 to 1/31/79
MARSHALL	Aug 5, '75	1 mill	74%	Good indefinitely
ROSCOMMON CO.	May 18, '76	.25 mill	49.3% (n=3831)	System stopped 5/19/76
SEMTA SITES				
BIRMINGHAM	April 5, '76	1 mill	62% (n=3852)	Good from 7/1/76 to 6/30/78
PORT HURON (4 towns)	May 10, '77	1 mill	65% (n=6392)	Good from 8/1/77 to 7/31/78

there is a possibility that such similar public support may exist in Michigan cities/towns which do not have DART systems today.

The most commonly quoted reason for the community support of the Michigan DART system is concern for the elderly.[1] Although all outstate and SEMTA DART systems are available to the general public and only average about 33% elderly ridership, the DART systems are commonly identified as being "for" the elderly, or, at a minimum, the elderly are seen as being the primary support group, benefit recipient, and rationale for the system. Elderly groups universally supported the millage elections and were usually effective in their efforts. This is a significant conclusion which has implications for the marketing of, and perceived need for, flexibly routed services in small cities and towns.

Two cities which do not have DART systems (Owasso and Marquette),[2] had met their community concern for the transportation of elderly previously by instituting taxi or agency-sponsored elderly DRT systems. It is therefore possible that the existence of elderly transportation service might tend to dampen the communities' perceived need for a flexibly routed service for the general public.

It is also worth noting that, by 1978, a substantial number of other transportation programs were available, including those offered by UPTRAN and by state human service agencies, which could cater to the needs of the elderly. It is hypothesized that this situation may have reduced the demand for new DART demonstrations. Also noteworthy is the fact that Michigan attempts to cut off the flow of dollars to local human service agency transportation programs when a DART system is implemented. The justification for this is to avoid duplication of services. These funding cut-offs

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[1] Telephone conversations with Joe Ludak, Department of Finance, Birmingham; Bill Voght, City Clerk of Houghton; Jack Short, Midland; Mike Dewey, Small Bus Director, SEMTA; Joe Bastianelli, DART program, Davison; Dave Wilbur, Assistant City Manager, Grand Haven; and Edwin Wheden, Mount Clemens (January, 1978).

[2] Telephone conversations with city manager of Owasso and Marquette, January, 1978.

are initiated by an Interagency Coordinating Committee, which includes UPTRAN and the major human service, at the state level agencies. The effectiveness of this concept, however, has not been proven.

A significant market group for many of the Michigan DART systems is youth. Yet, youth are not perceived to be as important as the elderly in terms of their need for flexibly routed services. Presumably, youth have little political visability because they are not of voting age and because all their needs are assumed to be the responsibility of their parents. One city manager of a town without a DART system was quite adamant about not needing to provide youth with transportation or to relieve parents of "serve passenger" trips.[1] Presumably, this attitude affected his professional judgement about his communities' need for a DART system. The whole issue of the youth market and their true "need" for flexibly routed services is one that deserves further study.[2]

It is noteworthy that millage elections are only held after the first year of service, the year which is essentially free to the community. The first year is important, since it allows the public to see the service in action, and to judge for themselves whether they feel they really need it. It might be incorrect to assume that millage elections could not be held successfully before the first year of service, but statements by a representative of UPTRAN[3] and others[4] indicated that the demonstration period was generally a positive force which made implementation easier and helped to assure a higher overall rate of acceptance. To have free first-year demonstration funding requires a regional, state of Federal

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[1]Telephone conversation with city manager of Albion, January, 1978.

[2]For more extensive treatment of this issue see: Gurin (1974) and Gurin (1976).

[3]Telephone conversation with Kip Grimes, Director of DART program, UPTRAN, January and February, 1978.

[4]Telephone conversation with Margaret Henderson, owner of Midland Taxi Co., Midland, March 1, 1978.

program willing to commit such funds to local areas. The UPTRAN program has worked well from the point of view of implementing a large number of demand-responsive services. A similar type of program might be successful at the Federal level, although sections 13 (c) and 3 (e) of the UMT Act might create funding restrictions. This could be avoided if other states were to begin their own IP programs, similar to Michigan's, using non Federal funds.

2.3 Operating Costs and Private Sector Participation

Most DART programs operate at relatively low cost levels. This is achieved by having low per-vehicle hour costs for the selected operator and by achieving relatively high productivities. For example, the average productivity of all outstate DART systems is 6.5 passengers per vehicle hour and the average total cost/trip is only $1.34. High productivities are achieved in part because many of the service areas are quite small. The average service area population of outstate DART (excluding rural) systems is only about 14,000. Low base operational costs are due to low prevailing wage rates in smaller urban areas and, in some cases, to the use of taxi or human service agency operators. The SEMTA DART operations are also inexpensive, averaging only $10.26 per vehicle hour. Rural DART systems have much lower productivities because of the large service areas and low demand densities, but still have low per-vehicle hour costs. Table 2.4 shows a summary of the costs of the DART outstate systems.

Aside from the question of how to achieve low costs, a more relevant point connected with this report is that lower costs help to ensure community acceptance. Lower base, or per-vehicle hour, costs help to lower the deficit which, in turn, makes it easier for the community to afford the service. Secondly, low wage rates, high productivities, and low per-trip costs create an impression in the public's mind that the system is efficient rather than being wasteful. This perception of the systems cost-effectiveness, quite apart from a community's true ability to pay for the system, may affect the initial willingness to adopt the system. After several years of operation, it may be possible

Table 2.4 Cost & Revenue Data - (DART) Systems

October 1, 1977 Thru December 31, 1977

Outstate DART Systems	Quarterly Costs	Recovery Ratio	Cost/ Veh. Hr.	Cost % Change Same Qtr. Last Year
Adrian	$ 25,438.21	43%	$ 8.55	+ 25%
Alma	19,608.61	23%	8.18	- 19%
Alpena	32,705.78	26%	10.95	+ 2%
Antrim County	39,349.93	18%	10.97	--
Baraga County	28,107.39	11%	14.53	--
Belding	7,774.80	29%	8.18	+ 5%
Benton Harbor	72,043.26	17%	13.64	- 17%
Big Rapids	26,671.70	35%	7.60	+ 33%
Cadillac	30,765.48	24%	10.09	+ 17%
Crawford County	29,684.85	17%	12.32	--
Davison	14,235.11	34%	6.50	- 10%
Dowagiac	7,299.83	30%	6.94	+ 78%
EUPTA	32,528.55	15%	14.61	+ 38%
Eaton Rapids	5,751.64	53%	6.11	+ 6%
Gladwin	10,845.39	12%	9.32	+ 87%
Gogebic County	3,997.66	13%	10.91	- 7%
Grand Haven	36,545.52	27%	8.84	+ 55%
Hillsdale	19,680.70	30%	9.75	+ 21%
Holland	30,336.38	26%	9.47	+ 4%
Houghton Co.	15,081.62	18%	10.45	--
Isabella County	80,131.07	14%	14.91	+ 43%
Ishpeming	11,005.88	16%	10.89	NA
Lake County	9,458.35	37%	5.24	- 12%
Ludington	37,637.46	18%	17.02	+ 57%
Manistee County	34,316.53	21%	11.33	+ 74%
Marshall	14,733.44	30%	10.14	+ 3%
Midland	86,557.42	15%	15.15	+ 18%
Midland County	50,251.53	8%	10.52	--
Niles	36,404.10	21%	10.40	+ 9%
Sault Ste. Marie	25,799.74	29%	7.02	+ 25%
Traverse City	32,969.81	23%	9.17	+ 3%
Outstate Totals:	$ 892,636.12	21%	$10.63	——

to allow wage rates and operating costs to rise to more competitive levels. This might occur, for example, if unionization takes place after the system becomes an ongoing government service. The implication is that having operations in the $10-15 per vehicle hour range rather than the $20-30 per vehicle hour range of many large operations will accelerate IP implementation.

Michigan DART systems are operated by taxi companies, city governments, county governments, transit authorities, housing authorities, Community Action Agencies (CAA's), Commissions on Aging, townships, and other human service agencies. DART system operators include six taxi operators outside the SEMTA region and one taxi operator within the SEMTA region. Exactly half (11) of the outstate, non-rural DART site areas have taxi service. These tend to be the larger communities, averaging 21,000 in population, whereas the 11 DART sites which have no taxi service average only 8,000 in population. Thus, 55% of all outstate areas which do have taxi firms are using them to operate the DART system. Within the SEMTA region, only three of the sites have taxis, and only one of these is the DART operator. Among the outstate DART sites which do have taxis but do not use them as the system operator, there are three transit authorities, one city government and one CAA acting as DART operators.

The selection of the DART operator is up to the local governing body which is sponsoring the service. Clearly, there has been a substantial amount of taxi industry participation in the DART programs within those communities having taxi service. Thus, it is clear that most local areas have investigated the possibility of taxi operation and that UPTRAN has sanctioned this concept.

In Benton Harbor, the Twin City Cab Co. initially declined to be the DART operator when first contacted in 1973 or 1974. This was due to uncertainty about the project and the fact that the firm, at that time, had 20 cabs and was making a substantial profit. Since then, it has been reduced to 5 cabs as a result of competition from the DART system and a second cab company which

has begun operations. The present management of Twin City Cab did not initially consider litigation becuase they believed the DART service was poorly run, and expensive, and would eventually fail. However an unsuccessful suit was initiated by Twin City Motor Transit Co.

In Midland, the cab company was also offered a chance to bid on the DART service but it declined because it did not like the service concept. The DART system has taken away about half of its business, but the cab company has not considered litigation because it believes that the DART system is a needed community service. The company would still not consider bidding on the service.[2] Firms in both Midland and Benton Harbor, however, have expressed anger because the DART system had first been justified as being only for the disadvantaged, but is providing service to the general public.

2.4 Characteristics of DART and Non-DART Communities

It is not possible to clearly differentiate between the characteristics of those communities which do and the characteristics of those which do not have DART systems. Funding has been limited, so that some communities which do not have DART systems may have applied for DART funding and may more properly belong in the other category. In addition, there are many complex factors which influence the behavior of communities. Nevertheless, in some respects, the communities which posses DART systems may be innovative and both *a priori* expectations and conversations with individuals connected with the DART program suggest a few descriptors which may partially differentiate the two groups.

The phrase "public valued" can be defined as the willingness of citizens to be taxed for programs from which they do not directly benefit. Clearly, we would tend to associate public valued

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[1] Mammina, J., Twin City Motor Transit v. Twin City Area Transit Authority, Circuit Court for Berian Co., April 22, 1976, Civil File #75-2337-C7.

[2] Telephone conversation with Pat Mason, owner of Twin City Cab, Benton Harbor, March 1, 1973.

communities with a higher likelihood to accept DART systems. This hypothesis is partly borne out by the Michigan experience. Many of the DART-implementing cities prided themselves on their parks, libraries, schools, etc., services which can be viewed as "public-valued". This is despite the fact that most of the DART communities viewed themselves as "conservative", some of them as "quite conservative". This political label seemed also to apply to the non-DART outstate communities. Within the SEMTA area, however, several of the DART communities were upper-middle-class white collar areas which viewed themselves as "liberal".

Even more noticeable than "public value" sentiment were attitudes toward Federal programs (even though DART is, strictly speaking, a State program). The communities' attitude toward the DART program often reflected their view of all government funded social programs. For example, the city manager of Mount Clemens, a DART community, boasted about receiving more Federal dollars per capita than any other city in the country.[1] This was clearly a source of pride to him. On the other hand, the city manager of Owasso, a non-DART community, spoke disparagingly about "too many Federal programs" and characterized his community as old-fashioned.[2] He clearly took pride in not having a DART demonstration. This anti-government spending theme was perceived by other areas, as well. Towns would either not have a DART system because of this self-reliant attitude, or would perceive the mobility need as great enough to justify taxation.

2.5 Summary

The Michigan State DART program has been successful in helping to implement a large number of flexibly routed services throughout the state. The program consists of an almost totally "free" (to the city or town) first-year demonstration program, plus technical assistance for implementation. There has been a high

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[1] Telephone conversation with Edwin Wheden, Mount Clemens, January, 1978.

[2] Telephone conversation with city manager of Owasso, January, 1978.

success rate for millage elections to support ongoing operations held after the first year. Although DART systems have been implemented primarily in small towns, the DART program illustrates several themes found throughout the case studies in this report.

- The state-wide demonstration program did serve to implement a large number of flexibly routed services throughout Michigan. Approximately 90% of all demonstrations were continued by the local community.

- Small cities and towns are willing to vote to tax themselves for flexibly routed services. About 85% of all millage elections held in Michigan on the subject of flexibly routed services were successful.

- A primary reason for support of these systems is concern for the elderly, even though the systems are general public systems. Elderly persons constitute about 33% of all ridership on these systems.

- There has been extensive involvement of the taxi industry in the DART program. About 55% of all available taxi firms are the DART operator in their community, but a number of taxi firms have declined to operate DART services. Although DART systems have apparently cut into taxi firms patronage substantially, there has been no significant resistance to the DART program from the taxi industry.

- Most DART systems display fairly low operating costs. Productivities are high, partly because of small service areas. Per vehicle-hour costs are low due to low wage rates and the use of taxi, human service agency, and municipal operators. These low costs help to create a positive image in the mind of the community.

- Most communities with DART systems are not overly concerned with the youth market, although it is possible that youth make up the largest market group to use DART systems.

- "Public valued" communities are hypothesized to accept innovative programs like the DART program more easily than other communities. Public valuedness may be associated with willingness to accept Federal spending programs and with support for traditional community services.

- Other motives for implementing integrated paratransit systems such as route rationalization, reduction in VMT or auto ownership, creation of jobs, reduction in congestion or parking spaces, increased mobility for the handicapped

and the autoless, reduced pollution and energy consumption, or eliminating the need for chauffeur trips, were not major factors in the DART program.

- The influence of Ann Arbor on the UPTRAN DART program has been noticeable. The original AATA Dial-A-Ride demonstration was funded with a one-shot, "risk capital" demonstration grant. The subsequent demonstration and successful millage election in Ann Arbor was influential in UPTRAN's decision to start the similar DART demonstration program for other outstate cities and towns.

- It is interesting to note the difference between Teltran and the outstate DART systems. Whereas Teltran carries few elderly and is generally perceived as an environmental/conservation/anti-auto device, the outstate DART systems are perceived as systems oriented to the transportation disadvantaged (i.e., elderly). Thus, a similar technique has spread form one locale to other locales for very different purposes.

Chapter 3
Case Study #3: The Rochester PERT System

Overview

PERT (PERsonalized Transit) is a large-scale integrated paratransit service sponsored by the Rochester-Genesee Regional Transportation Authority (R-GRTA). The service began in 1973 in suburban Greece and adjacent portions of the city. In 1975, PERT was expanded to cover a second Rochester suburb, Irondequoit, and another small portion of the city. Additional expansions to two more suburbs, Henrietta and Brighton, occurred in 1978.

PERT is a short-notice demand-responsive system which offers door-to-door service anywhere within the two adjacent service zones of Greece and Irondequoit. Travel between Greece and Irondequoit, or to downtown Rochester, can be accomplished by transferring from the PERT vehicles to conventional fixed-route buses. A few specific transfer stations have been built, and coordinated transfers are possible.

PERT has been funded under an UMTA Service and Methods Demonstration (SMD) grant since 1974. The Rochester-Greece PERT system has been SMD's major integrated paratransit demonstration since the Haddonfield, New Jersey, demonstration ended. As such, there are several unique elements of the PERT service. The scheduling and dispatching are normally handled by computer, with manual procedures serving as backup only. At one point in the project's history, a heterogeneous bus fleet was created to test the relative performance of six different vehicle types. Finally, route rationalization has always been a major objective of the demonstration. The fixed routes which were in Greece and Irondequoit prior to

the advent of PERT have been cut back and coordinated with the PERT service. A variety of service areas, fixed-route alignments, service policies, service levels, and fare policies have been tried during the course of the demonstration.

The Greece and Irondequoit PERT services have always been operated by the Regional Transit System (RTS), the operating subsidiary of the R-GRTA. Management of the demonstration has, to a large extent, been the responsibility of the Massachusetts Institute of Technology (M.I.T.) since the beginning of the UMTA SMD grant. In an effort to reduce costs, private operators were allowed to bid (against RTS) on new service modules in the Rochester suburbs of Henrietta and Brighton. A private operator began operating these services in May 1978. Although much effort has gone into the PERT service over the years, it is unclear at this time whether the R-GRTA will be able to continue the PERT service after the final UMTA demonstration period ends in March of 1979. No permanent commitment to finance PERT has ever been made by the local community.

3.1 Project History

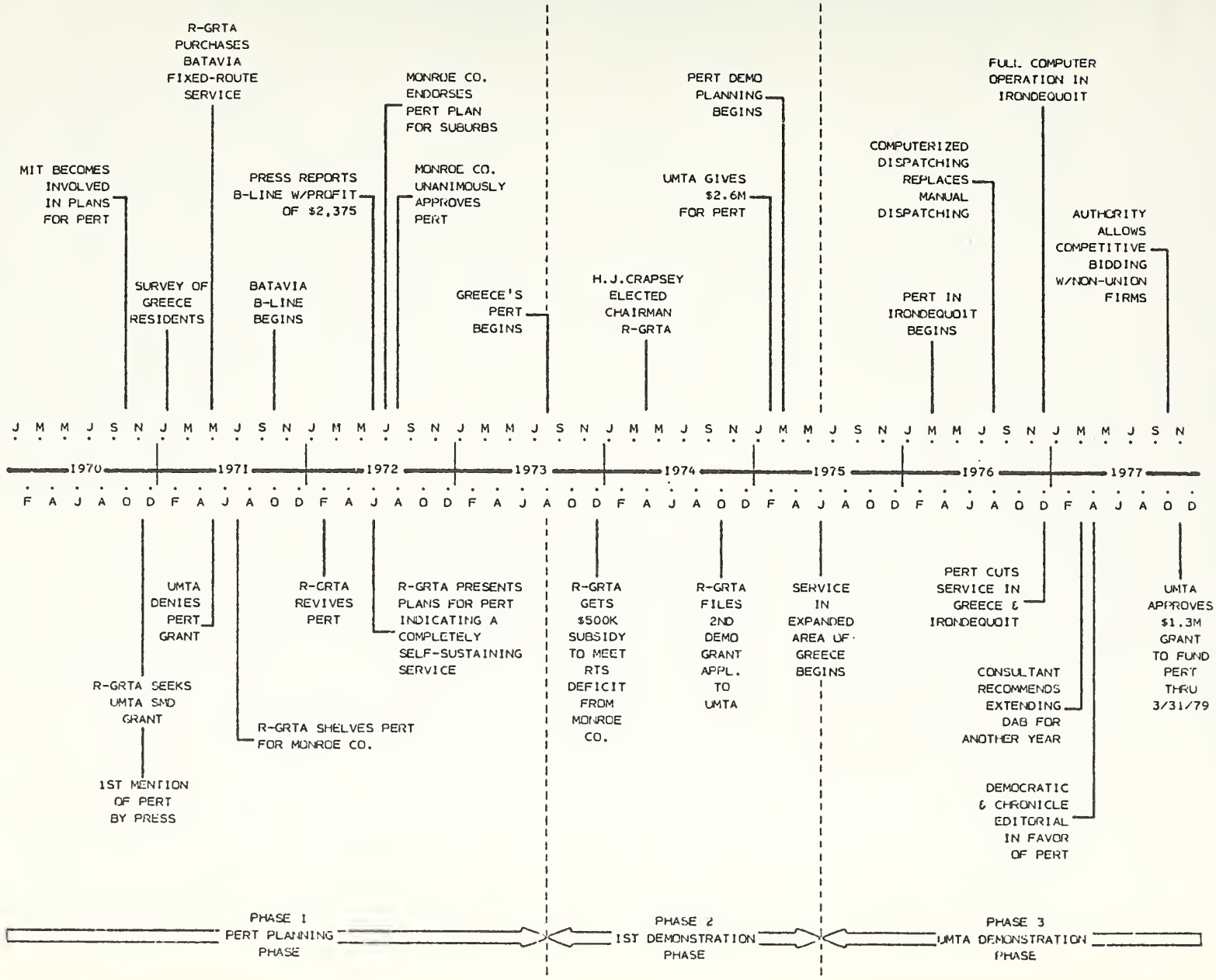
The history of the development and implementation of the Rochester DRT extends over an eight-year period beginning in 1970. This period is represented graphically in Figure 3.1. Three phases of the project's history can be identified:

1. The PERT Planning Stage (late 1970 - August 1973). During this stage, the idea of PERT was developed, the first UMTA demonstration application was denied, and two separate efforts (the second of which was successful) were made to get local approval of a PERT pilot project.

2. The First PERT Demonstration Period (August 1973 - January 1975). During this period, PERT was operated as a local demonstration, using local funds only.

3. The UMTA Demonstration Period (January 1975 to the present). During this period, UMTA demonstration grants paid for PERT. Some substantial changes were made, including service expansions, computerization, and vehicle diversification. M.I.T. directly managed the demonstration. The primary objective was to

Exhibit 4: History of PERT



experiment with different concepts and to search for additional knowledge, rather than to insure that the system would be acceptable to the local community.

Each phase will be described in detail in the following sections.

3.1.1 The Pert Planning Phase

The R-GRTA was formed in April 1969 to preserve public transportation in the Rochester area. By the end of 1969, the Authority had chosen a chairman, Robert Black, and an executive director, Robert Aex. In September of 1970, the Authority took over the city's municipal bus operation and, in so doing, changed its name to the Regional Transit System (RTS). Robert Aex considered the preservation of transit service in Rochester as his primary responsibility. He also believed that an additional responsibility of the R-GRTA was to innovate. Shortly after RTS was acquired, Aex attended a transit conference helt at M.I.T. in Cambridge, Massachusetts. While there, he attended a lecture on paratransit services given by Professor Daniel Roos. Aex returned to Rochester enthusiastic about the paratransit concept, and convinced that Rochester would be a good site for a demonstration.

M.I.T. had evidently completed a study on potential sites for "dial-a-bus" demonstrations at that time, and had recommended Rochester as a suitable site, citing a New York State Department of Transportation (NYSDOT) study which named Rochester as an ideal choice for a dial-a-bus demonstration project. NYSDOT had selected Rochester because it had a comprehensive conventional transit system, leadership open to innovation, a responsive institutional structure, and general demographic characteristics similar to many other mid-size cities (which ensured that the results would be transferable). Aex viewed dial-a-bus as an effective way of preserving mass transit in the Rochester area, while at the same time avoiding the negative image that had evolved around the RTS fixed-route services. He was convinced that dial-a-bus was a concept whose "time had come."

AEX's opinions on paratransit were an important factor in implementing PERT. Apparently, there was less than total support

from either the R-GRTA commissioners or from the public for such an innovative idea, or for the financial backing it would require. Aex was evidently able, however, to proceed quite far with the paratransit concept without substantial backing from others. Even so, paratransit in Rochester evoked resistance right from the start.

In November 1970, the R-GRTA applied for an UMTA SMD grant to fund the PERT system. At the time, the R-GRTA believed there was a high probability that funding would be granted, based on informal discussions with UMTA representatives. Some after receiving the application, UMTA requested that a survey of 1,000 Greece residents be conducted to determine the potential market for DAB. The survey demonstrated little desire or support on the part of the residents for dial-a-bus service (Goldstein, 1977).

In May of 1971, the UMTA demonstration grant was rejected in favor of an alternative site in Haddonfield, New Jersey. Shortly thereafter, the R-GRTA dropped all plans for implementing flexibly routed services. The major reasons for this were the absence of the UMTA funding and the negative results of the Greece survey.

Meanwhile, the Authority had purchased a private bus company in the City of Batavia, 45 miles from Rochester. Aex saw this purchase as a way to demonstrate to the Authority, the public, and the business community that a demand-responsive system could be self-sustaining. Consequently, shortly after acquiring the Batavia Bus Company in June of 1971, the Authority, at Aex's recommendation, decided to replace the Batavia fixed-route service with a many-to-many "dial-a-bus" called the B-line. The B-line began operations in October of 1971. This first paratransit service sponsored by the R-GRTA had a major influence on subsequent deliberations concerning the proposed PERT service in the Rochester suburbs. In 1972, the B-line was perceived as making a profit, or at least not requiring a large subsidy. The subsidy issue had always been central to the R-GRTA and the various other governmental officials in and around Rochester. As far as can be determined, the entire issue of public financial support for transit was a sensitive one, with certain individuals evidently believing that transit should be

able to pay for itself from farebox revenues.[1] Some of the political factions at work in Rochester were trying to accomplish self-supporting transit or, failing that, to keep subsidy levels at absolute minimums.

During 1972, the idea of implementing DRT service in the Rochester suburbs was revived by the R-GRTA. A major factor in this revival was the perceived success of the Batavia B-line system. In July of 1972, the press reported that the B-line had shown a profit of $2,375 (Goldstein, 1977). This, plus the pressure of the R-GRTA to expand transit service in the suburbs, helped to remove some of the previous inhibitions of the R-GRTA commissioners.[2]

In August 1972, the R-GRTA presented a plan to the Monroe County Legislative Transportation Committee which envisioned a total of 100 vehicles in eight or ten different Community Transportation Systems, located in denser suburbs. Supposedly, the plan stated that the service would be self-supporting. Even if the county and the R-GRTA knew at that time that some subsidy would be required, there is no doubt that they probably underestimated the amount. This plan was accepted by the county. The first stage of the plan was to set up a demonstration/pilot program in one suburb. An area consisting of the suburbs of Greece and a contiguous section of Rochester was selected for three reasons: (1) it had an appropriate population density, which was about 5,000 people per square mile; (2) it did not have many fixed-routes, compared to other suburbs; and (3) it had several major travel generators, including Kodak Park (a major employment center) and a large regional shopping center. No community participation was involved in the site selection.

3.1.2 The First PERT Demonstration Phase

PERT service began in Greece in August 1973. The R-GRTA funded the project with monies from the Authority's general operating budget and from passenger fares. A direct-mail marketing program,

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[1] As of mid-1978, when this report was written, there were no permanent provisions for local funding of transit in the Rochester area.

[2] In reality, the B-line's profit was created by school contracts, rather than the dial-a-bus service.

geared at those living in the service area, was used to attract patronage. By November of 1973, ridership had grown to 2,200 trips a week. Press coverage of the experiment was favorable at that time.

During this phase, management of the PERT system was performed directly by the RTS. M.I.T., which has had some relationship with the project all along, was at that time acting only as a consultant. As the Haddonfield demonstration ended, the R-GRTA applied to UMTA a second time for an SMD grant. The grant was awarded in January 1975. This marked the beginning of the next phase of the PERT experience.

3.1.3 The UMTA Demonstration Phase

The involvement of the federal government created a much less flexible institutional environment for the R-GRTA management team. Federal involvement, which began in early 1975 and is scheduled to last until March 31, 1979, seems to have changed the basic nature of the service in a few fundamental respects. First, management of the demonstraton was delegated to M.I.T. Second, several innovative ideas were tried. These ideas were research oriented and designed to help increase overall understanding of paratransit, but were not necessarily designed to improve the service from the local point of view. Third, the existence of federal funds could allow the R-GRTA to effectively postpone a decision about whether to support the service. This commitment has still not been made, but there are indicateions that the R-GRTA itself would not be able to support the PERT service today.

The original UMTA demonstration grant was a three-year period scheduled to expire in 1977. In 1977, UMTA granted the R-GRTA an extension until March 31, 1979. Part of their reason for doing this was to see if a better, more locally acceptable situation could be created by 1979. The federal perception in 1977 was that PERT would have been terminated without new federal demonstration funds, and that an extension was needed to search for something that would enable the R-GRTA to support the service.

The planning for the UMTA demonstraton phase began in March of 1975. In June of 1975, one of the first changes, an extension of the Greece service area boundaries, was effected. There were several other such boundary changes at various times. Expansion to the Irondequoit area occurred in March of 1976. During the intervening period, the service quality, which had previously been considered good, began to deteriorate. This situation, which has since been corrected but which lasted for a fairly long time, had a noticeable effect on public opinion and on demand for service.

One of the reasons for the deterioration of service was that the R-GRTA had purchased many types of vehicles for experimental purposes. The assortment of vehicle types made parts inventorying problematic and maintenance particularly difficult. some of the vehicles, including a battery-powered prototype, were virtually useless, and were rarely placed in revenue service.

Another factor that triggered community protests against the system was the route rationalization program. Extensive route cutbacks inconvenienced many transit users in the Greece area. The inability to fully coordinate transfers further reduced service quality, resulting in an overall decrease in transit ridership. Modified fixed-route service was reinstated in 1978.

One other factor which negatively impacted service quality was the changeover from manual to computer dispatching, until the bugs could be worked out of the new system. In late 1976, the manual dispatching procedures for the Greece and Irondequoit systems were replaced with a computerized dispatching system. There were a number of initial software problems, as well as resistance on the part of drivers and dispatchers to working at the direction of a computer. Eventually, these problems were resolved. Nevertheless, productivities for the full-scale Greece and Irondequoit operations, while significantly improved from the levels under manual dispatching procedures, never approached what had been expected. Thus, costs were higher than anticipated and, in December 1976, a series of service cutbacks were undertaken to reduce that deficit.

In 1977, a special report prepared by a consultant recommended continuation of the service (Systan, 1977). In fact, new privately operated service modules were introduced in Henrietta and Brighton in May 1978. The R-GRTA had to obtain an innovative labor union agreement in order to allow a private operator to bid on the service. This agreement was instigated by the American Transit Union International organization. Note that one of the conditions of the extended UMTA demonstration grant was that the R-GRTA had to be able to cut costs by contracting out for the new services; thus, federal pressure also existed for such an agreement. A copy of the labor agreement is included in Appendix A.

3.2 The Future of PERT

It is clear that PERT is still in a demonstration phase and that full community acceptance of integrated paratransit into the R-GRTA's ongoing transit services has not yet occurred. The major proof of this fact is that the services are being supported entirely by UMTA rather than local funds. Whether the community will continue to operate integrated paratransit after the expiration of the SMD grant is not clear. In part, this will depend on the experience gained in 1978 with the Henrietta and Brighton services. However, the towns of Brighton and Henrietta were selected by the R-GRTA and, while they have shown interest in receiving a pilot program, they have, as yet, made no commitment to the service. Part of the R-GRTA's requirements for PERT service expansion is that the town must pay 50% of the cost after the SMD demonstration period ends on March 31, 1979. Both towns have expressed doubts of whether a referendum would pass if held currently; since implementation of PERT service has been encouraged by R-GRTA, public pressure is not a major factor. Future community acceptance of the services is possible, but cannot be predicted at this time.

3.3 Summary

The Rochester experience has evidenced some of the same themes noted in other case studies in this report, including:

- Service began with a pilot/demonstration project. In this case, the service is still in the demonstration phase, and no ongoing commitment to having an integrated paratransit service has yet been made.

- Ongoing union operation of the services has been perceived to be expensive. An innovative arrangement has been made to allow private firms to bid competitively against the RTS in the operation of the expanded PERT services in Henrietta and Greece. These arrangements were not made under pressure from the private sector but, rather, in response to perceived excess costs in part of the public sector.

- Federal control of the demonstration resulted in a set of priorities different than those which would have occurred under local control of the demonstration. Federal efforts to introduce computerization and a varied vehicle fleet reduced the level of service for a certain amount of time. Federal/R-GRTA agreements specified that an outside party (M.I.T.) manage the demonstration. For a while, this created a management problem.

- No substantive local commitment has ever been required from the impacted communities of Greece and Irondequoit Local community involvement in planning the service was largely non-existent. The service was instigated and implemented by the R-GRTA in response to a belief in innovatio, but not in response to public pressure. SMD funding removed the need for ongoing local financing.

- Several key personnel did play crucial roles in implementing the PERT service. Among them were Robert Aex, former executive director of the R-GRTA; Robert Black, former chairman of the R-GRTA; and Professor Daniel Roos, director of the M.I.T. management team. Probably more so than in the Ann Arbor case study, the key individuals were instrumental in implementation and were more responsible for the service concept. It is more reasonable here than in Ann Arbor to suppose that integrated paratransit would not have come about without these key individuals. In addition, there appears to be substantially less community support in Rochester than in Ann Arbor.

- Support that was generated for PERT services was not of a grass roots variety; it was very much of an organizational type. The decision to implement the PERT system was a "top-down" decision made by the commissioners and legislators; there was no

development of an organized grass roots support. No effort was made to create a positive image of the Authority or of the PERT concept in the public mind. As a result, though there was no initial public opposition to the PERT concept, there was also no public support.

Chapter 4
Case Study #4: Cleveland CRT System

Overview

The Community Responsive Transit (CRT) system is a demand-responsive service operated by the Greater Cleveland Regional Transit Authority (RTA) for the elderly and handicapped. The service covers all of Cuyahoga County, which includes the City of Cleveland and adjacent suburbs. Cuyahoga County is divided into fourteen CRT service areas, the boundaries of which approximate neighborhoods. Within each service area, door-to-door transportation is offered free of charge to any elderly (aged 65 years or over) or handicapped person, with 24-hour advance notice. Transportation between service areas is not offered. About two-thirds of the CRT service is actually provided by RTA-operated vehicles, and about one-third is operated by the Yellow Cab Company under contract to the RTA. Under the terms of an innovative agreement with the local transit union, RTA-employed drivers are classified differently than regular drivers and are paid only 69% as much. Finally, Extra-Lift, a subscription peak-hour service for the non-ambulatory handicapped, is operated as a separate component of CRT, allowing travel between any two points in the county for eligible riders and their companions.

4.1 Project History

CRT was preceded by a demonstration project called Neighborhood Elderly Transportation (NET). NET was a short-notice DRT service for the elderly which operated in three specific inner-city neighborhoods in Cleveland. The service was operated by the Cleveland

Transit System (CTS) under contract to the City of Cleveland. The city was responsible for direction of the demonstration. Funding was provided by the UMTA Service and Methods demonstration (SMD) program, NEW, and local sources. NET had a strong influence on the form and objectives of the CRT service. Therefore, to explain CRT fully, it is necessary to give some background on the NET program.

NET began operations on March 17, 1975. Initially intended as a twelve-month experimental demonstration, NET was funded through a joint grant of $450,000 from the UMTA SMD program and $250,000 from HEW Social and Rehabilitation Services, with matching funds from the City of Cleveland ($230,000); the Cleveland Foundation ($50,000); the Buekeye Area Development Corporation ($6,000); and the Cleveland Transit System ($18,000 in kind) . Through subcontracts from the City, the Cleveland Transit System (CTS), and later the RTA, operated and maintained the system. A consulting firm helped to establish the system and train the CTS personnel. The demonstration was the coordinated effort of over twelve agencies and organizations, including the CTS, the Mayor's Commission on Aging, Model Cities, and the Areawide Model Project on Aging (Crain, 1977).

UMTA involvement in the project actually began on December 8, 1972, when the first application for NET funding was received. Prior to approving the grant, which was eventually done in July 1973, UMTA sought information on: (1) the cost of the system; (2) the effectiveness of the self-certification system for reaching the elderly and handicapped;[1] (3) the relationship between NET and the existing transit system; and (4) whether job classifications could be changed for union drivers. The major objectives of the City of Cleveland were to begin meeting the needs of the elderly (which Cleveland perceived to be important) and to see if the NET service concept was an acceptably cost-efficient service strategy.

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[1]NET did not require any identification or proof that the user was elderly or handicapped. The NET evaluation showed that NET users were more active and mobile than non-users of NET. Most NET users were diverted fromthe fixed-route buses.

NET proved to be a success in the sense that it was very popular almost from the start with the elderly segments of all three demonstration areas. This popularity resulted from the high level of service and low fares which were offered. Short-notice service was provided so that advance reservations were not required. Response time was supposed to be only 30 minutes. At the time, the fare for NET was only 10¢, while the CTS fixed-route fare for elderly was 55¢ peak and 25¢ off-peak. Operating hours were 7:00 a.m. to 7:00 p.m. weekdays, and 7:00 a.m. to 3:30 p.m. on weekends and holidays. Drivers were required to give personal attention and assistance. The service was generally not capacity-restrained, and any elderly person was eligible. Thus, it is not surprising that NET was well received. During the demonstration, the City of Cleveland became concerned about the NET cost, which was averaging more than $4 per trip. The City initially refused to commit itself to program continuation after the demonstration funds were depleted. Thus, the potential for confrontation with system supporters existed from the beginning of the program.

The Formation of the Regional Transit Authority (RTA)

A full explanation of how CRT originated is not possible without also exploring the history of the formation of the Greater Cleveland Regional Transit Authority (RTA). As stated previously, NET was initially run by the Cleveland Transit System (CTS), a municipal operation. The formation of a regional system, which would take over the CTS and also provide expanded service to the suburbs, had been under negotiation fro some time prior to 1975, the year NET began operations. On May 8, 1975, a Memorandum of Understanding between the City, County, suburbs, and CTS was signed which stipulated the terms and conditions of the RTA formation. This Memo was subsequently approved by the voters on July 22, 1975, along with a 1% sales tax to finance RTA operations.

Included in the Memorandum of Understanding was a specific commitment from RTA that at least 15% of all new funds expended in the City of Cleveland would go into what were called "community responsive transit" services. This commitment was insisted upon

by the City of Cleveland, which emphasized this type of service (as opposed to more standard line-haul services) as a matter of policy. However, "community responsive transit" was not defined at the time of the Memorandum. It was conceived of as an intra-neighborhood circulation service, but was not necessarily restricted to any one market group, and could have included other types of services in addition to demand-responsive service.

This Memorandum was a key event in the history of CRT. Although the "CRT" concept was not clearly defined at the time, the RTA was thereafter committed to some form of neighborhood/circulation service oriented towards "disadvantaged" persons. It was not unreasonable to expect that flexibly routed services of some sort would be included in the CRT concept when developed. It is also not unreasonable to suppose that the NET program, and the public pressure to continue it, played a large part in the RTA'a policy decision that CRT services would be specifically targeted for the elderly and handicapped, a decision which might have been otherwise, had circumstances been different. Although there is little evidence that the City of Cleveland intended CRT to be a direct continuation of NET, this possibility certainly exists.

The inclusion of a "CRT" concept in the Memorandum was a direct result of the City of Cleveland demanding that type of service as part of the conditions for formation of the RTA. There is little evidence that the RTA was itself inclined towards this type of service, and so it must be concluded that the takeover negotiations came at a fortuitous time for the CRT concept. Had the RTA been formed several years prior to the NET demonstration, it is unclear what posture it would have taken when confronted with the CRT concept. As it was, however, CRT became one of the first new programs sponsored by the RTA and, while still constituting a small part of the overall budget, became one of the most complex and potentially troublesome of the RTA's ventures.[1]

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[1]As of March 1978, the RTA was having difficulties with CRT, since demand far exceeds capacity.

The Memorandum of Understanding also stipulated that fares for the elderly on regular routes would be reduced substantially from the CTS's then current fares of 55¢ peak and 25¢ off-peak. This issue had gained a certain amount of prominence in the local media in late 1974 and early 1975, resulting from complaints from elderly citizens that fares were too high. Elderly support for the sales tax referendum was, therefore, assured by the promise to cut regular fares for that group. Elderly fares are now 10¢ peak and free off-peak. In addition, CTS and City officials implied unofficially to some senior groups that RTA formation would provide a possible means for continuation of NET,[1] or some similar type of service. They also indicated that failure of the referendum would require the city to continue the service on its own, which was something it felt it could not afford to do. Nevertheless, no formal or legal commitment was ever made to continue NET.

Development of CRT

Immediately after the successful passage of the RTA referendum, various elderly groups began to lobby the RTA to continue NET once the federal demonstration funds were used up, an event expected in early 1976. In August 1975, the first report of such pressure appeared in the Cleveland newspapers.[2] A coalition of elderly groups attended various RTA board meetings and public meetings through the latter half of 1975 and presented their case for NET continuation in a series of emotional appeals. On October 8, 1975, a letter from Cleveland's Mayor, the Cleveland Planning Commission, and the Director of NET was sent to the RTA urging them to continue NET once the demonstration was over.[3] In December 1975, elderly groups held a "Christmas Scrooge" party for RTA board members, an event which received very

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[1] Telephone conversations with Margie Knappe, senior citizen leader, February 1978, and Goldie Lake, March 1, 1978.

[2] "Elderly at RTA Hearing Fear Losing Dial-A-Bus," Cleveland Plain Dealer, August 7, 1975.

[3] "Perk Asks RTA to Run Dial-A-Bus," Cleveland Plain Dealer, October 8, 1975.

sympathetic media coverage.[1] In January 1976, letters were sent to U.S. Representatives and to the U.S. Secretary of Transportation, William Coleman, pleading to maintain the system. During the period from RTA formation (July 1975) to expected NET discontinuance (January 1976), several dozen articles appeared in the Cleveland newspapers on the topic. Although the articles were generally unbiased, the RTA did appear to be on the defensive and in the unenviable position of taking away service from elderly people.

During this time period, the RTA, which was committed to a "community responsive transit," was trying to deal with the elderly pressure while at the same time planning some kind of CRT which would cover all of Cuyahoga County. The basic problem with simply continuing NET in the same format was that NET cost about $600,000 per year to operate, yet only covered about 10% of the City of Cleveland. The RTA was committed to expending only $500,000 on CRT, although it voluntarily increased this figure to about $1 million.

It is clear that the elderly pressure had some impact on the RTA. As the demonstration ended, the RTA agreed to continue NET and to evolve it into the CRT service, although with some substantial changes in operational procedures. This concession was announced on January 20, 1976, when the RTA Planning Committee issued its policy statement on CRT (RTA, 1976). The policy statement outlined the basic concepts of CRT service and how NET service was to be handled.

- CRT service would be restricted to the elderly and handicapped.
- CRT service would exist through all of Cuyahoga County.
- CRT service would be free to the user.
- NET service would be continued on an interim basis until CRT service could be established.
- CRT service would be 24-hour advance notice, instead of the NET short-notice policy.

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[1] "Seniors Stress Dial-A-Bus Need to RTA," The Sun Press, December 25, 1975.

- A substantial portion of CRT service would be subcontracted to a taxi firm.
- NET operating hours and level of service would be reduced as CRT took over.

During the spring of 1976, the changeover from NET to CRT took place in the three NET service areas. Service hours were reduced substantially on April 5, 1976, and 24-hour advance notice requirements were instituted in May. Initially, the elderly groups and the City of Cleveland were pleased with the RTA's decision. However, the reduced system capacity and increased service area created several problems such as excessively long waits on the telephone, which increased user dissatisfaction with the service.[1] Thus, after the changeover to CRT was accomplished, ridership in the three small areas formerly served by NET decreased substantially. In late 1976 and early 1977, after the CRT takeover was completed, elderly groups again began to complain to RTA and to put pressure on them to improve the service, a situation which still continues.[2]

4.2 Taxis and the Labor Unions

CRT service was initiated with two fairly unique components. First, a taxi firm contracts to operate about one-third of the service; second, the CRT operators from Local 268 of the American Transit Union are paid only 69% of the fixed-route operator's wage. Both of these arrangements arose from the RTA's extreme concern with keeping costs at a minimum. As previously stated, NET's cost per trip was about $4, a figure which received relatively wide publicity and which was used as a major reason to reduce the level of service when the NET system was taken over. This rationale was also used to shift from short-notice demand-responsive service to 24-hour advance notice service. It was believed that this would increase productivities from about 6 to 10 passengers per vehicle-hour.

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[1] "RTA Has $1 Million To Spend, But How?," Cleveland Plain Dealer, by Andrew Juniewitz, date unknown.

[2] "Senior Citizens Rap Special Bus Service," Sun Post, February 17, 1977.

After formation in 1975, the RTA received pressure from the taxicab industry, which claimed to be losing business to transit.[1] The RTA was voted into existence with promises to reduce fares and to increase service on the conventional routes. Both of these actions, it was feared, would further decrease taxi business. The taxi firms commissioned a report which documented their problems (Smith and Locke, 1975). This situation, plus the high cost of RTA/CTS operation of NET, created a natural reason for considering a partial subcontract of the CRT service. Not only could costs be reduced, but the taxi operators would be given some new business. Finally, taxi subcontracts helped to put pressure on the local ATU union, as explained below.

The agreement reached between RTA and Local 268 on April 28, 1976 (reproduced in part in Appendix A) established that a new classification, CRT operator, would be created for the operation of vehicles seating fewer than 30 passengers. A CRT operator is basically a new employee, who, after one year, may qualify for regular RTA operator status. A CRT operator is paid at 69% of the regular operator's wage rate;[2] this differential will continue for five years (until 1981). A CRT operator receives full benefits, vacations, holidays, insurance, and pension. Seniority and overtime provisions also apply.[3]

The union agreed to this agreement for two reasons. First, no jobs existing at the time were affected, as CRT operators would all be new employees. Second, Local 268 believed that all of the CRT service would be subcontracted out unless they signed

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[1] See, for example, "Taxi Firms Here Warned of Doom: RTA Gets Blame," Cleveland Plain Dealer, January 18, 1976.

[2] A CRT operator gets $5.77 per hour as of March 3, 1978.

[3] It is worth noting that this arrangement reduces the operator's wage by 31%, but probably has no effect on other aspects of operating costs. If normal RTA operational costs are about $24/vehicle-hour, only about $2.60 an hour or roughly 10% is being saved, and the RTA portion of CRT is, therefore, still costing over $20 per hour.

such an agreement.[1] Thus, from the union's point of view, much was gained by this agreement. Additionally, the union did not believe that this would set a precedent for reducing the wage rate of other jobs. Thus, the union, RTA management, and the taxi industry were all satisfied.

4.3 Summary

Despite the fact that CRT represents the only example in this report of a service restricted to the elderly and handicapped, the history of the CRT implementation illustrates several themes which are recurrent throughout many different paratransit services.

- CRT was preceded by a demonstration project called NET. NET was very popular with those who used it. NET users placed a great deal of pressure on the City, and later RTA, to continue teh service.

- CRT was not originally conceived of as an elderly or handicapped service. It became so because of the pressure to continue the NET elderly service and because only limited resources were available.

- A commitment to CRT was written into the Memorandum of Understanding which established the RTA. This commitment was insisted upon by the City of Cleveland, which: (a) supported DRT and; (b) probably wanted to insure that RTA would continue NET or equivalent service.

- RTA helped to control costs by subcontracting some of the CRT service to a taxi firm. This helped to offset some of the business loss which the taxi company claimed resulted from RTA fare reductions and service increases, and helped alleviate pressures from the taxi industry.

- RTA and the local ATU union created a new job classification, called CRT operator, which receives 69% of the standard operator rate. The union agreed to this to prevent all of the CRT service from being subcontracted.

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[1] Telephone conversation with Peter Alberino, Local 268 ATU, March 3, 1978.

Chapter 5
Case Study #5: Orange County, California

Overview

The Orange County Transit District (OCTD) in California first began instituting paratransit programs in 1973. The first system was located in La Habra. Since then, additional paratransit modules have been implemented in Orange and Fullerton, and more are planned for the future as part of ongoing community service operations. Paratransit came about in La Habra as a concept capable of satisfying both the general manager of OCTD, Dr. Gordon Fielding, and the manager and city council of La Habra, who were actively seeking community-oriented transit services. Since integrated paratransit began in La Habra, other towns in the county have expressed interest in this type of service. Elderly individuals, commuters, and people from one-car households have become strong supporters of paratransit, although they have exerted pressure only informally (and individually) upon their city councilors and the Transit District. Although the transit unions have been voicing some dissatisfaction with the District's practice of contracting with private operators for this service, the major significant opposing force in Orange County has been the taxi companies. Three cab companies have sued the District because, they claimed, the District had not complied with a buy-out provision in the state enabling legislation which created the OCTD. The court ruling, on appeal, was in favor of the District. Despite that ruling, taxi forms are now operating some of the para-transit modules under contract to the OCTD.

5.1 Background: The Orange County Transit District (OCTD) and the Initiation of the IP Service

Orange County covers about 782 square miles in Southern California and, in 1970, had a population of 1,420,386. In November 1970, Orange County voters gave their approval to the establishment of a transit district which had received legislative authorization in 1965. There were a number of reasons for this electoral approval, including a desire to reduce automobile ownership and a desire to reduce travel demands upon parents for chauffeuring children. The vote passed with a 57% majority. Although the legislation did not state how transit was to be provided, it did authorize a property tax and bonding powers to help cover whatever costs might be incurred.

Prior to the institution of the OCTD in 1970, several private bus companies (some of which were at that time failing) had been providing inter- and intra-city fixed-route service. For example, the Santa Ana Transit Corporation was being subsidized by the City of Santa Ana to operate local service. In addition to these private companies, the Southern California Rapid Transit District (SCRTD) was also providing service in Orange County.

A Los Angeles metropolitan transit agency had previously been legislated to take responsibility for public services such as transit and utilities which were no longer being provided by their former operators or suppliers. Later, this agency became the Southern California Rapit Transit District (SCRTD), and its geographic coverage was extended across county boundaries into Orange and other counties. As local transit districts which overlapped with the SCRTD territory were formed, SCRTD reduced its network outside of Los Angeles County transit service to inter-city services, with local service provided by the local transit districts.

When the OCTD was formed, it bought out the Santa Ana Transit Corporation and South Coast Transit Corporation (both of which were owned by the same individual) in accordance with its enabling legislation. A third company, Town Tour Bus, was not purchased. This company, not wanting to be purchased, preferred to work with the OCTD, and subsequently provided service under contract. It is

currently suing the OCTD, claiming illegal operations on its routes, particularly between Anaheim and Buena Park. Once operations were well underway, OCTD worked out cooperative arrangements with the SCRTD, whereby it pays SCRTD for the intercity service the latter provides. Similar arrangements have been made between other transit districts in the region in an effort to integrate service.

The OCTD began operations in August of 1972,by contracting with the Santa Ana and South Coast transit corporations for management services. With the arrival of eight new buses which had previously been ordered by the Santa Ana Transit Corporation, the District was able to expand fixed-route service by the end of 1972. Funding for OCTD was available from both property taxes and a .25¢ tax on retail sales, as authorized by California Senate Bill 325. It was quickly recognized that the eight routes and thirteen buses in fixed-route operation were insufficient to meet the county's transportation needs. The principal need perceived was for intra-community service, particularly in areas which were not centrally located. Dr. Gordon J. Fielding, then General Manager of the OCTD, put a priority on providing transit in the exterior, low-density areas on the county. La Habra, situated at the Los Angeles County border, was one of these areas.

Dr. Fielding had seen the DRT service operating in Haddonfield, New Jersey, and had been favorably impressed by it. He and four of the OCTD transit directors visited Haddonfield. The OCTD believed that this type of operation would provide reasonable community service, and that having a demonstration would be more fruitful than conducting a feasibility study. Some reluctance was voiced initially by OCTD planners because they felt that integrated paratransit was a new and unproven idea. The paratransit supporters within OCTD persuaded the remainder of the organization to accept a demonstration by implementing the first system on an experimental basis for only one year.[1]

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[1]Telephone conversation with Gordon Fielding, February 14, 1978.

The OCTD felt that La Habra had a particular need for transit service, since it had only infrequent inter-city service at the time. In addition, a number of elderly groups in La Habra had expressed their mobility problems through informal contacts with the La Habra City Council. The Council had gone so far, at that time, as to have already budgeted some funds for elderly transportation and was looking into various service alternatives. An arrangement was worked out whereby La Habra was willing to pay one-third of the operating deficit and to provide maintenance and office space; the rest of the funds were to come from the OCTD.

It was decided by the OCTD that the design and operation of the experiment would be contracted out to the private planning and management firm which had previously managed the Haddonfield system. The OCTD leased six vehicles, and the contractor provided the necessary management personnel. La Habra was supportive of this management decision, in part due to the belief that the service would have more community spirit associated with it than would be the case were it directly operated by the OCTD. In addition, it was hoped that local residents would be incorporated into the service as drivers. As it turned out, a number of La Habra residents, including housewives who are working part time, do drive for the system.

La Habra commenced operation in February 1973, providing many-to-many service for the general public. The service area included the town of La Habra as well as some unincorporated places within it, amounting to a total of 7 square miles containing 47,000 people. The service found strong support amoung the elderly and among mothers with small children. During the first year of operation, 20% of the riders were elderly although only 5% of the population were over 65 (Shilling and Fielding, 1974).

In October of 1976, the service was extended to the city of Brea, bringing the service area up to 15.8 square miles with a population of over 65,000. The service has continued to receive support from its riders, and the town is currently firmly commited to the service.

5.2 Expansion of Integrated Paratransit in Orange County

The La Habra experiment demonstrated two points: first, it indicated that integrated paratransit was feasible within Orange County; second, it indicated that contracting out the service was a viable way of operating. The success of the program in La Habra in turn stimulated greater interest among the other cities of Orange County and the OCTD itself. The OCTD proceeded to commit itself to instituting this service in additional sites. Its decision was due not only to the positive response the La Habra service had elicited from other cities, but also to its belief that this type of service could have some impact on automobile ownership and use. The OCTD's theory was that by combining line-haul fixed-route service with community-oriented paratransit, the OCTD could present to the public a viable alternative to the auto (OCTD, 1977).

In March of 1974, the OCTD proposed a general plan for future transit in the county which included fixed-route, bus, rail, rapid transit, and demand-responsive paratransit modules in every community in the county by 1990. To support this plan, the OCTD proposed that a 1% sales tax be applied within Orange County. A referendum was held on this tax issue later in 1974, but was overwhelmingly rejected by the voters. It is believed that Orange County voters felt the OCTD had enough funds already from state sales and local property taxes. The defeat of the referendum had the effect of preventing county-wide implementation of paratransit, but did not stop the slower process of site-by-site implementation funded from existing sources.

The various Orange County cities' favorable response to the La Habra program had a major political impact upon the OCTD. Originally, other cities had not been supportive of the itegrated paratransit concept. When it was announced that a demonstration would be tried in La Habra, other Orange County cities were not particularly concerned that they were not receiving similar service, because they knew that La Habra was paying a portion of the deficit. These communities displayed an air of cautious waiting, to see how the demonstration would work out.

After the La Habra service proved to be a success, many cities came to the OCTD, offering partial deficit financing in return for similar paratransit service. In addition, individual citizens contacted their own cities as well as the OCTD, requesting paratransit service, although few organized groups became active advocates of the concept.

The OCTD felt that it would not be fair to select future sites for demand-responsive services solely on the basis of local willingness to contribute towards the deficit. Thus, the OCTD performed a needs assessment to determine which areas were most in need of service, noting, among other factors, the numbers of transportation-disadvantaged people in each community. The city highest on the list, however, could not afford the required amount of local subsidy, so the City of Orange, also high on the list, was chosen to be the second site in the county.

The Orange and Buena Park Systems

The City of Orange had been doing some preliminary planning of its own in an attempt to implement integrated paratransit service, since its intra- and inter-city fixed-route services were very limited. The Orange City Council was evidently the primary force in Orange behind obtaining integrated paratransit service. The Council budgeted $125,000 for the operating deficit, even before OCTD selected Orange as a site.

The Orange service began operating on June 2, 1975. It was a short-notice many-to-many service restricted to the City of Orange. Hours were 7:00 a.m. to 7:00 p.m. Monday through Saturday, and the basic fare was 50¢. The system operator, who employed all personnel and supervised all operations, was the same as in La Habra. Seventeen vehicles were used. The operator was paid a fixed fee plus an incentive fee for additional passengers carried.

Next on the "needs" list scheduled to receive paratransit service was Buena Park. However, this city had already had a consulting firm do a transit needs study and had planned for a fixed-route service, which the city wanted to implement. Buena Park was concerned

that acceptance of integrated paratransit service would result in major responsibility for expenses that it was not prepared to accept. Thus, the city of Buena Park declined the chance to have community demand-responsive service,and opted instead for fixed-route service.

The service in Buena Park turned out to be almost as expensive as the first IP system in Orange. The reason for this is that the residential densities in the two cities (4,600 persons per square mile in Orange and 4,900 persons in Buena Park) were very similar and the fixed-route productivity was almost equal to the IP productivity.

This situation, in part, influenced the OCTD's decision in February of 1976 to drop the requirement that the recipient city pay one-third of the operating deficit of the paratransit system, thereby placing funding guidelines for both fixed-route and paratransit on a par with each other. (Also influential in this parity decision were the cities' feelings that there were sufficient funds available to the OCTD through the sales tax.) Although the deficit funding requirement for cities and towns was dropped, the OCTD was not beseiged by requests for paratransit service, primarily because the "needs" priority list had already been agreed to by the communities and was to be followed.[1] Moreover, since the failure of the sales tax in the a 1974 referendum, both the cities and the OCTD had begun to take a more realistic approach to demand-responsive service. They no longer perceived it as a solution to every city's transit problems. Indeed, in connection with the prioritization of need determination, an analysis was made of the top few contenders to ascertain what the most appropriate type of service would be for each community's needs. This could have been paratransit, some form of community-based fixed-route service, or a combination of both.

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[1]Similarly, cities not receiving community service did not object to having to finance through taxes such services on an equal basis with those towns that did receive services (after the requirement to pay a portion of the deficit had been dropped) because the county is financially sound. Supposedly, as long as community transit implementation did not increase the tax rate (which has been going down recently), the constituent cities and their residents were content.

5.3 Taxi Industry Opposition

Although the La Habra and Orange paratransit sytems received generally favorable responses from their riders and communities, they did not receive an equally favorable reaction from the taxi industry. The Yellow Cab Company of Northern Orange County and others were concerned that OCTD's venture into demand-responsive operations would have a negative impact upon their business. However, Yellow Cab of Northern Orange County decided that becoming a contractor for the OCTD would assure continued future operations and expressed to the OCTD an interest in operating both the La Habra and Orange services. This firm would probably have been chosen by the OCTD to operate the Orange service, but instead dropped out of the bidding and chose to side with the taxi industry when it realized that an industry-wide taxi suit was imminent.

On May 25, 1975, the Yellow Cab Company of Northern Orange County joined with Orange Coast Yellow Cab Company (now Yellow Cab Company of Newport and Costa Mesa) and Yellow Cab of Santa Ana (these three companies served most of Orange County) and filed for an injunction against the OCTD on the grounds that the OCTD had failed to purchase the cab companies. The buy-out provision of the OCTD enabling legislation reads in part as follows:

> ...before the district may establish any transit service or system which may at any time divert, lessen, or compete for the patronage or revenues of any existing system, the district shall [complete] the purchase of the existing system or part thereof. (Annotated California Codes)

On September 26, 1975, a decision favorable to the taxi companies was rendered by the courts. The DRT service in Orange was ordered to be discontinued, and Yellow Cab Company of Northern Orange County was awarded about $4,000 in damages because of the La Habra DRT system.

The OCTD filed for an appeal on December 5, 1975. Almost a year later, on December 23, 1976, the appeals court overruled the lower court's decision. The appeals court ruled that the buy-out provision did not include taxi operations. This reversal was based

upon the definitions of "existing system" and "transit" in the legislation. "Existing system" was defined as "any transit service or system of a publicly or privately owned public utility..." and "transit" as:

> ...the transportation of passengers only and their incidental baggage by means other than by chartered bus, sightseeing bus, or any other motor vehicle not on an individual passenger fare-paying basis...

The appeals court decided that the taxi companies were not "existing systems" since: (a) they provided package delivery service and; (b) they operated exclusive-ride taxi service.

The taxi firms thereafter planned an appeal to the Supreme Court but decided not to go through with such an appeal, primarily due to the indications that OCTD would be involving them in future paratransit operations. The OCTD apparently had planned from the start to include taxi companies in its paratransit operations. However, it wanted to begin with a contractor which was able to design and develop the La Habra service as well as operate it, and it believed that taxi companies could not perform all these functions. In addition, the District expected large numbers of people to be utilizing the paratransit services and believed that taxi vehicles alone would be inadequate.

Throughout the suit, both parties were on good terms. Before the court's reversal (i.e., while the taxi companies were still considered protected), the OCTD contracted with Yellow Cab Company of Northern Orange County to provide the demand-responsive service in Fullerton, the third city to implement paratransit. At approximately the same time, paratransit service was suspended in the City of Orange and replaced by fixed-route service. The result of this action was a 75% decrease in system ridership. Following the appeals court ruling, OCTD contracted with Yellow Cab Company to reinstate paratransit (now termed "Dial-a-Taxi") service in Orange.

5.4 The Future of Paratransit in Orange County

The OCTD is continuing to implement integrated paratransit community services incrementally as funding permits. Table 5.1 presents some summary data on the three demand-responsive services which are already in existence; the two areas (Buena Park and Westminster) have fixed-route community service and are not included. As can be seen from this table, both the La Habra and Orange services have been extended beyond their original service boundaries. The La Habra service was expanded to include neighboring Brea without having to add any additional vehicles. In the case of Orange, since Villa Park is situated wholly within the city boundaries, it was deemed appropriate to provide service to its residents as well.

The two most recent systems being operated by Yellow Cab of Northern Orange County, where the initial system in La Habra is still operated by DAVE Systems. To date, the two operators have not been formally evaluated, particularly in comparison to each other. The contracts are currently based upon different methods of payment determination, although, beginning in mid-1978, a standardized contract will be used. This contract will include performance standards as well as incentives for carrying more passengers. Once this has been accomplished, it will be possible to compare the contractors on an equal basis.

Additional paratransit service is slated to begin in Saddleback and Costa Mesa in late 1978. Community fixed-route service has been selected for Anaheim and paratransit for East Anaheim; but due to community pressures, DRT will likely be provided in Anaheim as well during certain hours. The long-range extent of paratransit implementation is not certain, although it seems clear that paratransit is firmly embedded in the OCTD's operational philosophy.

In addition, the OCTD has an UMTA SMD grant application currently pending. The purpose of this demonstration, if funded, would be to establish an integrated transit management system, which would test the applicability and suitability of computer control for

Table 5.1: Existing OCTD Paratransit Programs

	System		
	La Habra/Brea	Orange/Villa Park	Fullerton
Date of Start-up	La Habra - Feb. 1973. Expanded to Brea-- Oct. 1976,	Orange--June 2, 1975 Service discontinued in July 1976, and community fixed route service initiated. Community fixed route service discontinued and dial-a-ride reinstituted, July 1977, at which time Villa Park was included.	Feb. 1977
Operator	DAVE Sytems, Inc.	Yellow Cab of Northern Orange County	Yellow Cab of Northern Orange County
Current Service Area			
square miles	15.8	19.6	22
population	65,128	92,500	94,000
Estimated No. of Average Weekday Riders FY '78	470	500	400

all of the Dial-a-Ride vehicles and private contract operations firms in Orange County. An updated version of the Rochester PERT computer dispatching system is proposed to be used.

5.5 Summary

The OCTD case study exhibits many of the same issues found in the other case studies. The situation is similar to the Michigan DART program, in that a higher-level unit of government, in this case the OCTD, offered startup funding to lower units of government for integrated paratransit services. In this case, OCTD is also an operator, but the paratransit services are intra-community only, and do not compete with the OCTD conventional fixed-route services. In addition, none of the paratransit modules are or will be directly operated by the OCTD.

OCTD was influenced by a demonstration in Haddonfield, New Jersey, and itself began operations in Orange County with a demonstration (La Habra). This demonstration was successful and had an influence on other cities and towns within Orange County. There was apparently no direct state influence on the decision to test paratransit services.

A referendum on increased OCTD funding was defeated, and this curtailed the rate of paratransit implementation. Two additional systems besides La Habra were installed, and more are planned. All paratransit systems have been contracted to private firms for management and operations. At one point, a consortium of taxi firms sued OCTD; but while the lower court upheld the suit, an appeals court reversed this decision on the grounds that taxis are not "transit." One of the taxi firms involved in the suit is now an ODTD contractor.

Chapter 6

Case Study #6: Santa Clara County, California

Overview

The Santa Clara County APT (Arterial/Personalized Transit) system operated from November 1974 to May 1975, a brief period during which it was the nation's largest and most ambitious integrated paratransit service. APT covered most of the urbanized area of Santa Clara County, containing a population of over one million persons. APT consisted of eighteen separate service zones (within which short-notice demand-responsive service was offered) and a connecting set of inter-area arterial fixed routes. In addition, there was a nineteenth demand-responsive service zone in the south county area, which was rural in nature and not contiguous to the remainder of the county. When the APT system was terminated, it became the nation's largest ingegrated paratransit "failure."

This case study will examine the origins of the Santa Clara County Transit District (SCCTD), the development of the APT concept, the events that occurred while the system was in operation, the reasons for the service's ciscontinuance, and the overall public reaction to the service.

6.1 History of the Santa Clara County Transit District and the Local IP Concept

Santa Clara County, urbanized in the north and rural in the south, has a population of approximately 1.2 million and an area of about 1,300 square miles. Transit has been a controversial issue in the county since the mid-1960's, with different factions favoring various alternatives: buses, exclusive right-of-way rail transit, and no transit.

In June 1972, the third electoral attempt since 1969 to form the Santa Clara County Transit District (SCCTD) received voter approval The referendum did not specify how transit was to be provided in the district, but the members of the County Board of Supervisors were all voted to the Board of Supervisors of the SCCTD. An advisory group, called the Transportation Commission, was also mandated by the legislation, and was to consist of one representative from each of the county's fifteen cities plus ten additional members (some of whom represent special interest groups and some of whom further represent the three most populated cities in the county). The Commission is influential and does much of the actual work in developing policy, but has no formal decision-making powers. The 1972 referendum provided no funding for the SCCTD, but the California Development Act provided $9 to $10 million a year from the 0.25% retail sales tax established under Senate Bill 325. In 1972, SCCTD purchased three bus companies as required by its enabling legislation and thereby acquired 55 vehicles. Operations began on January 1, 1973, with a continuation of the fixed-route services already in place. In addition, the SCCTD made plans to expand its fleet to about 200 vehicles.

In 1973, the SCCTD was faced with the difficult problem of deciding how to supply transit service to the county utilizing the expected 200 buses. It was recognized that there were insufficient resources to serve the entire county equally. San Jose and Palo Alto, which had fixed-route service in place at that time, expected this type of operation to continue at a higher level of service, while other cities, most of which had no bus service, demanded the implementation of service. Furthermore, residents of unincorporated rural places within the county also expressed a desire for transit.

The communities were, in essence, competing with each other, with each trying to satisfy its own needs. The cities wanted what they believed to be their fair share of transit; based preferably upon population counts, but based at least upon the state sales tax revenues collected from the individual cities. Due to the composition of the Commission, the larger cities had greater representation than did the smaller cities. Unincorporated areas were represented only

through the Board of Supervisors, which is elected via county-wide districts. It might seem, therefore, that the larger cities would have had a better chance of obtaining favors from the Commission. However, the Board of Supervisors generally served as a stabilizing force in the county, pulling the cities together at times when it was in their general interest to cooperate and compromise. In this case, the Board and the director of the Transit District, James Pott, succeeded in offering an acceptable compromise solution to the Commission.

In the spring of 1973, Mr. Pott was able to avoid what would have been a lengthy fight over how to deploy buses for fixed-route operations by proposing the PAT concept. This concept consisted of an integrated network of arterial fixed routes for long trips, demand-responsive service for short trips, and prearranged buspooling, with the last two modes constituting the paratransit components of APT. APT was planned to operate on the "valley floor," in an area comprising about 240 square miles (18% of the entire county) and containing approximately 97% of the county's population. The proportion of population being offered transit through APT was perceived to be substantially higher than that which could have been served with a conventional fixed-route network.

An additional reason for selecting the APT concept was to obtain the ability to provide feeder/collection service to any rapid rail facilities which might be built in the future. It was hoped that, by charging a low fare (25¢) for service, people would be lured out of their cars and onto transit, thereby reducing the residents' dependence on automobiles.[1] Hence, APT was envisioned as being sufficiently flexible to address the needs of both the present and the future.

Nevertheless, the decision to implement APT was based predominantly upon the political necessity to provide the maximum amount

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[1]The low fare, it turned out, attracted too many people. Some APT riders did give up their cars, only to have to buy replacements when the service was terminated, according to local sources (telephone conversation with County Supervisor Dominic Cortese, March 8, 1978).

of service coverage with the SCCTD's inadequate resources. This was probably a successful political tactic at the time, in that it enabled the new services to be equally supported by the representatives of the cities on the Transportation Commission, virtually all of whom were expecting to obtain transit for their jurisdictions. Thus, although the APT system design was not necessarily based on sound planning principals and was not a final solution to the county's transportation needs, it at least provided a reasonable response for the short-term and served to placate the constituent cities.

Following acceptance of the APT concept by the Transportation Commission, a conflict arose over how it should be implemented. The possibility of initiating the service as a pilot program and then expanding it slowly was discussed and rejected by the commissioners, because of the strong political pressures from the cities. Even though the benefits of a phased startup were evidently recognized, no pilot site could be agreed upon. APT was therefore implemented in the entire urbanized area of Santa Clara County in November and December of 1974.

The paratransit concept was not entirely new in Santa Clara County. In the late 1960's, a few agency-operated services, which were primarily funded by the U.S. Office of Economic Opportunity, had begun operating for the benefit of the disadvantaged. Subsequently, a number of local planning committees had recommended similar kinds of service for meeting needs in particular communities. For example, one city, Mountain View, had previously proposed a DRT system for its environs, connected to a larger regional transit system (Transportation Agency, 1968).

An organization of Mexican-Americans from San Jose became an example of a special interest group which particularly advocated demand-responsive service.[1] The Mexican-American neighborhoods in San Jose had only limited fixed-route bus service, while the

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[1]According to the 1970 census, about 18% of Santa Clara County's population are Spanish-speaking or have Spanish surnames. Approximately 52% of these individuals live in San Jose, amounting to over one-fifth of that city's population.

majority of persons in those neighborhoods were economically disadvantaged. The organization, the Confederacion de la Raza Unida had previously sponsored a study which had concluded with a recommendation for a paratransit service in the Mexican-American community. In addition to the pressure from this group, there was also considerable support for the APT concept (as a method for decreasing the possibility of assault) from the elderly. Support from both these groups was channelled through specific representatives of the Transportation Commission.

Although most of the inputs on APT from the general populace came through the Commission, comment was sought from the public before the final decision to implement APT was made. The planning Committee of the Transportation Commission held a meeting which was attended mainly by Mexican-Americans; the SCCTD Board of Directors also held at least one public hearing. In general, the public response at these meetings was positive, with questions directed mainly at the mechanics of using the APT system rather than at its appropriateness.

Not everyone in Santa Clara County was happy with or willing to accept APT. For example, the Sierra Club objected to the service on the grounds that it was planned for too large an area; and both the Sierra Club and the Modern Transit Society desired a better balance of transportation, including more rail service in particular. Neither group, however, had much of an impact on the SCCTD.

6.2 Taxi Industry Opposition

Probably the strongest force opposing APT prior to its implementation, and one which would become a very significant factor afterwards, was the taxi industry. In December 1973, Michael DeMeter, part owner of Palo Alto-Menlo Park Yellow Cab Company, attended a seminar at which a representative of LEX Systems, Inc. was presenting an account of what would be happening in the county with regard to transit. LEX Systems had been retained by the SCCTD the previous June to define the requirements for APT and do a preliminary design for the paratransit operation. DeMeter believed that the

SCCTD's demand-responsive operation would have a negative effect upon his and other cab companies' business. He then proceeded to organize seven other taxi companies and approach the SCCTD to forestall APT implementation. The cab companies spoke with the SCCTD as well as with the county executives and the Transportation Commission, and made overtures to bid on providing the demand-responsive component of the service. They believed that, already having dispatching capability and driver expertise, they were in a good position to provide this type of service. Receiving no positive response, they threatened litigation since the SCCTD had not offered to purchase the taxi companies. The taxi operators perceived a buy-out to be required by the SCCTD's enabling legislation

There appears to have been some uncertainty and disagreement on the part of the SCCTD and its advisory commission as to what to do about the taxi situation. The ultimate decision was to operate the demand-responsive services in-house. This may have been done because the demand-responsive vehiclse had been purchased with UMTA funds, and an attendent 13(c) agreement could have made contracts with private operators extremely difficult to initiate. Another possibility is that SCCTD may have perceived the fixed-routes and the demand-responsive components of APT as too integrated to allow the latter component to be subcontracted to private operators. In fact, the vehicles were often used on fixed routes as well as within the DRT modules, and such fleet-shifting flexibility would have been substantially more difficult if subcontractors had been employed. Finally, the SCCTD did not feel that the taxi firms would be included under the definition of "transit," an interpretation shared by the SCCTD's legal department.

In retrospect, the decision not to involve the taxi industry may have been a poor one. The taxi companies might have been included in a minor way in APT service, possibly by providing late night or weekend service, or by dividing the county into separately operated modules, as in Orange County. If the taxi suit had been avoided, APT might possibly have survived for a longer period.

6.3 The Operation and Demise of APT

APT consisted of a series of county-wide fixed routes and a demand-responsive system of eighteen DRT zones, within which buses made circuits to transfer points and offered many-to-many, bus pooling, subscription, and elderly services. Approximately 110 buses were assigned to the fixed routes and about 80 or 90 buses to DRT operations, depending on the time of day. During the peak period, more buses were assigned to fixed-route service, and those remaining in DRT service were usually devoted to bus pools and subscription services. There were four different toll-free telephone reservation numbers (one for each sector of the county), which all fed into a central computer-aided dispatching facility. A total of 100 telephone lines were provided initially, based on an estimated telephone transaction time of one minute. Fares were set quite low, at 25¢ for the general public and 10¢ for youth and elderly. This fare allowed travel anywhere in the county, involving any number of (free) transfers.

In May 1975, after less than six months of operation, the Board of Supervisors voted to terminate APT immediately, with the exception of service in the South County area.[1] A number of reasons contributed to this decision, including the taxi lawsuit, the high demand for the service, low level of service, and high cost.

After the SCCTD began demand-responsive service in November 1974, the county's eight cab companies filed for an injunction for declaratory relief, based upon the district's failure to buy them out prior to implementing service, as required in the district's enabling legislation as follows:

> Before the district may establish any transit service or system which may at any time divert, lessen, or compete for the patronage or revenues of any existing system, the district shall [complete] the purchase of the existing system or any part thereof. (Annotated California Codes, Section 40222.)

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[1] Integrated paratransit is continuing in the South County area in Gilroy, Morgan Hill, and San Martin. It is considered by the SCCTD to be doing extremely well, with strong community support. This valley area of about 75 square miles and 30,000 people is served by eight maxivans. To do this, the SCCTD purchased two local South County taxi firms.

The allegation was made that the SCCTD would drive the taxis out of business, thereby taking or damaging private property without making just compensation under California law.

A hearing resulted in a Superior Court ruling on January 9, 1975, that the SCCTD would either have to buy out the taxi companies or terminate APT's paratransit operations, and would have to decide within two weeks. The court further decided that if the district were to choose purchasing the companies and entered into good faith negotiations with them, it could continue APT operations. Later in January of 1975, SCCTD said that it would buy out the cab companies and began negotiations which lasted until May. At that time, the Board of Supervisors decided to discontinue APT and, hence, not to purchase the cab companies. The SCCTD was later required to pay damages to the companies amounting to about $400,000, and the taxi comapnies continued to appeal to the court that they should be purchased. The court finally ruled, however, that cab companies would not have to be purchased in areas where SCCTD demand-responsive service had been stopped.

It should be noted that, although the Orange County Transit District has the same buy-out provision in its enabling legislation as does the SCCTD, the definition of "transit" differs in each case due to vagaries in the wording in their respective enabling legislations. For the SCCTD, "transit" was simply defined as "the transportation of passengers and their incidental baggage," by any means; whereas, for the OCTD, it was defined more restrictively:

> "Transit" means the transportation of passengers only and their incidental baggage by means other than by chartered bus, sightseeing bus, or any other motor vehicle not on an individual passenger fare-paying basis....[1]

Thus, in Orange County, taxis were held not to be transit because when two or more people ride in a taxi, they pay the same fare as

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[1]Annotated California Codes, Public Utilities Code, Sections 40000 to 40600 and 100000 to 100500, West Publishing Co., St. Paul, Minnesota, C. 1973; and Cumulative Pocket Part, January 1978.

one person would. In Santa Clara County, this distinction was not made, and taxis were held to be transit. It is possible that an appeals court would have overturned this decision, but the SCCTD evidently chose not to appeal because PAT had, by that time, been terminated.

It is unclear exactly how much impact the prospect of purchasing the taxi companies had upon the Board's decision to abandon the integrated paratransit service. Although a final price was never agreed upon, estimates on $1 million and more have been suggested (Carlson, 1976). Furthermore, federal monies could not be utilized forthis purpose.

Other contributory factors which influenced the decision on APT termination relate to the public's response to APT. APT started with great publicity; the fare was very low (25¢ county-wide); and demand for the service was so high that the level of service became very low. At first, there were long delays when making reservations because the telephone system was overloaded. Vehicles were often late and could not be depended upon for reaching appointments, and service became unreliable. Buses designated for demand-responsive service would be reassigned to fixed-route operation when fixed-route vehicles broke down,which became a frequent occurrence. Relatively large vehicles passing by with only a few passengers on board were perceived as wasteful and costly by some of the public. Moreover, the psychological factor associated with waiting for a bus and seeing another almost empty bus go by in the desired direction and not stop added to the negative feelings about this transit service.

In areas where the previous fixed routes had been terminated, reduced, or changed (primarily Palo Alto and San Jose), the APT system was not capable of providing a replacement service. Most of the previous fixed route users were dependent on the service and were well served by it. The decrease in level of service to these people brough an immediate outcry. In one supervisor's word, "It was a tragic political mistake to remove routes that had existed for years."[1] Over 2,000 letters and petitions came into the Board

[1]Telephone conversation with County Supervisor Dominic Cortese, March 8, 1978.

demanding reinstatement of these routes. Some of the routes were then restored, but not enough service was restored to please everyone. Furthermore, the vehicles being used for the restored routes were removed from DRT service, further exacerbating the situation.

Difficulty in accessing the APT system by phone due to extensive waiting periods on "hold" proved to be another reason why some of the public (in particular, the elderly) were very dissatisfied with APT. Some elderly had what is called "lifeline" phone service, meant primarily for emergency calls, with a low service fee but a charge for each call unit. These people found that long periods of holding added substantially to the cost of the trip.

Although a substantial number of complaints were received by SCCTD, surveys of APT riders and non-riders produced some interesting results. A SCCTD survey of APT riders was conducted in January 1975, and passengers were asked to rate the service (Pott, 1976). Of about 1,400 respondents, almost 60% were satisfied with the "ease" of the system; 73% believed it was "prompt"; and 84% though the travel time was "acceptable." Half of the respondents rode daily, and another 26%, several times weekly. Nine-two percent wanted the service expanded. As a cautionary note, however, drawing conclusions about the satisfaction of DRT users is difficult, since half the respondents were subscription service users or "deferred bookings"; consequently, they were not judging the service from the same viewpoint as would those who called in for immediate service.

A second measure of the public's response to APT resulted from a newspaper survey in February of 1975. There were 666 responses to this survey, from 456 riders and 210 non-riders. Seventy-four percent of the riders complained about the service, as did 82% of the non-riders. The two points which the riders most emphasized were lack of buses when they were needed and wasteful expenditures of money. The non-riders emphasized the restoration of the old fixed routes and wasteful expenditures of money.

Still another measure of public opinion regarding APT was a survey conducted in February 1975 by Diridon Research Corp. Based

upon a weighted sample of 1,111 registered Santa Clara County voters, about 56% favored the continuation of the APT system; 32% were opposed; and 12% were undecided.

A number of groups, more or less formalized depending upon the group, attempted to impact the new service. The Modern Transit Society and Sierra Club have already been mentioned. The handicapped and others spoke up as well. The group which came to wield the most political influence, however, was an advocacy organization called the Valley Coalition. The leadership of the Coalition sought to obtain permanent power to affect county decisions. To achieve this end, it established the oragnization upon an institutional base, accepting primarily churches and labor unions as members. Members of the unions and churches would come to the Coalition meetings to learn how to secure influence. Since its founding, the Valley Coalition has had a consulting relationship with the Industrial Areas Foundation and calls upon its professional organizers to train interested members in strategies and tactics to use in order to achieve its ends.[1] Arterial/personalized transit was one of the issues around which the Coalition decided to organize, and a diversity of anti-APT elements was merged through the Coalition. The Coalition proceeded to resort to radical tactics, such as disrupting meetings, displays of solidarity, and distribution of placards to achieve its ends. Just how much success the Valley Coalition had in ending APT and bringing back more fixed-route service is uncertain; however, it seems to have been recognized as at least the most significant pressure group. In the words of the Executive Director of SCCTD, the Valley Coalition succeeded in giving "substance to individuals' dissatisfactions with APT" and, as such, became a potent political force.[2]

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[1] Telephone conversation with Valley Coalition spokesperson, March 3, 1978.

[2] In a telephone conversation of January 13, 1978, he described a specific confrontation at a Transportation Commission meeting during which the Coalition took over the meeting, and the Mexican-Americans left out of fear.

Another factor which contributed to the discontinuance of Santa Clara County's APT service was the too rapid startup of APT service. There was no way to make APT work in such a large area, given the limited resources the district had at its disposal and the huge demand. APT might have been a success, had the concept been implemented first in a pilot program, followed by staged increases in service. Another contributory factor was the fact that Transit Board membership changed in January 1975, resulting in a majority which held no allegiance to the Executive Director or APT. This was one reason why APT was discontinued entirely instead of simply being scaled down to a more manageable level.

Even though most of the voices which arose were in opposition to APT, the Mexican-Americans maintained their support of the service until the end, since this service was still more than they had had before. One person, Jack Yberra, a Mexican-American commissioner, reported a case of racial overtones between the Valley Coalition and the Mexican-Americans in connection with the APT issue.[1]

6.4 Summary

The SCCTD's paratransit program is unique among the seven sites studied, not only because it "failed," but also because it began without a demonstration phase. The decision to implement APT as a full-scale operation was politically motivated, since virtually all the constituent cities and towns desired transportation at the same time. APT would have provided equal transit opportunity to them all. Similarly, the decision to stop the service entirely rather than drastically downsize it was based upon political considerations.

The service attracted many more people than had been expected and was unable to respond well to the large demand. In addition, service was unreliable. Many users who had previously had dependable fixed-route service vociferously demanded the reinstatement of their

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[1] Telephone conversation with James Pott, January 1978.

former service. Much dissatisfaction of the public and various interest groups was voiced by the Valley Coalition, a consumer advocacy group which used radical tactics to apply pressure to end the SCCTD's innovative operation of APT.

As with some of the other programs presented in these case studies, a problem arose with local taxi companies. Several local firms went to court to stop the SCCTD's paratransit service which, they alleged, competed with their business. They based their suit upon the SCCTD's failure to conform to a buy-out provision in its enabling legislation. The courts held that taxis were "transit" and ordered buy-out negotiations. SCCTD believed the price would have been very high, although the negotiations were never completed.

Beside the prospect of purchasing the taxi companies and the political pressure against the paratransit service, a change in political figures influenced service abandonment. The new majority on the Board of Supervisors which had no allegiance to APT voted to terminate APT. Thus, as has been shown in some of the other cases, public opinion and particular individuals can have a very definite effect upon the community acceptance of paratransit.

Chapter 7

Case Study #7: AC Transit, Fremont/Newark, California

Overview

The two adjacent cities of Fremont and Newark, California, are located on the southern end of the east side of the San Francisco Bay. The city of Fremont is served by the BART East Bay line. Together, the two cities have an integrated paratransit program which includes both fixed routes and demand-responsive service within a total of fourteen different service zones. The integrated paratransit service is operated entirely by AC Transit. The service began in October of 1976. Voters in the two cities approved a special referendum in 1974 which allowed the two cities to join the AC Transit district and which also established a 33¢ property tax rate and specifically stated that Dial-a-Ride[1] service would be provided.

7.1 Background: The Richmond Demonstration

The Newark/Fremont service was preceded by a demand-responsive service in Richmond, California, a different city in the AC Transit district. Although the Richmond service was not a direct precursor of the Newark/Fremont service, it did have an indirect influence on events and is, therefore, included in this case study. The Richmond service was a one-year demonstration which gave AC Transit needed experience in paratransit operations, and thus helped to pave the way for the later service in Fremont and Newark.

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[1] The phrase "dial-a-ride" is used in this case study because the service in Newark/Fremont is specifically called that.

The Richmond dial-a-ride service began operations on September 16, 1974, and continued for 51 weeks until September 5, 1975. The service was designed, implemented, and operated strictly as a demonstration. Its major purpose was to give AC Transit some first-hand knowledge of actual operations of flexibly routed services. At the time, AC Transit correctly believed this would be helpful in similar future operations.

The planning for the Richmond service began in April 1973 as part of an AC Transit/BART Coordination Project, which was exploring ways to improve transit access to the newly opened BART system. As part of this overall study, a special phase of the study was conducted, entitled "Development of Demand-Responsive Service" (DAVE Systems, 1974). The purposes of the study were to design a flexibly routed demonstration and to recommend a suitable site. Richmond was recommended for several reasons: it contained a BART station and was served by several AC Transit bus routes and thus was a good site for feeder service; the population was racially balanced; and there were fairly high concentrations of elderly and youth. The City of Richmond which was not required to pay any of the costs, supported the concept (AC Transit, 1974).

A specific service area which was centered around the Richmond BART station was chosen. It is a fairly high-density neighborhood (9,178 persons per square mile) with about 39% minority population. Median household income was about $10,000 per year at the time. These area descriptors were representative of the AC Transit area as a whole, and thus helped to ensure transferability of results.

The Richmond demonstration cost approximately $1,280,000 for its 51 weeks of operation. The funding sources for this were a $120,000 UMTA capital grant for the vehicles, a $300,000 Transportation Development Act block grant from the state which was specifically earmarked for paratransit, and $860,000 from AC Transit's normal operating reserves. Thus, no financial commitment was required from Richmond. Other cities in the AC Transit district perceived that they were helping to pay for the Richmond service, and their later objections to the high cost of the service helped to insure that the demonstration would not be continued.

Before the service began, one local taxi firm did become interested in paratransit and approached the Richmond City Council with a shared-ride taxi proposal. The Council preferred the proposed AC Transit service because they knew it would not cost them anything. AC Transit was not interested in subcontracting operations to taxi firms because of the desire to develop in-house operating experience. After thr Richmond demonstration became operational, this same taxi firm filed a $350,000 claim against AC Transit for alleged future loss of profit. This claim was never pursued in the courts, however, presumably because the demonstration was discontinued shortly thereafter.

The Richmond Demonstration was a mixed success. Ridership was high, but 42% of the ridership was diverted from the fixed-route services, which were not cut back or changed when the demand-responsive service was started. Feeder service to the BART station was less than anticipated; productivities were lower than hoped for; and per-trip costs were therefore higher (about $3.77).

Toward the end of the demonstration, on June 24, 1975, a public hearing was held on the Richmond service by the AC Transit Board of Directors. The apparent public response was a dissatisfaction with the high cost and a general lack of interest in continuing the service. On July 20, 1975, a decision was made to curtail weeknight and weekend service and to suspend the entire service after the 51st week. Thus, the Richmond service was a failure in the sense that it was not continued, but it did serve to provide AC Transit with paratransit operation experience, which proved to be important in implementing the Newark/Fremont service.

One other outcome of this demonstration was that specific labor arrangements were reached between the management and the local labor union. Section 36, Paragraph 128, "System Seniority Sign-Ups," reads: "....In the event of a new division or because of a new dial-a-ride, there shall be a general sign-up mutually agreed between the District and the union." This provision was desired by the union in order to allow any driver in the District to have the opportunity (by seniority) to sign up for dial-a-ride service. Only at system sign-ups

can the drivers change divisions; thus, a system sign-up was required to allow all drivers in all divisions an equal opportunity to bid for dial-a-ride assignments. A second provision established a basic wage rate for "Control Room Operator," a new classification specifically developed for dial-a-ride service.

7.2 The Fremont/Newark Integrated Paratransit Service

Fremont and Newark are two adjacent cities located in the southern part of the East Bay area. Both are quite new; Fremont, for example, was founded in 1956. Total population is about 200,000. As might be expected, they are low-density areas which are very automobile-oriented. Newark is predominantly a bedroom community, with many blue-collar workers who hold jobs outside the city. Fremont is similar in a number of respects. There was no previous transit service in either city.

Both cities passed a resolution on November 5, 1974, calling for annexation to the AC Transit District and the establishment of a 33¢ property tax increase earmarked for an integrated paratransit system. The measure was passed by a majority of about 60% in each city. It is interesting to note that the date of this election was exactly nineteen days before the Santa Clara County APT system was due to start. At that time, the APT system was receiving extensive publicity, primarily favorable, and it is believed that this has a favorable impact on the vote. Also noteworthy is the fact that the Richmond dial-a-ride demonstration had begun two month previously.

The measure was fully supported by the two city governments and various community groups such as the Homeowners' Association, Lions Club, and Kiwanis Club. The service had been planned before being presented to the voters by the local governments, the Metropolitan Transportation Commission (MTC), and AC Transit. There was originally a belief on the part of the two cities that a private contractor should be hired as the operator. This was opposed by the MTC, which was concerned about proliferation of operators in the Bay Area. In addition, there was a feeling that having AC Transit specifically

on the ballot would help to ensure public approval. There had been a similar ballot measure in the late 1960's which did not pass, supposedly because voters at that time did not believe the city could competently handle a transit operation on its own. Thus, in the later 1974 election, it was seen as an advantage to have AC Transit as the operator, since they would be perceived as an experienced paratransit operator. This was, of course, due to their then current operations of the Richmond dial-a-ride demonstration.

There was no substantial opposition to the measure. No taxi industry opposition developed because there were no taxi firms in existence in the two cities at that time. Some reluctance was expressed after the fact by AC Transit itself, which believed that (especially given the Richmond experience) dial-a-ride might not be the best concept for providing service. However, public hearings were held on August 11 and 12, 1975, in Fremont and Newark, at which time strong, almost unanimous support for the flexibly routed services was voiced.

The experience gained by AC Transit was reflected in a cautious approach to designing the new services. At first, a consultant was hired to design the system, and emphasis was placed on a Haddonfield/Richmond type of many-to-many operation. However, AC Transit decided to redesign the system, placing emphasis on an Ann Arbor type of operation, with fixed routes connecting a series of smaller dial-a-ride zones. Staged implementation was emphasized, a direct result of the Santa Clara experience. About two new zones were started every eight weeks during the period from October 1976, when service first began, to November 1977, when the service was finally in full operation. The approximate two-year time lag between passage of the measure (November 1974) and service startup (October 1976) was due in large part to the fact that annexation of the cities to the District took considerable time. New tax rolls had to be prepared, and AC Transit did not begin to receive actual funds from the two cities until July of 1976.

The service is quite expensive, averaging $5.19 per unlinked trip on the dial-a-ride component, and $1.40 per unlinked trip on the fixed routes (October 1977). Per-vehicle-hour costs are $26 for the fixed routes and $32 for the dial-a-ride service. It is probable that these costs are too high for long-term community acceptance and that changes will be made. The service is still relatively new, and AC Transit is still trying to reduce costs; but there is a limit to how inexpensively AC Transit can operate. Thus, at some point in the future, the community, which still apparently supports the integrated paratransit concept, may have to come to grips with this problem. Although some type of paratransit service will probably be included in the future, the current configuratio of the system may not be final.

7.3 Summary

The Newark/Fremont experience shows some themes similar to other case studies, but also shows some differences.

- Voters successfully passed a resolution to tax themselves for dial-a-ride services. They were probably influenced by the nearby and (perceived) successful systems in Santa Clara County and in Richmond. However, they did not have the benefit of a demonstration in their own area before the vote.

- AC Transit gained operational experience through one demonstration which it utilized in a second ongoing service. Design changes were made as a result of this experience, and the community purposefully desired AC Transit as the operator because of their experience.

- The cities had no previous service. Also, there were no taxi firms to oppose the service.

- The service is quite expensive and, while the community still supports the service, changes are possible in the future.

Appendix A

Innovative Labor Agreements Related to Paratransit

A.1 Rochester: Excerpts from 13(c) Agreement Reached with Transit Labor Union in Rochester.

"Accordingly, the Department of Labor makes the certifications required in the act with respect to the instant project on condition that:

1. The terms and conditions of the agreement dated May 3, 1974, as supplemented by item three below, shall be made applicable to the instant project and made part of the contract of assistance, by reference;

2. The term 'Project' as used in the agreement of May 3, 1974, shall be deemed to cover and refer to the instant Project;

3. The contract of assistance shall include the following language:

   I. Employees of RTS will continue to provide dial-a-bus service in Greece and Irondequoit under and in accordance with their collective bargaining agreement between RTS and Local Union 282, Amalgamated Transit Union, AFL-CIO.

   II. RTS will make a good-faith effort to bid on new dial-a-bus service to be instituted by the project amendment. In the event RTS gets the work by bid, employees of RTS will provide said service under and in accordance with their collective bargaining agreement between RTS and Local Union 282, Amalgamated Transit Union, AFL-CIO.

   III. (a) It shall be an obligation of the Public Body, for the duration of the Project, to assure that any and all dial-a-bus services are contracted for and operated under such restrictions and limitations as may be necessary or desirable to prevent these services from competing with, becoming a substitute for, or displacing conventional transit routes and services now or hereafter provided by employees of RTS represented by the Union, including, but not limited to, suburban service and "owl" (late) runs.

   (b) All maintenance work on the mini buses and vans used in the Project (except warranty services, emergency repairs, and first echelon maintenance service, such as fueling, inflating tires, etc.) shall be performed at RTS's maintenance facilities by employees represented by the Union.

(c) The Public Body will provide to the Union on a regular and continuing basis for the duration of the Project, copies of the reports, if any, submitted to UMTA concerning Project activities and results, together with any other Project documentation relative to the administration, application, or enforcement of this employee protection arrangement.

(d) In implementing the Project, the Public Body has the obligation to insure that Project services are strictly limited to those persons described in the Project application whose daily work trips are not served by transit routes and services persently being rendered by the Public Body.

(e) Upon allegation by the Union that any dial-a-bus services by the Public Body, or any third-party private operator, are being operated or maintained in violation of these arrangements, the Public Body shall promptly investigate the claim and take any steps necessary or appropriate to remedy any violation found.

IV. In the event of a dispute over the interpretation, application or enforcement of these Section13(c) employee protection arrangements, such dispute may be submitted by either the Public Body or Local Union 282, Amalgamated Transit Union, AFL-CIO, the arbitration in accordance with the procedures contained in the May 3, 1974 Section 13(c) agreement negotiated by and between RTS and Local Union 282, incorporated herein by references.

V. At the conclusion of the Project amendment's demonstration period, the Public Body will take all steps possible to insure that, if dial-a-bus service in the original communities and/or the new communities are continued or additional areas are added, RTS employees represented by Local Union 282 shall perform all continued or additional dial-a-bus services whether or not Federal funding to continue or add services is used.'; and

4. Employees of urban mass transportation carriers in the service area of the Project, other than those represented by the Union, shall be afforded substantially the same levels of protection as are afforded to Union members under the May 3, 1974 agreement and this certification.

Execution of Amendatory Agreement - This Amendatory Agreement is in offer and acceptance form. It may be simultaneously executed in several counterparts, each of which shall be deemed to be an original and have identical legal effect. Upon acceptance of the offer, the effective date of this Amendatory Agreement shall be the date this offer was executed by the Government.

Offer - When dated and signed by the Government, this instrument shall constitute an offer which shall automatically expire if it is not accepted by the Public Body by execution within sixty (60) days of such date, unless an extension is granted in writing by the Goverment.

The Government has duly executed this offer this _____ day of _____, 19__.

BY _____

TITLE: ASSOCIATE ADMINISTRATOR

Acceptance - The Public Body does hereby ratify and adopt all statements, representations, warranties, covenants, and agreements contained in the Application and supporting materials shbmitted by it, and does hereby accept the conditions thereof.

Executed this _____ day of _____, 19__.

SEAL

ROCHESTER-GENESEE REGIONAL TRANSPORTATION AUTHORITY
Rochester, New York

ATTEST: _____ BY: _____

TITLE: _____ TITLE: _____

A.2 Cleveland Regional Transit

It has been agreed by the parties that the CRT funds will be split with 1/3 used to provide taxicab contracted service to areas of lower density and 2/3 used to provide service manned by RTA (Amalgamated) personnel serving areas of higher density. (Contracted service may include vehicles other than taxicabs.)

With an estimate of 45 vehicles required in the first year of operation, this should result in approximately 18 taxis and 27 RTA vehicles.

It has been agreed that a new classification, CRT Operator, will be established. The CRT operator will operate a vehicle with seating capacity less than 30 passengers, with or without a wheelchair lift. (In the event that RTA takes over operation of the county vehicles for mentally retarded, the operation of those vehicles would come under this classificaton.)

It has been agreed that the rate for the CRT operator will be established at $4.40 per hour. The rate is 69% of the present RTA operators' rate and it was agreed that a differential of 31% will be maintained for a minimum of 5 years.

All of the provisions of Article I of the Conditions of Employment will apply to the CRT operators. (Including vacations, holidays, insurance, pensions, etc.)

Unless and until specifically negotiated between the parties, the provisions of Article II of the Conditions of Employee shall not apply to these employees except as indicated below.

1. a. At the outset of the program, CRT operators and extra will be guaranteed 30 hours of work per week of five days.
   b. In the event that a contract is entered into with Cuyahoga County for transporting the mentally retarded, that work shall be combined with the CRT work. At that time, a 40-hour weekly guarantee will apply.

2. Seniority provisions shall apply.

3. CRT operators shall have to right to pick schedules a minimum of two (2) times per year.

4. CRT operators shall have an opportunity to qualify for regular RTA operator work after a minimum of one year of service as a CRT operator.

5. Daily, weekly and day off overtime provisions shall apply.

6. The uniform provision shall apply.

7. Article II, Section 9, cancellation of assignment, provision shall apply.

CRT work and regular RTA work will not be combined on the schedules.

CRT controllers will be regular RTA Grade 5 personnel.

ATU	RTA
_____	_____
_____	_____

April 26, 1976